

PRELIMINARY
GEOLOGIC MAP
of the
SAWTOOTH RIDGE QUADRANGLE
OREGON

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
R. E. CORCORAN, STATE GEOLOGIST

CHRONOLITHOGRAPH
(TIME ROCK CHART)

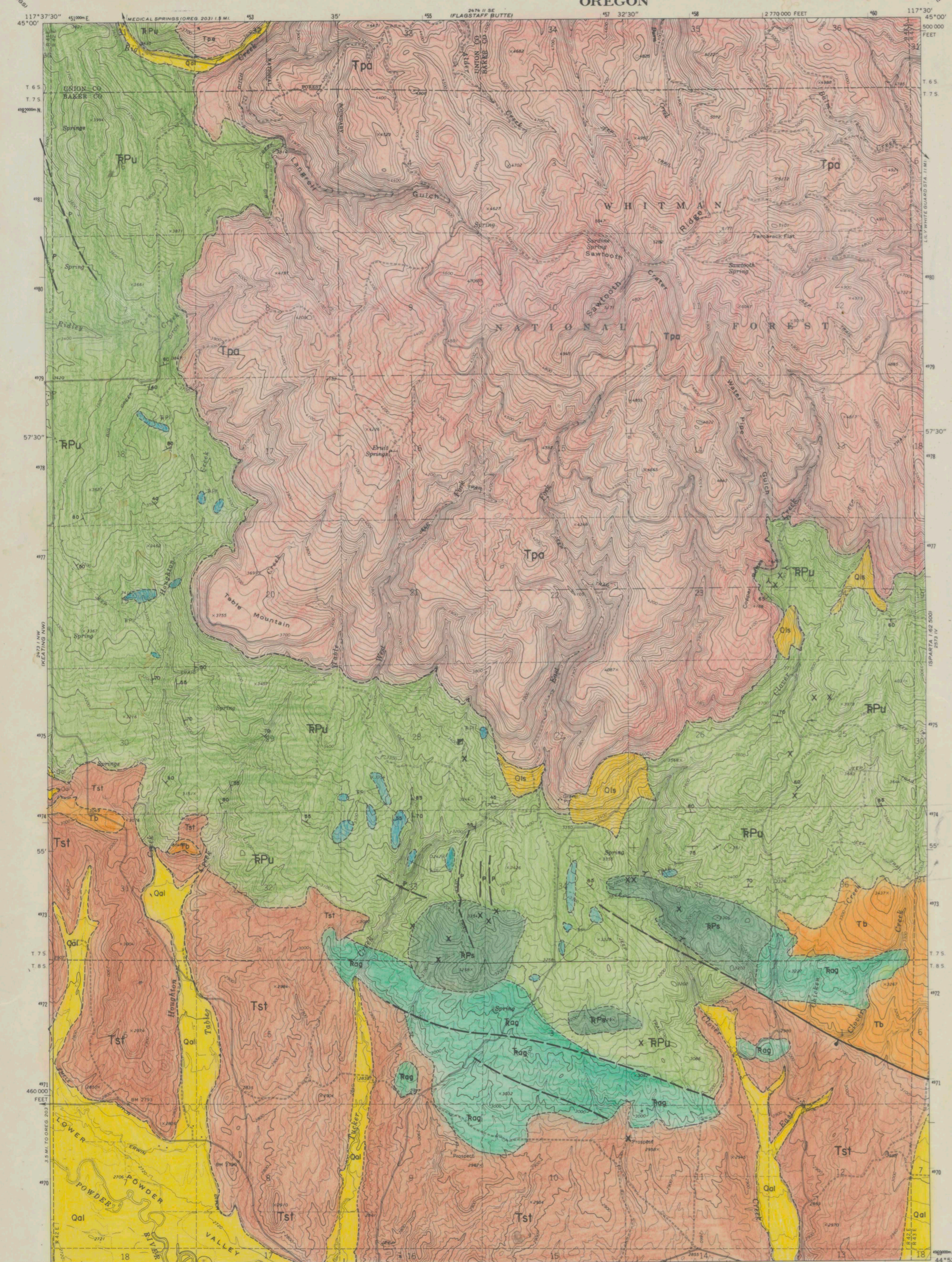
CENOZOIC	QUATERNARY	Holocene	Qal	Qls
		Pleistocene		
TERTIARY		Pliocene	Tst	Tb
		Miocene		Tpd
MESOZOIC	TRIASSIC	Upper	Tpu	Tps
				Tpi
PALEOZOIC	PERMIAN			Tpg
	PRE TRIASSIC			

EXPLANATION

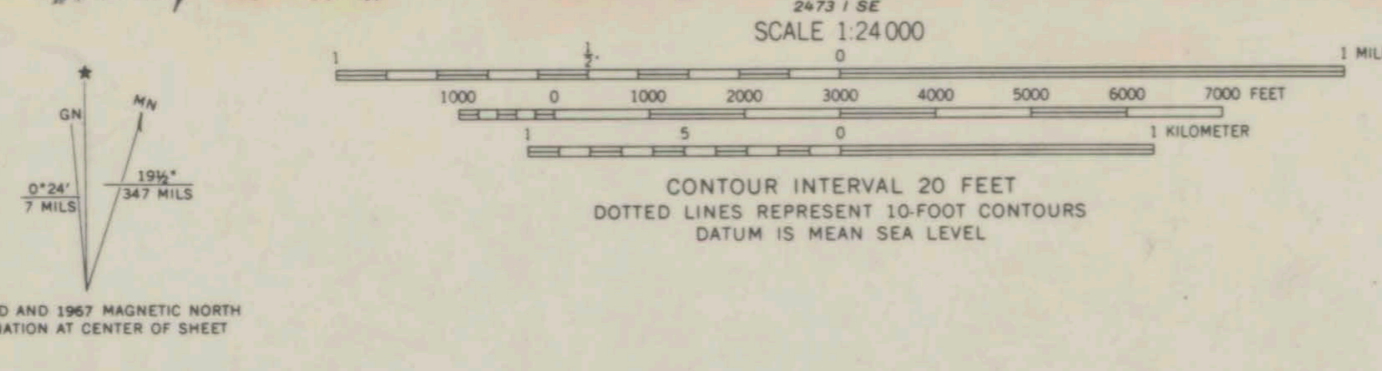
- Qal** Mainly valley fill and stream-channel deposits consisting of unconsolidated silt, sand, and gravel.
- Qls** Landslide debris.
- Tst** Lacustrine and fluvial deposits: Poorly to moderately well consolidated, white, or light shades of gray, yellow, or brown water-laid deposits of siliceous ash 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 siliceous 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 plagioclase 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, 1959). 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 fluvialite 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, 1957).
- Tpg** Albite granite: Granitic rocks chiefly consisting of quartz and albite; accessory biotite, green hornblende, chlorite, epidote, apatite, magnetite, clinzoisite, sericite, apatite, and zircon. Mafics rarely exceed 3 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 megacrystically. Unit includes minor hypidiomorphic granular quartz diorite and diabase dikes. Age, prelate Triassic.
- Volcanic and sedimentary rocks:** Clover Creek Greenstone of Gilluly (1957). Lava flows, flow breccia, agglomerate, and tuff; volcanoclastic conglomerate, breccia, sandstone, and siltstone; lesser argillite, chert, and minor limestones. Greenschist-facies metamorphism. Volcanic rocks range from spilite through meta-andesite to highly siliceous keratophyre and quartz keratophyre. Abundant small granitoid 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
 - Definite fault
 - - - - - Possible fault (photointerpreted)
 - Normal fault (ball and bar on downthrown side)
 - Concealed fault
- Bedding**
- +— Strike and dip of bed
 - +— Strike of vertical bed
- Prospect**
- X Prospect
 - Vertical shaft
 - Adit



Base Map from USGS 7 1/2' 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



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

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

Cartography by: C.A. Schumacher, 1977

Prepared and Published by the Cartographic Section of the Department of Geology and Mineral Industries, R. E. Corcoran, State Geologist, S. R. Renouf, Chief Cartographer.