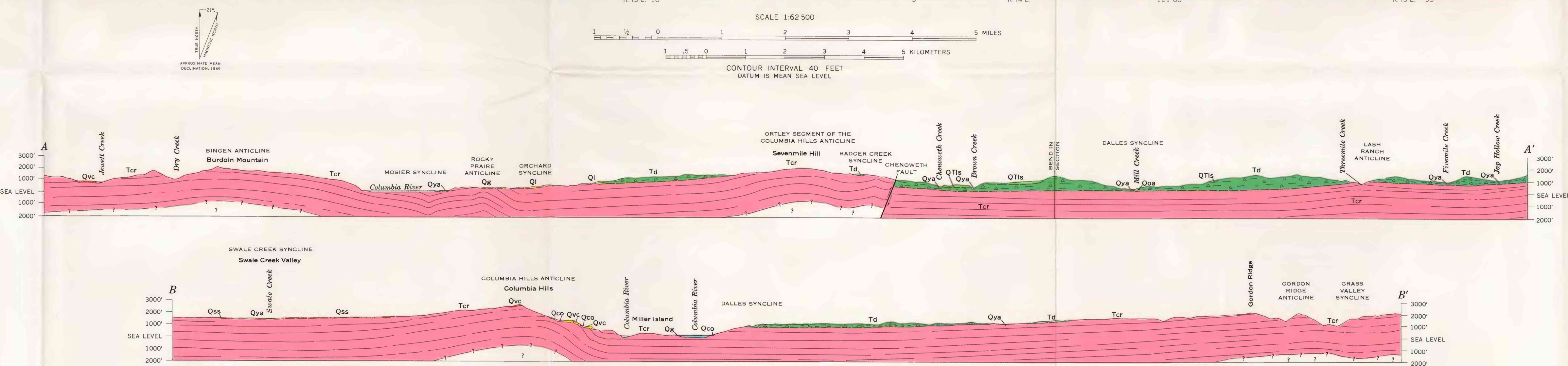


Base from U.S. Geological Survey, White Salmon, 1957.
The Dalles, 1957, Wigham, 1957.

INTERIOR-GEOLOGICAL SURVEY REGION VA-100
GEOLOGY BY R. C. NEWCOMB, FEB. 1965, PORTLAND, OREGON



EXPLANATION

UNCONSOLIDATED ROCKS

Qya Younger alluvium
Sand, silt, gravel, and clay, generally less than 50 feet thick and lying beneath flood plains and alluvial fans. Includes some artificial fill and induced sediment along the Columbia River.

Qsa Sand
Belted sand and silt, mostly from streambed benches. Thickness irregular but generally less than 10 feet. Postdates glaciofluvial deposits and deposition continues.

af Artificial fill
Shown only for features formed exclusively by this material.

Qau Alluvium, undifferentiated
Sand, silt, gravel, and clay. Includes both older and younger alluvium. In places contains some glaciofluvial material, calcareous, or loess. Some artificial fill included along the Columbia River.

Qoa Older alluvium
Gravel, sand, silt, and clay with some interstratified rock rubble. Underlies benches above present flood plain and is less than 10 feet thick. Small amounts of glaciofluvial deposits are included.

Qoc Intracanyon lavas and associated deposits
Qvc, five-grained olivine-bearing microporphritic blue-gray andesitic basalt and basaltic rhyolite. Range in age from probable early Pleistocene to late Pleistocene and preceded glaciofluvial deposition and erosion of the Wisconsin Glaciation. Qvc, coarse rubble effusive lava, and andesite fragments form circular cones at Mt. Jefferson Cone and Haystack Butte.

Qos Sedimentary deposits of Swale Creek Valley
Gravel, sand, silt, and clay as much as 10 feet thick. Consist of materials eroded from the adjacent basaltic terrain. Loess as much as 10 feet thick and overlying much of this deposit is mapped with it.

Qot Alluvium
Rock rubble, silt, gravel, and interbedded sand and clay. Deposits in Swale Creek valley contain much silt, largely alluvial. The extensive deposits south of Haystack Mountain are over 100 feet thick and include large amounts of loess. Some of it is predated and underlies the loess from Haystack Butte. Much of the deposit preceded glaciofluvial erosion.

Qotl Landslide deposits
Block slumps and areas underlain by bedrock material moved downslope at various distances beyond normal surficial creep or rotation. Thickness ranges from 15 to over 200 feet. Includes gravitational movements toward erosion and tectonic loess. Age of most is Pleistocene (many are of glaciofluvial times), but some slices may be as old as late Pliocene. Color (brown) indicates whether the basalt of the Columbia River Group or Dalles Formation predominates.

UNCONFORMITY

MAJOR UPLIFT AND DEFORMATION

Conglomerate
Cobble, boulder, and pebble gravels containing about 50 percent quartzite and other durable meta-morphic rocks transported from the northern Rocky Mountains. Deposited by ancestral Columbia River in valleys whose remnants now lie in gaps of upland ridges. The eroded thickness ranges from 5 to 20 feet. Particles from it are stream widely in the valleys of streams tributary to the Klickitat River and south of High Prairie.

CONSOLIDATED ROCKS

Qtv Volcanic rocks of High Cascades
Gray and bluish-gray dense or very finely porphyritic, coarsely columnar basalt of an average mineral percentage of about labradorite (An₆₁) 65, augite 20, olivine 15, and magnetite 2 percent. Individual flows vary from 10 to 50 feet in thickness. Even the greatest thicknesses may represent only a few days. Some of the earliest may be as old as Pliocene; the latest is equivalent in age to the upland sources of some of the intracanyon loess of Mt. Jefferson, and Pliocene Creek valleys.

UNCONFORMITY

DEFORMATION

Tdb Basalt porphyry of the Balch Lake area
Dark and dark-gray porphyritic olivine-bearing basalt. Largely microcrystalline and glassy dark matrix in which evenly spaced phenocrysts of labradorite (An₆₁) as large as 1-2 cm form from 10 to 15 percent of the rock. Overlies Dalles Formation and basalt of the Columbia River Group with slight angular unconformities and was intruded in the main post-Dalles Formation folding. Mostly one flow whose thickness ranges from about 10 to 60 feet.

Tbh Basalt porphyry of the Hood River valley
Gray and bluish-gray crystalline and porphyritic basalt composed of aggregate of labradorite (An₆₁), olivine, and magnetite. In places it has a very finely crystalline, and in part glassy, interstitial granular matrix. Lies upon eroded surfaces of Dalles Formation and basalt of the Columbia River Group. Loose "flow" from this type of rock in the upland parts of Beaver Creek Valley suggests it may form an unknown and early part of the volcanic rocks of High Cascades.

UNCONFORMITY

Dalles Formation
Thickly bedded gray and buff volcanic-sedimentary and sedimentary deposits of agglomerate, pumiceous buff tuff breccia, tuff, volcanic ash, conglomerate, sandstone, siltstone, and shale. Volcanic materials are of a general andesitic composition. Maximum thickness about 1,000 feet. It is thin and narrow to the east and north; it is generally less than 200 feet thick east of the Deschutes River. Likewise, it changes character eastward and contains finer grained fragmentary materials (mostly ash tuff) and more cobble and pebble conglomerate. The sedimentary facies occurs mostly east of Fifteenmile Creek and north of the Columbia River. The conglomerate is composed largely of basalt of the Columbia River Group and Clarno Formation types of rocks. Tdb, a basaltic lava flow which underlies part of the ridge east and north of Fifteenmile Creek. Generally assigned to the lower Pliocene on the basis of fossil faunas (Chapin, 1914, p. 297) and lower Pliocene or upper Miocene on fossil bones (Bassindale and Moore, 1920, p. 17), but its deposition in places may have extended into middle Pliocene.

MINOR DEFORMATION

Tcr Basalt of the Columbia River Group
Accordingly layered, highly uniform, and extensive flows of dark-gray basaltic lava. Dense, mostly nonporphyritic, lava, but vesicular near the top of flows. Total thickness exceeds the 1,000 feet exposed; individual flows range from 5 to 200 feet and average about 80 feet in thickness. Tcr, thin beds of tuff and other sedimentary materials occur between the flows; one distinct thick buff layer 150 feet below the basalt top is mapped beneath several square miles just east of The Dalles. Pillow lavas are common and extensive in the top 200 feet of the basalt east of Rosena.

CONTACT
Dashed where indefinite, gradational, or inferred; dotted where concealed.

Anticline
Number is general vertical displacement in feet. Dashed where approximately located; dotted where covered. Wide line indicates vertical displacement is at least 1,000 feet.

Normal fault
Direction and amount of dip shown by arrow. Dashed where approximately located; dotted where covered. D, downthrown side; U, upthrown side. Parallel arrows show direction of strike slip.

Syncline
Number is general vertical displacement in feet. Dashed where covered. Wide line indicates vertical displacement is at least 1,000 feet.

Strike and dip of overturned layers
Horizontal layers
X Erratic
Granitic boulder
Observed above sea level altitude

Strike and dip of layered units
Number is general vertical displacement in feet. Dashed where covered. Wide line indicates vertical displacement is at least 1,000 feet.

Strike and dip of layered units
Lack of figure indicates amount of dip not observed.

Spring
Well

GEOLOGIC MAP OF THE DALLES AREA, OREGON AND WASHINGTON