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

To accompany the

Preliminary Geologic Map of the Valmy Quadrangle, Humboldt County, Nevada

by

Ted G. Theodore

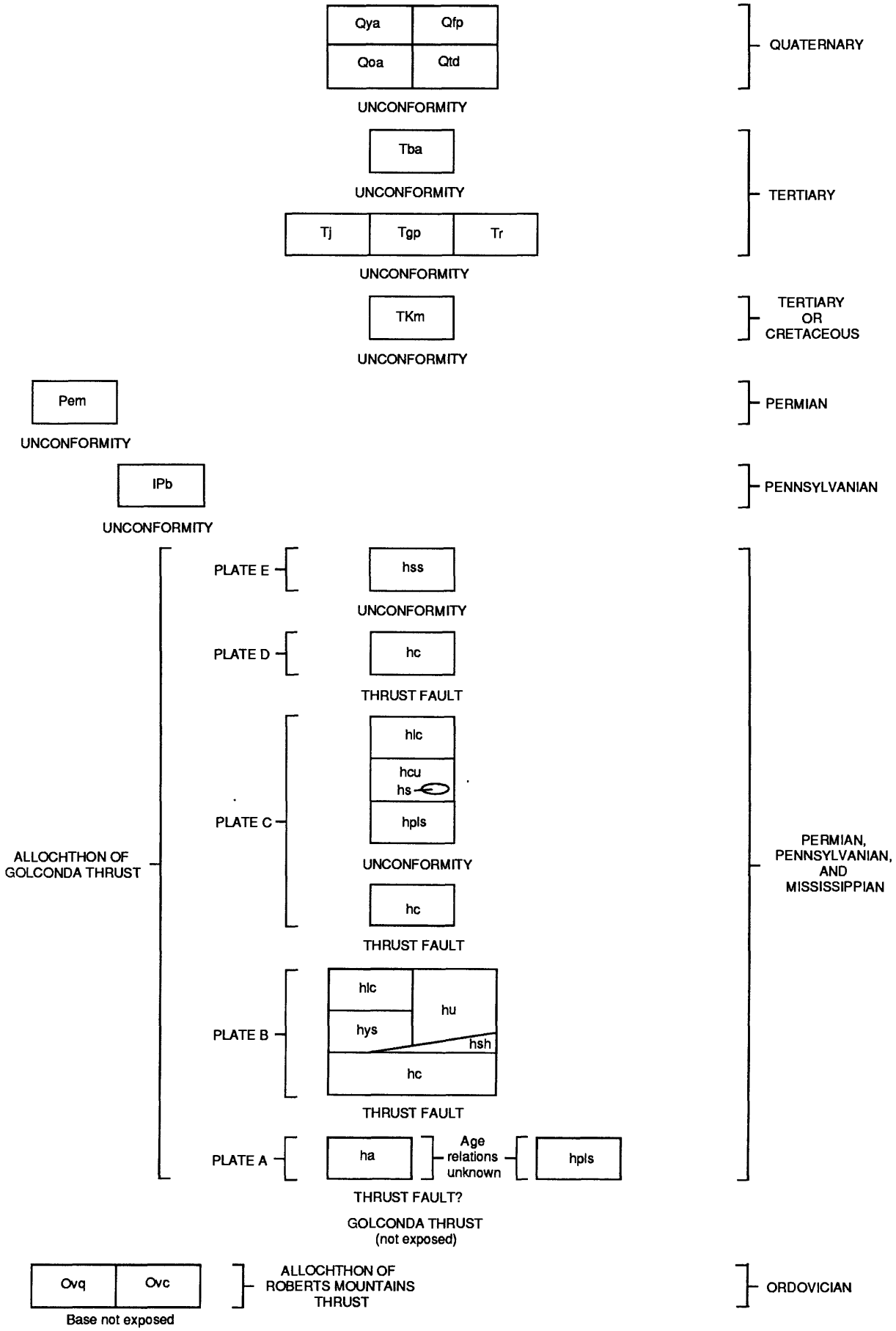
Open-File Report 91-430

Prepared in cooperation with the Nevada Bureau of Mines and Geology

Menlo Park, CA
94025

1991

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Qya **Younger alluvium and fanglomerate deposits (Quaternary)**

Qfp **Flood plain deposits of the Humboldt River (Quaternary)**--Silt, sand, and clay along the flood plain of the Humboldt River

Qoa **Older alluvium (Quaternary)**

Qtd **Terrace deposits of the Humboldt River (Quaternary)**

Tba **Basalt (Tertiary)**--Crops out only in the general area of Treaty Hill, north of the Humboldt River. Possibly correlative with basalt shown by Theodore (1991) to be interbedded with Tertiary gravels approximately 16 km south of Treaty Hill, and correlated by Theodore (1991) either with 3.4-Ma basalt (McKee, 1991) in the general area of Copper Canyon in the southern part of the mountain range, or with 5-Ma basalt mapped by Erickson and Marsh (1974) in the general area of Iron Point, approximately 16 km to the west-northwest of the Valmy quadrangle

Tj **Jasperoid (Tertiary?)**

Tgp **Granodiorite porphyry dike (Tertiary)**--Crops out only near the south end of Lone Tree Hill

Tr **Rhyolite dike (Tertiary)**

TKm **Monzogranite (Tertiary or Cretaceous)**

Antler sequence of Roberts (1964) (Permian and Pennsylvanian)--In this area consists of:

Pem **Edna Mountain Formation (Permian)**--Mostly black chert- and quartz-lithic arenite that crops out only at Treaty Hill, near the northeast corner of the quadrangle. These rocks tentatively are correlated on the basis of their lithologic similarity and geologic position with rocks assigned to the Edna Mountain Formation by Erickson and Marsh (1974) in the SW 1/4 sec. 14, T.35 N., R.41 E., in the general area of Iron Point, approximately 16 km to the west-northwest of the Valmy quadrangle

lPb **Battle Formation (Pennsylvanian)**--Mostly quartzite cobble conglomerate that crops out only on Lone Tree Hill in the quadrangle and is derived from rocks assigned to the Ordovician Valmy Formation. The quartzite cobble conglomerate on Lone Tree Hill is correlative with the lower member of Roberts (1964)

ALLOCHTHON OF THE GOLCONDA THRUST

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:

hss **Calcareous sandstone (Permian and Pennsylvanian?)**--Locally includes calcareous siltstone and minor limestone

hc **Ribbon chert (Mississippian?)**--Commonly greenish gray-black except where altered and locally contains prominent, knob-like compaction structures on bedding surfaces, some shale, and volcaniclastic sandstone. Similar compaction structures in the Valmy Formation are referred to as Doda structures by Madrid (1987)

hlc **Limestone and chert (Permian and Pennsylvanian?)**--Interbedded black sponge-spicule-bearing chert and gray limestone, in places sandy

hcu **Clastic rocks undivided (Permian and Pennsylvanian?)**--Mostly calcareous siltstone

hs **Sandstone (Permian and Pennsylvanian?)**--Enclosed in clastic rocks undivided (unit hcu) near the south edge of the quadrangle

hpls **Pebbly limestone and conglomerate (Permian and Pennsylvanian?)**--Correlative with part of the Jory member of the Havallah Formation of Roberts (1964)

hu **Undivided part (Permian and Pennsylvanian?)**--Includes thinly bedded to laminated, fine-grained calcareous sandstone; gray platy micrite and black micrite; brown to black shale; and gray calcareous siltite where unit is well exposed in sec. 34, T. 33 N., R. 42 E. In this general area, the unit is probably a lateral equivalent to limestone and chert unit that crops out to the northeast

hys **Yellow-to-orange calcareous sandstone (Permian and Pennsylvanian?)**--Generally a sequence of blocky weathering, lithologically homogeneous, commonly orange and reddish-brown- to ochre-brown- and black-weathered, fine- to medium-grained rocks that include minor thin-bedded micrite. As mapped, a lateral

equivalent of some of the stratigraphically lowermost parts of undivided part, unit hu. Near top of sequence, sandstone of unit hys shows gradational contact with undivided part. As mapped, locally includes thin sequences of unit hsh

hsh **Green shale and interbedded calcareous sandstone (Permian and Pennsylvanian?)**--Commonly poorly exposed. Best exposures of this unit in NE 1/4 sec. 23, T. 34 N., R. 42 E. Partly, as mapped, also enclosed locally within unit hys, commonly near the base, and includes interbeds of yellow-to-orange calcareous sandstone. Locally also includes thin sequences of drab, brick-red shale and minor amounts of bleached, iron oxide-stained chert

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 30 km to the south. Apparently crops out only in the northernmost part of the Havallah Hills and, together with nearby exposures of pebbly limestone and conglomerate (map unit hpls) in the NE 1/4 sec. 23 and NW 1/4 sec. 23, T. 34 N., R. 42 E., is considered to constitute the lowermost tectonic plate (plate A, see accompanying figure below) in the stacking order of the Golconda allochthon in the quadrangle. Geologic relations between units ha and hpls in plate A are unknown

ALLOCHTHON OF THE ROBERTS MOUNTAINS THRUST

Valmy Formation (Ordovician)--Consists of:

Ovq **Quartzite**--Probably equivalent to undivided part of Roberts (1964)

Ovc **Chert**--Probably equivalent to undivided part of Roberts (1964)

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)

Approximate location of outer limit of abundant widespread pyritic alteration--Hachured in direction of pyritic alteration

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

Overturned

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

References cited

Erickson, R.L., and Marsh, S.P., 1974, Geologic map of the Iron Point quadrangle, Humboldt County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-1175, 1 sheet, (scale 1:24,000).

Madrid, R.J., 1987, Stratigraphy of the Roberts Mountains allochthon in north-central Nevada: Stanford, California, Stanford University, Ph.D. Dissertation, 341 p.

McKee, E.H., 1991, Potassium argon and $^{40}Ar/^{39}Ar$ geochronology of selected plutons in the Buckingham area, *in* Theodore, T.G., Blake, D.W., Loucks, T.A., and Johnson, C.A., Geology of the Buckingham stockwork system and surrounding area, Lander County, Nevada: U.S. Geological Survey Professional Paper 798-D (in press).

Murchey, B.L., 1990, Age and depositional setting of siliceous sediments in the upper Paleozoic Havallah sequence near Battle Mountain, Nevada: Implications for the paleogeography and structural evolution of the western margin of North America, *in* Harwood, D.S., and Miller, M.M., eds., Paleozoic and early Mesozoic paleogeographic relations; Sierra Nevada, Klamath Mountains, and related terranes: Geological Society of America Special Paper 255, p.137-155.

Roberts, R.J., 1964, Stratigraphy and structure of the Antler Peak quadrangle, Humboldt and Lander Counties, Nevada: U.S. Geological Professional Paper 459-A, p. A1-A93.

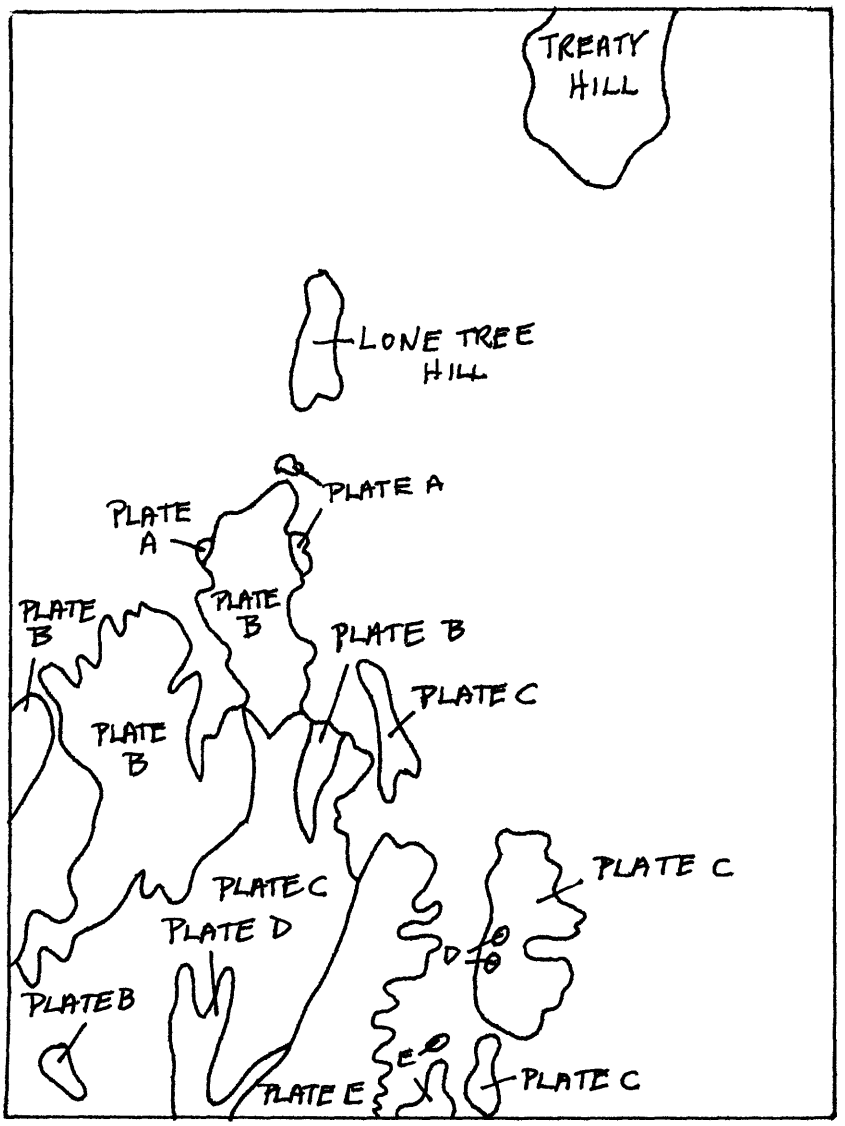
Roberts, R.J., and Thomasson, M.R., 1964, Comparison of late Paleozoic depositional history of northern Nevada and central Idaho: U.S. Geological Survey Professional Paper 475-D. p. D1-D6.

Silberling, N.J., and Roberts, R.J., 1962, Pre-Tertiary stratigraphy and structure of northwestern Nevada: Geological Society of America Special Paper 72, 58 p.

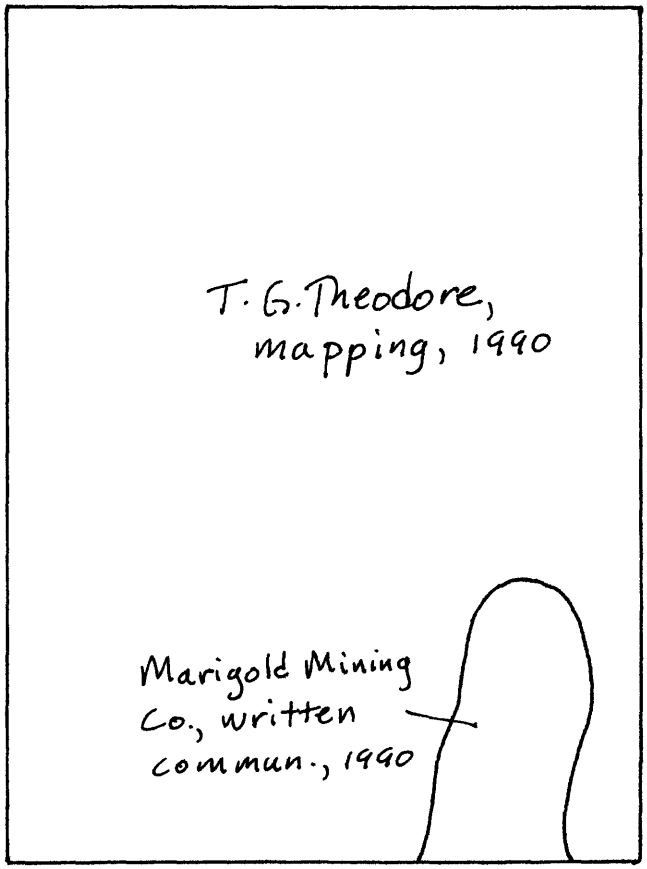
Stewart, J.H., MacMillan, J.R., Nichols, K.M., Stevens, C.H., 1977, Deep-water upper Paleozoic rocks in north-central Nevada--a study of the type area of the Havallah Formation, in Stewart, J.H., Stevens, C.H., and Fritsche, A.E., eds., Paleozoic paleogeography of the western United States: Society of Economic Paleontologists and Mineralogists, Pacific Coast Paleogeography Symposium 1, p. 337-348.

Stewart, J.H., Murchey, B.L., Jones D.L., and Wardlaw, B.R., 1986, Paleontologic evidence for complex tectonic interlayering of Mississippian to Permian deep-water rocks of the Golconda allochthon in Tobin Range, north-central Nevada: Geological Society of America Bulletin, v. 97, p. 1122-1132.

Theodore, T.G., 1991, Preliminary geologic map of the North Peak quadrangle, Humboldt and Lander Counties, Nevada: U.S. Geological Survey Open-File Report 91-429, 11p., 1 map (scale 1: 24,000).



Plates of the Golconda allochthon



Sources of geologic data