

**U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY**

To accompany the
**Preliminary Geologic Map of the North Peak Quadrangle,
Humboldt and Lander Counties, Nevada**

by
Ted G. Theodore

Open-File Report 91-429

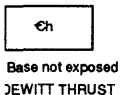
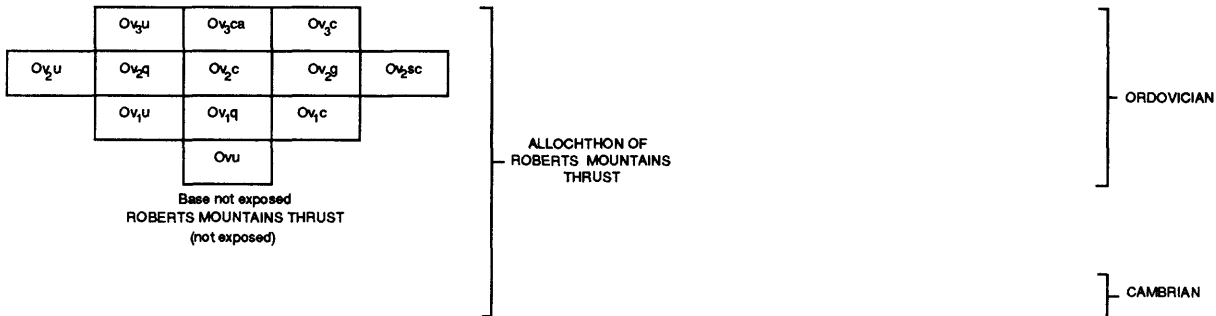
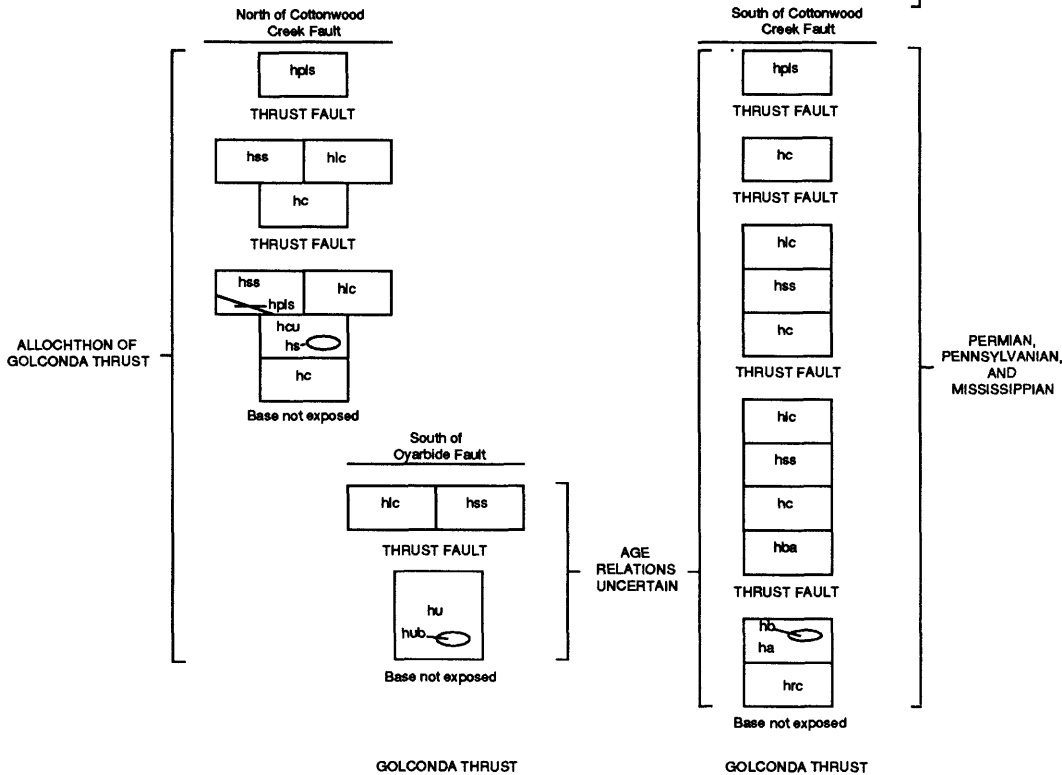
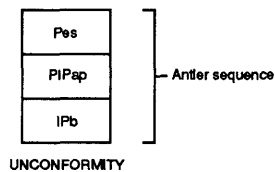
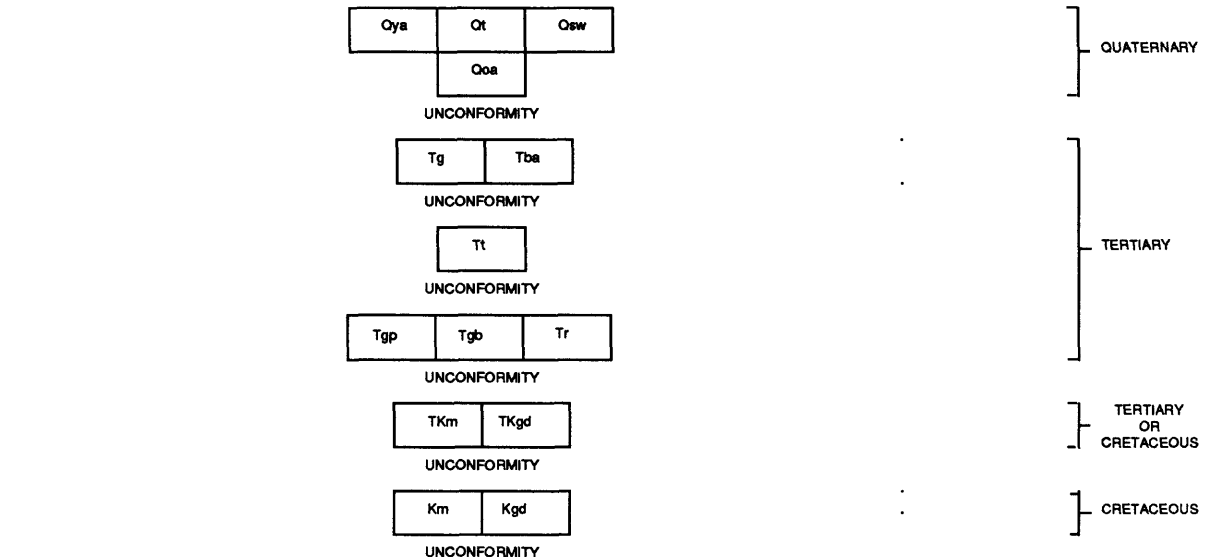
**Prepared in cooperation with the Nevada Bureau of Mines and
Geology**

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**Menlo Park, CA
94025**

1991

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Qya	Younger alluvium and fanlomerate deposits (Quaternary)
Qt	Talus deposits (Quaternary)
Qsw	Slope wash deposits (Quaternary)
Qoa	Older alluvium (Quaternary)
Tg	Gravel (Tertiary)--Includes mostly unconsolidated boulders of quartzite derived from the Ordovician Valmy Formation and some boulders of conglomerate derived from the Middle Pennsylvanian Battle Formation
Tba	Basalt (Tertiary)--Interbedded with Tertiary gravel and probably correlative with 3.4-Ma basalt in general area of Copper Canyon (McKee, 1991), approximately 12 km south-southeast of the quadrangle, or with 5-Ma basalt mapped by Erickson and Marsh (1974) in the Iron Point area, approximately 16 km to the northwest of the North Peak quadrangle
Tt	Tuff (Tertiary)--Pinkish-gray crystal lithic ash-flow tuff, presumably approaching composition of a calc-alkaline rhyolite where best exposed in the SW 1/4 sec. 6, T. 32 N., R. 43 E., approximately 0.8 km west of the site of the abandoned Oyarbide ranch
Tgp	Granodiorite porphyry (Tgp)--Dike near the east-central edge of the quadrangle that contains conspicuous ovoid phenocrysts of quartz. Probably correlative with 35.4-Ma granodiorite porphyry (McKee, 1991) in the general area of Buckingham Camp, approximately 8 km to the east of the quadrangle
Tgb	Gabbro (Tertiary)--Probably correlative with presumably Tertiary gabbro that crops out in the general area of the upper stretches of the north fork of Mill Canyon, approximately 3 km south of the south edge of the quadrangle (Roberts, 1964)
Tr	Rhyolite dike (Tertiary)
TKm	Monzogranite (Tertiary or Cretaceous)
TKgd	Granodiorite (Tertiary or Cretaceous)
Km	Monzogranite (Cretaceous)--Two samples of primary biotite yield 87.2- and 87.0-Ma ages by the K-Ar method (Theodore and others, 1973)
Kgd	Granodiorite (Cretaceous)--Narrow dikes associated with Cretaceous monzogranite

- Antler sequence of Roberts (1964)**--In this area consists of:
- Pes** **Edna Mountain Formation (Permian)**--Mostly poorly exposed brown-black siltite and black laminated siltite, non-calcareous to weakly calcareous. Includes some calcareous sandstone, gray-green chert, and green shale
- PIPap** **Antler Peak Limestone (Permian and Pennsylvanian)**
- IPb** **Battle Formation (Pennsylvanian)**--Mostly chert-pebble conglomerate correlative with the lower member of Roberts (1964). As mapped in the NW 1/4 sec. 25, T. 32 N., R. 43 E., includes small, thin, discontinuous fault-bounded slivers of the Havallah sequence. These slivers are poorly exposed and may also extend into the next adjacent section to the west

**ALLOCHTHON OF THE GOLCONDA THRUST
NORTH OF COTTONWOOD CREEK FAULT**

- Havallah sequence of Silberling and Roberts (1962), Roberts and Thomasson (1964), Stewart and others (1977), Stewart and others (1986), and Murchey (1990) (Permian, Pennsylvanian, and Mississippian)**--In this area consists of:
- hpls** **Pebbly limestone and conglomerate (Permian and Pennsylvanian?)**--Generally brownish-gray weathering resistant rocks that are commonly ridge-forming. Correlative with part of the Jory member of the Havallah Formation as mapped by Roberts (1964). Crops out mostly in the southern and southeastern parts of the Havallah Hills. The bulk of this map unit is present in the structurally highest plate in the tectonic stacking order established by Theodore (1991) for the Golconda allochthon as mapped to the north in the remaining parts of the Havallah Hills. Similar pebbly limestone and conglomerate are also present near the lowermost stratigraphic parts of brown calcareous sandstone of map unit hss in SE 1/4 sec. 14, T. 33 N., R. 42 E.
- hss** **Calcareous sandstone (Permian and Pennsylvanian?)**--Locally includes calcareous siltstone and minor limestone
- hlc** **Limestone and chert (Permian and Pennsylvanian?)**--Interbedded black sponge-spicule-bearing chert and gray limestone, in places sandy

- hc** **Ribbon chert (Mississippian?)**--Commonly greenish gray-black and locally contains prominent compaction structures which consist of knob-like protuberances on bedding surfaces that have been referred to as Doda structures by Madrid (1987)
- hcu** **Clastic rocks undivided (Permian and Pennsylvanian?)**--
Mostly calcareous siltstone
- hs** **Sandstone (Permian and Pennsylvanian?)**--Enclosed within
clastic rocks undivided (unit hcu)

SOUTH OF COTTONWOOD CREEK FAULT

Havallah sequence of Silberling and Roberts (1962), Roberts and Thomasson (1964), Stewart and others (1977), Stewart and others (1986), and Murchey (1990) (Permian, Pennsylvanian, and Mississippian)--In this area consists of:

- hpls** **Pebbly limestone and conglomerate (Permian and Pennsylvanian?)**--See description in "North of Cottonwood Creek Fault" section
- hc** **Ribbon chert (Mississippian?)**--See description in "North of Cottonwood Creek Fault" section
- hlc** **Limestone and chert (Permian and Pennsylvanian?)**--See description in "North of Cottonwood Creek Fault" section
- hss** **Calcareous sandstone (Permian and Pennsylvanian?)**--
See description in "North of Cottonwood Creek Fault" section
- hba** **Basalt (Mississippian?)**--Locally includes volcanoclastic sandstone and minor blood-red ferruginous chert probably exhalative in derivation
- ha** **Argillite (Permian and Pennsylvanian?)**--Mostly olive gray-green argillite and siliceous argillite containing minor chert. Probably correlative with lithotectonic unit 1 of Murchey (1990) as described in the Willow Creek area, approximately 10 km to the south
- hb** **Basalt (Permian and Pennsylvanian?)**--Enclosed within
argillite (unit ha)
- hrc** **Recrystallized chert (Permian, Pennsylvanian, and Mississippian?)**--Commonly iron-oxide stained and hydrothermally altered brown-black recrystallized chert that crops

only in the general area of the historic workings at the Marigold Mine. Crops out apparently stratigraphically below argillite (unit ha)

SOUTH OF OYARBIDE FAULT

- hlc** **Limestone and chert (Permian and Pennsylvanian?)**--See description in "North of Cottonwood Creek Fault" section
- hss** **Calcareous sandstone (Permian and Pennsylvanian?)**--See description in "North of Cottonwood Creek Fault" section
- hu** **Undivided part (Permian, Pennsylvanian, and Mississippian?)**--Includes mostly chert and siltstone contact metamorphosed to biotite hornfels as a result of emplacement of Cretaceous monzogranite and granodiorite in the general area Trenton Canyon. Equivalent to rocks mapped as part of the Pennsylvanian (?) Pumpnickel Formation by Roberts (1964)
- hub** **Basalt (Permian, Pennsylvanian, and Mississippian?)**--Poorly exposed basalt that crops only in one area near the trace of the Oyarbide fault and is enclosed within undivided part of Havallah sequence (unit hu)

ALLOCHTHON OF THE ROBERTS MOUNTAINS FAULT

Valmy Formation (Ordovician)--Consists of:

Unit 3--Equivalent to member 3 of Roberts (1964). Divided into:

- Ov3u** **Undivided part**
- Ov3ca** **Cherty argillite**--Thinly bedded cherty argillite mapped by Madrid (1987) near the upper stretches of Cottonwood Creek
- Ov3c** **Chert**--Includes some argillite and shale
- Unit 2**--Generally equivalent to member 2 of Roberts (1964). Divided into:
- Ov2u** **Undivided part**
- Ov2q** **Quartzite**
- Ov2c** **Chert**
- Ov2g** **Greenstone**--Mostly altered vesicular basalt, in places pillowed, but includes locally some small intrusive plugs and dikes of gabbro that are of an approximately equivalent age. As mapped, unit also includes minor amounts of volcanoclastic sedimentary rock and some shale, quartz arenite, and minor limestone
- Ov2sc** **Shale**--Generally poorly exposed, slope-forming unit that mostly includes argillaceous, black to gray, highly contorted shale. Also

includes beds of quartzite typically less than 1 m thick and minor sequences of (1) chert containing well-developed compaction structures, (2) siltstone, and (3) fine-grained quartzite

Unit 1--Generally equivalent to member 1 of Roberts (1964).

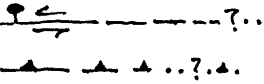
Divided into:

- Ov1u** **Undivided part**
- Ov1q** **Quartzite**
- Ov1c** **Chert**
- Ovu** **Undivided part**--Generally equivalent to undifferentiated part of Valmy Formation as mapped by Roberts (1964). Mostly thick-bedded quartzite possibly near the stratigraphic base of the formation. As mapped near the east-central part of the quadrangle, unit provisionally includes some quartzite previously assigned by Roberts (1964) to his member 1
- Ch** **Harmony Formation (Cambrian)**--Mostly olive gray-green feldspathic sandstone

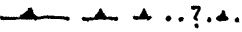


Contact--Queried where location uncertain

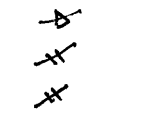
Faults--Showing dip. Arrows indicate sense of displacement. Long dashed where approximately located; short dashed where inferred; queried where uncertain; dotted where concealed



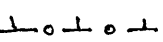
Normal fault-Bar and ball on downdropped block



Thrust fault-Sawteeth on upper plate



Rhyolite dike (Tr)



Monzogranite dike (TKm)

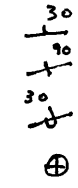


Granodiorite dike (Kgd)

Approximate location of outer limit of abundant quartz veins--
Hachured in direction of quartz veins

Projection to the surface of approximate outer limit of metal deposit--
-Inferred on the basis of surface location of drill sites and(or)
location of perimeter of open pit

Strike and dip of bedding



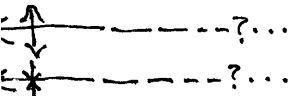
Inclined-Facing not always known with certainty

Vertical

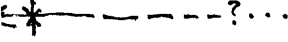
Overtaken

Horizontal

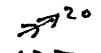
Folds--Showing trace of hinge line and plunge of axis; long dashed where approximately located; short dashed where inferred; queried where uncertain; dotted where concealed



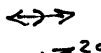
Anticline



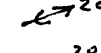
Syncline



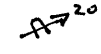
Minor anticline, showing trend and plunge



Horizontal minor anticline, showing trend



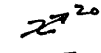
Minor syncline, showing trend and plunge



Minor overturned fold, showing trend and plunge



Horizontal minor overturned fold, showing trend



Minor coaxial folds, showing trend and plunge



Horizontal minor coaxial folds, showing trend

Strike and dip of foliation



Inclined

References cited

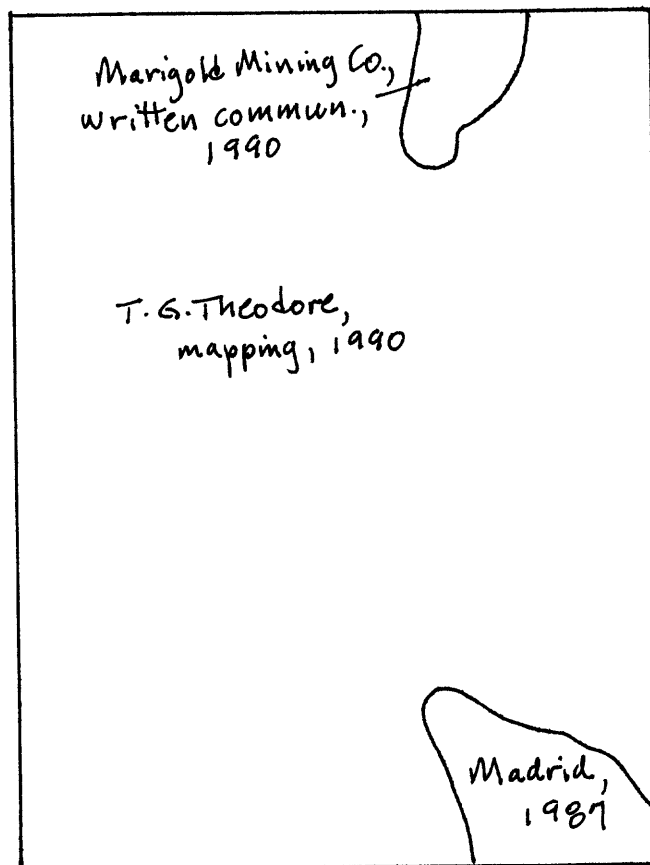
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Sources of geologic data