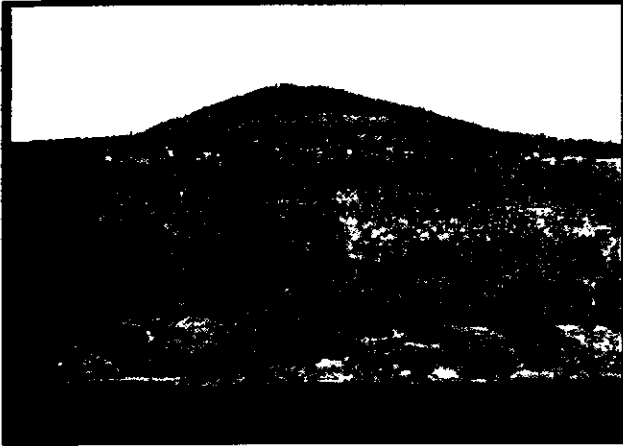


CHAPTER ONE

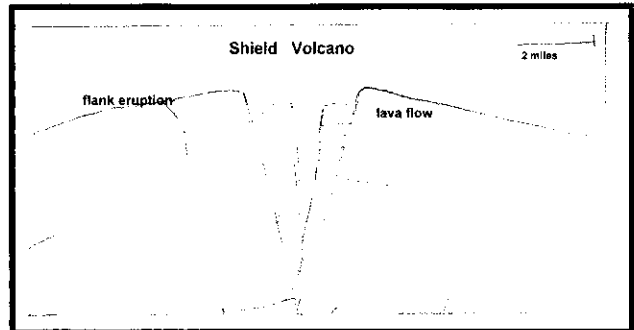
GEOLOGY OF UNDERWOOD MOUNTAIN



Underwood Mtn. looking north from Oregon

Underwood Mountain, on the Washington side of the Columbia River Gorge, reaches an elevation of 2,700 feet above sea level. Lying between the White Salmon River valley on the east side and the Little White Salmon River valley on its west side, it is five miles in diameter. Underwood Mountain is an early Pleistocene shield volcano. Pleistocene means it was formed anywhere from 11,700 to approximately 1.8 million years ago. Some shield volcanoes are still active today, such as Kilauea in Hawaii. Two other local shield volcanoes are Mount Defiance west of Hood River, Oregon and Larch Mountain, east of Portland, Oregon. It is believed Underwood Mountain erupted 20,000 to 850,000 years ago. It is not likely to erupt again.

Volcanic mountains are formed due to accumulation and solidification of lava, ashes and debris erupted from the earth's interior. A shield volcano, such as Underwood Mountain, is formed by liquid lava emitted from a central vent. It is like a warrior's shield. When the highly fluid lava



erupts, it travels farther than lava from more explosive volcanoes. As with Underwood Mountain, there were steady accumulations of broad, thin sheets of lava.

There are three principal geologic units in this area: Grande Ronde Basalt, Frenchman Springs Wanapum Basalt, and Basalt of Underwood Mountain. The Grande Ronde Basalt is composed of Miocene flows of the Columbia River Basalt Group. The Miocene period took place 5.3 to 23 million years ago. The Grande Ronde is the thickest formation in the Columbia River Basalt Group and it commonly exceeds 1,000 feet in thickness. The Frenchman Springs Wanapum Basalt overlies the Grande Ronde Basalt. In this area, the Frenchman Springs Basalt crops out in the cliffs above the Spring Creek Fish Hatchery. The hatchery springs discharge from the Wanapum Basalt. The Frenchman Springs Basalt is 250 feet thick. The Basalt of Underwood Mountain overlies the Frenchman Springs and is widely exposed on Underwood Mountain and Underwood Heights. The Basalt of Underwood is composed of numerous blocky, jointed flows each about 10 to 30 feet thick. The total thickness of the Basalt of Underwood Mountain layers is about 590 feet.

Geology of Underwood Mountain (cont.)

Underwood Basalt crossed, and at one time temporarily dammed the Columbia River, as remnants of Underwood flows can be found on the Oregon side. Another temporary lake behind a natural dam on the Columbia River occurred about 100,000 years ago when a large debris slide removed the summit and north flank of Mt. Hood. The volcanic debris (a lahar or mudflow) flowed down the Hood River valley, across the river and several miles up the White Salmon River valley on the north shore.



Round river rocks embedded in the cliff just west of the Old Town Underwood along Highway 14.

Rick Thompson, President of the Lower Columbia Chapter, Ice Age Floods Institute, believes these tumbled quartzite river rocks probably came from Montana. The standard explanation for them is "ancestral Columbia River."

In a March 1955 publication of the Washington State Fruit Commission, author Bill Hoard talks about the soil on Underwood Heights. He says that although the soil varies, much of it is known as Chemawa Shot Soil. It is 30 feet deep in places and ideal for holding moisture. The "Shot Soil" or "Buckshot Soil" gets its name from hard, round pellets of partially decomposed rock, about the size of a shot-gun shell shot, mixed with the loam, sand or clay. These little "BB" sized balls do not dissolve in water and were possibly caused from hot volcanic basalt reacting with water.

The lower town of Underwood, and the former town of Hood lie at the base of Underwood Mountain. If these places were inhabited during the last ice age, 14,000 to 16,000 years ago, they would have been flooded multiple times by the releasing of Glacial Lake Missoula. Sheets of ice flowed southward from Canada and blocked the Clark Fork River in Idaho with a 2,000 foot high ice dam. This caused a huge lake behind it, covering western Montana. When the ice dam would break, the water drained out of it in two or three days, moving at up to sixty miles an hour, leaving 300 foot high gravel bars along the way. At Bonneville the water crested at 650 feet. The floods must have caused quite an upheaval to anything in the way. Some geologists estimate this cataclysm occurred perhaps five times, with many smaller floods from various glaciers not affecting areas below The Dalles.

Sources:

The Magnificent Gateway by John Eliot Alle, 1979.

Website: USGS – *The Volcanoes of Lewis and Clark*, 1806.

Website: USGS - *Volcano Hazards*

Website: USGS – *The Geological History of the Columbia River Gorge.*

Website: *The Columbia River –*

Underwood and Underwood Mountain.

Rick Thompson

Geology of Underwood Mountain (cont.)

The rock cliffs have posed problems caused by gravity and erosion. Here are two news articles to illustrate that geological occurrence:

Albert Schey of Lyle was working on the end of a sling rope over 200 feet up the side of the rock cliff above the Underwood Fruit and Warehouse company, raking loose rocks off the cliff and rolling them down to the road in preparation for the coming winter's weather. When loosening a small rock, a huge boulder also rolled loose and pinned Schey's leg between another boulder, causing a compound fracture. Schey hung on the cliff for several hours while a rescue crew, headed by Gardner's ambulance service fought to reach him and tie him onto the stretcher before bringing him down the hill. It was raining every minute of the operation. The boulders are removed every fall by the highway commission for the prevention of falling rock.

Mt. Adams Sun November 26, 1937



The rock cliffs just west of Old Town Underwood, showing a layer of round river rocks above layers of gravel.

The Bluff is a Dangerous Shortcut

Young Butch Sterrett and the two Hore boys attempted to descend the bluff at Underwood and were trapped on the steep hillside. Oscar Sterrett, Butch's father, and Don Reed, superintendent at Underwood Fruit and Warehouse, pulled the boys to safety with a rope.

The reporter conjectured that the boys would wait a few years before attempting to climb down the bluff again.

Mt. Adams Sun, November 1, 1951

The next week this letter to the editor appeared in the paper:

I DO NOT intend to stop climbing mountains. I will try to find an easier way down. Yours Truly, Lee Sterrett (Butch).

Lee was about age 10 at the time.

Do we have earthquakes in this area?

The *Pioneer* of September 22, 1961 reported earthquake shocks of 5 to 6 on a Mercalli scale of 12. They started Friday night and lasted until Sunday. The quakes occurred along a well-defined fault extending from Puget Sound to Skamania County. The tremors were heavy enough to move furniture, ripple plate glass windows and shake items off shelves.