**Chapter 41**

# Lack of Evidence for the K/T Boundary Model

Over the years, proponents of the K/T Boundary Model have brought up about a half dozen general arguments for a Cretaceous/Tertiary (K/T) boundary, marking the end of the Flood (Table 41.1). This chapter will briefly examine this evidence. A more in-depth analysis can be found in the *Journal of Creation*.[1,2,3] Just recently, Whitmore presented a number of potential mechanisms to explain why he thinks the Cenozoic is post-Flood.[4]I will briefly examine his proposals at the end of the chapter.

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| 1. Change from worldwide/continental to local/regional sedimentation |
| 2. The Tertiary cooling trend |
| 3. Tertiary mammals of the western United States |
| 4. Tertiary bird and mammal tracks and the Devils corkscrews |
| 5. Tertiary volcanism in the northwest United States |
| 6. The cooling of ocean lithosphere while the mountains rose |

*Table 41.1. Six general evidences used to support the K/T Boundary Model.*

### The Change from Worldwide/Continental to Local/Regional Sedimentation

One of the major reasons offered by proponents of the K/T boundary hypothesis is the diminished scale of sedimentation during the Cenozoic (the Tertiary is all but the last 2.6 million years of the Cenozoic, see Figure 3.5).[4] This conclusion presumes all Flood deposits will be extensive and post-Flood deposition would be restricted. Wise *et al*. stated:

> For our purposes here we would like to define the Flood/post-Flood boundary at the termination of global-scale erosion and sedimentation. Based upon a qualitative assessment of geologic maps worldwide, lithotypes change from worldwide or continental in character in the Mesozoic to local or regional in the Tertiary. Therefore we tentatively place the Flood/post-Flood boundary at approximately the Cretaceous/Tertiary (K/T) boundary. We believe further studies in stratigraphy, paleontology, paleomagnetism, and geochemistry should allow for a more precise definition of this boundary.[5]

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[1] Oard, M.J., 2010. Is the K/T the post-flood boundary?—part 1: introduction and the scale of sedimentary rocks. *Journal of Creation* 24(2):95–104

[2] Oard, M.J., 2010. Is the K/T the post-Flood boundary?—part 2: paleoclimates and fossils. *Journal of Creation* 24(3):87–93.

[3] Oard, M.J., 2011. Is the K/T. the post-Flood boundary?—part 3: volcanism and plate tectonics. *Journal of Creation* 25(1):57–62.

[4] Whitmore, J., 2013. The potential for and implications of widespread post-Flood erosion and mass wasting processes; in: Horstemeyer, M. (editor), *Proceedings of the Seventh International Conference on Creationism*, Creation Science Fellowship, Pittsburgh, PA.

[5] Wise, K.P., Austin, S.A., Baumgardner, J.R., Humphreys, D.R., Snelling, A.A., and Vardiman, L., 1994. Catastrophic plate tectonics: a global flood model of earth history; in: Walsh R.E. (editor, *Proceedings of the Third International Conference on Creationism*, technical symposium sessions, Creation Science Fellowship, Pittsburgh, PA, p. 614.

Despite this call for further work to pin down their "tentative" choice, those studies have not been done.

There are several problems with Wise *et al*'s argument.[1] First, the terms "local" and "regional" are subjective and unquantified. Second, large-scale Flood strata of the same lithology are not global or continental; they too are generally regional. Paleozoic strata are known to cover large areas of continents, but Cenozoic strata can be regional and very thick in basins (see Chapters 5 and 6). The very early Cenozoic Fort Union Formation covers 58,600 mi$^2$ (150,000 km$^2$), from which probably 117,000 mi$^2$ (300,000 km$^2$) was eroded. The total area of the Fort Union Formation was 175,600 mi$^2$ (450,000 km$^2$) (see Figure 5.1) before it was extensively eroded. The scale of this sedimentation is vastly greater than sedimentation that takes place today. The South Caspian Basin contains probably the thickest sedimentary rocks in the world, estimated at 26–28 km thick![6] The vast majority of these strata are dated Cenozoic. Sometimes over 10,000 feet (3,000 m) of Cenozoic sedimentary rocks form the top of the continental shelf, slope, and rise. These sediments were deposited *as a sheet* around all continents of the world and large islands. If the continental shelves are a post-Flood deposit those who advocate the K/T Boundary Model need to specify what process could form them in the several hundred years following the Flood. They also need to provide a mechanism for the massive erosion that removed the top of the Cenozoic strata on the continents (see Chapter 21). Table 41.2 summarizes the problems with this first argument for the K/T boundary as the end of the Flood.

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| 1. Definitions of local, regional, and subcontinental not specified |
| 2. Continental/global scale lithological sequences not demonstrated |
| 3. Mesozoic "regional" |
| 4. Cenozoic deposits can be thick and of regional extent |
| 5. Great erosion of the tops of Cenozoic and other sedimentary rocks |

*Table 41.2. Summary of some of the difficulties with assuming that the Flood/post-Flood boundary is the change from worldwide/continental to local/regional sedimentation.*

### The Tertiary Cooling Trend

Advocates the K/T Boundary Model point to a Tertiary cooling trend (see Figure 29.1) as evidence the Tertiary is post-Flood. At first glance, a cooling trend is a reasonable expectation after the Flood because early in the Ice age winter temperatures were much warmer and summers cooler. By the end of the Ice Age temperatures would move to very cold winters and warmer summers,[7] thus there would be a massive cooling trend. Further analysis shows an element of circular reasoning in the Tertiary cooling curve. Paleontologists tend to pigeonhole warm climate fossils into the early Cenozoic and cool climate fossils into the late Cenozoic.[2,8]

Support for the warmest temperatures comes from early Cenozoic subtropical and tropical plants and animals that are found at high latitudes and within the continental interiors of the mid latitudes (see Chapter 29). The fact that the interior of continents, especially at mid and high latitudes would not have experienced warm or even mild winters (see chapter 29) appears to be

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[6].Knapp, C.C., Knapp, J.H., and Connor, J.A., 2004. Crustal-scale structure of the South Caspian Basin revealed by deep seismic reflection profiling. *Marine and Petroleum Geology* 21:1073–1081.

[7] Oard, M. J., 2004. Frozen in Time: The Woolly Mammoth, the Ice Age, and the Biblical Key to Their Secrets. Master Books, Green Forest, AR.

[8] Oard, M.J., 2014 (ebook). *The Genesis Flood and Floating Log Mats: Solving Geological Riddles*. Creation Book Publishers, Powder Springs, GA.

forgotten. High altitudes and continental interiors would suffer cold winters immediately after the Flood. Even if the altitudes were low and the ocean surface temperatures were warm, interior continents would still experience cold winters.[9] The reason for this is because cold winter temperatures in continental interiors and high latitudes depend mainly upon the *angle* of the sun, which has not changed since the end of the Flood. The continental interior of North America has Cenozoic fossils that indicate a warm climate, such as large tortoises and crocodiles. They could not have survived the cold there after the Flood.[10,11,12I] It is more likely these fossils were deposited by the Flood. Their existence separates the early part of the late Cenozoic from the Flood in interior North America. By extrapolation all of the early Cenozoic is a result of the Genesis Flood.

A Tertiary cooling trend supposedly found in the oceans is more difficult to place within biblical earth history. Since ocean-bottom sediments are mostly dated by microfossils, especially foraminifera, the dates can be way off. This is because there have been many manipulations in the foraminifera data.[13] It is also possible that the inferred temperature is wrong, since recent discoveries of foraminifera recrystallization have been reported, biasing the temperature estimates.[14,15,16] Although the recrystallization applies to planktonic foraminifera, the results could also apply to benthonic, or near bottom dwelling, foraminifera. This is especially true in a Flood model where ocean temperatures start off very warm on the bottom, but cool rapidly, during the Ice Age with probably multiple oscillations in temperature. We cannot be sure how much of the Tertiary cooling trend is a result of misinterpreting foraminifera data. Another issue is that the ocean trend, if it truly represents a post-Flood trend, applies only to *ocean sediments*. In other words, it is possible that many “Tertiary” dated sediment in the deep ocean are really post-Flood, but it does not follow that Tertiary sedimentary rocks on land are post-Flood. A large research project is required to understand the significance of the claimed oceanic cooling curve in a biblical climate model.

## Tertiary Mammals of the Western United States

A third evidence that has been presented for the K/T boundary hypothesis is the presence of Tertiary mammal fossils. In North America, they are found mainly in the Rocky Mountain basins and on the western High Plains. Since Tertiary sediments are considered much younger than marine Paleozoic and Mesozoic sediments, advocates of the K/T Boundary Model reason the mammals must be the progeny of survivors from the Ark, and therefore, post-Flood. They ask: where were the mammals when the Paleozoic and Mesozoic were deposited across the continent

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[9] Oard, M.J. and Klevberg, P., 2008. The Green River Formation very likely did not form in a postdiluvial lake. *Answers Research Journal* 1:99–108.

[10] Brattstrom, B.H., Some new fossil tortoises from western North America with remarks on the zoogeography and paleoecology of tortoises, *Journal of Paleontology* **35**:543–560, 1961.

[11] Wing, S.L. and Greenwood, D.R., Fossils and fossil climate: the case for equable continental interiors in the Eocene, *Philosophical Transactions of the Royal Society of London B* **341**:243–252, 1993.

[12] Kerr, R.A., Fossils tell of mild winters in an ancient hothouse, *Science* **261**:682, 1993.

[13] Tosk, T., 1988. Foraminifers in the fossil record: implications for an ecological zonation model. *Origins* 15(1):8–18.

[14] Schrag, D.P., 1999. Effects of diagenesis on the isotopic record of late Paleogene tropical sea surface temperatures. *Chemical Geology* 161:215-224.

[15] Pearson, P.N., Ditchfield, P.W., Singano, J., Harcourt-Brown, K.G., Nicholas, C.J., Olsson, P.K., Shackleton, N.J., and Hall, M.A., 2001. Warm tropical sea surface temperatures in the Late Cretaceous and Eocene epochs. *Nature* 413:481–487.

[16] Oard, M.J., 2003. The ‘cool-tropics paradox’ in palaeoclimatology. *Journal of Creation* 17(1):6–8.

during the Flood? The implication is the mammals had no refugia early in the Flood. One flaw in their reasoning is: if the Cenozoic were post-Food, where is the fossil record of mammals buried in the Flood (see Chapter 17)?

The whereabouts of the mammals early in the Flood is based on the assumption that we know the details of early Flood topography and geography. For all we know, the present ocean basins may have been the pre-Flood continents and the current continents, the pre-Flood oceans—a view espoused by the late Roy Holt and other creationists. So, early in the Flood the mammal refugia would have been off the present coasts.

Another possible explanation is on-going tectonics early in the Flood would cause rapid elevation changes and so some places could have been tectonically uplifted providing refugia for mammals. Animals may have survived in the water for a short time, possibly on log or vegetation mats, then disembarked onto these refugia, only to be killed and buried later on in the Flood.

The same problem that exists for mammals also exists for Mesozoic dinosaurs, which advocates of the K/T Boundary Model believe died in the middle of the Flood. Dinosaurs also needed refugia while the Paleozoic marine deposits carpeted much of North America.

There are other problems with assuming mammal fossils are post-Flood. K/T boundary advocates must be able to explain the *order* of “Tertiary” mammal fossils. Why did the titanotheres, an extinct rhinoceros-like beast, live soon after the Flood only to be later replaced by other mammals? Why did the titanotheres become extinct immediately after the Flood, while woolly mammoths disappeared hundreds of years later? How did worldwide extinction of post-Flood mammals occur? How and why would extinctions happen at a time when mammals were to be filling the earth and migrating across continents filling the various ecological niches as God’s commanded? Table 41.3 lists the arguments against the “problem” of the existence of mammals in the western United States.

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| 1. Cannot say that there were no mammal refugia early in the Flood |
| 2. Vertical uplift could cause temporary refugia on the current continents early in Flood |
| 3. There is a similar problem with dinosaur refugia |
| 4. There would be very few mammal fossils buried in the Flood while a huge number were buried and fossilized after the Flood in presumably smaller post-Flood catastrophes |
| 5. How are the Tertiary mammal changes to be explained? |
| 6. Big problem explaining mammal extinction after the Flood |

Table 41.3. Summary of evidence against mammals from the western United States being from the post-Flood period.

Ross has recently defended the K/T Boundary Model based on the characteristics of mammal fossils. He also supports the main paleontological break is at the K/T boundary. If the boundary was at the Pliocene/Pleistocene, it would be unlikely for post-Flood animals congregated in the very same places as their dead Cenozoic ancestors.[17] On the surface, his argument appears to be impressive. Unfortunately, it rests on an exact reading of the secular Paleobiology Database, which assumes evolutionary sequences, precise dates, fossil dating, and the validity of the

[17] Ross, M.R., Evaluating potential post-Flood boundaries with biostratigraphy—the Pliocene/Pleistocene boundary, *J. Creation* **26**(2):82–87, 2012.

geological timescale. Moreover, Ross's arguments ignore or minimize a host of geological evidence that points to the boundary being in the late Cenozoic,[18] the subject of this e-book.

### Tertiary Bird and Mammal Tracks and the Devils Corkscrews

Bird, reptile, amphibian, and mammal tracks are found in Tertiary sedimentary rocks in western United States,[19] in various formations like the Eocene Green River Formation in Utah. Cat-like tracks are found in the Eocene Clarno Formation of central Oregon, and bird and mammal tracks are found in the Pliocene and Miocene of southeast California and northern Arizona. Tracks of birds and mammals are also found in the Tertiary of Europe.[20]

One of the most interesting trace fossils of the Tertiary is the unique corkscrew-shaped burrows in Miocene sedimentary rocks in western Nebraska, called the "Devils corkscrews" (see Figure 17.3).[21,22] The discovery of beaver fossils in the burrows establishes their origin (see Chapter 17). To advocates of the K/T Boundary model, these observations are enough to conclude the Tertiary is post-Flood. This is too quick an assessment. It assumes the beaver could not have made its burrow early in the Flood, before all air-breathing mammals were dead. There is other data to consider. Data I have pointed out in this ebook shows these features must be from the Flood, and if from the Flood before Day 150. So, how can anomalous features be fit into the early Flood? They can be accounted for in much the same way as dinosaur tracks, eggs, and scavenged bonebeds early in the Flood, by employing the BEDS (Briefly Exposed Diluvial Sediments early in the Flood) hypothesis. Occasionally, animals floating in the water or surviving on nearby log mats embarked on briefly exposed land. Their tracks, burrows, etc. recorded their transitory sojourn.[23]

### Tertiary Volcanic Deposits in the Northwestern States

The fifth major evidence put forth by the K/T boundary advocates is the Tertiary volcanic deposits that are found in the northwestern United States (Figures 41.1 and 41.2). These deposits were already discussed in Chapter 37. The evidence is strong that the Columbia River Basalts and the John Day Country volcanics were ejected during the Flood and not after.

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[18] Oard, M.J., Geology indicates the terrestrial Flood/post-Flood boundary is mostly in the late Cenozoic, *J. Creation* **27**(1):119–127, 2013.

[19] Lockley, M. and Hunt, A.P., 1995. *Dinosaur Tracks and other Fossil Footprints of the Western United States*. Columbia University Press, New York, NY.

[20] Lockley, M. and Meyer, C., 2000. *Dinosaur Tracks and Other Fossil Footprints of Europe*. Columbia University Press, New York, NY.

[21] Lugn, A.L., 1941. The origin of Daemonelix. *Journal of Geology* 49:673–696.

[22] Martin, L.D. and Bennett, K.K., 1977. The burrows of the Miocene beaver *Palaeocastor,* western Nebraska, USA. *Palaeogeography, Palaeoclimatology, Palaeoecology* 22:173–193.

[23] Oard, M.J., 2011.*Dinosaur Challenges and Mysteries: How the Genesis Flood Makes Sense of Dinosaur Evidence—Including Tracks, Nests, Eggs, and Scavenged Bonebeds*. Creation book Publishers, Powder Springs, GA.

*Figure 41.1. One row of large basalt columns at The Feathers, along Frenchman Coulee, central Washington. The Features is an erosional remnant left by the erosion of the basalt on southern Babcock Ridge carved by the Lake Missoula flood.*

*Figure 41.2. Basalt in the walls of the Potholes, plunge pools from the Lake Missoula flood as it eroded the northern Babcock Ridge during the Lake Missoula flood.*

## Cooling Ocean Lithosphere while the Mountains Rose

Some advocates of the catastrophic plate tectonics model (CPT) conclude the ocean basins were resurfaced with basalt during the middle to late Flood (Mesozoic and Cenozoic). As the basalt cooled, it contracted causing the ocean basins to sink, the sea level to lower, and the continents to rise. The process continued for several hundred years following the Flood. Wise *et al*. explain:

> After the global effects of the Flood ended, the earth continued to experience several hundred years of residual catastrophism…. A cooling lithosphere is likely to have produced a pattern of decreasing incidence…and intensity of volcanism…the large changes in crustal thicknesses produced during the Flood left the earth in isostatic disequilibrium. Isostatic readjustments with their associated intense mountain uplift, earthquake, and volcanic activity would have occurred for hundreds of years after the global affects [sic] of the Flood ended…. Because of the frequency and intensity of residual catastrophism after the Flood, post-Flood sedimentary processes were predominantly rapid. The local nature of such catastrophism, on the other hand, restricted sedimentation to local areas, explaining the basinal nature of most Cenozoic sedimentation.[24]

The lithosphere is the upper mantle and crust. It is usually above a low seismic velocity layer called the asthenosphere. It is ironic that this early version of CPT advocated a K/T post-Flood boundary. Baumgardner has since stated his belief that the end of the Flood is late Cenozoic:

> On the issue of when the Flood catastrophe ended relative to the geology we observe today, I personally correlate the end of the year of the Flood with the later Cenozoic. I side with Oard on this question.[25]

It has taken me some time to understand the CPT mechanism and some of the details since the model is general and offers few details, although it is supported by a sophisticated computer model. Unfortunately the model is not sophisticated enough to account for all of the variables and the nonlinear interactions of the variables. It also depends upon questionable initial conditions. I have several problems with their proposed post-Flood isostatic adjustments as well. These supposedly caused the ocean basins to sink and the mountains and continents to rise. First, the cooling of the oceanic lithosphere, including the thin layer of liquid basalt, should take much longer than the time allotted after the Flood. The uniformitarians calculate the cooling took millions of years. Second, what mechanism would cause the mountains and the continents to rise as the oceanic lithosphere cooled? Supposedly, a cooling lithosphere causes mainly the ocean basins to subside resulting in a slow lowering of sea level. How would this shrinkage of the ocean lithosphere produce enough force to raise the mountains and continents? Third, geomorphology indicates *rapid currents* moving off the continents that created many of the surficial landforms on surface of the continents.[26,27] Their formation requires high speed, energetic currents to wash over a wide area. These would not be generated by very slowly sinking ocean basins and very slowly rising continents.

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[24] Wise *et al.*, Ref. 5, p. 615.

[25] Baumgardner, J.R., 2002. Dealing carefully with the data. *Journal of Creation* 16(1):72.

[26] Oard, M. J., 2008. Flood by Design: Receding Water Shapes the Earth's Surface. Master Books, Green Forest, AR.

[27] Oard, M.J., 2013 (ebook). *Earth's Surface Shaped by Genesis Flood Runoff Volume I: Tectonics and Erosion*. http://Michael.oards.net?GenesisFloodRunoff.htm.

Fourth, it is unlikely slow oceanic subsidence formed the unique continental margin with its thick sedimentary rocks that surround the continents and large islands. It seems that if continental runoff took place over hundreds of years as the land raised, there should be numerous small and discontinuous continental "margins" all along the raised coast line (Figure 41.3). The similarity of the continental profiles suggests that the Flood ended at the same time all over the world, because only the energy and volume of the Flood could have created these massive features.[27]

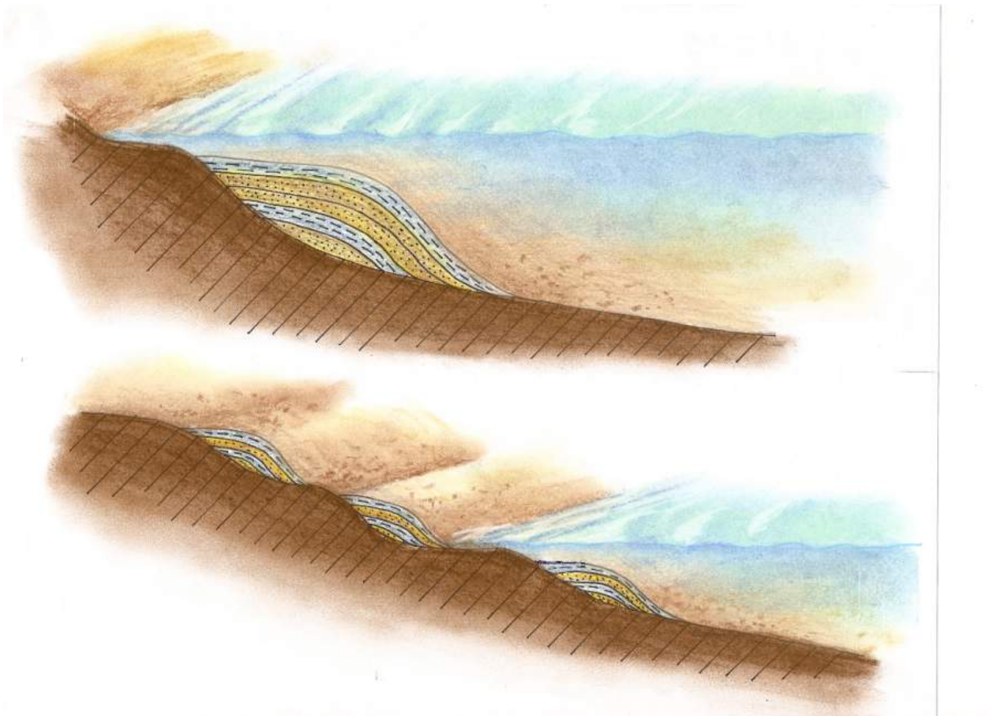

*Figure 41.3. Comparison of the continental shelf and slope today (top) with multiple continental shelves that likely would have formed if the Flood did not end for many years in some areas (bottom) (drawn by Mrs. Melanie Richard).*

A final problem with CPT is large portions of the continents would have been submerged for several hundred years as they slowly rose. Air breathing animals needed to spread from the Ark and eventually cross the Bering Land Bridge. With the CPT model the Bridge would have been covered by a deep, wide water barrier, one much wider than the Bering Strait today. Not only would the animals have to cross a well submerged land bridge and spread into North America, Central America, and South America, they had to multiply into numerous millions, be buried in Cenozoic strata, and become fossilized soon after the Flood. It is likely there are tens of millions of mammals buried in the Cenozoic of western North America. All of these problems are summarized in Table 41.4.

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|---|---|
| 1. | Basalt cooling time likely more than tens of thousands of years |
| 2. | Need to find a mechanism for the mountains and continents to rise after the Flood |
| 3. | Slow currents running off the continent hard pressed to explain geomorphology |
| 4. | Slow currents could not produce the unique continental margin |
| 6. | How would the mammals spread and become fossilized by the millions? |

*Table 41.4. Problems with cooling ocean lithosphere causing post-Flood ocean basin subsidence.*

## Can Post-Flood Mass Wasting Explain the Cenozoic? (in-depth section)

Whitmore asserts mass wasting, rock and downslope sediment sliding, continued for a few hundred years after the Flood. He is convinced this accounts for the 32 evidences for a late Cenozoic boundary that I have presented. He claims that mass wasting was aided by commonly unlithified Flood sediments, a lack of vegetation and grass, and heavy precipitation. Whitmore's post-Flood catastrophes would cause heavy erosion and deposition, and include giant volcanic eruptions, huge earthquakes, meteorite impacts, differential vertical tectonics, and hypercanes. There are numerous problems with this picture.[28]

### Surficial Sediments Were Lithified Right after the Flood

One of Whitmore's main arguments is a large percentage of Flood-laid sediments would remain unlithified immediately after the Flood. If this were true, it seems plausible his post-Flood catastrophes could explain Cenozoic activity, as outlined in chapters 5 to 33. But, there are many indications most of the surficial sediments were lithified immediately after the Flood.[28] Fatal to this idea is deeply buried Flood sediments can easily be lithified due to the pressure and highly mineralized water. The top unlithified layers of sediment would remain on the continents midway through the Flood, but the Flood runoff would easily have eroded these soft sediments and scoured the surface down to *hard* sedimentary rocks. Lithified sediments would rarely mass waste after the Flood, leaving Whimore's mass wasting mechanism speculative.

It is interesting that lithified sediments, be they Cenozoic or otherwise, is what we observe on the surface today. Whitmore suggests the Cenozoic strata accumulated often over wide areas thousands and sometimes tens of thousands of feet deep after the Flood. We can legitimately ask how these sediments lithified after Whitmore's mass wasting occurred, when they didn't before?

### The Earth Likely Vegetated Rapidly.

Whitmore suggests the early post-Flood period would be characterized by a lack of vegetation cover, especially grass, over large areas of the surface. As a result, heavy precipitation would cause mass wasting, eroding the surface into a rough badlands landscape, and depositing thick sediments. However, there is evidence that the biosphere recovered rapidly after the Flood. First, the Bible indicates the vegetation started to sprout well before the animals left the Ark, since a dove brought back a fresh olive leaf. Second, God would not command the animals to repopulate the world, if they did not have enough food for the journey. Third, floating log mats would ground over large areas of the earth and quickly produce vegetation.[29]

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[28] Oard, M.J., A Late Cenozoic Flood/Post Flood Boundary Part VI—Critique of a Post-Flood Cenozoic. *Journal of Creation* (in press).

[29] Oard, M.J., *The Genesis Flood and Floating Log Mats: Solving Genesis Riddles*, Creation Book Publishers ebook, 2013.

**Hypercanes Hypothetical and Insignificant**

Whitmore and I agree there would be heavier precipitation immediately after the Flood as a result of warmer sea surface temperatures in the mid and high latitudes. Whitmore especially emphasizes hypercanes to accomplish this heavy precipitation. Hypercanes are hypothetical super hurricanes generated above ocean water temperatures of 40°C or greater. There is no doubt that hypercanes would produce very heavy rain. However, if the tracks of hypercanes were similar to those of hurricanes, then hypercane erosion would be confined mainly to the east coasts of continents and within about 40 degrees of the equator. Another difficulty is hypercanes require areas of hot water at low latitudes over a wide area. It is a question as to how these "hot spots" were generated although it is possible hot ocean bottom rocks could cause them. It is well known that hypercanes take time to develop, just like hurricanes, so the initial storm needs to slowly intensify over hot water. Fatal for them forming after the Flood is both the atmosphere and water must be almost at *rest* to generate hypercanes.[30] Otherwise the initial hypercane would move off the hot spot and decay. So, it is unlikely hypercanes were produced after the Flood. Even if a few did generate, they would be a "drop in the bucket" compared to the huge amount of precipitation needed to explain the severe erosion in Cenozoic strata.

**Cenozoic Catastrophes Too Devastating**

Whitmore postulates that a number of violent natural phenomena accounts for the vast erosion that took place in the Cenozoic. The problem is the magnitude of these catastrophes would create conditions that would make it virtually impossible for man and animals to multiply and fill the earth as commanded by God. This is what the Cenozoic history, as outlined in Chapters 5 to 32, demand.

**Numerous Problems with the Idea of Mass Wasting Accounting for the Cenozoic**

The Cenozoic mountain uplifts, mass wasting, and the collection of sediments would be global and dramatic, if the Cenozoic were really post-Flood. Yet, mass wasting is Whitmore's main agent for erosion, transport, and deposition of sediments in post-Flood catastrophism. Land sliding is one form of mass wasting, but other forms also take place on land, like the volcanic debris flows on Mount St Helens in 1980 or the Heart Mountain slide during the Eocene. To be consistent with Cenozoic history, Whitmore suggests 6 miles (10 km) of uplift took place at the Teton fault, Wyoming, with 16,000 feet (5,000 m) of sediments accumulating in adjacent Jackson Hole—after the Flood.[4] Other mountains and basins of Wyoming had up to 42,600 feet (13,000 m) of differential vertical tectonics and over 10,000 feet of deposition in some basins. Whitmore also mentions the Salton trough of southeast California with 32,800 feet (10,000 m) of sediments collecting after the Flood. The top 16,400 feet (5,000) are dated as late Cenozoic,[31] which would time the deposition of these sediments beginning about 100 years after the Flood. Advocates of the K/T Boundary Model use the geological column for their timescale of several hundred years of post-Flood catastrophism. Whitmore says the net results of all this activity is:

> In short these processes should have either taken off hundreds to thousands of meters of sediment from that [end Flood] surface or buried that surface with hundreds to thousands of meters of sediments.[4]

[30] Emanuel, K.A., Speer, K., Rotunno, R., Srivastava, R., and Molina, M., 1995. Hypercanes: a possible link in global extinction scenarios. *Journal of Geophysical Research* 100(D7):13,755–13,765.

[31] Dorsey, R.J. and Lazear, G., 2013. A post-6Ma sediment budget for the Colorado River. *Geosphere* 9(4):781–791.

He has determined all of the Cenozoic erosion and deposition is as expected! I have already mentioned the amazing thickness of only a few Cenozoic depositions, but their erosion also was extreme. Post-Flood erosion would have to include the 7,600 to 15,200 feet (2.5 to 5.0 km) erosion of the Colorado Plateau, including the 15,200 feet (5 km) erosion of the San Rafael Swell in the northwest Colorado Plateau.[9] After thousands of feet of sediments were deposited in the Rocky Mountain basins, a few thousand feet of the top was eroded. How can a minimum of about 1,540 feet (470 m) of erosion have taken place over the entire Bighorn Basin after the deposition of the Cenozoic sediments within the basin? What agency could account for such activity long after the end of the Flood, especially since the basin fill had to first accumulate? Moreover, the eroded top sediments of the Bighorn Basin, as well as the sediments eroded from other basins in the Rocky Mountains, are not found nearby. They have been swept off the continent! The Cenozoic sedimentary rocks just east of the Rocky Mountains are mostly volcanic and not sedimentary.

These are just a few of the enormous problems for using mass wasting as the major mechanism to account for the activity that had to take place in Whitmore's post-Flood Cenozoic.