

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
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GEOLOGIC MAP
of the
OREGON PART OF THE MINERAL QUADRANGLE

By H.C. Brooks

MINERAL QUADRANGLE
OREGON-IDAHO
15 MINUTE SERIES (TOPOGRAPHIC)

GMS 12

TIME ROCK CHART

	QUATERNARY	Holocene Pleistocene	Qal Qls Qlg	Tertiary Pliocene Miocene Oligocene Eocene Paleocene	Tst Twt Tb Tbt	Cretaceous Jurassic Triassic	Kji Jrs ?-?	Mesozoic and Paleozoic	Millions of Years
									2-3
									65
									225

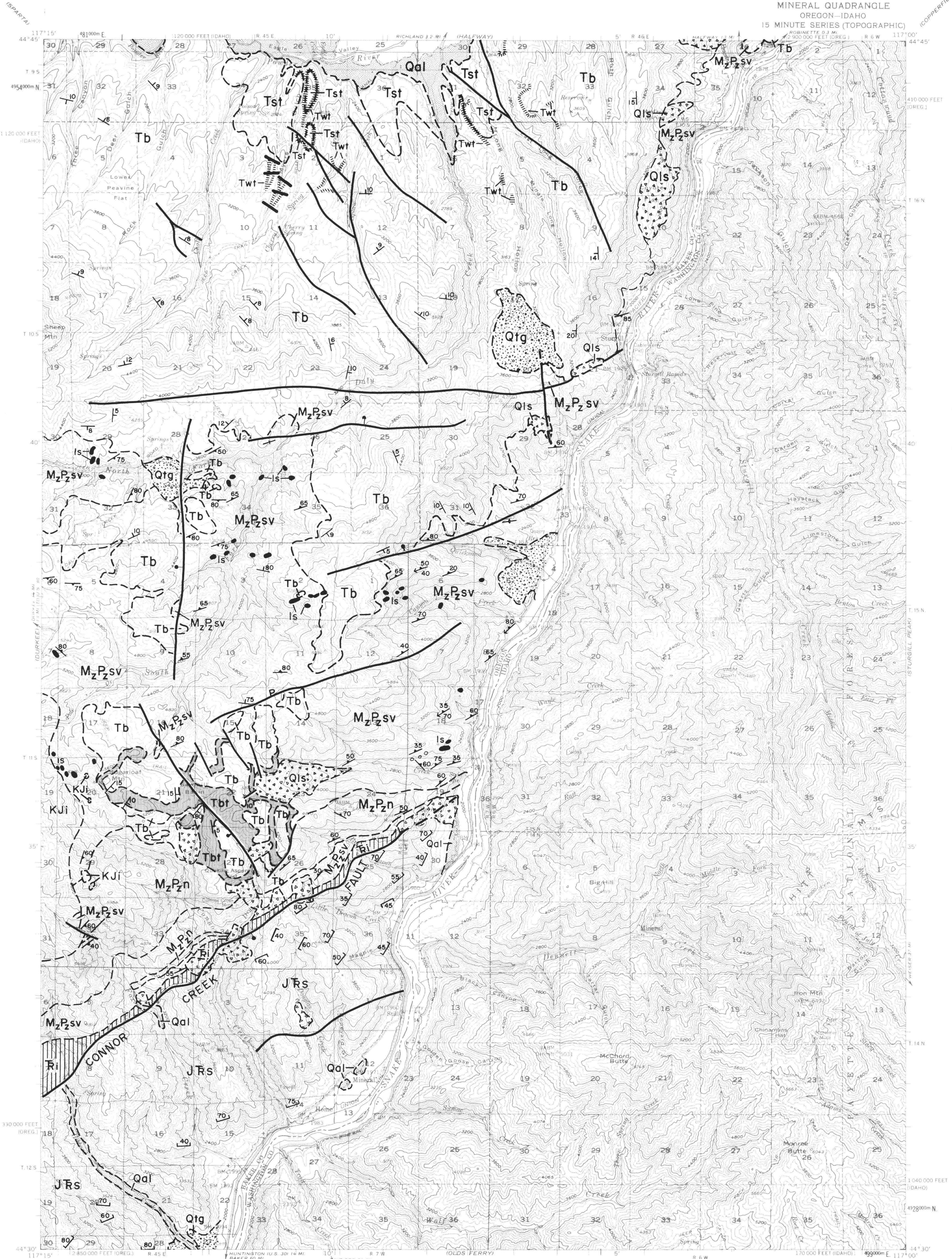
EXPLANATION

- Qal** Alluvium: Mostly valley fill and recent stream channel deposits consisting of unconsolidated silt, sand, and gravel.
- Qls** Landslide debris: Bedrock failure on oversteepened slopes; typified by hummocky topography.
- Qlg** Terrace and bench gravels: Unconsolidated deposits of gravel, cobbles, and boulders with intermixed and locally interlayered clay, silt, and sand. These deposits are remnants of ancient flood plains.
- Tst** Lacustrine and fluvial deposits: Poorly consolidated, water-laid siliceous ash and pumice with intermixed and interlayered clay, silt, and sand, mostly of lacustrine origin; some fluvial deposits, including gravel, locally. Vitroclastic material in some beds has been altered to clay, secondary siliceous, and zeolite minerals. Fossil bones and teeth from six localities in section 34, T. 9 S., R. 45 E., have been identified as early Pliocene (Clarendonian) by Arnold Shottwell (personal communication, 1969).
- Twt** Siliceous welded tuff: Firmly to moderately welded tuff; light gray to pale brown with white pumice fragments, partly flow-banded. Underlies Tst in map area; elsewhere in region, similar welded tuff deposits are interlayered and intergraded with tuffaceous sedimentary rocks in lower part of Tst.
- Tbt** Basaltic tuff: Poorly consolidated, subaerial and water-laid, partly palagonitized basaltic tuff and tuffaceous sandstone containing angular to subrounded fragments of basalt and basaltic glass, scoria, and cinders. Water-worn pebbles and cobbles composed of unit M₂P₂sv are abundant locally. Fossilized plant remains are rare and are undated.
- Tb** Basalt: Dark gray to black, locally reddish and dark greenish gray, chiefly flow-on-flow basalt, includes thin interbeds of poorly to semi-consolidated tuffaceous sedimentary rocks including gravel rich in rounded fragments of pre-Cenozoic rocks; flows range from 10 to 80 feet in thickness; flow tops commonly are scoriaceous; platy jointing and columnar jointing are prominent features locally; clay minerals, zeolites, calcite, common opal, and chalcedony are alteration products in fractures and open spaces; flow age based on stratigraphic position and lithologic similarity to basalt flows of the Columbia River Group elsewhere.
- Kji** Quartz diorite and granodiorite: Mostly coarse- to medium-grained quartz diorite and granodiorite with some trondhjemite and gabbro. Country rocks within thermal aureole have been recrystallized; argillaceous rocks to quartz-muscovite-biotite hornfels, mafic rocks to amphibolite hornfels, and limestone to coarse-grained marble.
- Jrs** Sedimentary rocks: Chiefly volcanic wacke and siltstone; some slate, phyllite, intraformational conglomerate, and rare siliceous volcanic rocks and limestone lenses. Bedding is disrupted and obscured by pervasive shear cleavage that strikes northeast and dips steeply northwest. Lower and Middle Jurassic age based on fossil ammonites found near Line in HUNTINGTON QUADRANGLE; corals identified as Late Triassic occur in similar rocks about 30 miles west in IRONSIDE MOUNTAIN QUADRANGLE.
- M₂P₂sv** Sedimentary, volcanic, and intrusive rocks: Chiefly quartz phyllite, phyllitic quartzite, pelitic phyllite, meta-chert, greenish-gray, greenstone, and marble; original rocks were mainly chert, argillite, tuff, lava flows, limestone, gabbro, and diorite; volcanic rocks were mainly andesite, basalt, keratophyre, and spilitic. Deformed pillow lavas are exposed by roadcuts in sections 29 and 32, T. 10 S., R. 46 E. Small marble lenses, ranging from a few feet to several hundreds of feet in longest dimension, are widely distributed; some are separately mapped (Is). The unit includes a few small bodies of gabbro and quartz diorite altered to fine-grained greenstone that is difficult to distinguish from greenstone derived from volcanic rocks. Exposures of sedimentary and volcanic rocks in BAKER QUADRANGLE were mapped by Gilluly (1937) as Elkhorn Ridge Argillite and Burnt River Schist. Limestones in Elkhorn Ridge Argillite contain Pennsylvanian, Permian, and Mesozoic fossils.
- M₂P₂n** Nelson Marble: Mostly bluish-gray massive and thinly layered marbleized limestone with interlayered dark gray and black siliceous and calcareous phyllite and slate. Informally named by Prostka (1967) for exposures at Nelson in the DUNKEE QUADRANGLE where Interstate 180N roadcuts provide an excellent view of unit in cross section. Age unknown.
- Ri** Mafic and ultramafic rocks: Gabbro, serpentinite, and associated metamorphic rocks including talc tremolite schist, quartz-chlorite-epidote schist, amphibolite schist, and rock consisting mostly of silica and carbonate minerals. These rocks probably are related to the ophiolitic Canyon Mountain Complex near John Day, which was tectonically emplaced in Late Permian - pre-Late Triassic time. Some of the more altered rocks along the Connor Creek fault may have been remobilized and altered as a result of fault movement. In the NW¼ section 35, T. 11 S., R. 45 E., chromite occurs in silico-carbonate rock derived from ultramafic rocks.

- CONTACT
- FAULT (ball on downthrown side)
- STRIKE AND DIP OF BEDDING
- STRIKE AND DIP OF FOLIATION
- STRIKE AND DIP OF FOLIATION SHOWING PLUNGE
- STRIKE OF VERTICAL FOLIATION
- STRIKE AND DIP OF CLEAVAGE

REFERENCES

- Gilluly, J., 1937, Geology and mineral resources of the Baker Quadrangle, Oregon: U.S. Geological Survey Bulletin 879, 119 p.
- Prostka, H.J., 1967, Preliminary geologic map of the Durkee Quadrangle, Oregon: Oregon Department of Geology and Mineral Industries Geological Map Series GMS-3.



Base Map by U. S. Geological Survey

Topography from aerial photographs by multiplex methods
Aerial photographs taken 1952. Field check 1957
Polyconic projection - 1927 North American datum
10,000-foot grid based on Oregon coordinate system,
north zone and Idaho coordinate system, west zone
100,000-meter Universal Transverse Mercator grid ticks,
zone 13
Dashed land lines indicate approximate locations

APPROXIMATE MEAN
DECLINATION, 1957

CONTOUR INTERVAL 80 FEET
DATUM IS MEAN SEA LEVEL

QUADRANGLE LOCATION

ROAD CLASSIFICATION
Light-duty
Unimproved dirt

Prepared and Published by the Cartographic Section of the
Department of Geology and Mineral Industries
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