

PRELIMINARY
GEOLOGIC MAP
of the
SAWTOOTH RIDGE QUADGRANGLE
OREGON

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
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CHRONOLITHOGRAPH
(TIME ROCK CHART)

CENOZOIC	QUATERNARY	Holocene	Qal	Qls	
		Pleistocene			
	TERTIARY	Pliocene	Tst	Tb	Tpa
		Miocene			
MESOZOIC	TRIASSIC	Upper	Tpu	Tps	Tpi
PALEOZOIC	PERMIAN				
	PRE Upper TRIASSIC				Tog

EXPLANATION

Qal Mainly valley fill and stream-channel deposits consisting of unconsolidated silt, sand, and gravel.

Qls Landslide debris.

Tst Lacustrine and fluvial deposits: Poorly to moderately well consolidated, white, or light shades of gray, yellow, or brown water-laid deposits of siliceous ash and pumice; lesser amounts of sandstone, siltstone, and diatomite. Mostly fine grained and moderately well bedded. Mostly lacustrine; some fluvial deposits including gravel locally, particularly in the upper part of the section; also includes thin, welded and nonwelded ash-flow and air-fall tuff beds. Siliceous vitroclastic material commonly altered to secondary silica minerals, alkali feldspar, zeolites, and clay minerals. Vertebrate fossils indicate unit is mostly of early Pliocene (Clarendonian) age. Fossil plants indicate some beds are of Miocene age. Overlies and interfingers with basalt flows of unit Tb.

Tpa Platy andesite of Sawtooth Crater: Gray, locally dark-red or pink, nonvesicular, aphanitic to fine grained; breaks into thin slabs; contains about 5 percent phenocrysts of andesine, augite, and hypersthene in a pilotaxitic groundmass of plagioclase microlites. Unit (Tpa) flows overlie tuffaceous sedimentary rocks of unit (Tst) in sections 5 and 8, T. 7 S., . 42 E. along Big Creek ditch. Sawtooth Crater is the central vent of a large, low-relief shield volcano (Patterson, 1969). Dikes, flow breccia, and pyroclastic rocks comprise part of the vent area.

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 fluvial gravels rich in rounded fragments of pre-Cenozoic rocks. Flows range from 10 feet to 80 feet thick. Flow tops commonly are scoriaceous. Platy jointing and columnar jointing are locally prominent. Clay minerals, zeolites, calcite, common opal, and chalcedony are alteration products in fractures and open spaces. Upper Miocene age based on plant remains found in tuff interbeds (Gilluly, 1937).

Tog Albite granite: Granitic rocks chiefly consisting of quartz and albite; accessory biotite, green hornblende, chlorite, epidote, sphene, magnetite, clinzoisite, sericite, apatite, and zircon. Mafics rarely exceed 2 percent. Textures vary from coarse granular to mylonitic. Most rocks are sheared to some degree, some are foliated. Plagioclase typically is saussuritized, and the quartz is strained. The quartz commonly is bluish megascopically. Unit includes minor hypidiomorphic granular quartz diorite and diabase dikes. Age, pre-Late Triassic.

Volcanic and sedimentary rocks: Clover Creek Greenstone of Gilluly (1937). Lava flows, flow breccia, agglomerate, and tuff; volcanoclastic conglomerate, breccia, sandstone, and siltstone; lesser argillite, chert, and minor limestone. Greenschist-facies metamorphism. Volcanic rocks range from spilite through meta-andesite to highly siliceous keratophyre and quartz keratophyre. Abundant small intrusive masses. Volcanic rocks and marine sedimentary rocks are interbedded. Poor exposures, facies changes, and complex structure make detailed mapping difficult. Age, Permian and Upper Triassic.

Tpu Undivided volcanic and sedimentary rocks.

Tps Siliceous volcanic center: chiefly keratophyre and quartz keratophyre flows, flow breccia, tuff, and related intrusive masses.

Tpi Limestone.

GEOLOGIC SYMBOLS

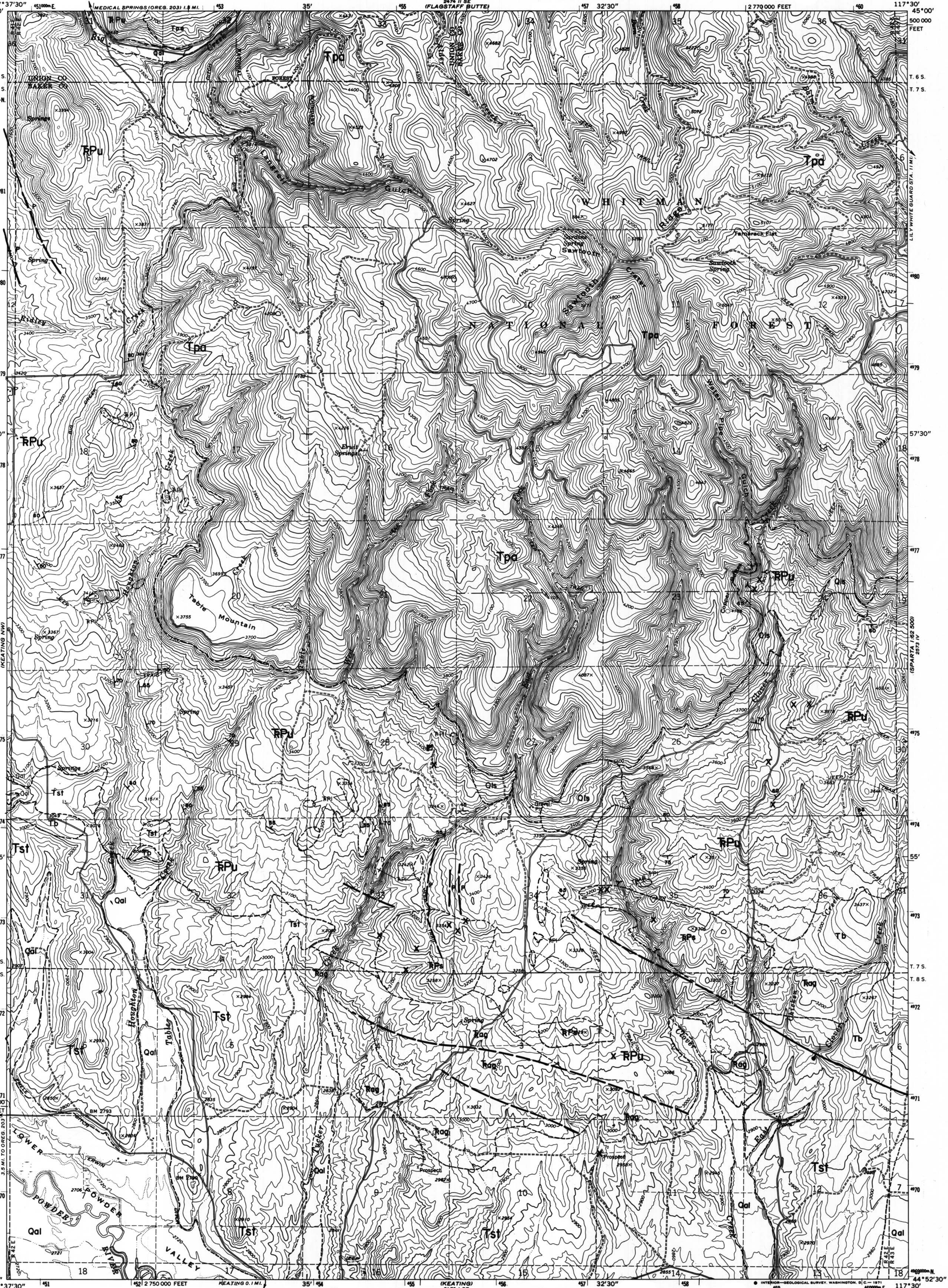
Contacts
----- Approximate contact
Faults
--- Definite fault
--- Approximate fault
--- Possible fault (photointerpreted)
--- Normal fault (ball and bar on downthrown side)
----- Concealed fault

Bedding
+ Strike and dip of bed
+ Strike of vertical bed

X Prospect
Vertical shaft
Adit

Geology by: Howard C. Brooks
R.G. Bowen, D. A. Hull, & R. W. Hammett

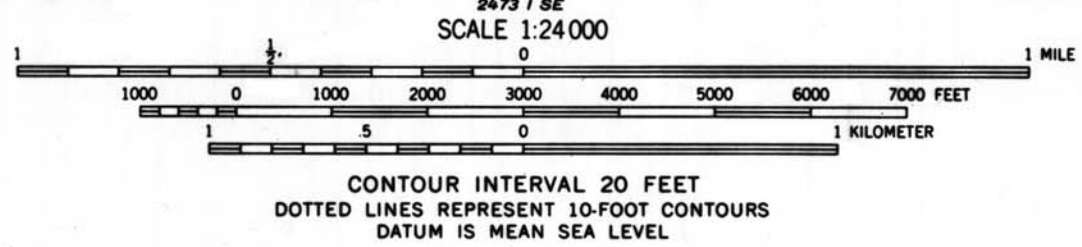
Cartography by C. A. Schumacher, 1977



Base Map from USGS 7½ series (Topographic)

Control by USGS and USC&GS
Topography by photogrammetric methods from aerial photographs taken 1966. Field checked 1967
Polyconic projection. 1927 North American datum
10,000-foot grid based on Oregon coordinate system, north zone
1000-meter Universal Transverse Mercator grid ticks, zone 11, shown in blue
Fine red dashed lines indicate selected fence lines

UTM GRID AND 1967 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET



ROAD CLASSIFICATION
Light-duty ----- Unimproved dirt -----

Prepared and Published by the Cartographic Section of the Department of
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