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U.S. DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

CORRELATION AND DESCRIPTION OF MAP UNITS FOR THE GEOLOGIC MAP OF THE NORTHERN PART OF THE SIMPSON PARK MOUNTAINS (ROCKY HILLS AND WESTERN PART OF THE PETE HANSON CREEK QUADRANGLES), EUREKA COUNTY, NEVADA

By

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U.S. Geological Survey

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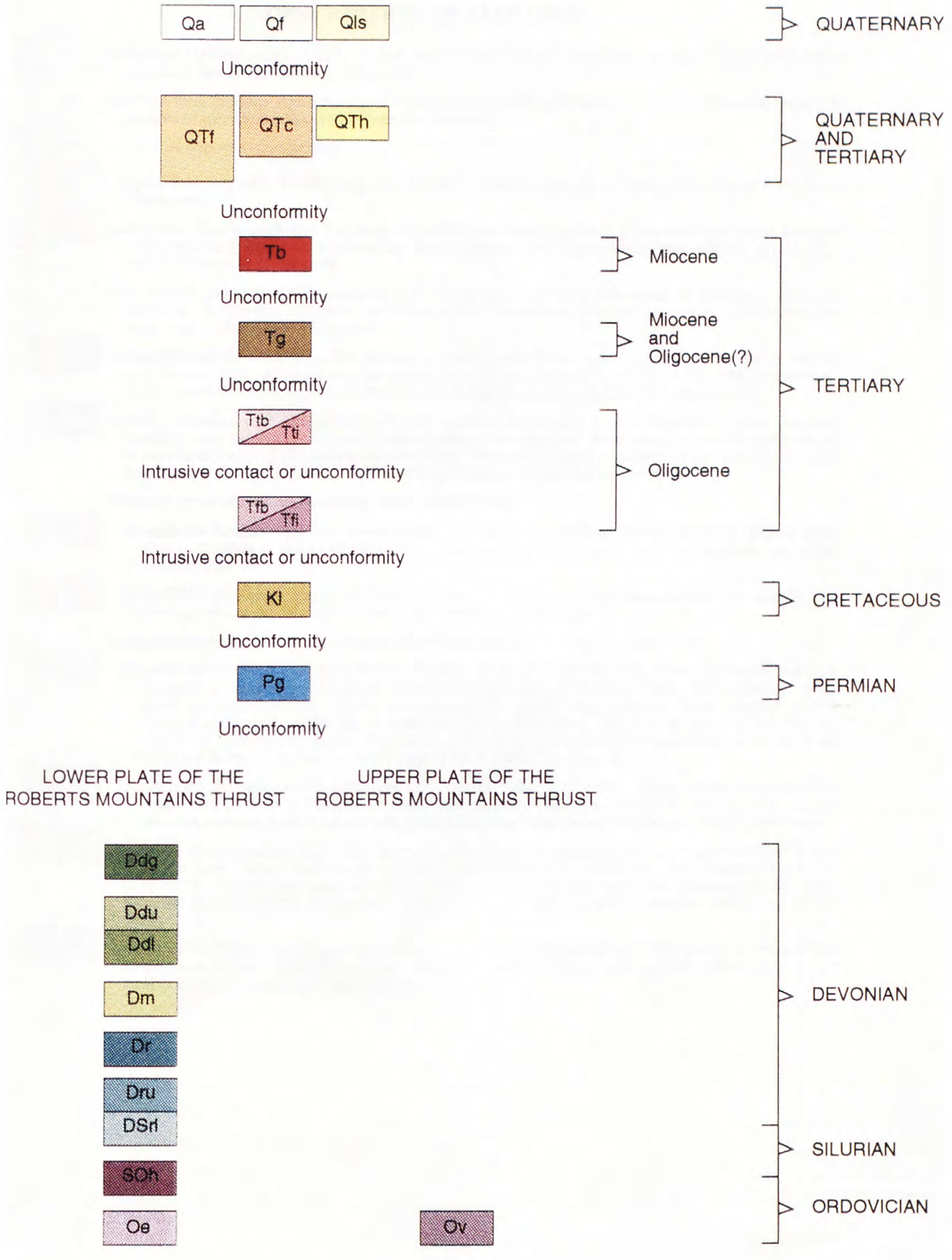
1993

CORRELATION OF UNITS



DESCRIPTION OF MAP UNITS

Qa — **Alluvium (Quaternary)**—Mostly stream sand and gravel and intermontane fans. Includes landslide deposits. Age is Pleistocene or Holocene

Qf — **Alluvial fans deposits (Quaternary)**—Young fan deposits, undissected or slightly dissected, mostly in process of formation. Age is Pleistocene or Holocene

Qls — **Landslide deposits (Quaternary)**

QTf — **Alluvial fans deposits (Quaternary and Tertiary)**—Fans in process of dissection. Age is Miocene to Pleistocene

QTc — **Colluvium (Quaternary and Tertiary)**—Poorly sorted, unconsolidated accumulation of basalt boulders in light-colored ashy matrix containing chert pebbles derived from underlying Tertiary gravel (Tg). Age is Miocene to Pleistocene

QTh — **Hay Ranch Formation (Quaternary and Tertiary)**—Lakebeds consisting of light-gray siltstone, sandstone, freshwater limestone, and some pebble conglomerate interbedded with white tuffaceous beds. Age is Miocene to Pleistocene

Tb — **Basalt (Miocene)**—Dark-gray, fine-grained to glassy basalt flows. Locally three to four flows with no soil between them. Potassium-argon ages of 12.8±0.7 Ma (location K-Ar-4), 13.0±0.5 Ma (location K-Ar-5) determined from uppermost flow, 13.9±0.4 Ma (location K-Ar-3) for lowermost flow

Tg — **Gravel (Miocene and Oligocene?)**—Poorly bedded, moderately sorted, lenticular gravel deposits. Mostly poorly indurated, but locally well cemented and silicified. Most clasts are pebble-size rounded to subrounded chert and quartzite derived from Ordovician Vinini Formation (Ov). Locally contains boulder-size clasts as large as 1 m derived from Permian Garden Valley Formation (Pg)

Volcanic rocks of Twin Peaks (Oligocene)—Divided into:

Ttb — **Rhyodacite breccia**—Blocky rhyodacite breccia apron surrounding rhyodacite dome (Tti) of Twin Peaks. Consists of blocks of glassy rhyodacite suspended in greenish volcanic mudstone and white volcanic ash

Tti — **Rhyodacite intrusive dome**—Columner-jointed to massive, glassy plagioclase- and hornblende-bearing rhyodacite. Partially eroded dome that forms Twin Peaks

Volcanic rocks of Fye Canyon (Oligocene)—Divided into:

Tfb — **Rhyodacite breccia and lava flows**—Stubby, lenticular lava and ash flows containing variable amounts of poorly sorted, angular blocks and fragments of rhyolite, dacite, and andesite. Some flows are autobrecciated. Flows are separated by erosion from intrusive dome complex of Fye Canyon but are assumed to be an extrusive phase of complex. Some local flows of andesite are associated with rhyolite rocks. Potassium-argon age of one hornblende dacite flow is 34.8±1.0 Ma (location K-Ar-1), one biotite rhyolite age is 35.4±1.0 Ma (location K-Ar-2)

Tfi — **Rhyodacite intrusive rocks**—Massive, flow-banded intrusive rhyolite. Steep, highly contorted flow bands ranging from millimeter to meter scale outline concentric outline of one or more domes. Rhyolite contains phenocrysts of quartz, alkali feldspar, plagioclase, biotite, and locally hornblende

Kl — **Limestone (Cretaceous)**—Light-gray to white, fine-grained to aphanitic limestone with well-developed algal structures. Algal structures form thinly laminated mounds as much as 2 m in diameter and 0.5 m in relief. Fresh-water mollusks and plant remains are reported from these beds (Johnson, 1959). May be partly correlative with limestone in the Cretaceous Newark Canyon Formation (Nolan and others, 1956)

Pg — **Garden Valley Formation (Permian)**—Limy sandstone and conglomerate. Well bedded to massive and locally crossbedded. Mostly grainstone containing sand- to pebble-size angular chert fragments and local crinoid and brachipod shell fragments

(Description of map units, continued)

LOWER PLATE OF THE ROBERTS MOUNTAINS THRUST

Ddg — **Devils Gate Limestone (Devonian)**—Massive- to medium-bedded limestone—mostly algal and stromatoporoid wackestone and boundstone and *Amphipora* packstone. Pattern indicates where silicified

Denay Limestone (Devonian)—Divided into:

Ddu — **Upper part**—Thin- to medium-bedded aphanitic limestone with some medium-bedded, light-gray calcarenite beds. Aphanitic lime mudstone is thinly laminated and grades upward into argillacous red- and yellow-weathering fissile lime mudstone that forms shaley outcrops. Includes (informal) Red Hill beds of Gregory and others (1977), which contain plates of antiarch fish *Astrolepis*. Pattern indicates where silicified

Ddl — **Lower part**—Dark-gray aphanitic limestone with interbedded light-gray calcarenite limestone. Aphanitic beds are lime mudstone and are laminated and thin bedded; calcarenite beds are lenticular and some are 3 to 5 m thick. Grains in these calcarenites are mostly bioclastic. Higher in section, lenticular bioclastic calcarenites are major rock type tnsition to thin-bedded laminated lime mudstone that make up upper part of formation. Pattern indicates where silicified

Dm — **M^{c}Colley Canyon Formation (Devonian)**—Lower part is light-gray, ledge-forming, medium- and thick-bedded aphanitic limestone. Locally there are intervals of platy-weathering laminated lime mudstone. Black outlines of trilobite and brachiopod fragments are distinguishing feature of lower part of formation. Upper part of formation is light-gray, medium- to thick-bedded calcarenite with many brachiopod, coral, and crinoid fragments

Dr — **Rabbit Hill Limestone (Devonian)**—Evenly laminated, thin-bedded, platy splitting, aphanitic limestone with a few interbeds of medium-bedded, coarse-grained limestone composed mostly of coralline and algal debris

Roberts Mountains Formation (Devonian and Silurian)—Divided into:

Dru — **Upper part (Devonian)**—Thin-bedded laminated lime mudstone interbedded with thick-bedded limestone comprised mostly of massive limestone-breccia beds. Beds are grain-supported, skeletal limestone, that tend to pinch and swell, and are about 3 m thick on average. Clasts consist of variable-size coral, algal, crinoid, and brachiopod fragments. Rocks have been previously called Windmill Limestone by some workers (Johnson, 1965; 1970; 1971; 1973; and Johnson and Murphy, 1969)

DSrl — **Lower part (Devonian and Silurian)**—Thin, evenly laminated aphanitic limestone that is platy splitting and weathers to yellowish hues. Basal part of formation is marked by 0.5-meter-thick bed of massive black chert. A few interbeds of skeletal graded limestones as thick as about 10 cm

SOh — **Hanson Creek Formation (Silurian and Ordovician)**—Dark, thin-bedded, aphanitic limestone and dolomite. Black chert blebs and stringers are common near top of formation

Oe — **Eureka Quartzite (Ordovician)**—Thin- to thick-bedded, mostly recrystallized fine- to medium-grained quartz arenite. White to brown, locally crossbedded (shown only on cross section)

UPPER PLATE OF THE ROBERTS MOUNTAINS THRUST

Ov — **Vinini Formation (Ordovician)**—Dark structureless mudstone, dark shale and siltstone, dark chert and argillite, quartz arenite of various colors usually thin to medium bedded, and thin-bedded, fine-grained limestones that weather to pastel shades of yellow, buff, and red

Contact—Dashed where approximately located, dotted where concealed

Fault—Dashed where approximately located, dotted where concealed. Ball and bar on downthrown side. Hatchures on down side of scarp

Thrust fault—Sawteeth on upper plate

Syncline

Strike and dip of beds

15 **Inclined**

Horizontal

Strike and dip of flow foliation

70 **Inclined**

K-Ar-1 **Potassium-argon sample locality**

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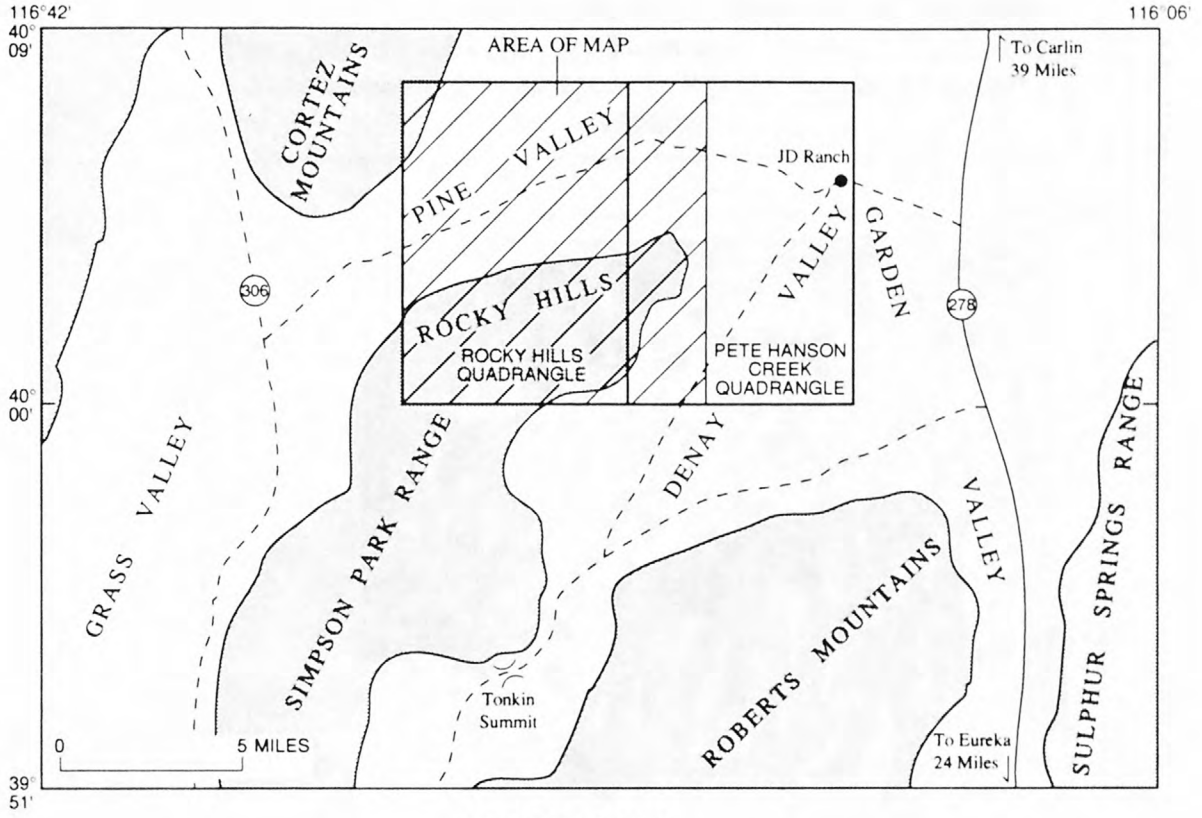
116°42'
116°06'
40° 09'
40° 00'
39° 51'
AREA OF MAP
CORTEZ MOUNTAINS
PINE VALLEY
ROCKY HILLS
ROCKY HILLS QUADRANGLE
PETE HANSON CREEK QUADRANGLE
JD Ranch
To Carlin 39 Miles
GARDEN VALLEY
306
278
GRASS VALLEY
SIMPSON PARK RANGE
DENAY VALLEY
ROBERTS MOUNTAINS
SULPHUR SPRINGS RANGE
Tonkin Summit
To Eureka 24 Miles
0
5 MILES

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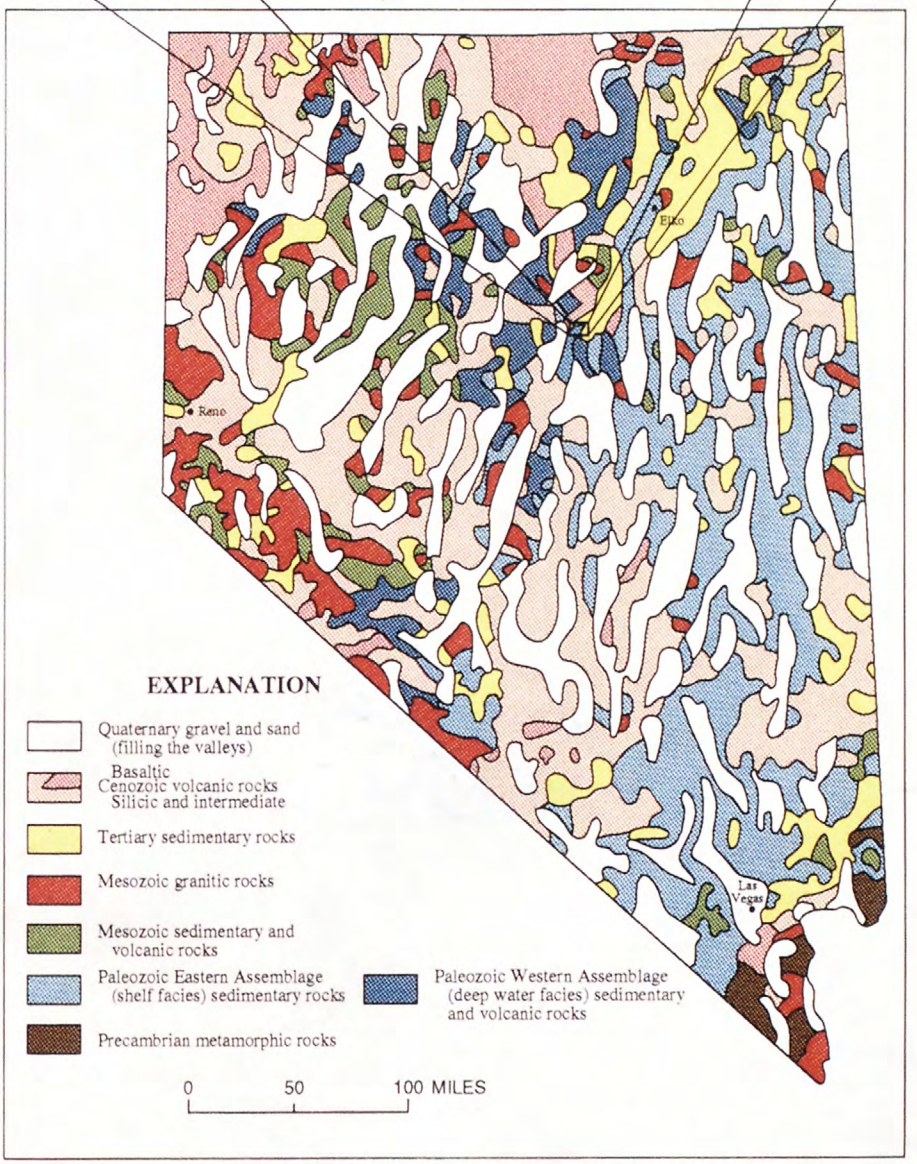
Correlation and Description of Map Units for the Geologic Map of the Northern Part of the Simpson Park Mountains (Rocky Hills and Western Part of the Pete Hanson Creek Quadrangles), Eureka County, Nevada



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