

PRELIMINARY  
GEOLOGIC MAP  
of the  
BOWEN VALLEY QUADRANGLE  
OREGON

OFR 78-3

STATE OF OREGON  
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES  
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BOWEN VALLEY QUADRANGLE  
OREGON - BAKER CO.  
7.5 MINUTE SERIES (TOPOGRAPHIC)

TIME ROCK CHART

CENOZOIC	QUATERNARY	Holocene	Qal	Qls	MILLIONS OF YEARS
		Pleistocene			
TERTIARY		Pliocene	Tst	Twt	2-3
		Miocene		Tr Tb	
		Oligocene Eocene Paleocene			
MESOZOIC		CRETACEOUS			65
		JURASSIC			
		TRIASSIC			
PALEOZOIC		PERMIAN		Per	225
		PENNSYLVANIAN		?-?	

EXPLANATION

- Qal** Alluvium: Mainly valley fill and recent stream channel deposits consisting of unconsolidated silt, sand, and gravel.
- Qls** Landslide debris: Symbols in parentheses identify the rock units composing slide.
- Tst** Lacustrine and fluvial deposits: Unconsolidated to moderately well-consolidated deposits of clay, silt, sand, and gravel with interbedded siliceous ash and pumice and minor palagonitic tuff; some deposits are sublacustrine coalescing alluvial fans as indicated by wide distribution of gravel, poor sorting, and lenticular bedding; siliceous vitroclastic material commonly altered to secondary silica minerals, alkali feldspar, zeolites, and clay minerals; vertebrate fossils mostly Lower Pliocene (Clarendonian); fossil plants are Miocene. In most places, sedimentary deposits are clearly younger than basalt of Tb, but they locally underlie or separate basalt flows.
- Twt** Siliceous welded tuff: Firmly to moderately welded tuff; light-gray to pale-brown with white pumice fragments; partly flow-banded. Outside map area welded tuff of Twt grades laterally into nonwelded tuff and tuffaceous sedimentary rocks in lower part of Tst.
- Tb** Basalt: Dark-gray to black, locally reddish- and dark greenish-gray, chiefly flow-on-flow basalt; includes thin interbeds of poorly to semiconsolidated tuffaceous sedimentary rocks including gravel rich in rounded fragments of pre-Cenozoic rocks; flows range from 10 to 80 ft 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; Miocene, based on plant fossils in tuff interbeds and lithologic similarity to basalt flows of the Columbia River Group elsewhere.
- Tr** Rhyolite and andesite: Includes rocks mapped by Gilluly (1937) as Dooley Rhyolite Breccia; rhyolite flows, flow breccia, and tuff; minor andesite and andesite vitrophyre; locally underlies basalt flows of Tb; Miocene; dated radiometrically at 14.3 million years.
- Per** Marine sedimentary and volcanic rocks: Elkhorn Ridge Argillite; mostly argillite, chert including radiolarite, and tuff; some lava flows and small pods of limestone; complexly deformed and metamorphosed to greenschist facies; foliated locally; generally poorly exposed. Pennsylvanian, Permian, and Mesozoic fossils have been found in similar rocks in Virtue Hills east of Baker.
- Rpi** Intrusive rocks: Mostly quartz diorite and gabbro; some poorly exposed, fine-grained rocks may be mafic dikes or flows; these rocks probably are equivalent to pre-Upper Triassic rocks of Canyon Mountain Complex.

SYMBOLS

- Contact
- Fault (ball and bar on downthrown side)

ROAD CLASSIFICATION

- Heavy-duty ——— Light-duty ———  
Medium-duty ——— Unimproved dirt ———  
○ Interstate Route ○ U.S. Route ○ State Route

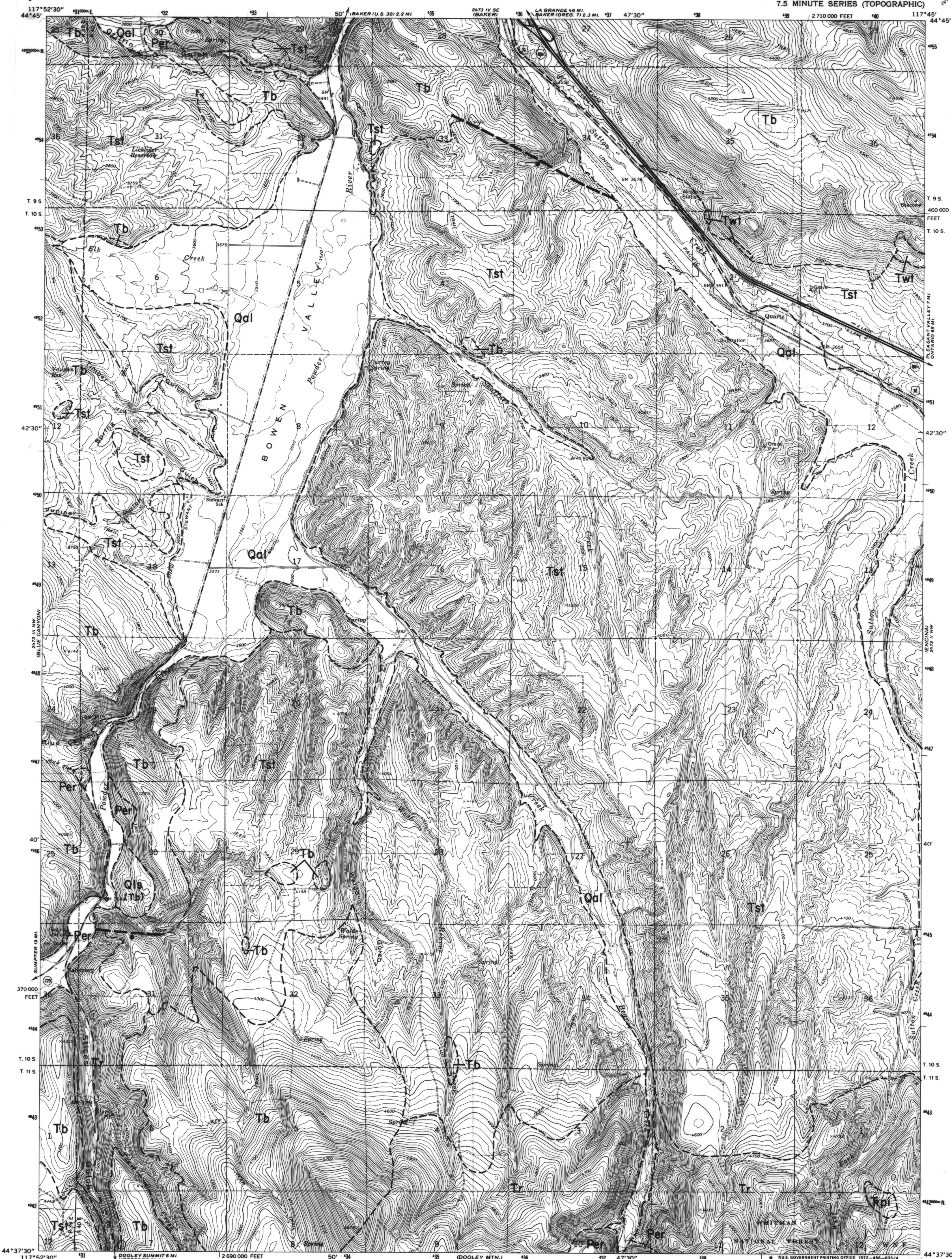
BOWEN VALLEY, OREG.  
N4437.5-W11745.7.5

1967

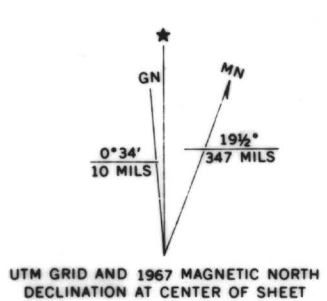
AMS 2473 III NE-SERIES V892

Geology by: H.C. Brooks and J.R. McIntyre  
Cartography by: K.A. Eisele 1977

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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



CONTOUR INTERVAL 20 FEET  
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS



QUADRANGLE LOCATION