

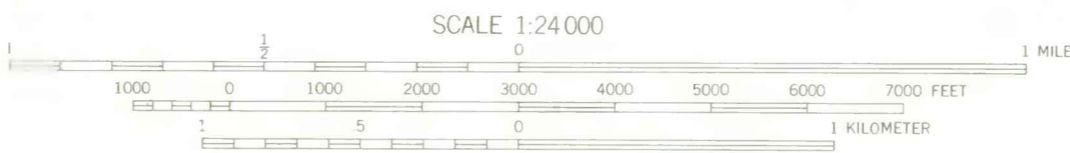
EXPLANATION

Qal	Alluvium: Stream channel deposits and small fans.
Qls	Landslide debris: Ranges from debris flows to large back-rotated basalt blocks. Includes minor rotational slumps, boulder slides, and major semi-coherent basalt failures.
Qtr	Travertine: Mainly deposited from active and dormant mineral and hot-springs, commonly along fault zones. Typically built upon Mesozoic carbonate units, and may include breccia derived from adjacent sources.
Tb	Basalt: Predominantly Miocene flows of the Innaha Formation, Columbia River Basalt Group. Consists mostly of alternating flows of porphyritic pyroxene bearing basalt, and flows with abundant plagioclase phenocrysts in a nearly aphanitic groundmass. Also contains minor palagonite tuff, channel breccia, diatomite, and tuffaceous sediments.
Js	Sedimentary rocks: Shale, sandstone, siltstone, phyllite, limestone, and conglomerate of the Middle to Early Jurassic Weatherby Formation. Some sandstones exhibit flute casts and grooves typical of turbidites. Conglomeratic near base, with clasts commonly stretched. A green, highly fractured latite to andesite tuff, with ubiquitous black Mn-oxide stain, overlies a basal red and green conglomerate (Jett Creek Conglomerate?) with strong angular unconformity. Basal conglomerate is composed of andesite and basalt extrusive clasts that were eroded from the underlying Huntington Formation (Tsviu), and embedded in a sheared tuffaceous matrix. Although the top of the formation is truncated by faulting, the thickness exceeds 4000 feet at Cuddy Mountain.
Jv	Andesite tuff: Light green-colored andesite tuff deposited in the Weatherby Formation. Contact appears to be unconformable in some locations and gradational in others. Highly weathered plagioclase phenocrysts are embedded in a glassy perlitic groundmass. Approximately 400 feet thick.
Rsuiu	Undifferentiated sedimentary, volcanic, and intrusive rocks: Meta-conglomerate composed of andesite and basalt clasts, with secondary intrusive and sedimentary clasts. Tuffaceous sandstones and siltstones are common, with minor limestone lenses and volcanic flows. Intruded in places by quartz diorite stocks, small plutons, and other more mafic bodies. Correlative with the Huntington Formation of eastern Oregon. Structural complexity makes estimate of thickness difficult, but probably exceeds 8000 feet at Cuddy Mountain. (Contact with Weatherby Fm. and Tertiary basalt mainly compiled from Oregon State Univ. theses*).
Rvb	Volcanic breccia: Maroon-colored highly sheared breccia composed mostly of basalt to andesite clasts. Also includes silicic igneous and rare sedimentary clasts. Typically clast supported, but contains some ferruginous tuffaceous sandstones beds. Top not exposed, but exceeds 700 feet in thickness in Wildhorse River Canyon. Conformably overlies Rl.
Rl	Limestone: Light blue bioclastic limestone. Contains abundant sponge, pelloidal (algal?), gastropod, and fragmental debris. The presence of Halobia (?) suggests a Norian age. Approximately 1000 feet thick in Wildhorse River Canyon. Upper 700 feet composed of massive to locally brecciated bioclastic limestone, with a lower unit composed of slumped, finely interbedded limestone and calcareous-tuffaceous shaley siltstone. Conformably overlies Rvs.
Rvs	Tuffaceous sedimentary rocks: Tuffaceous sandstone and siltstone, with minor limestone and conglomeratic layers. Thickness unknown, but exceeds 300 feet in Wildhorse River Canyon. Believed to unconformably overlie quartz diorite basement (P'kqd).
MzCzum	Ultramafics: Composed mostly of both serpentinized and unaltered remobilized fragments of PzMzu and Js. The complex is cored by serpentinite in No Business Canyon. Occurrence restricted to the Cuddy Mountain Fault zone.
P'rvs	Volcaniclastic sedimentary rocks: Volcaniclastic sandstone and siltstone, tuff, ribbon chert, and limestone. Contorted, fault-bounded strata in Wildhorse River Canyon. Fusulinid of undetermined species identified in thin section indicates Paleozoic (Permian?) age. Cherts suggest relationship to (PzMzu).
P'rv	Silicic Tuff: Small outcrop of recrystallized fine-grained silicic tuff, exhibits pilotaxitic and glomeroporphyritic texture in thin-section. Tectonically bounded wedge found in Wildhorse River Canyon.
P'rc	Conglomerate: Composed almost entirely of recrystallized chert pebbles, with occasional boulders of blue recrystallized limestone. In tectonic contact with (PzMzu), but believed related to it. Found only in Wildhorse River Canyon.
PzMzu	Undifferentiated foliated sedimentary and volcanic rocks. Predominantly phyllite, massive and ribbon chert. Also contains phyllitic quartzite, chert breccia, limestone, marble, cherty phyllite, meta-gabbro, and argillite. Upper part in the vicinity of Brownlee Reservoir and Wildhorse River Canyon is dominantly ribbon and massive chert. Becomes progressively more phyllitic lower in section. All contacts with other Pre-Tertiary units are tectonic and thickness is unknown. Correlative with the Baker Terrane of eastern Oregon. Terrane thins significantly to the northeast.
PzMzm	Mylonite: Isolated outcrop of garnet mylonite in tectonic contact with PzMzu, found only in Dukes Creek. Euhedral crystals of red grossularite with almandine(?) indicate metasomatic alteration. Original rock may have been a clinopyroxene plagioclase gabbro. Could be related to a mafic phase of P'kqd.
P'rqd	Intrusives: Cataclastic quartz diorite intruded by numerous green fine-grained diabase dikes. Locally mylonitized. Alteration minerals are typically epidote, chlorite, and sericite. Well exposed to the north in the Snake River Canyon, and as a large fault bounded belt in Wildhorse River Canyon surrounded by sedimentary rocks.

SYMBOLS

	Contact (dashed where inferred, dotted where concealed or uncertain)
	Fault with ball on downthrown side, D=down, U=up (dashed where inferred, dotted where concealed or uncertain)
	Anticline (showing trace of axial plane, dashed where approximately located)
	Syncline (showing trace of axial plane, dashed where approximately located)
	Monocline (showing axis of inflection of dip, dashed where approximately located)
	Strike and dip of beds or flows (estimated for Tb)
	Strike and dip of overturned beds
	Strike and dip of backrotated coherent basalt landslide block
	Strike of vertical beds
	Inferred inactive landslide scarp

*(Huntington Fm. contacts compiled from Oregon State University theses of: R. Fankhauser, 1969; M. Slater, 1969; and W. Bruce, 1971)



CONTOUR INTERVAL 40 FEET
CONTOUR INTERVAL 80 FEET IN BROWNLEE RESERVOIR
NATIONAL GEODETIC VERTICAL DATUM OF 1929

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature. Any use of trade names is for descriptive purposes only and does not imply endorsement by the USGS.

GEOLOGIC MAP OF THE BROWNLEE DAM AND CUDDY MOUNTAIN 7.5 MINUTE QUADRANGLES, OREGON - IDAHO

by GARY M. MANN
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