

1/ Sample numbers of dated samples are plotted according to analytical age and adjacent to rock unit from which they were collected. Standard error of age determination not shown. Circled samples were not plotted; the analytical ages given for these samples are suspect (see discussion).

DESCRIPTION OF MAP UNITS

QAL ALUVIUM (QUATERNARY)—Surficial deposits of sand, silt, gravel, and clay.

QS TERRACE DEPOSITS (QUATERNARY)—Older surficial deposits of sand, silt, gravel, and clay, commonly incised by present drainage system.

QTC1 LOWER PART OF CLEAR LAKE VOLCANICS (PLEISTOCENE AND PLEISTOCENE)—Dark gray to brownish-gray basaltic andesite and andesite.

QTC2 GLEN ELLEN FORMATION (PLEISTOCENE AND (OR) PLEISTOCENE)—Brown, reddish-brown, and brownish-gray interbedded tuffaceous (siltstone, sand, siltstone, sand, silt, and rounded pebbles) poorly laminated, gravel distinguished by the presence of sparse oxidized pebbles. Composed chiefly of pebbles and matrix of sandstone, siltstone, and conglomerate derived from the Franciscan Complex along with pebbles of andesite, rhyolite, and other volcanic rocks derived from the Sonoma Volcanics. Tuff locally massive.

QTC3 SAND AND GRAVEL OF OPTATI (PLEISTOCENE AND (OR) PLEISTOCENE)—Interbedded, locally reddish-brown, brownish-gray to medium-brown sand and gravel. Composed chiefly of pebbles and matrix of sandstone, siltstone, and conglomerate (probably derived from the Franciscan Complex), and pebbles of andesite, rhyolite, and other volcanic rocks derived from the Monterey Group to the south and west. Matrix is a medium-brown ferruginous coating.

TTH TERRAMA FORMATION (PLEISTOCENE)—Sand, silt, and silty clay, with interbedded volcaniclastic sand and gravel.

TP PATAHA TUFF MEMBER—Associated tuff and volcaniclastic sand and gravel.

IVICICIA FORMATION (PLEISTOCENE)

TH1 TUFF AND TUFFaceous SANDSTONE DEPOSITS—Yellowish-gray to light-gray rounded tuff and bedded tuffaceous sandstone, siltstone, sand, clay, diatomite, and conglomerate that contain pebbles derived from both volcanic and sedimentary sources.

TH2 Clay with yellowish-gray sandy clay, clay shale, and silt, with interbeds of light-gray diatomite. Locally includes thin beds of light gray tuff.

SONOMA VOLCANICS (PLEISTOCENE AND MIOCENE)—Divided into:

Upper member (Pliocene)

TH20 Rhyolite of Calistoga—White, platy to massive rhyolite, locally containing thin beds of black glass at base. Particulate near Lake Hemet. Includes flows and cones.

TH21 Tuff of Petrified Forest—Tuff and ash-flow tuff, locally yellowish white or light to medium gray. Interbedded with tuff breccia, sandstone, and andesite lava.

TH22 Tuff breccia of Sepa—Light to medium-gray or yellowish-gray tuff breccia containing pebbles of andesite, rhyolite, and volcaniclastic sandstone and siltstone. Includes breccia of andesite and rhyolite.

TH23 Andesite of Pulney Creek—Dark to dark-gray basaltic andesite.

TH24 Rhyolite of Mount George—Light-gray, platy to massive rhyolite, locally containing thin beds of black glass at base. Particulate near Lake Hemet. Includes flows and cones.

Lower member (Pliocene and Miocene)

TH25 Andesite of Atlas Peak (Pliocene and Miocene)—Dark to medium-gray andesite flow and andesite flow interbedded with light-yellowish-gray ash-flow tuff. South of Mount Hood the unit includes layers of basalt, rhyolite, and welded tuff.

TH26 Dark rhyolite of Sugarloaf Ridge (Pliocene)—Light-gray tuffaceous andesite, andesite, and andesite lava.

TH27 Rhyolite of Alameda Cove (Miocene)—White to light-gray rhyolite, with thin layers of green to dark-gray perle in lower part.

TH28 Andesite of Rodgers Creek (Miocene)—Dark to dark-gray andesite flow and andesite flow interbedded with light-yellowish-gray ash-flow tuff. Includes flows and cones.

TH29 Rhyolite of Arrowsmith Mountain (Miocene)—White to light-gray rhyolite flow and andesite flow in places grading to black glass at base. Unit probably includes intrusive masses along Rodgers Creek fault.

TH30 WILSON GROVE FORMATION (PLEISTOCENE AND MIOCENE)—Yellowish-gray, fine-grained, massive unconsolidated sandstone and siltstone with thin layers of light gray tuff near base of unit and local interbeds of gravel.

TH31 PATAHA FORMATION (MIOCENE)—Dark-gray to brownish-gray and dark-brownish-gray interbedded beds and lenses of poorly consolidated clay, silt, sand, and gravel with local interbeds of pale-yellowish-gray to white tuff and diatomite. The gravel is composed chiefly of detrital material from the Franciscan Complex, along with minor amounts of unmetamorphosed volcanic rock and laminated siliceous shale; the latter probably derived from the Monterey Group.

TH32 TOLAY VOLCANICS (MIOCENE)—Dark-gray to dark-brownish-gray lava flows of basaltic andesite. Includes light-gray rhyolite near Tolay fault.

TH33 MAINE SEDIMENTARY ROCKS (MIOCENE AND MIOCENE)—Chiefly weakly to moderately indurated marine sedimentary rocks. Includes medium-grained, bluish-gray to light-brown sandstone, medium- to fine-grained, light-gray to white sandstone, shaly sandstone, and sandy shale, and bluish-gray, carbonaceous sandstone with subordinate clay, silt, and pebbly layers. Includes basal flow at Pulney Peak, near San Anselmo, west of San Francisco.

BASEMENT ROCKS (TERTIARY, CRETACEOUS, AND JURASSIC)—Unconsolidated Franciscan Complex and Great Valley sequence. Includes dark-brownish-gray, and dark greenish-gray interbedded and tightly cemented (where unaltered) sandstone, siltstone, and conglomerate. It is supposed also includes greenstone, serpentine, chert, and manganese, and other areas of known sandstone assigned to other formations.

SYMBOLS

CONTACT—Dashed where interfingering or gradational; queried where location uncertain.

HIGH-ANGLE FAULT—Dashed where location uncertain; queried where probably; dotted where concealed. Offsets Miocene or younger rocks; older faults not shown.

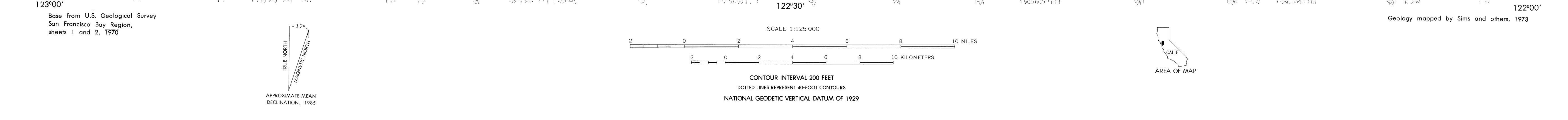
THRESH FAULT—Dashed where location uncertain; queried where probably; dotted where concealed; marked on upper plate. Offsets Miocene or younger rocks; older faults not shown.

SAMPLE LOCALITY—Shows sample number and age in million years.

OIL TEST WELL—Shows and location of test well intersected in test.

LANDSLIDE—Arrows indicate direction of movement.

MAP BOUNDARIES



POTASSIUM-ARGON AND FISSION-TRACK AGES OF THE SONOMA VOLCANICS IN AN AREA NORTH OF SAN PABLO BAY, CALIFORNIA

By
K. F. Fox, Jr., R. J. Fleck, G. H. Curtis, and C. E. Meyer
1985

Explanatory pamphlet accompanies map
Interior—Geological Survey, Reston, VA—1985
For sale by Branch of Distribution, U.S. Geological Survey,
Box 25286, Federal Center, Denver, CO 80225