State Department of Geology and Mineral Industries

1069 State Office Building
Portland 1, Oregon

Hood River

FIELD TRIP WITH AARON WATERS, ET AL ALONG THE COLUMBIA RIVER GORGE, AND SOUTH PAST MT. HOOD TO WARM SPRINGS AGENCY
6/24/58 - 6/25/58

Map Loc. No.	Mile Point	6/24/58
	0	Start at Goldendale, Washington. Proceeded northwest towards Glenwood.
(1)	16.0	On Goldendale-Glenwood highway. Ellensberg formation exposed in road cut, composed of fine clastics and gravels of andesite, basalt, and quartzite pebbles. Deposited in large alluvial fans from the west. It interfingers with coarse clastics from the east in the Prosser area and is overlain there by the Wenas basalt. The Ellensberg is Pliocene in age but is overlain by a flow of Columbia River basalt. In answer to the question whether or not this makes the Columbia River basalt extend into the Pliocene or the Ellensberg down into the Miocene was that the present dating methods by marine invertebrates, mammals, and leaves are not consistent and therefore the time limitation of the various formations is relative and the actual age depends upon which method is correct in dating.
(2)	18.6	Exposure of Columbia River basalt in canyon walls of Klickitat River becoming thicker towards the north. Here Columbia River basalt weathers brown, other places it weathers a gray color. Petrographically it has been observed that brown weathering basalt contains chlorophaeite and between 10 and 20 percent glass. When the basalt has more than 20 percent glass, chlorophaeite does not form and the material weathers a gray color.

Map Loc. No.	Mile Point	
(3)	29.7	Intracanyon flow of Pliocene or Pleistocene basalt overlies and butts unconformably against Columbia River basalt. The younger basalt once filled the valley but the river has removed most of it except near the top of the canyon.
(4)	34.5	Alluvial valley caused by damming of canyon by olivine basalt. The edges of the valley are Columbia River basalt while the floor of the valley is later olivine basalt.
(5)	79.3	Junction of White Salmon River and Columbia River at bridge. Road cut exposure immediately to the east is river sorted volcanic glass sand which contains scattered angular fragments and pillows of basalt. The sand weathers an orange-yellow color but fresh material is black. It grades upward into pillow basalt, flow breccia, and higher becomes a columnar jointed flow of Pliocene olivine basalt. The basalt is essentially flat except for the initial dip; however, the volcanic sand and pillows show considerable slumping and sliding. This gradation from volcanic sand to pillows, to columnar lava is interpreted as being caused by the lava literally exploding into sand particles as it flowed into the water and the larger blobs forming pillows and fragments of basalt. As the material filled to above the water level the lavas cooled normally, forming the columnar jointed olivine basalts.
(6)		The source of the olivine basalt was the crater at South Prairie, T. 5 N., R. 8 and 9 E., about 18 miles to the northwest. From this vent the lavas flowed northeast to Guler, Washington, T. 6 N., R. 10 E., and then south down the White Salmon River canyon to the

Map Loc. No.	Mile Point	

Columbia, filled and dammed the Columbia River and diverted it south around Hood River as far as Odell, about 7 miles to the south.

The lava also flowed south from the crater and flowed into the canyon of the Little White Salmon River at Willard and then south to the Columbia River.

Lava of the same type was also flowing from Underwood Mountain and others at about the same time. It may be that some of the palagonite (weathered volcanic sand) and pillows and olivine basalt flows came from this source. Rock along the highway between Mitchell Point and Hood River on the Oregon side is also late olivine basalt. Columbia River basalt occurs to the west of Mitchell Point.

(7) The tunnel just west of White Salmon bridge shows the olivine basalt overlying the Columbia River basalt. Olivine basalt flowed from Underwood Mountain. The Columbia River basalt has about a 30° SE. dip here and is unconformable beneath the later nearly flat lying younger lavas. The direction of flow for the Columbia River basalt is from the south and can be determined by the bent columnar joints with the top bent in the direction of movement.

(8) Wind Mountain is an intrusive of hypersthene quartz diorite similar to Shell Rock Mountain on the Oregon side.

Just west of Wind Mountain a gravel road leads north a few hundred yards to a quarry of cross bedded gravels and sand. The cross bedding indicates flow from the northwest and lithology is that of material from the Wind River drainage and not the Columbia. This material is probably several hundreds of feet thick and was deposited as a delta from Wind River which was deflected to the east at its

Map Loc. No.	Mile Point	

junction with the Columbia River at the time the Columbia was dammed by a late olivine basalt flow. This is the flow that diverted the Columbia River south of the town of Cascade Locks.

(9) Crossed Wind River and turned north up Wind River. Gravels in this area also delta deposit from Wind River and not caused by the Spokane flood. Continued on to Carson and then back to the Columbia River.

(10) 99.0 Sec. 31, T. 3 N., R. 8 E., on north side of the Columbia River, 2 miles east of Stevenson. Metamorphosed basalt unconformably below the Eagle Creek formation. Waters calls it Clarno and it appears identical to Clarno basalt mapped as Clarno. Microscopically it is entirely altered to secondary minerals. Fractures and vugs filled with zeolite and quartz. The surfaces of the rock are bright green wet or pale blue dry, which is caused by a celadonite coating.

101.0 Town of Stevenson, Washington.

(11) 105.1 North through Stevenson up Rock Creek is contact between Clarno and Eagle Creek formation. The presence of the Clarno formation has been hinted in previous literature but not recognized. Leaves gave dates ranging from Eocene to Miocene. Reasons for this are that samples came from both the Clarno and the Eagle Creek formation, and the contact was not recognized. The contact is observed by Waters to be unconformable.

The huge landslides at Stevenson and Wind Mountain are caused by the Eagle Creek sliding on the weathered surface of the Clarno

Map Loc. No.	Mile Point	

formation. The top of the Clarno has a saprolite zone everywhere it is exposed. This saprolite is also recognized in the Madras quadrangle.

In the vicinity of Bonneville substation several hypersthene andesite plugs occur. These are near the axis of the Cascade Range and probably represent feeders for the Cascade andesites.

(12) Beacon Rock is a plug of olivine basalt.

The Columbia River is an antecedent stream.

9/25/58

Start at bridge east of town of Hood River on Highway 35.

0 To Highway 30 and east.

Cloverleaf, Highway 30 - east to quarry.

(13) Basalt quarry, Highway 30, M.P. 64, Columbia River basalt, large trees standing and horizontal in columnar basalt flow.

Back on bridge crossing Hood River at start of trip.

Across the Columbia River in Washington west of interstate bridge a large lava tunnel filled with basalt is easily seen. The cooling joints are radial and the lava being more resistant than the main flow stands out in relief. It is just below the terrace or lava plain above the river where several new homes are built.

0 Start south on Highway 35.

(14) 1.9 Flow of unusual lava having diktytaxitic structure. This is olivine

Map Loc. No.	Mile Point	

basalt and is Pliocene in age. It is best seen in an uncompleted deep road cut across a curve in the present road.

6.8 Odell junction. B.M. 620 feet.

Turned west at Parkdale to lava beds at Middle Fork of Hood River.

(15) 17.9 Lava beds east of Parkdale. This recent flow down the valley of the Middle Fork is an olivine andesite or basalt, was quite viscous, and shoved the material into a high ridge of large blocks not completely filling the valley. It has been dated by carbon 14 in included trees at about 240 years.

(16) 30.3 Elevation 2975 (Mt. Hood sheet). Mud flow breccia in banks of Hood River.

47.9 Government Camp - Bend junction.

61.5 Junction - Wapinitia Cutoff to Maupin. Continued south towards Warm Springs agency.

(17) On highway about 7 miles northwest of Warm Springs agency on edge of canyon of Shitike Creek, the Dalles formation is exposed in a road cut. The material is stratified pumice pebbles and cobbles showing some inverted bedding overlain by olivine basalt and underlain by an unwelded glowing avalanche deposit. This material was probably too cool to weld but had sufficient vesiculation and emission of gas to give it mobility.

Map Loc. No.	Mile Point	
(18)	111.5	Secondary road from Warm Springs to Hell Gate, Sec. 17, T. 8 S., R. 13 E.

Domes and viscous flows of John Day (previously called Clarno) rhyolite butts up against an old highland of Clarno basalt.

There is much rhyolite in the John Day and the distinction of John Day versus Clarno cannot simply be hard rocks or lavas for the Clarno and tuffs for the John Day as it is in the Picture Gorge area. Much material previously called Clarno is now mapped as John Day. The Clarno had a very irregular topography and many exposures of John Day formation are topographically lower because of rapid erosion of the softer tuffs.

The red color typical of the lower John Day formation is caused by reworking and incorporating the saprolite top surface of the Clarno with the John Day tuffs.

Report by: H. G. Schlicker

Date of report: June 27, 1958