

**SURFICIAL DEPOSITS**

**Quaternary**

- Qbf** Basin fill (Quaternary) Unconsolidated sand and silt filling Dixie Valley.
- Qya** Younger alluvium (Quaternary) Unconsolidated alluvium, colluvium, talus, and other surficial deposits. Mostly alluvium in active drainages and along edge of Dixie Valley and colluvium along edge of Stillwater Range.
- Qs** Sand (Quaternary) Large exposure of unconsolidatedolian sand and sand dunes on east side of Dixie Valley.
- Qyf** Younger alluvial-fan deposits (Quaternary) Unconsolidated fluvial and debris-flow deposits consisting of poorly sorted, coarse-grained, sandy pebble to boulder gravel and gravelly sand locally containing angular blocks as much as 3 m across. Undissected to weakly dissected. Locally gradational with older alluvial-fan deposits (Qof).
- Qof** Older alluvial-fan deposits (Quaternary) Unconsolidated fluvial and debris-flow deposits consisting of poorly sorted, coarse-grained, sandy pebble to boulder gravel and gravelly sand locally containing angular blocks as much as 3 m across. Deeply dissected to moderately dissected. Locally gradational with younger alluvial-fan deposits (Qyf) and older alluvium (QToa).
- QToa** Older alluvium (Quaternary and/or Tertiary) Consolidated and unconsolidated alluvium. Includes terrace deposits as high as 15 m above the present stream level. Locally gradational with older alluvial-fan deposits (Qof). As mapped, locally includes deeply weathered Tertiary sedimentary rocks (Ts) near southwest corner of map area.

**VOLCANIC, SEDIMENTARY, AND HYPABSSAL INTRUSIVE ROCKS**

- Tya** Younger andesite (Miocene) Dark-gray to light-greenish-gray, fine-grained, plagioclase to hypidomorphic granular (hornblende) pyroxene plagioclase andesite. Includes lava flows unconformably overlying tuffs of Lee Canyon (Tlc) and Elevation Canyon (Tec) and dacite intrusions (Tdi) and small bodies intrusive into the same units.
- Ts** Sedimentary rocks (Miocene) Generally well-indurated, white, tan, and yellowish-brown, fine- to coarse-grained fluvial and lacustrine sedimentary rocks that unconformably overlie tuff of Elevation Canyon, older andesite, and Mesozoic rocks. Consists of siltstone, sandstone, cobble to boulder conglomerate, and minor freshwater limestone; cobbles commonly well rounded. Clasts are composed of Tertiary rocks, including tuff of Elevation Canyon, older andesite, and silicic intrusive rocks; sparse clasts of Mesozoic rocks.
- Tsi** Silicic intrusive rocks (Miocene and Oligocene) Numerous tentatively and compositionally distinct silicic dikes and domes and minor pyroclastic aprons and lava flows. Includes aphyric felsite, sparsely porphyritic biotite rhyolite and quartz rhyolite, coarsely porphyritic biotite-quartz-plagioclase-K-feldspar rhyolite(?), and coarsely porphyritic biotite-hornblende-plagioclase dacite porphyry. Most rocks are strongly argillized or propylitized, although glassy domes are locally present along west side of the Stillwater Range in Table Mountain and Cox Canyon Quadrangles and fresh biotite rhyolite porphyry dikes are present near Piourette Mountain. In the Piourette Mountain Quadrangle, unit consists mostly of west-northwest-trending rhyolite porphyry dikes present on both sides of Dixie Valley and an argillized felsite dome cropping out near the southeast corner of the quadrangle. Eight K-Ar ages range from about 25 to 18 Ma (John, 1992, 1993b; Stewart and others, 1994).

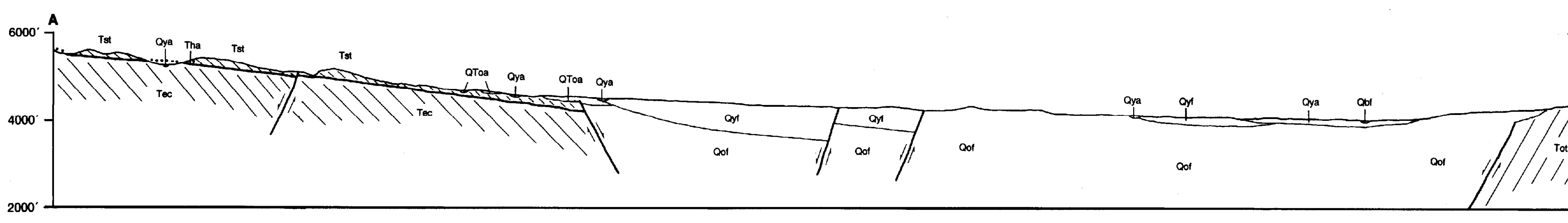
**TECTONIC UNIFORMITY**

**Quaternary**

- Tdi** Dacite intrusions (Miocene and Oligocene) Two small plugs of dacite porphyry that intrude propylitized tuff of Elevation Canyon (Tec) in northwest corner of map area and dikes of propylitized dacite that intrude rhyolite (Tor) and older tuff (Tot) units near northeast corner of map area. Intrusion along south side of Slaughter Canyon near west edge of map is dark-reddish-brown, flow-banded dacite porphyry containing about 30% fine- to medium-grained plagioclase, hornblende, and less abundant biotite phenocrysts in a microfelsite groundmass. Biotite K-Ar age of 24.34±0.8 Ma (E.H. McKee, written commun., 1988). Intrusions north of the mouth of Slaughter Canyon are pale reddish-brown where devitrified and black where vitrophytic; they are overlain by lava flows of younger andesite (Tya) unit. Dikes in northeast corner of map are strongly propylitized, dark-green dacite porphyry containing about 25% fine- to medium-grained phenocrysts consisting of plagioclase, hornblende, and biotite in a microfelsite groundmass.
- Tyr** Younger rhyolite (Miocene or Oligocene) Red, light-purple, green, black, and gray, generally sparsely porphyritic rhyolite lava flows, flow breccia, and intrusive rocks and minor accessory tuff and epistatic sandstone. Generally contains 0 to 10% fine- to medium-grained phenocrysts of white K-feldspar and minor plagioclase and altered biotite(?) in a devitrified aphyric groundmass; locally strongly flow banded. Generally equivalent to the latte flows, tuffs, and breccias unit of Page (1965; unit T-J).
- Tha** Hornblende andesite (Miocene or Oligocene) Dikes and small plugs of pale-greenish-gray to light-brown, fine- to medium-grained, porphyritic hornblende andesite. Contains about 15 to 20% 0.25- to 2.0-mm-long hornblende and plagioclase phenocrysts in a plagioclase to trachytic groundmass. Intrudes sedimentary rocks and tuff (Tst) unit north of Elevation Canyon.
- Tlc** Tuff of Lee Canyon (Oligocene) Reddish-brown, blue-gray, and lavender-gray, pumice- and biotite-rich high-silica dacite ash-flow tuff. Tuff is devitrified, moderately to densely welded, moderately crystalline, and generally lithic. Strongly flattened, biotite-rich pumice clasts are commonly as long as 10 cm. Generally contains 30 to 40% medium-grained phenocrysts consisting of plagioclase, less abundant quartz and sanidine, 2 to 3% biotite, and <1% hornblende. Lithologically resembles less altered parts of tuff of Elevation Canyon, but is more pumice rich and generally contains less abundant quartz phenocrysts. Biotite K-Ar age of 24.6±0.8 Ma determined from a sample collected in the Table Mountain Quadrangle (Stewart and others, 1994).
- Tbr** Breccia and tuff (Oligocene) Heterogeneous unit of pale-green, crystal- and lithic-rich tuff and coarse lithic breccia near southwest corner of quadrangle. Densely welded tuff contains about 30% fine- to medium-grained phenocrysts consisting of quartz, plagioclase, and K-feldspar, and contains abundant small fragments of pre-Tertiary metamorphic rocks and Tertiary felsite. Tuff is strongly argillized and contains oxidized disseminated pyrite. Groundmass of tuff is altered to microcrystalline felsite. Blocks of pre-Tertiary metamorphic and granitic rocks (hornblende phyllite, marble, sericitized granite, and hornblende diorite) and Tertiary volcanic rocks as much as 10 m in diameter are scattered throughout unit.
- Tdp** Dacite porphyry (Oligocene) Small intrusion of medium-gray, medium- to coarse-grained dacite porphyry south of Red Top Gully. Contains about 25 to 30% 1- to 8-mm-long phenocrysts consisting of tabular to elongate plagioclase and less abundant K-feldspar and trace amounts of altered hornblende(?) in a fine-grained to microcrystalline felsite groundmass that contains abundant equant plagioclase crystals about 0.2 mm across. Deuterially altered with abundant sericite and local clasts of epidote. Intrudes older andesite (Toa) unit on northwest side of Piourette Mountain.
- Tpc** Tuff of Poco Canyon(?) (Oligocene) Reddish-brown to lavender-gray, densely welded, devitrified crystal-rich rhyolite tuff forming the crest of Piourette Mountain. Tuff is pumice and lithic poor and contains 35 to 45% medium-grained phenocrysts of smoky quartz and K-feldspar and minor plagioclase. Basal part of unit includes finely laminated siltstone, quartz-rich sandstone, and lithic tuff breccia containing abundant clasts of porphyritic andesite and rhyolite porphyry as much as 1 m in diameter. Tuff is tentatively correlated with the lower cooling unit of the tuff of Poco Canyon exposed in the southern Stillwater Range on the basis of petrographic and modal similarities.
- Tst** Sedimentary rocks and tuff (Oligocene) White to light-green, crystal-poor, pumice-rich, water-laid(?) rhyolite tuff and fine-grained lutaceous sedimentary rocks. Tuff contains about 10% phenocrysts consisting of K-feldspar, less abundant plagioclase, and minor quartz and biotite. Tuff commonly contains distinctive clasts as long as 50 cm of dark-gray to black, very finely laminated siliceous rock that probably originally formed in a hot spring. Locally includes white to light-green, crystal-poor, rhyolite lava flows. Rocks are devitrified and commonly are argillically altered.
- Ttl** Silicic lava flows (Oligocene) White to light-green, aphyric to sparsely porphyritic silicic lava flows that overlie and interfinger with the sedimentary rocks and tuff (Tst) unit. Rocks are devitrified and commonly argillically altered.
- Tec** Tuff of Elevation Canyon (Oligocene) Black, greenish-gray, and white, crystal-rich rhyolite to low-silica dacite ash-flow tuff. Contains 30 to 60% phenocrysts consisting of medium-grained plagioclase, less abundant sanidine and quartz, 1 to 5% biotite, and <1% hornblende. Generally densely welded. Commonly contains abundant dark-green, chloritized, crystal-rich, flattened pumice clasts as long as 6 cm and abundant fragments of pre-Tertiary rocks and the older andesite (Toa) unit. Megacrystic blocks consisting of internally shattered marble (m), black hornblende (h), and older andesite (a) as large as 100 m are common. Tuff contains coarse blocks of Mesozoic rocks and older Tertiary rocks and zones of megacrystic (br) are present near Elevation Canyon. Tuff is generally strongly propylitized, argillized, and bleached. Biotite K-Ar age of 24.5±0.9 Ma on a sample collected in Table Mountain Quadrangle (Stewart and others, 1994).
- Tjc** Tuff of Job Canyon (Oligocene) White, dark-gray, and dark-brown, densely welded, rhyolite ash-flow tuff. Contains about 20 to 30% phenocrysts consisting of fine-grained plagioclase and less abundant K-feldspar. Devitrified and commonly argillically altered. Locally lithic-rich containing abundant clasts of andesite and flow-banded rhyolite.
- Tor** Older rhyolite (Oligocene) Red, light-purple, green, black, and gray, generally sparsely porphyritic rhyolite and dacite lava flows, flow breccia, and shallow intrusive rocks. Generally contains 5 to 15% medium-grained phenocrysts composed of plagioclase and K-feldspar and minor strongly resorbed quartz and trace amounts of altered mafic minerals (hornblende?) in a microfelsite groundmass. Commonly strongly flow banded. Gradational contact with older andesite (Toa) unit on west side of Piourette Mountain.
- Toa** Older andesite (Oligocene) Dark-green, dark-gray, and black, crystal-poor, pumice-rich, water-laid(?) porphyritic andesite and dacite lava flows and minor quartz-bearing dacite(?) tuff. Phenocrysts consist of medium-grained tabular plagioclase, hornblende, and local biotite. Generally altered to propylitic mineral assemblages containing abundant epidote, chlorite, and sericite. Locally flow banded. Gradational contact with older rhyolite (Tor) unit on west side of Piourette Mountain. Forms large outcrops on east side of Dixie Valley, small outcrop south of Elevation Canyon on west side of Dixie Valley, and andesite megacrystic blocks (a) enclosed within tuff of Elevation Canyon.
- Tot** Older tuff (Oligocene) White, light-green-gray, and orange-brown, crystal-rich rhyolite ash-flow tuff. Contains 35 to 55% fine- to medium-grained phenocrysts consisting of K-feldspar, lesser plagioclase and clear to smoky quartz, and 0 to 1.5% biotite. Devitrified, generally densely welded, and commonly argillically altered. Locally contains abundant pre-Tertiary lithic fragments.

**METAMORPHIC ROCKS**

- Mes** Metasedimentary rocks (Mesozoic) Dark-gray to black strongly foliated phyllite, metasediment, and metastone along south side of Elevation Canyon. Rocks are generally hornblende and phyllite commonly contain andalusite porphyroblasts. Resembles rocks in the Sand Springs assemblage of Oldow (1984) which contain fossils of probable Triassic and Jurassic age (see John and Silberling, 1984).
- Mp** Phyllite (Mesozoic) Dark-gray to black phyllite on southeast side of Dixie Valley. Rock has strong lineation and cleavage and commonly forms roots and penals. Tentatively correlated with Triassic and Jurassic rocks in the Clam Alpine sequence (N.J. Silberling, oral commun., 1993).

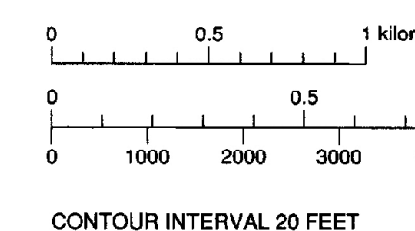


**GEOLOGIC MAP OF THE PIROUETTE MOUNTAIN QUADRANGLE, NEVADA**

DAVID A. JOHN

1995

Scale 1:24,000



CONTOUR INTERVAL 20 FEET

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Base map: U.S. Geological Survey  
Piourette Mountain 7.5' Quadrangle,  
1972

See accompanying pamphlet for references and discussion of the general geology and structural history of the southern Stillwater Range.