Chapter 22

Powerful Evidence for Retreating Floodwater

Deposits of quartzite gravel are found on mountaintops, ridges, plateaus, and in deep paleovalleys in the northwest USA and southwest Canada. Peter Klevberg, John Hergenrather, and I have documented many of these quartzite gravel locations in the field. Others are noted in the literature. And I sometimes find new gravel deposits by accident while examining the geology of an area.

The Big Picture

From the inferred paleocurrent directions, it is evident that the quartzites eroded from the western Rocky Mountains of central and northern Idaho, northwestern Montana, and adjacent Canada. The Belt/Purcell rocks are the main source of the quartzite gravel.

They were transported about 800 miles (1,280 km) east, 400 miles (640 km) southeast, and 440 miles (700 km) west. They became smaller and more rounded the farther away from the source area. Often the quartzite rocks show percussion marks and are iron stained. Gold is sometimes found within the matrix of the gravels, as in central and northeast Oregon and northwest Wyoming.

The quartzite gravels range in thickness from a thin lag to deposits over 11,000 feet (3,350 m) thick east and northeast of Jackson Hole, Wyoming, and up to 15,000 feet (4,570 m) deep in northeast Idaho near the Montana border. Deep deposits are found mainly in fault-controlled valleys or basins. Boulders in these thick deposits often have pressure solution marks and fractures from the pressure of thousands of feet of deposited cobbles. Erosion of these thick deposits spread quartzites with pressure solution marks to other areas.

I have demonstrated that uniformitarian explanations for the quartzite gravels fail to account for the evidence.[1] Of all the hypotheses proposed, river transport seems to be the main one that still survives, probably because it fits in well with uniformitarian beliefs, such as rocks are rounded by river activity. However, river transport just does not account for the extensive distribution of the gravels, the existence on mountain tops, very thick deposits in paleovalleys, the distance they were transported, the iron staining, and the percussion marks.[2] It is obvious that these require a flow of water much larger than a river. The quartzite gives evidence of a huge watery catastrophe.

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[1] Oard, M.J., J. Hergenrather, and P. Klevberg, 2006. Flood transported quartzites: part 3—failure of uniformitarian interpretations. *Journal of Creation* 20 (3): 78–86.

[2] Klevberg, P. and M.J. Oard, 1998. Paleohydrology of the Cypress Hills Formation and Flaxville gravel; in, Walsh, R. E. (editor), *Proceedings of the Fourth International Conference on Creationism*, technical symposium sessions, Creation Science Fellowship, Pittsburgh, PA, pp. 361–378.

Figure 22.1. Percussion marks on a boulder on top of the Gravelly Mountains, southwest Montana.

Flood Runoff Seems Like the Only Possibility

Based on the observations, the evidence overwhelmingly points to transport by wide sheets of water flowing off the Rocky Mountains. Flash floods and the break-up of ice dams during the Ice Age can be eliminated; the quartzite is pre-glacial and no observers dispute this. Some of the quartzites are found in non-glaciated areas, such as on top of the Blue Mountains of Oregon and the western block of the Cypress Hills where the quartzite gravel cap stuck up 330 feet (100 m) above the top of the post-Flood ice sheet.

All the evidence strongly supports runoff of the Floodwater from the continents during the Retreating Stage of a global Flood.[3] The percussion marks (Figure 22.1) alone tell us the current speeds were much faster than flash floods, since flash floods rarely if ever produce percussion marks on quartzites.[2] Since most of the gravel is found on the surface of the earth, this would represent the last catastrophic flow in the northwest states and adjacent Canada. The gravel at the top of the Cypress Hills very likely was at first spread by water over an area much more extensive than the Cypress Hills (see Chapter 14). After deposition, the High Plains continued to be eroded, eventually leaving the Cypress Hills as a high, flat erosional remnant. Generally three more planation surfaces capped by quartzite formed on the High Plains with a total depth of erosion of 2,500 feet (760 m) down to the level of the rivers surrounding the Cypress Hills.

Rivers do not form planation surfaces. No process observed today forms a planation surface except on a very small scale adjacent to a river during a flood (see Volume II). So, the mechanism cannot form the planation surfaces upon which the quartzite gravel was later deposited.

The quartzite-capped planation surfaces of the High Plains are likely caused by accelerated and decelerating sheet flow during Flood runoff. I am not sure whether the

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[3] Oard, M.J., J. Hergenrather, and P. Klevberg, 2007. Flood transported quartzites: part 4—diluvial interpretations. *Journal of Creation* 21(1):86–91.

four general levels were caused by four pulses of uplift of the Rocky Mountains with increase current velocity and erosion to the east, or not. Such a pattern can also be caused by other mechanisms than the pulsed uplift of the Rocky Mountains.

The character of the gravel deposits indicates quartzites were spread first as sheets, especially on the High Plains. This spread probably happened when the bottom of the Floodwater was fairly flat. The turbulent movement of the gravel at the bottom of the sheet flow eroded the planation surfaces. Figure 22.2 is a schematic of the water flowing off the Rocky Mountains and carrying large quartzites along the bottom. The large rocks plane the bottom, forming the planation surfaces, as small to medium size quartzites bounce along in turbulent suspension. As they fall and strike other rocks, percussion marks are formed on the hard quartzites. As the flow waned, a thin layer of quartzite rocks capped the planation surfaces. Peter Klevberg calculated that the sheet flow current speeds would be over 68 mph (110 kph) to deposit the quartzites on the Cypress Hills. This speed is about two to three times the fastest flash floods on earth that sweep down steep valleys (see Appendix 9).

Then after several more deposition and erosion events during the Flood, it appears quartzites continued to be spread during the Channelized Flow Phase while the mountains were rising and valleys were sinking. This is likely why the lowest planation surface of the High Plains is narrow and is found before the valleys were carved. It is probably also the reason why deep paleovalleys filled with quartzite cobbles and boulders and the gravels appear more channelized at times, as in the valleys of southwest Montana and along the Columbia River gorge between Oregon and Washington. So, I would conclude quartzites started to spread during the Sheet Flow Phase and continued during the Channelized Flow Phase of the Flood.

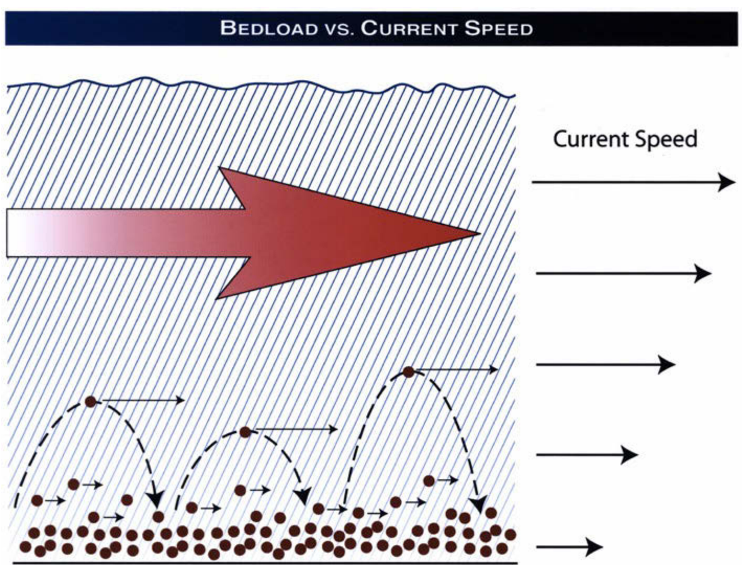

Figure 22.2. Schematic showing how we believe the percussion marks formed in the Cypress Hills gravel. A current will carry bedload, dragging it along the bottom, smoothing the surface into a planation surface. If currents are fast enough, rocks will be briefly carried up into suspension within the current. As the rocks crashed down into the bedload, percussion marks would be formed (drawn by Mark Wolfe).

Flood runoff also provides a ready explanation for the iron oxide coating found on the surface of quartzite gravels at various locations throughout the whole area. The iron oxide coating does not seem to be an effect of ground water, since pressure solution marks were formed *after* the coating was emplaced (see Figure 17.5). So, the coating must have occurred during transport in water, strongly suggesting that the Floodwater in this area had a high iron content, suggesting a one-time event.

Figure 22.3 is a summary schematic of the events during the Flood. At first, sheet flow toward the east spread quartzite gravel for 800 miles (1,280 km) to the east (Figure 22.3a). As the Rocky Mountains were exposed above the Floodwater, the flow split and ran downhill toward the oceans (Figure 22.3b). The currents became more channelized focusing the gravel transport into more linear patterns.

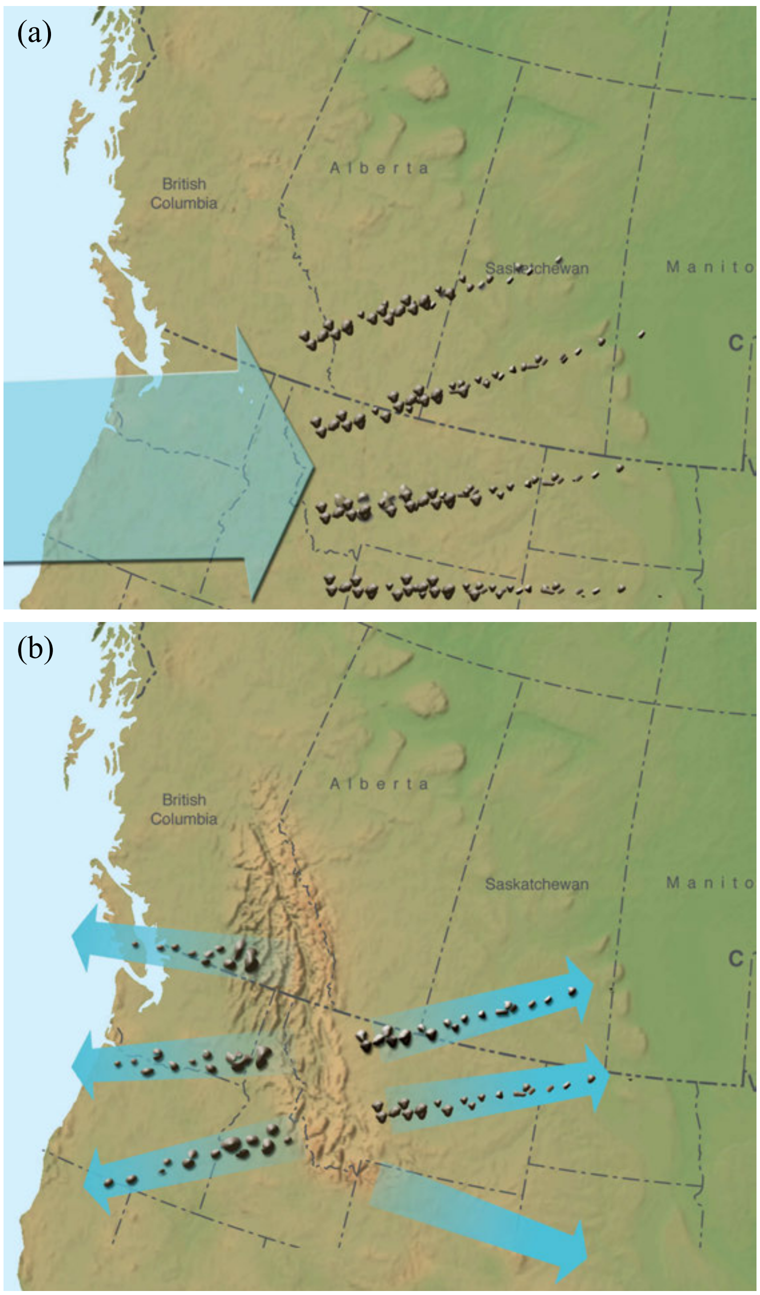

Figure 22.3. Schematic of the spread of quartzite rocks in the northwest states and adjacent Canada (drawn by Bryan Miller, formerly of Master Books). a) Sheet flow eroded layers of quartzites from the western Rocky Mountains, rounded them, and spread them far to the east. The rocks decrease in size the farther from the source.

b) As the Rocky Mountains are exposed, the Floodwater flow is split into east flowing and west flowing branches that become more channelized with time.