The Marriage of Basalt and his Wife River

By Rick Rubin ©2001

Sixteen million years ago, a vast outpouring of lava from eastern Oregon began. The greatest lava flow in North America, that lava covered 80,000 square miles with molten rock. At that time, the Columbia River had her bed where Salem is now. A (miocene) basalt path, covered by (Quaternary) alluvial sediment just south of Salem shows the place. Her bed reached the sea north of the present Lincoln City.

That lava outpouring got into her bed. Filled it up. Got hard. Became grass covered Cascade Head, north of Lincoln City. Husband-like, Basalt shouldered his river/wife north and west. She had to make a new bed for herself.

Great Basin petroglyphs from *Petroglyphs of Oregon*, Luther Cressmann,

Time and again those cracks to the east poured out lava, which flowed down the river's new bed, which was always to the north of the earlier one, and came to the sea, or perhaps simply stopped, for the sea was as much as 300 miles farther west than it is now some of the time. (That was Ice Age's doing. The Earth's water was all tied up in glacier ice).

The next time fiery Basalt poured out from east of where the Cascade mountains are now, and coming into Columbia River's bed flowed down to the sea, it cooled into slim, steep sided, jutting Cape Lookout

A million or so years later, Basalt flowed into the river's attractive bed again, and this time, when he reached the sea, became blocky Cape Meares, just south of Tillamook Bay

Later Basalt may have made a cape at the north entrance to Tillamook Bay of which some basalt rocks near the shore are the only relics. Could it be that Basalt was losing his power?

Not so! Towering, steep-faced, Neahkahnie Mountain, north of Manzanita, was his next bed, and the lava must have flowed strongly, for it pushed that high, steep-fronted cape into the thunderous Pacific, towering above the surf below.

Tillamook Head, the rugged headland between Cannon Beach and Seaside was likewise a former bed of the big river, but that was the last, and most northerly, of the giant lava flows that created the capes, and the river found a flatter course to the sea where it still flows now, past Astoria, possibly formed of another ancient river bed.

Each time lava slept in Big River's bed, he got hard, and pushed his wife the Columbia River north and west. Husband and wife, using the same bed, then as now. In addition to the capes that segment the sea coast, another trace of one of those filled beds can be seen easily. This flow was five miles wide, and blocked the Willamette River. Forty-one foot Willamette Falls marks its down-river lower edge. The upriver edge is five miles south, at a rocky peninsula called Peach Cove. That flow is the sill that controlled the height of the Willamette Valley. Should there have been no such flow, the Willamette would fall at a steady gradient from Eugene to Portland.

The present Columbia lies on the north edge of the last, or latest of those lava flows, the towering ramparts on the south side of the Columbia Gorge, extended as Portland's West Hills, or Tualatin Mountains as some call it. She has her own bed now, at least until the lava runs hot again. We had better hope it doesn't, for the Gorge points straight at Portland.

During the 9- or 10-million years of these flows, the lava layer cake became up to 2 miles thick. About 200 separate flows of lava, totaling 90,000 cubic miles of Basalt, poured out of the earth. There were no humans, or if there were, they could not have outrun Basalt. Only, perhaps, looked down from high cliffs.

Then about 6 million years ago, the eruptions ceased, up east there. No telling why. Must have run out of hot lava.

The Bretz Floods

But water and Basalt had not finished their struggles. Only 15,000 to 12,000 years ago, a series of great floods came roaring down the Columbia from Missoula, Montana. Called the Bretz floods after Harlan Bretz, the man who discovered their secrets. The floods were caused by a glacial lobe from the continental glacier that intermittently blocked the Clark's Fork River, a tributary of the Columbia River, backing up a great inland lake containing up to 500 cubic miles of water. When the water got deep enough, it floated the glacier lobe.

The Columbia performs its erosive magic some 12-15 post-Bretz centuries later
Platform fishing at Celilo Falls – photo by D.L. Cole

The glacier dissolved and the water rushed out. It scoured to bedrock the channeled scablands of eastern Washington, and flowed over the top of the mountains that form Walula Gap. At what is now the Columbia Gorge, where the Columbia breaches the Cascade range of mountains, this enormous flood was up to a thousand feet deep. It turned what had been a steep-sided V-shaped valley into the mile wide U-shaped gorge we know and love today. It went over the top of Vista House and came out of the gorge in-making still 400 feet high when it spread across Portland and inundated the Willamette Valley as far as Eugene. That flood happened somewhere between 40 and 100 times, as the ice lobe crept forward again, and the lake formed.

Wispoosh & Coyote

Contrary-wise, in the Native American remembrance, the Columbia Gorge was formed by Coyote and the giant beaver, Wishpoosh, as they battled together down the river to the sea. Coyote grabbed bushes, rocks, whatever he could find to hold himself back, but Wishpoosh was too strong, and not until they reached the salt sea did Coyote finally defeat the monster, and dissecting him, hurled his various body parts about the land, declared that they should become the Indians, who in the myths were always coming soon.

Story, Story, Tomorrow good weather, as some aboriginal storytellers ended their recital. Next time: the story of how Water's sister Ice flattened Puget Sound.

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