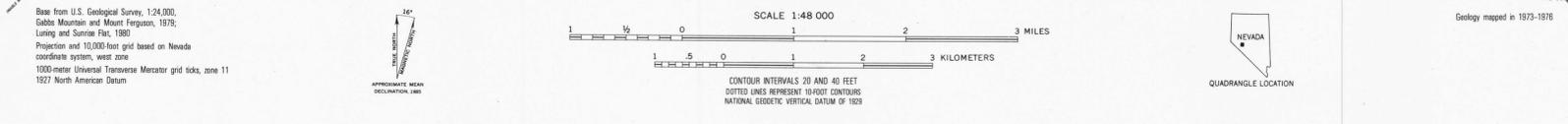


- ### DESCRIPTION OF MAP UNITS
- Phenocryst content listed is approximate range of the total rock in modal percent. Phenocryst minerals are listed as percent of total phenocrysts: q, quartz; af, alkali feldspar; pf, plagioclase feldspar; b, biotite; hb, hornblende; ppx, pyroxene; cpx, clinopyroxene; orth, orthopyroxene; ol, olivine; o, opaque minerals; and mp, mafic pseudomorphs. Apatite, zircon, and allanite are ubiquitous accessory minerals in the ash-flow tuffs; sphene is indicated where present.
- Qp** PLAYA DEPOSITS (HOLOCENE AND PLEISTOCENE)—Unconsolidated clay, silt, and sand deposited in ephemeral lakes; during dry seasons material is deflated. Thickness 0-30a m.
  - Qa** ALLUVIUM (HOLOCENE AND PLEISTOCENE)—Unconsolidated silt, sand, gravel, and boulders in washes and on alluvial fans; includes talus adjacent to range fronts. Thickness 0-100a m.
  - Qs** WIND-BLOWN SAND (HOLOCENE AND PLEISTOCENE)—Subspherical sand and silt interbedded with sheetflood gravel. Thickness 0-30a m.
  - Qta** LANDSLIDE BLOCKS AND TALUS (HOLOCENE AND PLEISTOCENE)—Thickness 0-40a m.
  - QTI** FAN ALLUVIUM (PLEISTOCENE AND PLEISTOCENE)—Primarily subangular boulders, cobbles, and pebbles of Tertiary and Mesozoic rocks in a loose to slightly indurated matrix of sand, silt, and minor clay. Thickness 0-100+ m.
  - Tf** FANGLOMERATE (PLIOCENE)—Primarily subrounded and subangular boulders, cobbles, and pebbles of Tertiary and Mesozoic rocks in a slightly to locally well-indurated matrix of sand, silt, and minor clay. Thickness 0-100+ m.
  - Tg** LATTICE (MIOCENE)—Consists of two distinct types: one type has cpx as microphenocrysts, and the other has hb phenocrysts or microphenocrysts with or without cpx. The variety having cpx as the sole mafic mineral is megacrystic aphyric nearly everywhere. The hb variety, on the other hand, may be aphyric or conspicuously porphyritic containing 10 percent phenocrysts or more. All varieties are dark gray or black; forms a volcanic neck at Finger Rock. Thickness 0-50 m.
  - Ta** ALLUVIUM AND COLLUVIUM (MIOCENE)—Primarily remnants of alluvial fans composed of subrounded Tertiary and Mesozoic boulders, cobbles, and pebbles in a tuffaceous sandstone matrix; locally includes thin beds of white ash-fall tuff, colluvium, and landslide debris. Thickness 0-50 m.
  - Tb** ESMERALDA FORMATION (MIOCENE)—Mostly yellow-brown thin-bedded fluviolacustrine tuffaceous siltstone, sandstone, and mudstone occurring with rare, thin (less than 1.0 m) beds of white diatomite; commonly has thin (0.5-5 m) interbeds of brown gravel or conglomerate consisting of subrounded to rounded pebbles and cobbles of mostly Tertiary volcanic rocks in a matrix of tuffaceous sandstone; locally contains thin-bedded, lacustrine, papery-weathering white siltstone. Most of the tuffaceous strata are frothy weathering due to abundant montmorillonite. The strata locally contain thin rhyolite lavas, some of which were deposited subaqueously; in places near the base, gravel beds contain abundant rhyolite Apache tears. Some of these from the Mount Arnie NE quadrangle to the north (see index map) yielded an age of 15.6±0.5 m.y. (R. F. Marvin, written commun., 1983). The name Esmeralda Formation is used herein for reasons outlined by Ross (1961, p. 45) and also because the strata in this quadrangle are virtually continuous with the strata at the type locality in Esmeralda County, Nev. Thickness 1000a m.
  - Tc** Loesslike sandstone—Pale-brown and reddish-brown thick-bedded tuffaceous sandstone; locally crossbedded; derived almost entirely from reworked quartz latite ash, which contains pf, hb, b, ppx, and sparse q; granules of intermediate lavas are ubiquitous, and locally they form thin beds of conglomerate. Where this unit is intensely fractured and/or sheared, it weathers to a thick frothy crust due to conversion of the ash matrix to montmorillonite. Thickness 0-100 m.
  - Td** BASALT (MIOCENE)—Dark-gray and black basaltic lava containing sparse to moderately abundant microphenocrysts (mostly less than 0.5 mm) of ol and cpx in a crystalline groundmass of pf, ppx, ol, and magnetite.
  - Tm** MAFIC INTRUSIVES (MIOCENE)—Dark-brownish or greenish-gray latite or basaltic andesite; principally has small phenocrysts of pf and ppx; locally has 20 percent small phenocrysts of pf, cpx, hb, and b.
  - Tn** RHYOLITE OF GABBS VALLEY RANGE (MIOCENE)—Typically pink or light-gray, flow-laminated rhyolite containing 10 percent small phenocrysts (1-2.5 mm) of sodic pf and b in a weakly devitrified or glassy groundmass; scattered phenocrysts of moderately embayed q occur locally. In most places this rhyolite exhibits intrusive contacts with country rock, but the dome-shaped dome in the northwestern corner of the map area flowed out onto surface strata and intruded its own ejecta (Trt). An age of 19.2±0.7 m.y. was obtained from biotite of this rhyolite dome.
  - Trt** RHYOLITE EJECTA OF GABBS VALLEY RANGE (MIOCENE)—Primarily thin-bedded ash-fall tuff. Thickness 0-50 m.
  - Tt** LAVAS OF MOUNT FERGUSON, UNDIVIDED (MIOCENE)—Many individual porphyritic lava flows ranging in composition from hypersthene andesite to quartz latite. Separate flows mapped only in the vicinity of Gabbs Mountain. K-Ar age dates range from about 15 m.y. to 22 m.y. Thickness 1,000 m to possibly as much as 2,000 m.
  - Tth** Hornblende-pyroxene latite—Black and dark-gray latite consisting of upper and basal black vitropheres separated by dark-gray stony interior. Phenocrysts 40 percent; pf, 77; hb (as much as 1 cm long), 8; cpx, 13; o, 2. Thickness 0-300+ m.
  - Tthb** Hypersthene andesite—Dark-gray and dark-greenish-gray. Phenocrysts 18: pf (2-4 mm), 72; cpx (1-3 mm), 27; o, 1. Thickness 0-40+ m.
  - Tthq** Hornblende quartz latite—In most places unit consists of a single lava flow of conspicuously porphyritic hornblende quartz latite; locally has a separate cooling unit at top of dense, flow-laminated, light-gray rhyolite or silicic quartz latite that contains small phenocrysts of pf and b; hornblende quartz latite is light gray to white and contains hb and pf phenocrysts as long as 2 cm. Phenocrysts 34: pf, 66; hb, 31; b, 1; cpx, 2; o, trace. Thickness 0-50+ m.
  - Tthi** Feeder neck—Large volcanic neck exposed northeast of Mount Ferguson; rock is rhyodacite or quartz latite in composition.
  - Tp** QUARTZ-RICH ASH-FALL TUFF (MIOCENE)—Pinkish-gray, nonwelded, 15-25 percent small and underlain by lava. The distal end of a tuff.
  - Ts** SEDIMENTARY ROCKS (MIOCENE)—Tuffs and lavas at various Ferguson and the top of the lacustrine Canyon (Trc) and all lacustrine siltstone and beneath the lava of the Ferguson; there the finely laminated, tuffaceous chert or novaculite, or conglomerate. The appears to reflect a dense (30 m exposed) consists of claystone and mudstone after pyrite? The record the development of or volcano-tectonic BRECCIATED TUFF AND densely welded tuff of quartz latite probably to densely welded tuff.
  - Tt** TUFF OF REDROCK CANYON (MIOCENE)—The upper quartz latite and rich in pumice as densely welded rhyolite the western border of the quartz latite is dark brown rhyodacite part is micaceous Sphinx Tuff (Tsp), ex granitic rocks ranging 0.5 m; in addition Trc phenocrysts as long as 6-17; af, 10-30; pf, (R. F. Marvin, written rhyodacite is dark brown partly welded and accreted to weather to pits and 20-40; q, 0-5; af, 0-3. Thickness 0-15 m.
  - Tu** DEBRIS DEPOSITS (MIOCENE)—Intermediate composition siltstone; locally includes in some exposures include Spring Group and Benton Spring Group.
  - Tv** LAVAS OF NUGENT VALLEY (MIOCENE)—Laminated, crystal-poor that is 0-60+ m thick of intermediate composition latite. These rocks are dark gray to black (cm) pf and hb phenocrysts in the le Tuff Member of Hu-Poinsettia Tuff Member. Silicic quartz latite or rhyolite.
  - Tw** LAVAS OF INTERMEDIATE COMPOSITION (MIOCENE)—Consists of five cooling units of the Poinsettia Tuff Member. Nugent Tuff Member. Poinsettia Tuff Member. Unit C—Simple cooling by perlitic gray pumice by light-gray vitric pumice are separated from and/or air-fall tuff a the same phenocryst content from light gray where reddish gray where 75-85; af, 0-trace; Unit C—Simple cooling Unit B—Simple cooling to include partly welded overlying unit Unit A2—Simple cooling break with underlying complete where a well 0-10 m of bedded tuff Unit A1—Simple or 4 m Units A2 and A1, unit Unit 1 of Nugent Tuff Member and dark-brownish-gray fragments 1-3 cm long gray intermediate lava percent of the volume; as long as 1 cm, common Tuff Member. Thickness dark-gray and blue-gray pf, cpx, and b; character layers poor in pf; small less than 3 mm BLUISH SPHINX TUFF (MIOCENE)—Unit of densely welded or pinkish gray where is presence of intermediate to much as 6 mm by the absence of granules of 45-75; b, 4; hb; TUFF OF GABBS VALLEY (MIOCENE)—Only in the extreme north of Mount Ferguson (cross section A-A'), rhyolite tuff about 30 shades of gray, brown, brown. Phenocrysts oligoclase, and q. DACITE LAVA (MIOCENE)—Siltstone of various degrees porphyritic, containing as long as 1 cm. Exp. cooling units of welded rhyolite or quartz latite as long as 15 m. Lithic fragment the unit is characterized upper quartz latite cooling units of welded basal rhyodacite virtually nonwelded, white ash-fall tuff about 10 m at base, 22-23; q, 0; hb, 0-2; cpx, 0-2; although a partial cooling Singatse Tuff. The unit is characterized by light red and purple gray. Phenocrysts 10-20; af, 20-30; Guild Mine Member of welded tuff that grades light red where fresh in upper rhyolite latite light-gray pumice as flattened pumice as (upper rhyolite), 0-tr pf, 15-25 (upper), 65



## GEOLOGIC MAP OF THE GABBS MOUNTAIN, MOUNT FERGUSON, LUNING, AND SUNRISE FLAT QUADRANGLES, MINERAL AND NYE COUNTIES, NEVADA

By  
E. B. Ekren and F. M. Byers, Jr.  
1985

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