DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH THE
U.S. ATOMIC ENERGY COMMISSION

GEOLOGIC QUADRANGLE MAP
PAIUTE RIDGE QUADRANGLE, NEVADA
GQ-577

DESCRIPTION OF MAP UNITS

Qal SAND AND GRAVEL— unconsolidated; in modern washes.

Qe EOLIAN DEPOSITS— includes windblown sand in modern stable and mobile dunes, and residual soil.

Qc TALUS AND OTHER COLLUVIUM— very coarse bouldery gravel to fine gravel in fans.

Qls LANDSLIDE DEBRIS—poorly sorted bouldery gravel.

Qoa OLDER ALLUVIUM— gravel cemented with caliche in upper few feet.

QTb BASALT FLOW— dark-gray olivine-bearing basalt; cinder zones at base.

QTi INTRUSIVE BASALTIC ROCKS— principally microgabbro and some basalt consisting of labradorite, augite, and iddingsite after olivine; occurs as basalt dikes and microgabbro pluglike intrusions with basaltic marginal zones.

QTsy SYENOGABBRO— a differentiate of the microgabbro; occurs as small pods within the microgabbro.

QTs FRIABLE SANDSTONE AND SILTSTONE (400± ft)—yellowish- to very light-gray, laminated to thin-bedded; includes two white beds of vitric tuff, ½ to 1 foot thick, near base; becomes conglomeratic toward top and in southern part of quadrangle.

Tta ALTERED TUFF— red oxidized and fused tuff adjacent to basaltic intrusive rocks.

TIMBER MOUNTAIN TUFF:

Tma AMMONIA TANKS MEMBER (0–160 ft)—compound cooling unit of moderate-yellowish-brown partially welded to non-welded ash-flow tuff; devitrified pumice fragments as large as 2 cm across; abundant phenocrysts of feldspar and bipyramidal quartz as much as 3 mm in length, rare biotite; welding and thickness increases to southwest; forms craggy outcrops. Includes white ash-fall tuff at base.

Tmr RAINIER MESA MEMBER (0–200 ft)—multiple-flow compound cooling unit; in descending order, brown densely welded vitrophyric biotite ash-flow tuff and pinkish-gray pumiceous partly welded ash-flow tuff; locally includes ash-fall tuff between this unit and Topopah Spring Member.

PAINTBRUSH TUFF AND INDIAN TRAIL FORMATION:

Tpt TOPOPAH SPRING MEMBER OF PAINTBRUSH TUFF (0–60 ft)—simple cooling unit of brown partially welded devitrified ash-flow tuff; lenses out to the north in white bedded tuff.

Tpi UNDIVIDED TUFF (0–2,100 ft)—nonwelded ash-flow(?) tuff and ash-fall tuff locally reworked by wind and water; sandy tuff and tuffaceous sandstone in upper part; bedded tuff in lower part; generally white, light-gray, pale-yellow, and pink shades; locally zeolitized.

Tits TUB SPRING MEMBER OF INDIAN TRAIL FORMATION (0–60 ft)—simple cooling unit of light-olive-gray to pale-greenish-yellow partially welded devitrified tuff; lenses out to the south in white bedded tuff.

Tiz ZEOLITIZED TUFF OF INDIAN TRAIL FORMATION AND OF PRE-INDIAN TRAIL AGE (350–1500 ft)—nonwelded.

Oe EUREKA QUARTZITE (400± ft)—grayish-orange, weathers brown, highly fractured. Carbonate lenses, if present, may be concealed by faulting.

ANTELOPE VALLEY LIMESTONE:

Oaa AYSEES MEMBER (950± ft)—limestone, medium- to dark-gray. Upper part (650± ft) weathers shades of light gray; thin-bedded siliceous and silty limestone weathers shades of orange, brown, and pink. Forms varicolored stairstep slope.

Oar RANGER MOUNTAINS MEMBER (215 ft)—silty limestone, olive-gray, mottled yellow and red along silty layers, very thin bedded. Brachiopods and other fossils abundant in upper 50 feet.

Oap PAIUTE RIDGE MEMBER (370 ft)—limestone, gray, thin- to thick-bedded; etched network of brown silty limestone forms "chicken-wire" pattern on bedding surface and perpendicular to bedding. Straight-coned cephalopods common.

On NINEMILE FORMATION (335 ft)—claystone (80 percent) and limestone, interbedded; claystone is light olive to greenish gray, fissile weathering; limestone is gray, nodular, very thin bedded. Forms gentle slope.

GOODWIN LIMESTONE:

Ogc PART C (415+ ft)—limestone, medium-light-gray to light-olive-gray, thin-bedded; weathers olive gray to brown; limestone pebble conglomerate common in upper part; cherty in lower part. Silty laminae in uppermost and lowermost parts.

Ogb PART B (85 ft)—silty limestone, grayish-yellow partings, very thin bedded.

Oga PART A (405 ft)—limestone, light-olive-gray, thin-bedded. Very thin bedded silty fossiliferous limestone in middle of unit; cherty near base. Lower contact placed at base of brownish-weathering thin-bedded olive-gray limestone.

NOPAH FORMATION:

Cns SMOKY MEMBER (1,070 ft)—dolomite and limestone, dark- to light-gray, very thick- to thin-bedded, with scattered nodules of chert that weather dusky brown; outcrops form broad contrasting bands of very light gray and dark gray; large stromatolites (1 to 2 feet wide, 2 to 4 feet high) and *Girvanella* (1 to 2 inches in diameter) locally conspicuous. Forms cliffs and ledges.

Cnh HALFPINT MEMBER (715± ft)—dolomite and limestone, gray, very thin bedded, with intercalated laminae and very thin beds of yellowish-gray to grayish-orange and pale-red silty dolomite and silty limestone, and with very thin beds and lenses of grayish-orange to dusky-brown chert. Forms ledges and cliffs.

Cnd DUNDERBERG SHALE MEMBER (225 ft)—shale, brown and reddish-brown, fissile, with thin nodular interbeds of dark-gray fossiliferous limestone. Forms slope with thin ledges.

BONANZA KING FORMATION:

Cbb BANDED MOUNTAIN MEMBER:

Cbbd Part D (300 ft)—limestone, dark- to light-gray, thin-bedded; weathered surfaces deeply pitted; upper 10 feet is dark thin-bedded to laminated limestone with much bituminous material. Forms cliffs.

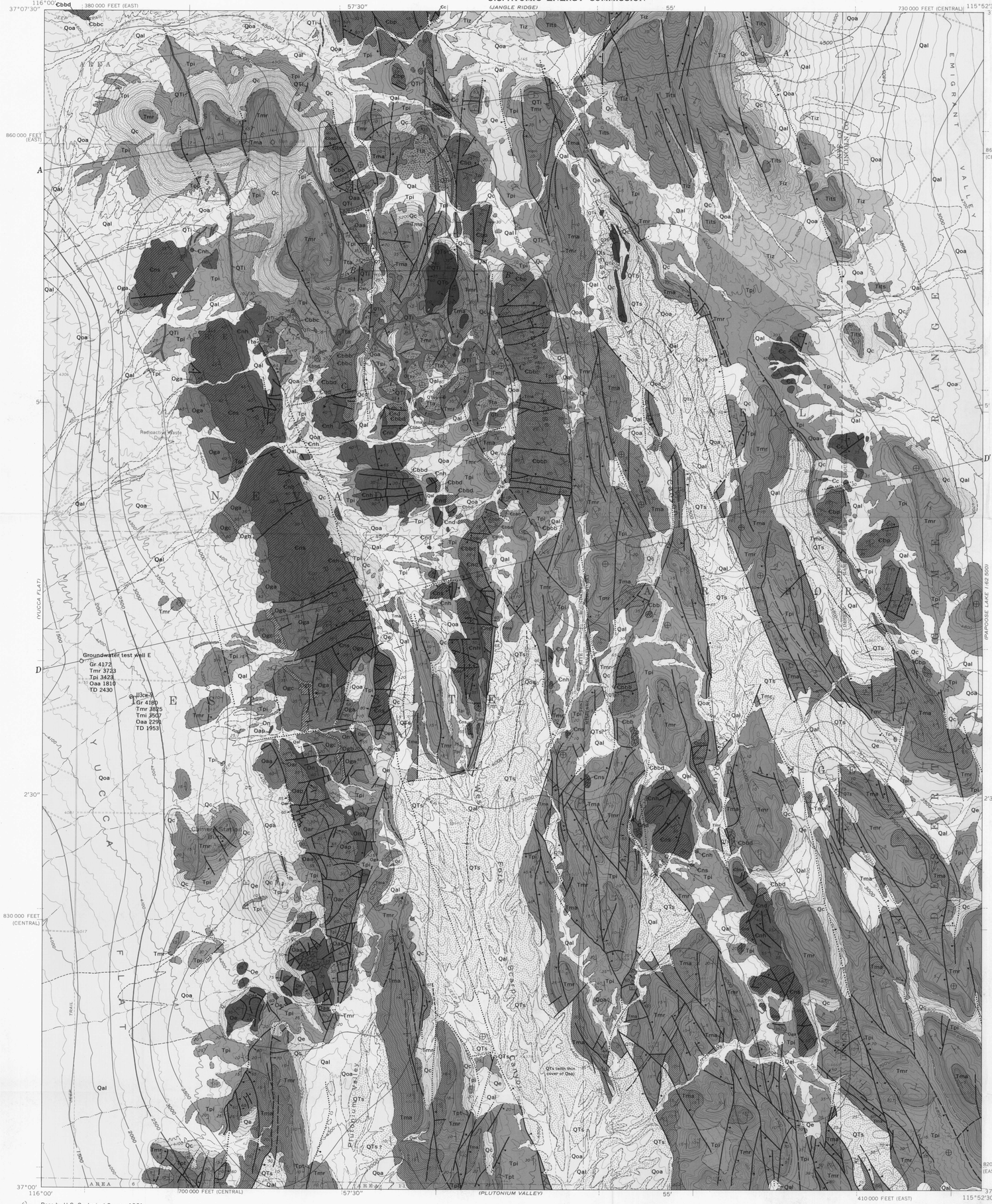
Cbbc Part C (375 ft)—limestone, light- to yellowish-gray, thick- to very thin-bedded; weathered surfaces smoothly rounded; lower contact gradational. Unit probably formed by alteration of darker beds. Forms cliffs.

Cbbb Parts A and B (1,765± ft)—part B, light-gray dolomite and dark-gray limestone in strikingly banded sequence of laminated to thin tabular beds; dolomite predominates over limestone except in lower part; contains scattered nodules and lenticular beds of dark-brown-weathering chert and silty limestone. Part A (basal 200 feet), dark- to medium-gray mottled limestone with yellowish-brown to very pale-orange siltstone and silty limestone. Forms ledges.

Cbp PAPOOSE LAKE MEMBER (2,160± ft)—dolomite and limestone. dark- to light-gray; in thick sequences. Laminated to thin-bedded light- to medium-gray limestone with minor dolomite and several thin zones containing brownish-weathering siltstone laminae 500 to 800 feet above base. Basal 500 feet is dark-gray limestone mottled by medium-gray limestone with which it is interlaminated; massive weathering.

Cc CARRARA FORMATION (2,000± ft)—interbedded limestone, shale, and siltstone; minor quartzite in lower part. Limestone and silty limestone, various shades of gray to grayish red and yellowish brown, thin-bedded to laminated; fissile shale and siltstone, dark-yellowish-orange to pale-olive; sandstone and quartzite, grayish-red to yellowish-brown, micaceous, thin-bedded.

Cz ZABRISKIE QUARTZITE (50+ ft)—quartzite, white to grayish-red, weathers moderate brown to grayish red, cross-laminated to thick-bedded; *Scolithus* abundant locally; some thin lenses of conglomerate composed of quartzite pebbles and rare red chert. Base not exposed.



Base by U.S. Geological Survey, 1961
10,000-foot grid based on Nevada coordinate system, central and east zones

APPROXIMATE MEAN DECLINATION, 1967

SCALE 1:24 000
1 0 ½ 1 MILE
1 0 1 5 1 KILOMETER
CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

NEVADA
QUADRANGLE LOCATION

Geology mapped in 1961. Contours on pre-Tertiary rocks by D. L. Healey and C. H. Miller, 1963

EXPLANATION

QUATERNARY
- Alluvium (Qal, Qoa) — Qal, *sand and gravel; includes a few areas of older alluvium*; Qoa, *older alluvium*
- Eolian deposits (Qe)
- Talus and other colluvium (Qc)
- Landslide debris (Qls)

UNCONFORMITY

TERTIARY AND QUATERNARY
- Basalt flow (QTb)
- Intrusive basaltic rocks (QTi) — QTsy, *syenogabbro*
- Friable sandstone and siltstone (QTs)

TERTIARY
- *Pliocene*
- *Miocene and Pliocene*
- Timber Mountain Tuff (Tma, Tmr) — Tma, *Ammonia Tanks Member*; Tmr, *Rainier Mesa Member*
- Paintbrush Tuff and Indian Trail Formation (Tpt, Tpi, Tits, Tiz) — Tpt, *Topopah Spring Member of Paintbrush Tuff*; Tpi, *undivided tuff*; Tits, *Tub Spring Member of Indian Trail Formation*; Tiz, *zeolitized tuff of Indian Trail Formation and of pre-Indian Trail age*
- Altered tuff (Tta)

UNCONFORMITY

ORDOVICIAN
- *Middle Ordovician*
- Eureka Quartzite (Oe)
- *Lower and Middle Ordovician*
- Antelope Valley Limestone (Oaa, Oar, Oap) — Oaa, *Aysees Member*; Oar, *Ranger Mountains Member*; Oap, *Paiute Ridge Member*
- Pogonip Group — *Lower Ordovician*
- Ninemile Formation (On)
- Goodwin Limestone (Ogc, Ogb, Oga) — Ogc, *part C*; Ogb, *part B*; Oga, *part A*

CAMBRIAN
- *Upper Cambrian*
- Nopah Formation (Cns, Cnh, Cnd) — Cns, *Smoky Member*; Cnh, *Halfpint Member*; Cnd, *Dunderberg Shale Member*
- *Middle Cambrian*
- Bonanza King Formation (Cbb, Cbbd, Cbbc, Cbbb, Cbp) — Cbb, *Banded Mountain Member*; Cbbd, *part D*; Cbbc, *part C*; Cbbb, *parts A and B*; Cbp, *Papoose Lake Member*
- *Lower Cambrian*
- Carrara Formation (Cc)
- Zabriskie Quartzite (Cz)

Contact, showing dip — *Dashed where approximately located; short dashed where gradational or inferred*

Fault, showing dip — *Dashed where approximately located; dotted where concealed. Bar and ball on downthrown side. Hachures indicate fault scarp or fault-line scarp against which younger rocks were deposited; hachures on side of younger deposit*

Anticline — *Showing approximate trace of axial plane*

Syncline — *Showing approximate trace of axial plane. Short dashed where questionable; dotted where concealed*

Asymmetrical syncline — *Showing approximate trace of axial plane. Short arrow indicates steeper limb; dotted where concealed.*

Plunge of minor anticline

Plunge of minor syncline

Strike and dip of beds

Strike of vertical beds

Horizontal beds

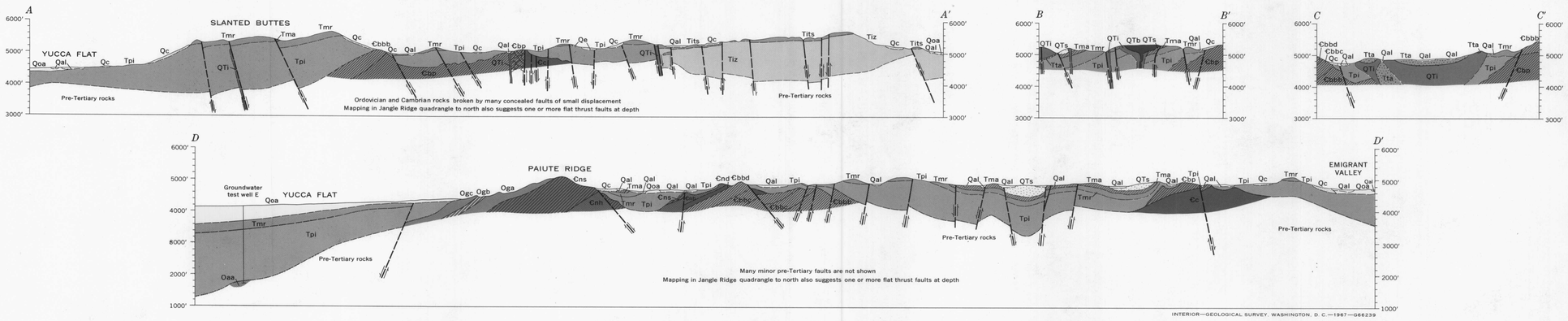
Strike and dip of eutaxitic structure in welded tuff

Highly fractured and faulted rock

U3cw-9
Gr 4180
Tmr 3825
Tmi 3507
Oaa 2291
TD 1953
Drill hole

Inferred contours — *Showing ground elevation (Gr), and elevation of rock units shown on map (as, Oaa), in feet. TD, total depth, in feet*

Drawn on buried surface of pre-Tertiary rocks. Contours generalized across faults. Hachures indicate closed depressions. Interval 500 feet. Contours based on gravity surveys and drill-hole data



GEOLOGIC MAP OF THE PAIUTE RIDGE QUADRANGLE, NYE AND LINCOLN COUNTIES, NEVADA

By

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1967

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1967—G66239

For sale by U.S. Geological Survey, price $1.00

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