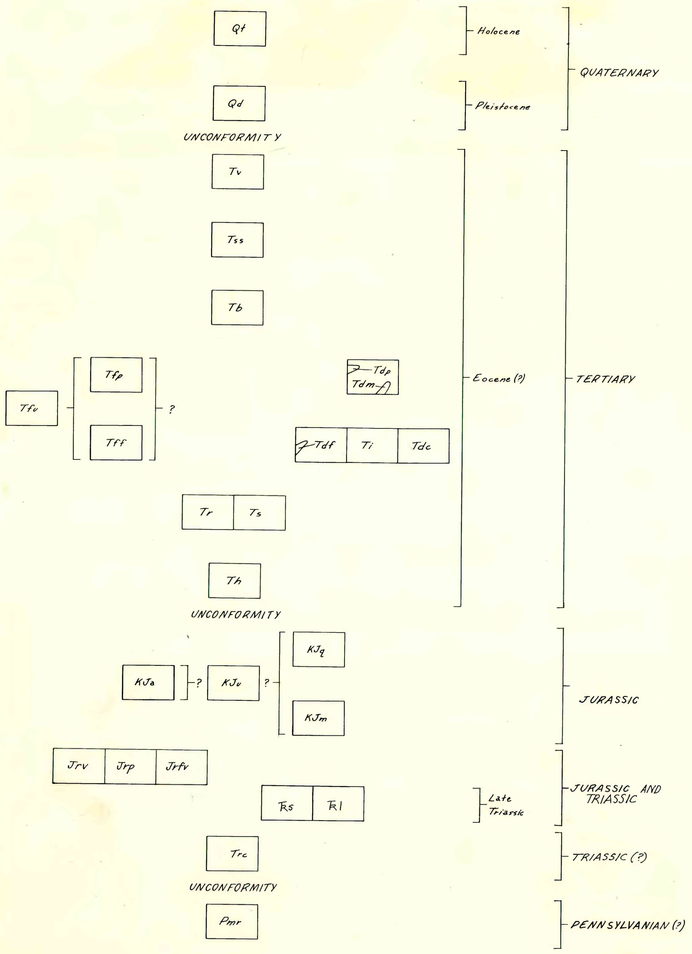
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

OPEN-FILE REPORT
81-169
SHEET 3 OF 3

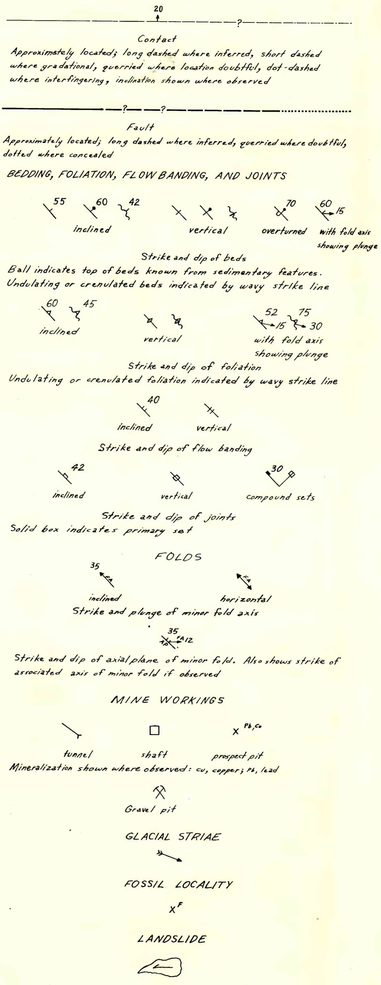
RECONNAISSANCE GEOLOGIC MAP OF THE CHURCHILL MTN. QUADRANGLE STEVENS COUNTY, WASHINGTON

EXPLANATION

CORRELATION OF MAP UNITS



CONTACTS AND FAULTS



DESCRIPTION OF MAP UNITS

Qt TALUS (Quaternary)

Qd GLACIAL DRIFT (Pleistocene) Patchy formless mantle composed chiefly of sand, silt, and gravel

Tv DACITE (Eocene?) Brown, rubbly, finely crystalline lava, composed of andesine, sanidine, augite, and accessory biotite and quartz. Spheroidal weathering.

Tss SANDSTONE, SILTSTONE (Eocene?) Poorly exposed thin bedded sedimentary rocks

Tb TRACHYANDESITE (Eocene?) Dark brown altered lava containing pseudomorphs of euhedral mafic phenocrysts scattered through aphanitic matrix. Locally contains xenoliths of white quartzite.

Tdp FELDSPAR PORPHYRY (Eocene?) Light gray rhyodacite, quartz latite, and trachyte in dikes and plugs

Tdm MAFIC DIKES (Eocene?) Dark brown biotite lamprophyre and gray fine-grained monzonite

Tdf FELSIC DIKES (Eocene?) Light gray, fine-grained biotite rhyodacite

Ti FELSIC INTRUSIVE ROCK (Eocene?) Very light gray, fine grained biotite quartz monzonite in dikes and plugs

Tdc DIKE COMPLEX (Eocene?) Numerous felsic dikes and feldspar porphyry dikes cutting the Rossland Group and older rocks

FIFTEEN-MILE CREEK PLUTON (Eocene?)

Tfp GRANITE PORPHYRY AND QUARTZ MONZONITE PORPHYRY Light gray, contains phenocrysts of plagioclase and K-feldspar in fine-grained matrix of feldspar, quartz, biotite, and hornblende

Tff QUARTZ MONZONITE Light gray, fine-grained, contains biotite and hornblende

Tfu GRANITE PORPHYRY, QUARTZ MONZONITE PORPHYRY AND FINE GRAINED QUARTZ MONZONITE Undifferentiated

Tr PORPHYRITIC BIOTITE DACITE (Eocene?) Medium gray lava flows, containing phenocrysts of plagioclase, euhedral black biotite, and minor hornblende in aphanitic matrix. Includes fine-grained equigranular lava flows of intermediate composition (dacite, rhyodacite, quartz latite). Includes flow breccia with blocks to 75 cm in length overlying interlayers of the crystal tuff and volcanic wacke unit.

Ts CRYSTAL TUFF AND VOLCANIC WACKE (Eocene?) Greenish gray to brownish gray, thin bedded to massive. Forms interlayers in porphyritic biotite dacite unit

Th PORPHYRITIC HORNBLENDE LATITE (Eocene?) Brownish gray lava flows containing phenocrysts of brown prismatic hornblende and glomeroporphyritic aggregates of augite and hypersthene scattered throughout aphanitic matrix.

KJa AMPHIBOLITE AND META-GABBRO (Cretaceous or Jurassic) Greenish gray, medium to coarse grained. Grades through fine-grained phlebitic recrystallized greenstone to aphanitic greenstone of the Rossland Group

KJu ULTRAMAFIC IGNEOUS ROCK (Cretaceous or Jurassic) Grayish black to dark brown. In sections 1 and 2, T. 39 N., R. 37 E., chiefly serpentinized dunite(?) with chrysotile veinlets. Elsewhere chiefly serpentinite

KJq QUARTZ DIORITE PORPHYRY (Cretaceous or Jurassic) Greenish gray with blocky yellowish gray phenocrysts of plagioclase up to 1 cm long in aphanitic to fine-grained matrix. Locally includes medium grained diorite. Commonly sheared and thermally metamorphosed

KJm MAFIC INTRUSIVE ROCKS (Cretaceous or Jurassic) Greenish gray to dark greenish gray, fine-grained to medium-grained, diabase, locally porphyritic. Commonly sheared and metamorphosed. Grades to quartz monzonite porphyry near Easter Sunday Mine

MAFIC VOLCANIC ROCKS AND INTERLAYERED SEDIMENTARY ROCKS (Jurassic and Triassic).
Equivalent in part to Rossland Group (Jurassic) of adjacent areas.

Jrv GREENSTONE Dark greenish gray, massive, locally amygdular, pillowed or flow-brecciated. Weakly metamorphosed mafic lava flows. Includes aphanite, augite porphyry, and plagioclase porphyry. Chemically similar to olivine trachybasalt, olivine trachyte and trachyandesite

Jrp GREENSCHIST Medium gray to greenish gray, commonly schistose. Weakly metamorphosed pyroclastic volcanic rock, volcanic breccia, and lava flows. Locally contains interlayers of recrystallized ribbon chert.

Jrfv METAFELSITE Olive gray to light gray felsic volcanic rocks, weakly metamorphosed. Locally includes interlayed metasiltstone and meta-argillite. Unit found only in southeast corner of map-area.

TRs METASEDIMENTARY ROCK (Late Triassic) Medium gray to medium greenish gray limy siltstone, volcanic wacke, chert conglomerate. Weakly metamorphosed

TRl META-LIMESTONE (Late Triassic) Light gray to dark gray silty limestone, locally recrystallized to marble

Trc META-CONGLOMERATE Triassic (?) Greenish gray pebble and cobble conglomerate and breccia, locally interlayered with dark gray argillite and light olive gray siltstone and volcanic wacke. Pebbles chiefly volcanic in origin, including both mafic and felsic varieties. Chert, argillite, and siltstone clasts locally abundant. Granitic cobbles are rarely present unlike otherwise similar conglomerate of the Mount Roberts Formation. Unit contains interlayered lava flows similar to those of the Rossland Group, and appears to interfinger with basal part of Rossland Group

Pmr MOUNT ROBERTS FORMATION (Pennsylvanian?) Weakly metamorphosed dark gray to light olive gray siltstone, argillite, chert breccia, volcanic wacke, tuffaceous siltstone, conglomerate, and mafic lava flows or sills