Chapter 25

Deep Valleys Carved Late in the Flood

Valleys and canyons come in all sizes and shapes all over the world. This chapter will be concerned mainly with deep valleys and canyons, although the same arguments hold for shallow to moderately deep valleys. Today, valley and canyon formation happens only on a small scale and is usually due to runoff in high precipitation events. If deep valleys and canyons formed after the Flood, they had to have been cut quickly, within several hundred years of the Flood because at that time there was higher rainfall and numerous post-Flood catastrophes.

Valleys and Canyons Can Be Eroded by Catastrophic Processes

The origin of valleys was strongly debated around the 1800s when uniformitarianism was becoming a doctrine of geology.[1] Uniformitarian scientists in the "Enlightenment" claimed it would take millions of years to form broad, deep valleys, and they are certainly correct—at the present rates of erosion. The existence of deep valleys was one of the more forceful arguments presented to support an old age for the earth and uniformitarian assumptions.[2] Catastrophists, as they were called in those days, held that the valleys were carved by catastrophic flows of water. Some scientists thought they came from the Genesis Flood, others said they were from another source, like huge tsunamis. The situation is the same today, except for the Flood geologists who believe that the Flood/post-Flood boundary is at the K/T. They would have to place nearly all valley and canyon formation within several hundred years of the Flood, since most are a product of Cenozoic erosion.

The eruption of Mount St. Helens has proven that valleys and canyons can be formed rapidly through catastrophic processes.[3] Scientists noted rapid, catastrophic processes formed canyons with vertical or near-vertical walls in both unconsolidated sediment and solid rock.[4] In fact, the more vertical the walls of a valley or canyon, the more catastrophic the erosion was, and the younger the valley. Vertically-walled canyons over time become wider and more V-shaped.[5]

It is well know that catastrophic water flows can produce vertically-walled canyons, similar to the vertically-walled, flat bottomed coulees of eastern Washington that were produced by the Lake Missoula flood. (Figure 25.1)[6] The question remains: When did the Cenozoic canyons form? Were they carved (1) in a period within a few hundred years of the Flood or (2) late in the Flood by channelized Flood runoff?

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[1] Reed, J.K., 2011. Three early arguments for deep time—part I: time needed to erode valleys. *Journal of Creation* 25(2):83–91.
[2] Chorley, R.J., A.J. Dunn, and R.P. Beckinsale, 1964. *The History of the Study of Landforms or the Development of Geomorphology—Volume One: Geomorphology before Davis*, Methuen & Co LTD, London, U.K., pp. 63-64, 125–139.
[3] Morris, J.D. and S.A. Austin, 2003. *Footprints in the Ash*, Master Books, Green Forest, AR.
[4] Morris and Austin, Ref.3, pp. 78–77.
[5] Twidale, C.R., 1968. *Geomorphology*, Thomas Nelsen, Sydney, Australia, pp. 164–165.
[6] Oard, M.J., 2004. *The Missoula Flood Controversy and the Genesis Flood*, Creation Research Society, Chino Valley, AZ.

Figure 25.1. Vertically-walled, flat-bottomed Grand Coulee formed quickly in several days during the Lake Missoula flood. The walls are up to 900 feet (275 m) high.

Examples of Deep Valleys or Canyons

Deep valleys or canyons are found worldwide. The Grand Canyon, of course, is the most well-known, which is up to 6,000 feet (1,830 m) deep. Some Flood geologists believe this canyon was caused in the post-Flood period by the catastrophic breach of lakes to the east of the Grand Canyon. This proposition will be analyzed in Chapter 38. Another deep canyon is Zion Canyon in southern Utah. It is around 2,000 feet (610 m) deep (Figure 25.2). Valleys in the Sierra Nevada Mountains of California start near the crest of the Sierras, becoming valleys as deep as 4,300 feet (1,300 m) before exiting out of the western Sierras.[7]

A magnificent example of a deep canyon that starts near a mountain divide is Copper Canyon in the Sierra Madre Occidental Mountains of the state of Chihuahua, northwest Mexico.[8] It is about 600 miles (1,000 km) south of Grand Canyon. Copper Canyon is *deeper* than Grand Canyon and about 100 miles (160 km) long, including meanders. The region is arid, though summer thunderstorms are common. Chihuahua also contains four other canyons of note—*all* deeper than the Grand Canyon.

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[7] Schweickert, R.A., 2009. Beheaded west-flowing drainages in the Lake Tahoe region, northern Sierra: implications for timing and rates of normal faulting, landscape evolution and mechanism of Sierran uplift. *International Geology Review* 51(9–11):994–1,033.
[8] Fisher, R.D. 2001. *The Best of Mexico's Copper Canyon*, Sunracer Publications, Tucson, AZ.

Figure 25.2. Zion Canyon in Zion National Park, Utah.

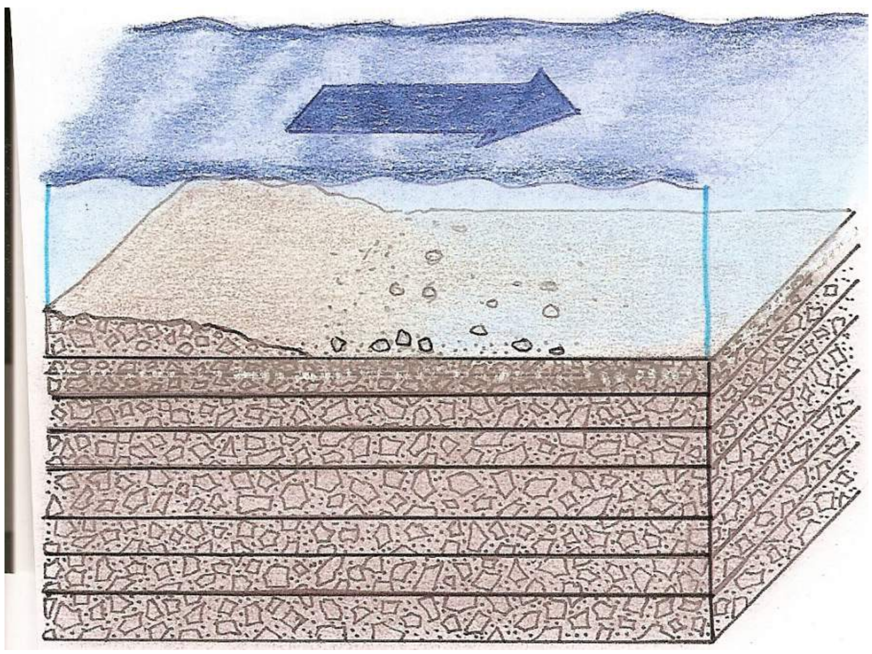
How Can Deep Valleys and Canyons Be Carved after the Flood?

Many other deep canyons and valleys could be listed, but it is important to note the vast majority of the valleys and canyons on the Earth were carved during the Cenozoic. Because of this, advocates of all boundary locations other than late Cenozoic, have to place the erosion *after* the Flood. Post Flood erosion of this magnitude seems impossible, especially when a canyon or valley cuts through mountains or plateaus in water gaps (see Chapter 27) or when they begin near a mountain divide, as in the case of Copper Canyon. Further evidence against post Flood erosion includes the lack of erosional debris, which should be found away from the mouth of the canyon, and remain mostly on the continent. (Of course, those valleys and canyons that end in the sea would have a delta and this could be offered as support for post-Flood erosion, but it is very difficult if the canyon or valley ended on land.) This information seems like a powerful argument against significant post-Flood catastrophism and for a Flood/post-Flood boundary in the late Cenozoic.

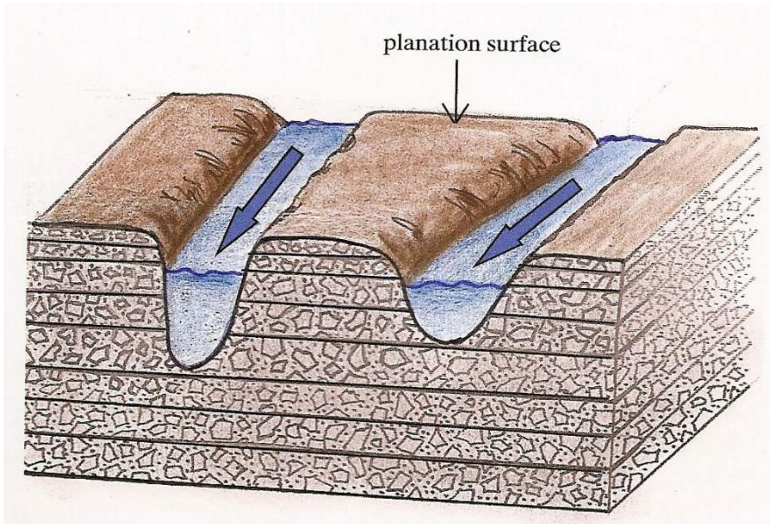
Valleys and Canyons Carved by Late Flood Channelized Currents

It is not difficult to show that Flood runoff would gradually transform from sheet flow to channelized flow. Channelized erosion superimposed upon sheet erosion landforms is a worldwide theme and provides powerful evidence for the reality of Flood runoff, as well as the Genesis Flood itself. Furthermore, the erosional products of channelized erosion would not be located at the mouth of the canyon or valley but would be transported entirely off of the continent.

One of the best examples of the rapid formation of deep canyons and valleys is demonstrated by the canyons of the Absaroka Volcanics in the Absaroka Mountains of south central Montana and northwest Wyoming. These mountains have peaks that range up over 12,000 feet (3,660 m) above msl.[9] The volcanic debris flows were deposited *6,000 feet (1,830 m) thick and over an area of about 9,000 mi^2 (23,000 km^2) during the early Cenozoic.* The tops of these volcanic flows were planed into a planation surface during sheet flow erosion (see Chapter 23), likely during the Sheet Flow Phase of the Flood. Then channelized water eroded deep canyons and changed the planation surface into mostly sharp-peaked mountains (the planation surface is most conspicuous in the southern part of the Absaroka Range). Figure 25.3 is a schematic of this activity. Erosion of this magnitude is obviously a Flood signature and provides strong evidence for the Flood/post-Flood boundary being in the late Cenozoic.



[9] Oard, M.J., 2013. *Earth's Surface Shaped by Genesis Flood Runoff.* http://michael.oards.net/GenesisFloodRunoff.htm.



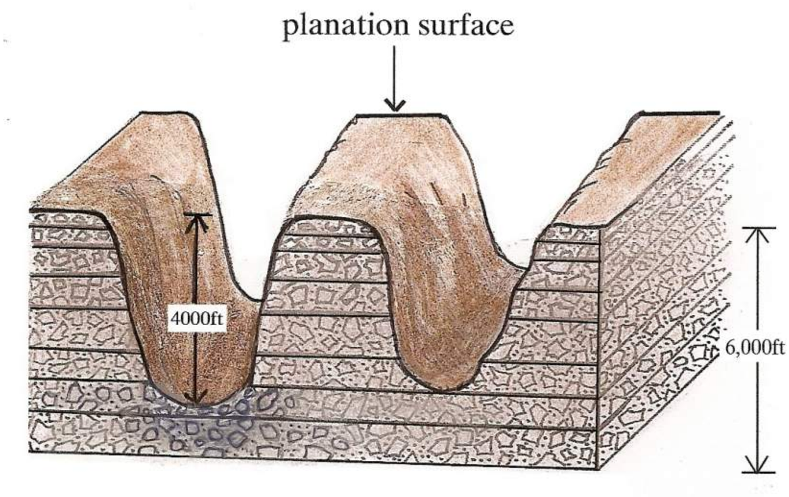


Figure 25.3. Schematic of sheet flow deposition and erosion that transforms into channelized flow erosion in the southern Absaroka Mountains of northwest Wyoming and south central Montana (drawn by Mrs. Melanie Richard).
Figure 25.3a. Deposition of multiple volcanic landslides of Absaroka Volcanics, which is over 6,000 feet (1,830 m) thick and covers about 9,000 mi^2 (23,000 km^2).
Figure 25.3b. Sheet deposition gave way to sheet erosion forming a planation surface, which transformed into channelized erosion.
Figure 23.5c. Channelized erosion cuts canyons up to 4,000 feet (1,220 m) deep before the Floodwater finally drained.