

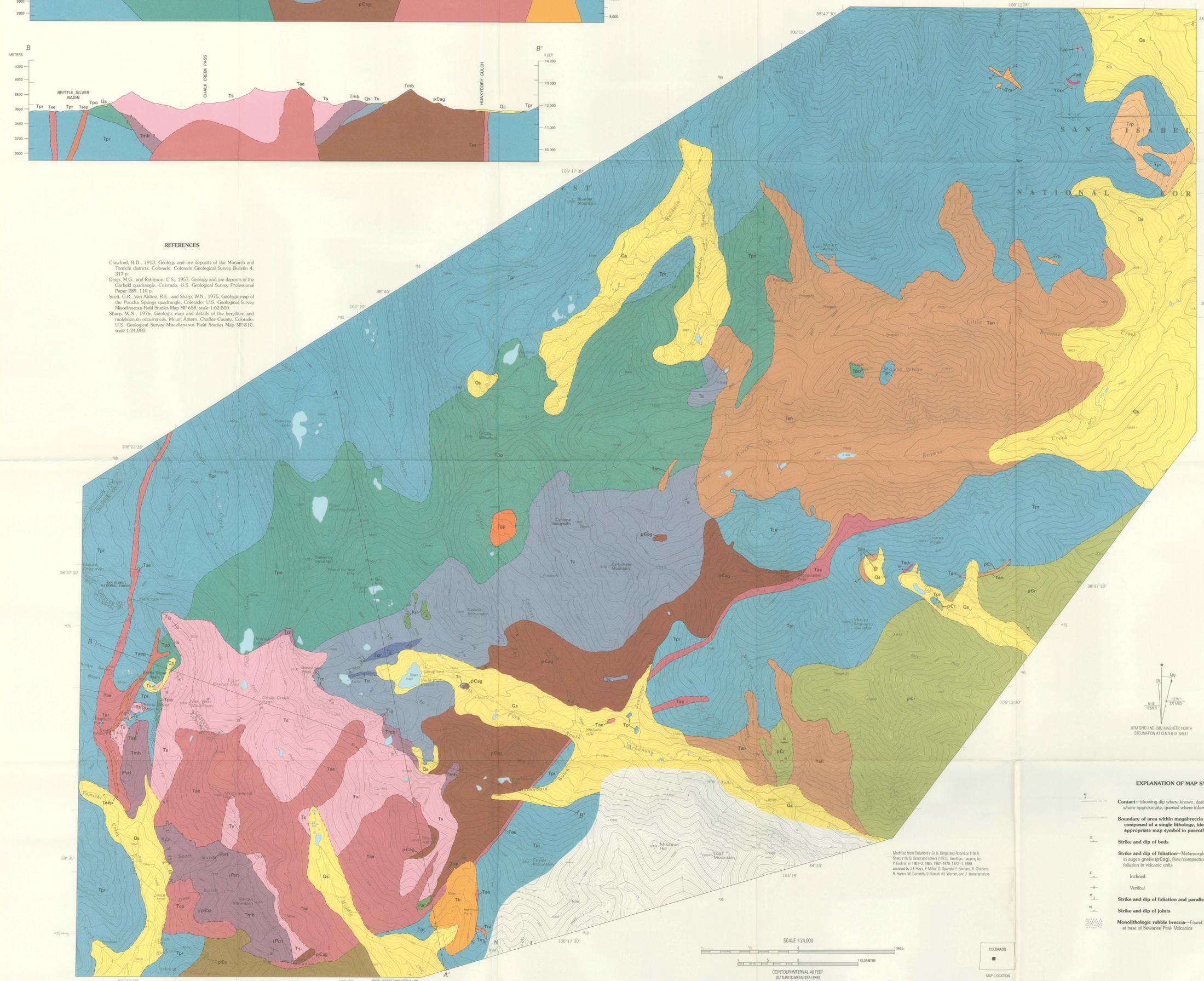
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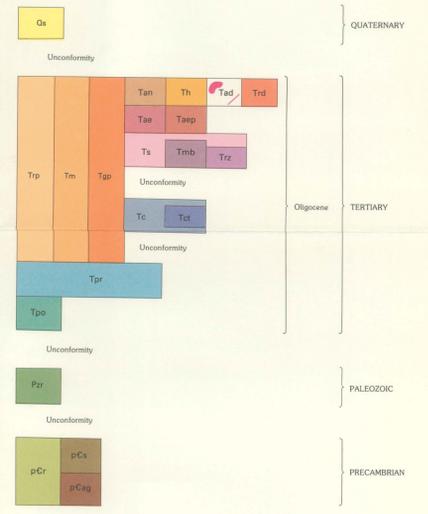
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CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

- Qs** Surficial deposits (Quaternary)—Alluvial, colluvial, talus, landslide, glacial, and glacioluvial deposits. Shown locally where they obscure bedrock relations.
- Tpr** Porphyry of Raspberry Hill (Oligocene)—Green to gray to pink porphyry consisting of 2- to 5-mm-long phenocrysts of feldspar, biotite, and less abundant quartz in an aphanitic to granophyric groundmass.
- Tm** Monzonitic and latic dikes (Oligocene)—Porphyritic rock containing phenocrysts of hornblende and plagioclase in a fine-grained groundmass.
- Tpo** Porphyritic granophyre (Oligocene)—1- to 2-mm-grained granophyre containing 3- to 5-mm-long plagioclase phenocrysts and rare chloritized biotite 1 to 2 mm in diameter. Abundant accessory apatite.
- Tan** Mount Antero Granite (Oligocene)—Gray, white-weathering, medium- to coarse-grained, locally microcrystic to waxy, mildly peraluminous granite composed of orthoclase, albite, locally perthitic and antiperthitic, respectively, quartz, minor aluminous biotite, rare muscovite, and accessory zircon, sphene, apatite, and opaque minerals. Locally contains beryl (aquamarine) and other rare beryllium minerals. Contains abundant pegmatite and quartz veins, and some marginal gneiss.
- Th** Hoffman Park Granite (Oligocene)—Gray, white to buff-weathering, medium-grained granite similar in composition to Mount Antero Granite (Tan) but less aluminous and microcrystic.
- Tad** Apatite dikes (Oligocene)—White to buff, fine- to medium-grained apatite composed of alkali feldspar, sodic plagioclase, and quartz with occasional phenocrysts of feldspar or biotite.
- Trd** Rubellite dikes (Oligocene)—Buff to white, fine-grained rocks, commonly porphyritic, composed of densely intergrown quartz and feldspars with phenocrysts of sodic plagioclase, alkali feldspar, biotite, and rare quartz.
- Tae** Mount Aetna Quartz Monzonite Porphyry (Oligocene)—Gray to pink, medium- to coarse-grained porphyry composed of intermediate plagioclase, sodic orthoclase, biotite, hornblende, and quartz with large up to 7 mm phenocrysts of pink orthoclase, white plagioclase, and equant gray quartz. Forms a stock and two major dikes probably emplaced along major faults bounding a postvolcanic subsidence block. Pink, somewhat fine-grained variety shown separately in western dike (Taep).
- Ts** Sewanee Peak Volcanics (Oligocene)—Very dark gray-green to black, very densely compacted and welded, generally propylitized ash-flow tuff, breccia, and agglomerate. Intense compaction, induration and alteration may obscure pyroclastic features such as collapsed-stretched panicle and chards. Interdigitates with megabreccia (Tmb) immediately underlain by rubble zone (Trz) locally. Very fine grained and generally highly altered groundmass contains occasional preserved chards, enclaves phenocrysts of plagioclase, biotite, hornblende, and rare quartz 1 to 3 mm in diameter. Flow-compaction foliation very common.
- Tmb** Megabreccia (Oligocene)—Highly variable and irregular unit composed of blocks and fragments of volcanic and prevolcanic rocks up to hundreds of meters in size set in a matrix of volcanic or clastic material. Probably originated by mass collapse of caldera walls during subsidence. Areas of predominantly consistent lithology outlined by dotted lines; lithology shown by map symbol in parentheses; for example, (Prt) indicates megabreccia of mainly Paleozoic sedimentary rocks.
- Trz** Rubble zone (Oligocene)—Dark brick-red to bright-red fragmental unit occurring in patches below Sewanee Peak Volcanics (Ts). Clasts of immediately underlying rock commonly predominate; clasts commonly concentrically weathered. Probably represents accumulations of weathered debris on pre-Sewanee Peak surface.
- Tc** Calico Mountain Andesite (Oligocene)—Dark olive-green to seal brown to ochraceous, pyritic, generally andesitic to basal, labric breccias, and welded ash-flow tufts. Phenocrysts of altered plagioclase and biotite, much rarer hornblende and feld quartz in very fine grained, altered groundmass in which primary igneous or pyroclastic textures are rarely preserved.
- Tco** Welded ash-flow tufts (Oligocene)
- Tpr** Mount Princeton Quartz Monzonite (Oligocene)—Gray, medium-grained quartz monzonite composed of plagioclase biotite labradorite to sodic oligoclase, orthoclase, biotite, hornblende, and quartz. Yellow to brown euhedral, 0.5- to 2-mm-long sphene crystals characteristic in hand specimen.
- Tpo** Mount Pomeroy Quartz Monzonite (Oligocene)—Highly altered, pink to greenish-gray, buff to ochre-weathering rock of highly variable texture ranging from medium-grained granitic to fine-grained and porphyritic. Composed of saussuritized and sericitized plagioclase, chloritized biotite and hornblende, altered alkali feldspar, and quartz, with accessory ragged sphene.
- Ppr** Paleozoic sedimentary rocks—Isolated patches of Permian(?) to Devonian and Ordovician(?) limestone-dolomite, sandstone and shale.
- pCr** Precambrian rocks, undivided—Gneiss, amphibolite, schist, and granite.
- pCs** Silver Plume(?) Granite (Precambrian)—Gray to buff, medium-grained, equigranular massive granite composed of microcline, plagioclase, quartz, and biotite.
- pCag** Augen gneiss (Precambrian)—Gray to brown, well-foliated, coarse augen gneiss composed of microcline, oligoclase, biotite, and quartz. Microcline augen up to 10-15 cm long deflect foliation shown by biotite. Shown on some earlier maps as Tertiary.

EXPLANATION OF MAP SYMBOLS

- Contact**—Showing dip where brown, dashed where approximate, queried where inferred.
- Boundary of area within megabreccia predominantly composed of a single lithology, identified by the appropriate map symbol in parentheses**
- Strike and dip of beds**
- Strike and dip of foliation**—Metamorphic foliation in augen gneiss (pCag), flow/compaction foliation in volcanic units
- Inclined
- Vertical
- Strike and dip of foliation and parallel bedding**
- Strike and dip of joints**
- Monolithologic rubble breccia**—Found locally at base of Sewanee Peak Volcanics

Modified from Crawford (1913), Dingus and Robinson (1957), Sharp (1976), Scott and others (1975). Geologic mapping by P. Butler in 1961-2, 1966, 1967, 1970, 1972-4, 1980, assisted by J. H. Miller, G. S. Gowan, E. E. Brown, R. D. Childers, R. Neen, W. Connelly, C. Korah, M. Weaver, and J. Hammarston.



Base from U.S. Geological Survey 1:24,000
Cartographic Paper, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, and 1983.
Mount Antero, 1983; St. Vrain, 1982, and Whitehorn, 1982.
Lambert conformal conic projection
1000-meter Universal Transverse Mercator grid, zone 13

GEOLOGIC MAP OF THE MOUNT AETNA VOLCANIC CENTER