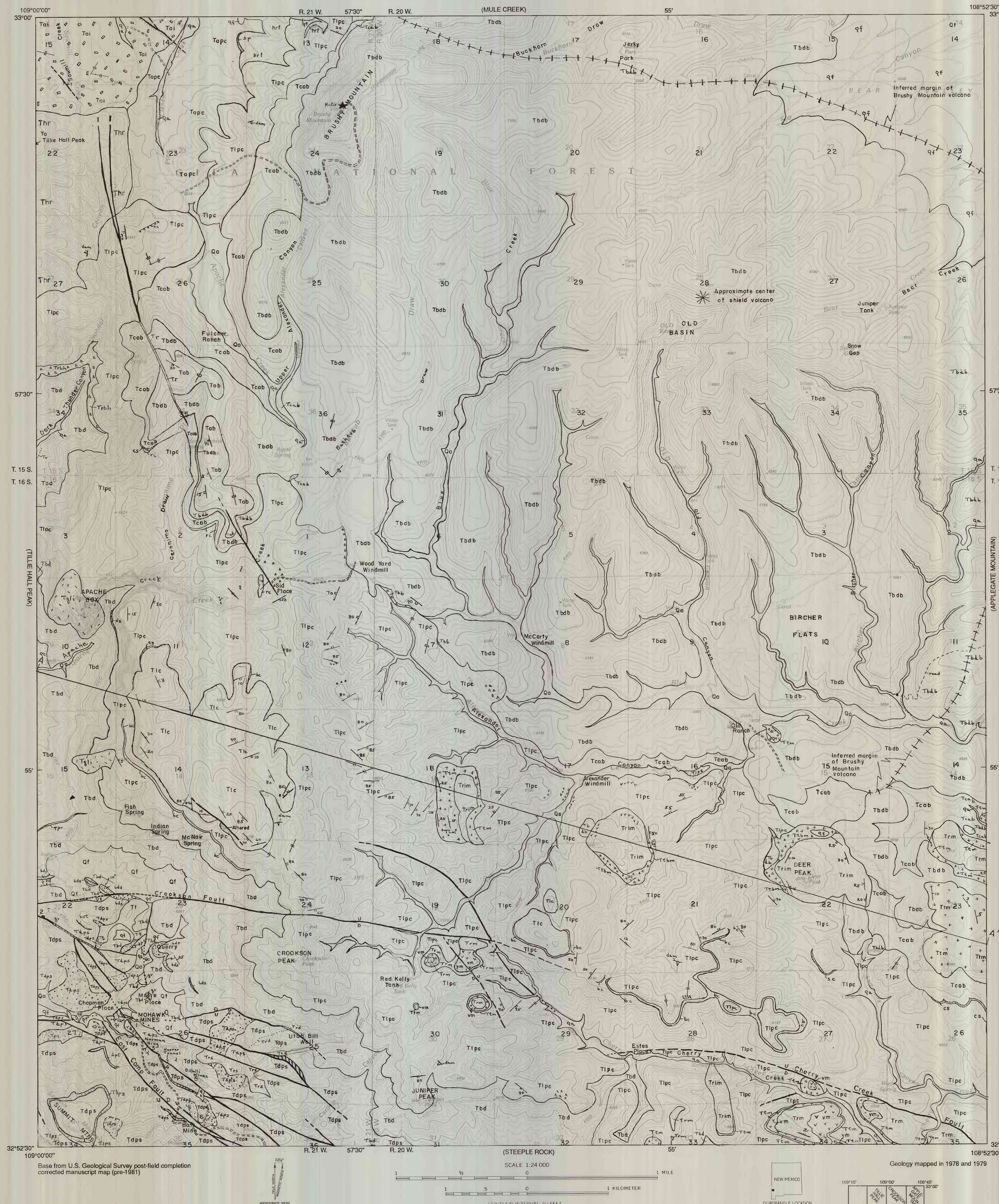
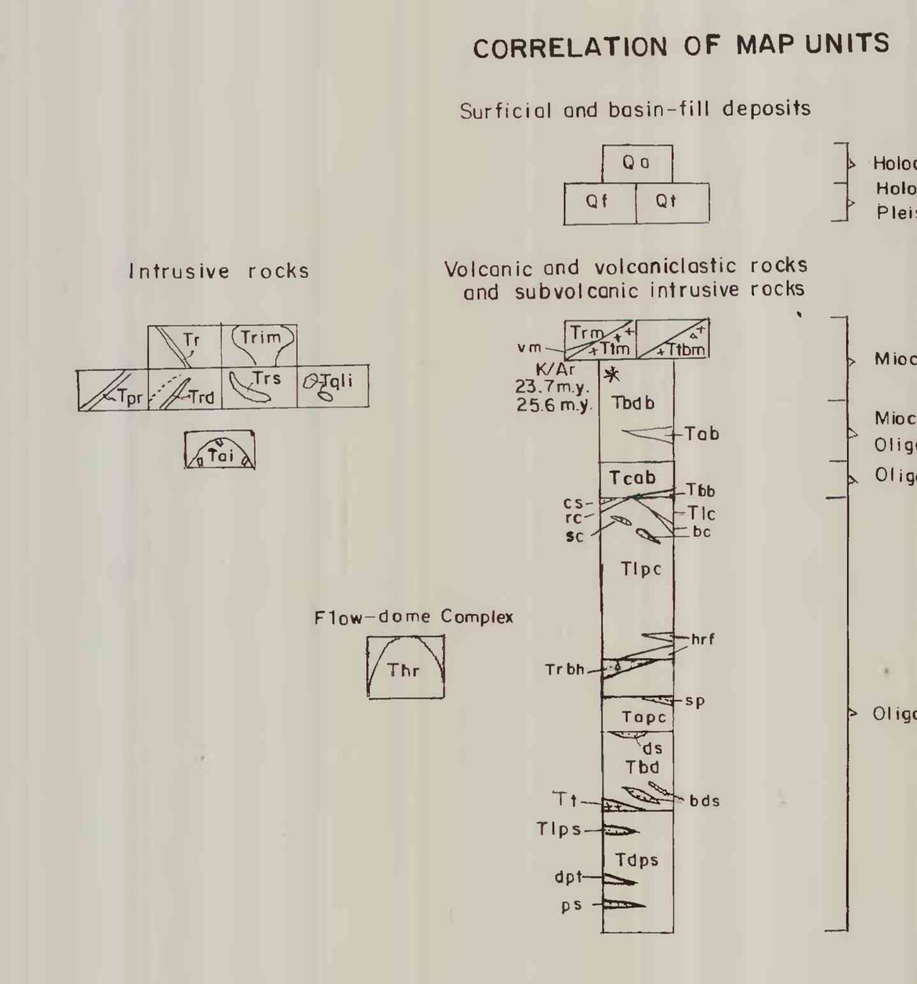
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

OPEN-FILE REPORT OF 90-0252
SHEET 1 OF 1



CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Qa — **Alluvium (Holocene)**--Poorly sorted gravel, sand, and silt; gravel contains fragments of Tertiary volcanic rock. Thickness generally less than 10 ft (3 m), but is probably as thick as 50 ft (15 m) near Fulcher Ranch

Qf — **Fan deposits (Holocene and Pleistocene)**--Sheet-flood fan deposits that contain chiefly subangular to angular, poorly sorted fragments of Tertiary volcanic rocks. Most extensive in the northeast corner of the quadrangle. Commonly less than 65 ft (20 m) thick

Qt — **Talus (Holocene and Pleistocene)**--Poorly sorted, unconsolidated, locally derived rock fragments deposited on or at the foot of a slope. Best developed in the vicinity of Apache Box. Thickness commonly exceeds 30 ft (9 m)

Rhyolite of Mule Mountains (Miocene)

Tr — **Rhyolite dikes**--Light- to medium-gray, flow-laminated rhyolite containing about 10 percent phenocrysts of calcic oligoclase 1 to 2 mm across. Sparse amounts of biotite locally present. Dike west of Fulcher Ranch is contiguous with north-northwest-striking fault that cuts Bearwallow Mountain Andesite (Tbdb). This dike is as much as 50 ft (15 m) thick. A smaller dike along the southeast side of Dark Thunder Canyon is more silicic, aphyric, and less than 10 ft (3 m) thick

Trim — **Rhyolite plugs**--Very light gray, aphanitic to moderately porphyritic, flow-laminated, rhyolitic plugs. The Deer Peak plug has inward-dipping flow laminations that suggest a cone-shaped intrusion. Some of the plugs have a partial border zone or ring of pumiceous tuff (Ttm) and pyroclastic breccia (Ttbm) that dips concordantly with the flow-laminae of the rhyolite plug. It is probable that the plugs are former feeder vents for the rhyolite flows (Trm) in the vicinity of Cherry Creek and Alexander Canyon

Trm — **Rhyolite flow member**--Very light gray, flow-laminated, aphanitic rhyolite flows that commonly have thin autobrecciated zones and intercalated black to dark-gray, slightly perlitic vitrophyres (vm). Commonly slightly altered with spherulitic texture at contact with vitrophyre. Thickness of rhyolite ranges from 0 to 200 ft (0-60 m), whereas the vitrophyres are generally less than 100 ft (30 m) thick and are most common at the base of the flows. Obsidian from correlative flows has yielded K-Ar ages of 17.7±0.6 m.y. and 18.6 m.y. (Marvin and others, 1987; Weber and Bassett, 1963)

Ttm — **Pyroclastic member**--Very light gray, light-pinkish-gray, light-greenish-gray, thin-bedded to laminated, dominantly air-fall tuff with thin interbeds of tuffaceous sandstone. Tuff contains abundant pumice fragments locally altered to light-greenish-gray and abundant reddish-brown, angular, dacitic, lithic fragments. Crystal fragments of sanidine and bipyramidal quartz constitute less than 5 percent of the tuff. Angular, reddened andesitic boulders are locally present at the base. Maximum thickness about 250 ft (75 m)

Ttbm — **Pyroclastic breccia**--Very light gray, pale-yellowish-gray, nonwelded tuff containing angular blocks of pumice and tuff up to 4 in. (10 cm) across and angular blocks of reddened andesitic country rock up to 1 ft (0.3 m) across. Breccia is developed marginally to the intrusive rhyolite (Trim) contact and has a weakly developed layering parallel to the flow laminae in the adjacent rhyolite, and probably is an early lithic-rich facies of the pyroclastic member (Ttm). Thickness ranges from 0 to about 300 ft (0-100 m)

Rhyolitic and quartz latitic dikes, sills, and plugs (Miocene)

Tpr — **Rhyolite porphyry dike**--Grayish-orange-pink to light-gray porphyritic dikes that commonly contain about 8 to 10 percent bipyramidal quartz, 5 percent oligoclase (An_{15}), and 1 percent sanidine phenocrysts in a felted groundmass. Accessory minerals are biotite, sericite, and iron oxides. Dike near Fish Spring has numerous micro-vugs a few millimeters across that are lined with limonite. Maximum thickness about 50 ft (15 m)

Trd — **Rhyolite dikes**--Very light gray, aphanitic, flow-laminated, rhyolite dikes in the vicinity of Utah Bill Well. Maximum thickness about 100 ft (30 m)

Trs — **Rhyolite sill**--Very light gray to white, aphanitic and highly sericitized rhyolite that occurs as a sheet-like body within dacite porphyry of Summit Mountains (Tdps). Possibly a remnant rhyolite flow. Thickness about 150 ft (45 m) on ridge east of the Billali mine

Tqli — **Quartz latite porphyry plugs**--Light-brownish-gray, porphyritic plugs containing about 10 to 15 percent phenocrysts 3 mm across in a felted, flow-laminated groundmass. Phenocrysts are 6 percent sanidine, 5 percent highly resorbed quartz, and 1 to 2 percent oligoclase (An_{26-28}). One plug occurs at Apache Box and another near Fish Springs

Bearwallow Mountain Andesite (Miocene and (or) Oligocene)

Tbdb — **Andesite to dacite flows**--Dark-gray, medium-gray, and dark-purplish-gray, scoriaceous, porphyritic lava flows that comprise the shield volcano of Brushy Mountain. The volcano is centered near Old Basin and has a distinctive radial drainage pattern. Lava flows contain 15 to 35 percent labradorite (An_{50-53}) phenocrysts up to 2 mm across and 4 to 7 percent clinopyroxene phenocrysts less than 1 mm across. As much as 6 percent olivine is locally present as granules interstitial to the plagioclase microlites. The groundmass is felted to pilotaxitic or slightly glomeroporphyritic. One chemical analysis indicates 63.0 percent SiO_2, 3.8 percent Na_2O, and 3.3 percent K_2O (table 1). Two whole rock K-Ar ages from the NE1/4 sec. 24, T. 15 S., R. 21 W. are 23.7±0.5 m.y. and 25.6±0.5 m.y. (Strangway, Simpson, and York, 1976, p. 121; Marvin and others, 1987)

Tab — **Andesite flow**--Medium-light-gray to light-brownish-gray, flow-laminated, porphyritic andesite containing about 20 percent sodic andesine (An_{37-40}) phenocrysts 2 to 3 mm across and 1 to 2 percent highly oxidized biotite set in a felted groundmass. Accessory minerals are pale-green clinopyroxene and oxyhornblende. Lava flow has a limited outcrop just south of the Fulcher Ranch

Tai — **Intrusive andesite of Tillie Hall Canyon (Miocene and (or) Oligocene)**--Medium-gray, porphyritic andesite containing 30 to 50 percent andesine-labradorite (An_{38-50}) phenocrysts up to 2 cm long in a "turkey track" arrangement. Forms small stock of about 4 mi^2 (10 km^2) mainly east of Tillie Hall Canyon. In places the andesite has numerous miarolitic cavities lined with euhedral quartz crystals as long as several centimeters. Clinopyroxene grains up to 1 mm across comprise about 2 to 3 percent of the rock, and apatite is a common accessory. Intrusion probably correlates with the Bearwallow Mountain Andesite and shows intrusive contacts with the andesite flows of Pine Cienega (Tapc) and with the rhyolite of Hells Hole (Thr). A plagioclase concentrate has yielded a K-Ar age of 24.5±0.8 m.y. (Marvin and others, 1987; Ratté and Hedlund, 1981)

Tcab — **Coarsely porphyritic andesite lava flows (Oligocene?)**--Dark-gray to medium-light-gray, coarse-grained lava flow with a "turkey track" texture formed by abundant euhedral plagioclase laths as much as 2 cm long. Locally weathers dusky reddish brown with a groundmass that is slightly vuggy. Rock typically contains 25 to 27 percent andesine (An_{38-46}) phenocrysts, 1 percent oxyhornblende, and 0.3 to 2 percent clinopyroxene in a finely pilotaxitic groundmass. Accessory apatite is common. The andesine laths have a pitted texture owing to the abundance of ferric oxide inclusions. One chemical analysis indicates 56.1 percent SiO_2, 4.1 percent Na_2O, and 4.2 percent K_2O (Analyst: N. Skinner, U.S. Geological Survey, written commun., 1979) (table 1). Flow probably represents initial eruptive facies from the Brushy Mountain volcano. Unit ranges from 0 to 400 ft (0-120 m) thick

Tbb — **Sedimentary breccia (Oligocene)**--Light-brown sedimentary breccia and pumiceous sandstone with locally abundant angular fragments of latite porphyry and andesite. Poorly bedded breccia grades laterally into tuffaceous sandstone containing slightly compressed white pumice lapilli. Discontinuous outcrop at base of andesite (Tbdb) southeast of Wood Yard Windmill. Thickness ranges from 0 to 30 ft (0-10 m)

Lava flows of Crookson Peak (Oligocene)

Tlpc — **Dacite to andesite flows**--Brownish-gray, grayish-red-purple to grayish-red porphyritic rock containing 8 to 25 percent phenocrysts 1 to 4 mm across. Flows are generally more andesitic to southeast and lower in the section, whereas the more siliceous flows are higher in the section. Phenocrysts of the platy weathering, flow-laminated dacite porphyry include 4 to 10 percent oligoclase-andesine (An_{27-35}), 0 to 2 percent sanidine, and 1 to 2 percent biotite. Accessory minerals are oxyhornblende, quartz, and iron oxides. Andesite flows are more grayish red, weather to dusky-red, rubbly outcrops, and typically contain 20 percent oligoclase-andesine (An_{28-33}), 4 to 5 percent clinopyroxene, and 0 to 1 percent biotite phenocrysts. The plagioclase displays a distinctive radial cluster habit. The groundmass is felted and contains abundant disseminated ferric oxides. Locally at the top of the formation there are thin discontinuous sandstone (cs) and rhyolite units (rc). The sandstone is a yellowish-gray, thin-bedded to laminated, medium-grained, tuffaceous unit that is locally overlain by bouldery conglomerate consisting of subrounded dacite boulders and cobbles. The thickness ranges from 0 to 40 ft (0-12 m). The rhyolite unit consists of light-gray, aphyric, flow-laminated, remnant flows that have a maximum thickness of about 30 ft (9 m) southwest of the Fulcher Ranch and the Sid Place. A discontinuous, thin (1-10 ft) sandstone unit (sc) occurs within the upper part of the dacite flows just south of Deer Peak. The sandstone is light-gray, thin-bedded to laminated, medium- grained, poorly sorted volcaniclastic unit with andesite clasts. In places, thin dark-gray basalt flows (bc) are interlayered with the more silicic flows (Tlpc and Tlc). The scoriaceous, highly amygdaloidal basalt flows are discontinuous lava flows. Thickness ranges from 0 to 50 ft (0-15 m)

Tlc — **Rhyodacite flows**--Light-brownish-gray, slightly porphyritic lava flows containing 5 to 10 percent phenocrysts in a felted, patchy-recrystallized groundmass. Phenocrysts include 5 percent sanidine and 1 to 2 percent biotite. Accessory oligoclase (An_{20-23}) and iron oxides. Maximum thickness about 320 ft (95 m)

Trbh — **Breccia and sandstone member (Oligocene)**--Light-brownish-gray, massive to thick-bedded, mud-flow sedimentary breccias containing rhyolite fragments as much as 1 ft (30 cm) across. Also includes some well-bedded fluviatile sandstone beds in upper part of unit. Probably an erosional unit derived from the Hells Hole dome prior to the eruption of the Crookson Peak flows. Thickness ranges from 0 to 500 ft (0-150 m)

Thr — **Rhyolite of Hells Hole (Oligocene)**--Large (30 mi^2) (75 km^2) intrusive-extrusive rhyolite dome complex with its eastern terminus near Tillie Hall Peak. Aphyric flows typically consist of cryptocrystalline felted groundmass with less than 2 percent sanidine phenocrysts about 0.5 to 1.0 mm across; accessory minerals are sodic plagioclase, biotite, and zircon. Locally the rhyolite contains obsidian units as much as 70 ft (20 m) thick. Light-gray aphyric flow units (hrf) represent outflow extrusive units of the dome complex. Two chemical analyses of rhyolite by Wahlberg, Baker, and Taggart (Ratté and Hedlund, 1981) indicate 68.6 and 70.2 percent SiO_2, 4.4 and 3.8 percent Na_2O, and 3.95 and 4.78 percent K_2O, respectively. A biotite has yielded a K-Ar age of 27.1±1.0 m.y. (Marvin and others, 1987). The rhyolite section is at least 1,200 ft (365 m) thick

Tapc — **Andesitic flows of Pine Cienega (Oligocene)**--Medium-gray, amygdaloidal, aphanitic, pilotaxitic, slightly propylitized andesite flows. Locally abundant dark-greenish-gray amygdules up to 4 mm across contain chalcedonic quartz cores lined with celadonite. The andesite typically has about 30 percent sodic andesine (An_{30-32}) microlites 0.1 to 0.3 mm long set in a cryptocrystalline matrix through which magnetite-ilmenite granules are dispersed. Calcite replaces minor amounts of plagioclase. A partial chemical analysis indicates 60.1 percent SiO_2, 3.5 percent Na_2O, and 2.7 percent K_2O (Analyst: P. Briggs, U.S. Geological Survey, 1980) (table 1). Flows locally overlain by light-yellowish-gray to light-brown, thin-bedded, coarse-grained, poorly sorted sandstone unit containing thin interbeds of pebble conglomerate (sp). Andesite flows are about 300 ft (100 m) thick and the sandstone ranges from 0 to 50 ft (0-15 m) thick

Andesitic to basaltic rocks of Dark Thunder Canyon (Oligocene)

Tbd — **Andesite to basalt flows**--Brownish-gray, medium-gray, dark-gray, aphanitic to finely porphyritic andesitic flows containing as much as 25 percent andesine (An_{37-45}) and 2 percent oxyhornblende phenocrysts. Accessories are clinopyroxene and disseminated iron oxides. Sporadic quartz xenocrysts(?) are present locally in some andesite flows. The basalt flows are dark gray to medium olive gray, aphanitic to slightly porphyritic, coarsely amygdaloidal, and contain numerous secondary calcite vug-fillings. Some basalt flows contain as much as 10 percent andesine (An_{43-45}) phenocrysts set in a pilotaxitic groundmass consisting of iron ore granules, clinopyroxene, oxyhornblende, and apatite dispersed interstitially to the feldspar microlites. Thickness highly variable but is at least 1,500 ft (450 m). Greenish-gray sandstone unit (ds) is as much as 20 ft (6 m) thick at the top of the formation near the Apache Box. Another sandstone unit (bds) crops out near the base of the formation. This lower sandstone is greenish gray, very thinly bedded to laminated, medium grained, weathers light brown, and is locally quarried for flagstone. Thickness ranges from 0 to 50 ft (0-15 m)

Tt — **Pumiceous tuff (Oligocene)**--White to light-yellowish-gray, silicified and argillized, pumiceous tuff sheet at the base of the basalt and andesite flow section. Purplish-gray liesegang diffusion banding is common. Crystal-poor unit with faint relict outlines of flattened pumice. Unit about 100 ft (30 m) thick and occurs in about the same position as the Bloodgood Canyon Tuff (28.1 m.y.), but this correlation is uncertain

Tdps — **Dacite of Summit Mountain (Oligocene)**--Medium-gray, pale-purplish-gray, pale-red dacitic porphyry flows containing 15-25 percent phenocrysts: 10-15 percent calcic oligoclase-sodic andesine (An_{28-37}), 1-3 percent biotite, and 0-4 percent oxyhornblende. Accessory minerals are clinopyroxene, calcite, iron oxides, white mica, and quartz. The groundmass is felted to pilotaxitic. In the vicinity of Chapman Place and along the East Camp fault, the dacite porphyry is highly silicified and locally kaolinized. In the adjacent Tillie Hall Peak quadrangle, a hornblende concentrate from the dacite yielded a K-Ar age of 31.3±2.2 m.y. (M. Shafiqullah, written commun., 1980). Unit may be as much as 2,000 ft (610 m) thick

Tlps — **Upper sandstone member**--Light-brown to reddish-brown, medium- bedded, coarse-grained sandstone and intercalated dusky-red-weathering pebble conglomerate. Clasts of rhyolite, andesite, dacite, and minor quantities of tuff are angular to subrounded. A thin discontinuous, pinkish-brown, nonwelded tuff with numerous andesitic lithic fragments underlies the clastic unit. Crops out chiefly near the top of the Summit Mountains where it is interlayered with dacite porphyry flows. Thickness ranges from 30 to 100 ft (10-30 m)

dpt — **Air-fall tuff member**--Very light gray, argillized and silicified, nonwelded tuff containing poorly collapsed pumice fragments altered pale yellowish gray. Thickness ranges from 0 to 15 ft (0-5 m)

ps — **Lower sandstone member**--Light-brown to yellowish-gray to light-gray, laminated to thin-bedded, fine- to medium-grained, well-sorted sandstone. Locally highly sericitized and silicified. Thickness ranges from 0 to 200 ft (0-60 m)

EXPLANATION

Contact

Fault--Showing dip where known. Cross-hatched where fault zone is silicified and appreciably widens. Dashed where approximately located or inferred; dotted where concealed; queried where uncertain. U, upthrown side; D, downthrown side

Strike and dip of compaction foliation in tuffs or fluxion layering in lavas--Inclined

Strike and dip of beds--Inclined

Strike and dip of joints

Inclined

Vertical

Quartz vein--Commonly contiguous with major faults

Areas of alteration--Chiefly with some alunitization of the dacite porphyry of Summit Mountain (Tdps)

Inferred margin of Brushy Mountain volcano

Approximate center of shield volcano (Brushy Mountain)

Prospect pit

Shaft

Adit

Diamond drill site

Approximate secondary road location

K-Ar **Sample locality**--Location on Brushy Mountain of K-Ar age-whole rock (Strangway, Simpson, and York, 1976)

Breccia zone indicating probable fault breccia

Autobreccias related to viscous flowage

Vitrophyric zones--Especially well developed near Alexander Windmill

REFERENCES CITED

Biggerstaff, B.P., 1974, Geology and ore deposits of the Steeple Rock-Twin Peaks area, Grant County, New Mexico: El Paso, University of Texas, M.S. thesis, 102 p.
Gillerman, Elliot, 1964, Mineral deposits of western Grant County, New Mexico: New Mexico Bureau of Mines and Mineral Resources Bulletin 83, 213 p.
Griggs, R.L., and Wagner, H.C., 1966, Geology and ore deposits of the Steeple Rock mining district, Grant County, New Mexico: U.S. Geological Survey Bulletin 1222-E, 29 p.
Marvin, R.F., Naeser, C.W., Bikerman, M., Mehnert, H.H., and Ratté, J.C., 1987, Isotopic ages of post-Paleocene igneous rocks within and bordering the Clifton 1°x2° quadrangle, Arizona-New Mexico: New Mexico Bureau of Mines and Mineral Resources Bulletin 118, 63 p.
McAnulty, W.A., 1978, Fluorspar in New Mexico: New Mexico Bureau of Mines and Mineral Resources Memoir 34, p. 32-33.
Ratté, J.C., and Brooks, W.E., 1983, Geologic map of the Mule Creek quadrangle, Grant County, New Mexico: U.S. Geological Survey Miscellaneous Field Studies Map MF-1666, scale 1:24,000.
Ratté, J.C., and Hedlund, D.C., 1981, Geologic map of the Hells Hole Further Planning Area (RARE II), Greenlee County, Arizona, and Grant County, New Mexico: U.S. Geological Survey Miscellaneous Field Studies Map MF-1344-A, scale 1:62,500.
Strangway, D.W., Simpson, J., and York, D., 1976, Paleomagnetic studies of volcanic rocks from the Mogollon Plateau area of Arizona and New Mexico, in Cenozoic volcanism in southwestern New Mexico: New Mexico Geological Society Special Publication No. 5, p. 119-124.
Weber, R.H., and Bassett, W.A., 1963, K-Ar ages of Tertiary volcanic and intrusive rocks in Socorro, Catron, and Grant Counties, New Mexico: New Mexico Geological Society Guidebook, 14th Field Conference, Socorro region, p. 220-223.

Table 1.--Chemical analyses of Miocene and Oligocene volcanic rocks from the Crookson Peak quadrangle

[N = not determined; (LOI) = loss on ignition - 900 °C. Analyses: X-ray spectroscopy by N. Skinner (1979), single solution methods by P. Briggs (1980)]

	Andesite	Andesite porphyry	Andesite
Field No.	SRX-118-78	SRX-157-78	SR-6316-79
Map Unit	Tbdb	Tcab	Tapc
sp. gr.	2.55	2.62	N
SiO_2	63.0	56.1	60.1
Al_2O_3	16.4	18.3	N
Fe_2O_3	3.5	5.9	N
FeO	1.6	.50	N
MgO	1.6	1.4	N
CaO	4.7	4.9	N
Na_2O	3.8	4.1	3.5
K_2O	3.3	4.2	2.7
TiO_2	.80	1.4	N
P_2O_5	.29	.57	N
MnO	.05	.08	N
H_2O^+	.94	1.5	N
H_2O^-	.78	1.1	N
CO_2	.02	.0	N
(LOI)	N	N	
Total	101	100	66

SAMPLE LOCATIONS

Sample SRX-118-78: Andesitic flows of Brushy Mountain
Location - Brushy Mountain, road to radar domes; SW1/4SE1/4 sec. 24, T. 15 S., R. 21 W., Crookson Peak quadrangle

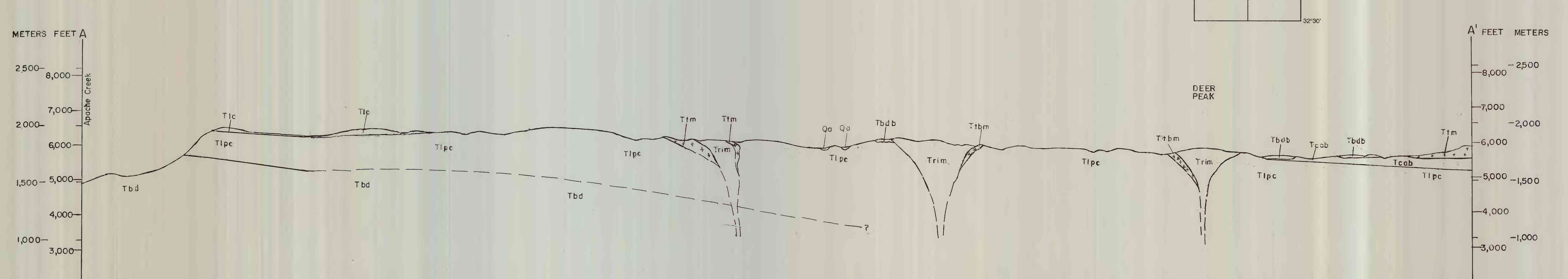
Sample SRX-157-78: Andesite porphyry of Brushy Mountain ("Turkey Track" andesite)
Location - Road cut; NW1/4SE1/4 sec. 24, T. 15 S., R. 21 W., Crookson Peak quadrangle

Sample SR-6316-79: Andesite of Pine Cienega
Location - Road cut; NW1/4SE1/4 sec. 14, T. 15 S., R. 21 W., Crookson Peak quadrangle

Table 2.--Mines, prospects, and mineral occurrences in the Crookson Peak quadrangle, New Mexico

[1 troy ounce = 31.10 grams]

Map No.	Name	Location Sec.	T.S.	R.W.	Description	Development	References
					Fluorspar deposits		
1	Mohawk	NW1/4 26	16	21	Silicified and brecciated vein about 6 ft (1.8 m) wide strikes N. 15° W. and contains abundant pale-green and white fluorspar. Vein can be traced to about 90 m (295 ft) south of the Norman King mine. In 1940-1941 about 1,850 t of fluorspar was mined and in 1945 about 3,000 t. Most of the ore was of milling grade and averaged 65-70 percent fluorite.	Open stope about 100 ft (30 m) by 80 ft (24 m) deep and 6 ft (1.8 m) wide.	R.L. Griggs and H.C. Wagner, 1966, p. 28; B.P. Biggerstaff, 1974, p. 73-76; Gillerman, 1964, p. 194
2	Black Willow Fluorspar	NE1/4 W1/4 22	16	21	Colorless to green fluorite along N. 60° W. striking fault. Silicified fault contains disseminations and fracture-fillings of fine-grained and coarsely crystalline fluorite. Also mined for silver and gold. Fluorite crops out irregularly for a distance of 2,500 ft (762 m).	Small prospect pits and a 50 ft (15 m) shaft.	B.P. Biggerstaff, 1974, p. 76-77; W.N. McAnulty, 1978, p. 33
					Precious- and base-metal deposits		
3	Norman King	26	16	21	Silicified and brecciated faults strike N. 50° W. Numerous subparallel faults cut andesite porphyry for a distance of 500 ft (152 m) northeast of the main fault. Between 1936 and 1940 an estimated 22 oz of gold and 58,370 oz of silver were mined. From 1919 to 1921 an estimated 7.5 oz of gold and 22,920 oz of silver were produced. One semiquantitative spectrographic analysis of ore yielded 100 ppm Ag, 5,000 ppm Cu, 20,000 ppm Pb, 50,000 ppm Zn.	Vertical shaft 500 ft (152 m) deep and several adits. Largest mine in the Bitter Creek area.	Gillerman, 1964, p. 193, 194
4	Hoover Tunnel	26	16	21	Tunnel extends southwest from the bottom of Bitter Creek Canyon for a distance of 500 to 600 ft (152-182 m) to intercept two silicified and brecciated faults that strike N. 45-50° W.	Tunnel	Gillerman, 1964, p. 193
5	Billali	26	16	21	Silicified fault that strikes N. 50° W. contains minor amounts of base-metal sulfides. Tunnel.	Small adit and prospect pits just south of the Hoover.	Gillerman, 1964, p. 193
6	Bank (National Bank)	35	16	21	Branching silicified and brecciated faults contain base-metal sulfides and silver and gold. Mine workings inaccessible.	Shaft and numerous prospect pits. Second largest mine in Bitter Creek area.	Gillerman, 1964, p. 193



This map is preliminary and has not been reviewed for conformity with U. S. Geological Survey editorial standards nor with the North American stratigraphic code.

PRELIMINARY GEOLOGIC MAP OF THE CROOKSON PEAK QUADRANGLE, GRANT COUNTY, NEW MEXICO

By
D.C. Hedlund
1990