

Appendix 12

Gravel Terraces of the Cascade Mountains

Some valleys of the Cascade Mountains have gravel deposits. The deposits generally have flat tops and would be considered terraces. They are dated as pre-glacial, which I agree, and must have been deposited in water since the rocks are rounded.

The Thorp Gravel

One of these gravel deposits is the Thorp Gravel of south-central Washington.¹ This gravel is horizontally-bedded and outcrops extensively in the Kittitas Valley, especially west and north of Ellensburg, about 30 miles (50 km) east of the crest of the Cascade Mountains (Figure A12.1).² It is up to 590 feet (180 m) thick in the northwest part of the valley thinning to about 50 feet (15 m) thick at the southern margin 16 miles (25 km) away.³ The Thorp Gravel is also found in the Yakima Valley, especially west of Yakima, Washington.⁴ The rocks are volcanic and generally rounded, originating from the volcanic Cascade Mountains to the west.



Figure A12.1. The Thorp gravel just off Highway 10 about 5 miles west of Ellensburg, Washington, where it forms a terrace at least 250 feet (75 m) high.

¹ Oard, M.J., J. Hergenrather, and P. Klevberg, 2006. Flood transported quartzites: part 2—west of the Rocky Mountains. *Journal of Creation* 20(2):77.

² Waitt, Jr., R.B., 1979. Late Cenozoic deposits, landforms, stratigraphy, and tectonism in Kittitas Valley, Washington. *U.S. Geological Survey Professional Paper 1127*, U.S. Government Printing Office, Washington, D.C.

³ Smith, G.A., 1988. Neogene synvolcanic and syntectonic sedimentation in central Washington. *GSA Bulletin* 100:1,489.

⁴ Campbell, N.P., 1983. Correlation of Late Cenozoic gravel deposits along the Yakima River drainage from Ellensburg to Richland, Washington. *Northwest Science* 57(3):179–193.

Gravel Terrace South of the Clackamas River, Northwest Oregon

Another gravel terrace that is composed of generally rounded volcanic rocks is found just south of the Clackamas River, southeast of Portland, Oregon (Figure A12.2). This terrace is similar to the one in the western Kittitas Valley and appears to fill up a



Figure A12.2. The top of the gravel terrace south of the Clackamas River.

preexisting valley. The terrace is around 200 feet (60 m) above the Clackamas River. The rocks in the terrace came from the Cascade Mountains to the east.

Other valleys west of the Cascade Mountains probably contain gravel terraces, but they have not been investigated yet.

Very Late Flood Origin of the Gravels

The Thorpe gravel and the gravel south of the Clackamas River are generally rounded and seem to partially fill a pre-existing valley. The roundness of the rocks confirms water laid them down, especially considering that the rocks become round after only a few tens of miles of transport. The thickness of the terraces suggests deposition by very large flows of water, most likely hundreds of times larger than the associated rivers. The gravel terraces remind me of some of the gravel bars that were deposited in eastern Washington during the Lake Missoula flood.⁵ It does not seem that any post-Flood flow of water could deposit such gravels, except huge floods like the Lake Missoula flood.

Therefore, it is reasonable that the global Flood deposited the gravels. Here is the progression I envision. First, the Cascade Mountains rose and were eroded. Second, valleys were carved out in the Cascade Mountains toward both the east and west due to fast channelized flow during runoff. Third, the flow of water probably slowed down enough for deposition to occur instead of erosion. The characteristics and location of the gravel

⁵ Oard, M.J., 2004. *The Missoula Flood Controversy and the Genesis Flood*, Creation Research Society Monograph No. 13, Chino Valley, AZ.

also indicate deposition happened very late in the Flood. It appears to be the last act of the Flood in the Cascade Mountains. The Floodwater flowing east of the Cascades would have continued south to the Columbia River Gorge and then west through the gorge and into the developing Pacific Ocean.