

CORRELATION OF MAP UNITS

Qa	QUATERNARY	Holocene
Q1a Qc		Holocene and Pleistocene
Q1b		Pleistocene
Qo		
Tb	TERTIARY	Miocene
Ta Tj		Miocene?
Trp Trn	TRIASSIC TO TERTIARY	Oligocene
d		TRIASSIC?
r	TRIASSIC	
Trw Trlqm		
TrPa1	TRIASSIC AND/OR LATE PALEOZOIC	
PPHns PPHng PPHns		PERMIAN, PENNSYLVANIAN, AND MISSISSIPPIAN
Ova Ovg		ORDOVICIAN

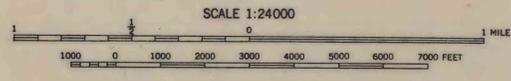
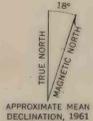
DESCRIPTION OF MAP UNITS

- Qa ALLUVIAL DEPOSITS (HOLOCENE)—Fluvial gravel, sand, and silt
- Qc TALUS (HOLOCENE)
- Q1a LANDSLIDE DEPOSITS (HOLOCENE AND PLEISTOCENE)—Symbols in parentheses indicate rock unit involved
- Q1b LAKE LAMONTAN DEPOSITS (PLEISTOCENE)—Bar, spit, and beach deposits composed mainly of gravel and sand
- Qo OLDER ALLUVIAL DEPOSITS (PLEISTOCENE)—Principally fanglomerate, but also includes fluvial gravel and sand deposited during main period of fan building. Includes some younger deposits of alluvium and colluvium
- Tb BASALT (MIOCENE)—Dark-gray basalt, scoriaceous near the tops of flows
- Ta TUFF, SANDSTONE, AND CONGLOMERATE (MIOCENE?)—Tuff is light gray to grayish red; some units contain sparse phenocrysts of sanidine or biotite. Sandstone and conglomerate are poorly exposed and are commonly recognized by the presence of well-rounded pebbles of chert
- Tj JASPEROID BRECCIA (MIOCENE?)—Fragments of jasperoid in a matrix of jasperoid. Locally contains fragments of chert, argillite, and other rocks; some jasperoid rock not brecciated; extremely resistant rock
- Trp NYOLITE PORPHYRY (TERTIARY)—Contains abundant phenocrysts of potassium feldspar, plagioclase, and quartz in a light-brown, very finely crystalline, altered groundmass; plagioclase phenocrysts are commonly altered to actinolite
- Trn GABBRO AND DIORITE (TERTIARY)—Medium-crystalline, commonly biotitic, greenish black gabbro, and medium to finely crystalline, medium-light-gray to greenish-gray biotite diorite
- Trlqm QUARTZ MONZONITE PORPHYRY AND GRANODIORITE PORPHYRY (TERTIARY)—Contains abundant plagioclase phenocrysts, together with potassium feldspar, quartz, biotite, and hornblende phenocrysts, in a matrix of potassium feldspar with fine-grained plagioclase and quartz
- Trn MONZONITE AND DIORITE (OLIGOCENE)—Medium-crystalline, light- to dark-colored, pyroxene-biotite and hornblende-biotite monzonic and diorite composed of 28 to 64 percent plagioclase, 6 to 44 percent potassium feldspar, 2 to 44 percent mafic minerals, and generally less than 10 percent quartz; includes some gabbro. K-Ar age 30.2 ± 2.5 m.y. (D. Obradovich, written comm., 1980)
- d DIABASE (TRIASSIC TO TERTIARY)—Finely crystalline, olive-brown diabase dikes and sills composed principally of plagioclase and pyroxene
- r NYOLITE, QUARTZ LATITE, AND DACITE (TRIASSIC?)—Pale-yellowish-gray to greenish-and light-brownish-gray dikes and sills, commonly with phenocrysts of quartz or potassium feldspar in a fine- to micro-crystalline groundmass; includes some trachyte and latite
- Trlqm LEUCOKRATIC QUARTZ MONZONITE (TRIASSIC?)—Very light gray to light gray, coarsely to medium crystalline quartz monzonic and granite, containing 20 to 50 percent plagioclase, 30 to 55 percent potassium feldspar, and 10 to 34 percent quartz; generally without mafic minerals except for minor amounts of magnetite
- Trw WEATHER NYOLITE (LOWER TRIASSIC)—Nyolite flows, tuffs, and breccias, commonly with phenocrysts of quartz and feldspar in an aphanitic groundmass; predominantly light colored, ranging from very light gray to grayish orange pink and greenish gray; flow banding locally prominent
- Trn ROCHESTER NYOLITE (LOWER TRIASSIC)—Nyolite flow, tuffs, and breccias, locally with sparse feldspar phenocrysts in an aphanitic groundmass; predominantly light colored, ranging from very light gray and light greenish gray to medium bluish gray; locally flow-banded
- TrPa1 LIMERICK GREENSTONE (LOWER TRIASSIC AND/OR LATE PALEOZOIC)—Medium dark gray to greenish gray altered mafic flow and breccias; locally contains small feldspar phenocrysts in a finely crystalline groundmass
- PPHns HAVALLAH SEQUENCE (PERMIAN, PENNSYLVANIAN, AND MISSISSIPPIAN)
- PPHns ARGILLITE-CHELT UNIT—Interbedded yellowish-gray to medium-gray argillite and siliceous argillite and light-gray, greenish-gray, and pale red chert with some greenstone, tuff, limestone, and minor quartzite
- PPHng GREENSTONE UNIT—Greenish-gray, massive to foliated, altered mafic volcanic rocks; pillow structures rare. Some interlayered chert and argillite
- PPHns SILSTONE-QUARTZITE UNIT—Dark-gray to pale-red siltstone and argillite with interbedded quartzite and conglomerate. Much of the quartzite contains granules of black chert
- Ova VALMY FORMATION (ORDOVICIAN)
- Ovg ARGILLITE-CHELT UNIT—Dark-gray argillite and chert with some interlayered greenstone and minor limestone and quartzite
- QUARTZITE UNIT—Massive, vitreous, fine- to medium-grained quartzite. Occurs in fault-bounded blocks

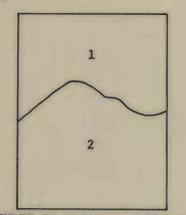
- Contact—Dashed where approximately located
- - - Fault—Dashed where approximately located; dotted where concealed. Ball and bar on downthrown side
- / - Low-angle fault—Dashed where approximately located; dotted where concealed. Sawtooth on upper plate
- ++++ Highest shoreline of Lake Lahontan
- ~ Minor anticline showing plunge of axis
- ~ Minor syncline showing plunge of axis
- ~ Overtured fold showing plunge of axis
- ~ Minor fold axis showing plunge
- ~ Minor fold axis, horizontal
- ~ Strike and dip of beds
- ~ Strike of vertical beds
- ~ Horizontal beds
- ~ Strike and dip of foliation
- ~ Strike of vertical foliation
- ~ Strike and dip of joints
- ~ Strike of vertical joints
- ~ Shaft—Metal commodity shown where known
- ~ Adit—Metal commodity shown where known
- ~ Prospect pit—Metal commodity shown where known

Mapped by Pacific Area, Geological Survey
 This is an unedited copy of an original manuscript including field additions made in 1961

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.



CONTOUR INTERVAL 40 FEET
 DATUM IS MEAN SEA LEVEL



INDEX TO GEOLOGIC MAPPING
 1. D. H. Whitebread
 2. M. L. Sorensen



QUADRANGLE LOCATION

PRELIMINARY GEOLOGIC MAP OF THE GRANITE MOUNTAIN QUADRANGLE (SE 1/4 KYLE HOT SPRINGS QUADRANGLE), PERSHING COUNTY, NEVADA

by

Donald H. Whitebread and Martin L. Sorensen