



EXPLANATION

CORRELATION OF MAP UNITS

Qa	Qd	Holocene	QUATERNARY
Qoa		Pleistocene	
Unconformity			
QTt		Pliocene	
Unconformity			TERTIARY
Tn		Miocene	
Unconformity			
Tbb			
Tt			TERTIARY
Unconformity			
Tk			
Tdy		Eocene	
Unconformity			CRETACEOUS
Tla			
Tlc			
Tks			
Unconformity			
Tkm		Upper Cretaceous	

DESCRIPTION OF MAP UNITS

- Qd Dune sand (Holocene)--local accumulations of fine-grained, wind-blown sand along ridge crests underlain by sandstone body of Kreyenhagen Shale (Tks)
- Qa Alluvium (Holocene and upper Pleistocene)--Unconsolidated gravel, sand, and silt
- Qoa Older alluvium (Pleistocene)--Unconsolidated or weakly consolidated gravel, sand, and silt
- QTt Tulare Formation (Lower Pleistocene and upper Pliocene)--Weakly consolidated mudstone, siltstone, and pebble conglomerate, and unconsolidated lenses of sand
- Tn Nonmarine deposits (Pliocene and upper Miocene)--Friable or locally calcareous sandstone, commonly crossbedded; greenish-gray and red-brown mudstone and claystone; and pebble conglomerate. Local pumiceous sandstone at top
- Tbb Big Blue Formation (Middle Miocene)--Laminated to thin-bedded, serpentine mudstone and serpentine-grain sandstone; marine?
- Tt Temblor Formation (Middle and Lower Miocene)--Calcareous to friable, lithic and arkosic sandstone; commonly abundantly fossiliferous (mollusks, echinoids, barnacles) and occasionally pebbly
- Tk Kreyenhagen Shale (Upper and middle Eocene)--Thin-bedded, chocolate-brown shale and mudstone grading upward to soft, white, diatomaceous shale and diatomite. Gray lithic sandstone interbeds near base, and abundant sandstone dikes throughout. Includes the Tuley Formation of Atwill (1935). Thick bodies of sandstone in upper part of formation are mapped separately:
- Tks Sandstone--Gray or brown, friable to calcareous, concretionary, lithic sandstone; locally pebbly. Includes Tuley sandstone of Atwill (1935), and stratigraphically higher, unnamed sandstone body containing prominent oyster beds. Lower sandstone body (Tuley sandstone) appears to be a large channel fill that pinches out to east or southeast, as in NW 1/4 sec. 26, T. 16 S., R. 13 E.
- Tdy Domengine and Yokut Sandstones, undivided (Middle or lower? Eocene)--Massive or crossbedded, arkosic to quartzose sandstone; interbeds of gray siltstone and claystone, and very thin lenses of dark chert pebbles. Lower part (Yokut) predominantly white, upper part (Domengine) predominantly tan or light brown
- Tla Lodo Formation (Lower Eocene and upper Paleocene)--divided into: Arroyo Hondo Shale Member--Gray claystone with a few thin interbeds of siltstone or sandstone. Small lenses of fine-grained sandstone (ss) in lower part
- Tlcs Cantua Sandstone Member--Thin- to thick-bedded, light brown, arkosic sandstone; thin interbeds of gray siltstone and claystone. Grades up into Arroyo Hondo Shale Member
- Tlc Cerros Shale Member--Gray claystone with thin interbeds of siltstone or sandstone increasingly abundant upward
- Tkm Moreno Formation (Paleocene and Upper Cretaceous)--Brown to maroon siltstone and shale

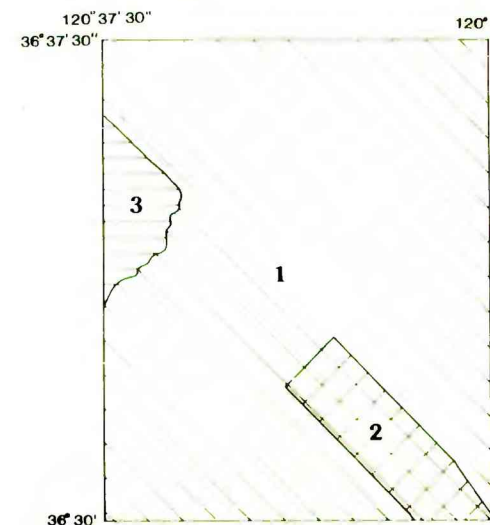
- Contact--Dashed where indefinite or inferred
- Fault--Dashed where indefinite, dotted where concealed; U, upthrown side; D, downthrown side
- Fold axes
- Anticline--Dashed where approximately located; dotted where concealed
- Syncline--Dashed where approximately located; dotted where concealed
- Strike and dip of beds
- Inclined
- Vertical
- Overturned
- Landslide--Arrows show direction of movement

REFERENCES

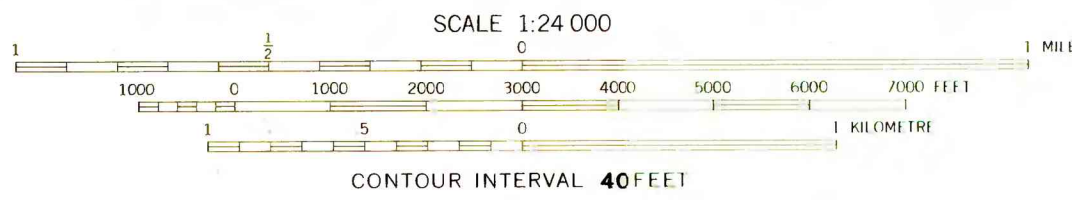
- Atwill, E.R., 1935, Oligocene Tuley Formation of California: American Association of Petroleum Geologists Bulletin, v. 19, p. 1192-1204.
- Dibblee, T.W., Jr., 1975, Geologic map of the "Tuley Hills" quadrangle, California: U.S. Geological Survey Open-File Report 75-394, scale 1:62,500.
- Phillips, F.J., Tipton, Ann, and Watkins, Rodney, 1974, Outcrop studies of the Eo-Oligocene Tuley Formation, Monocline Ridge, Fresno County, California, in The Paleogene of the Panache Creek-Cantua Creek area: Pacific Section, Society of Economic Paleontologists and Mineralogists, Fall 1974 Field Trip Guidebook, p. 38-68.
- Schoellhamer, J.S., and Kinney, D.M., 1953, Geology of portions of Tuley and Panache Hills, Fresno County, California: U.S. Geological Survey Oil and Gas Investigations Map OM 128, scale 1:24,000.

INDEX TO GEOLOGIC MAPPING

- Geology mapped 1987 by J.A. Bartow assisted by Kari Bassett, with additional information from:
- Dibblee (1975)
 - Phillips and others (1974)
 - Schoellhamer and Kinney (1953)



Base from U.S. Geological Survey
Monocline Ridge quadrangle, 1971



PRELIMINARY GEOLOGIC MAP OF THE MONOCLINE RIDGE QUADRANGLE, CALIFORNIA

by

J. Alan Bartow

1988

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature. Any use of trade names is for descriptive purposes only and does not imply endorsement by the USGS.