

EXPLANATION

Albitum
Qt, tuff and brecciated; small masses of porous calcium carbonate deposited from lakes or springs
Qal, alluvium, arkosic sand and gravel

Igneous and sedimentary rocks
Oh, locally dark micaceous rocks containing phenocrysts of plagioclase and altered siliceous (?) *Phalacene(?)* age; fine-grained sandstone, siltstone and conglomerate along the north edge of the area; elsewhere, similar conglomerates with boulders of rhyolite and micaceous sandstone or basaltic rock
Qs, other gneiss, jointed gneiss and later alluvium
Qc, being dissected
Qd, indurite, very dark gray, vesicular, porphyritic; mostly extrusive, partly intrusive as plugs, sills, and dikes

Lava Mountains Andesite
T1, andesite flows, porphyritic plagioclase andesite, dark gray to red-brown
T2, flow conglomerate; rounded andesite fragments in a fine matrix
T3, flow breccia; angular andesite fragments in a fine matrix

Western facies
T4a, porphyritic, hydrothermally altered green-andesite volcanic rocks, mostly intrusive but includes some sedimentary volcanic
T4b, subpyroclitic; agglomeratically altered porphyritic volcanic rocks, includes some andesite pyroclitic
T4c, volcanic breccia, volcanic fragments in a lava or tuffaceous matrix
T4d, tuff, chiefly tuff and lapilli tuff, some larger fragments
T4e, sandstone, arkosic and volcanic sandstone with some larger rounded fragments

Eastern facies
T5, volcanic intrusions, unbedded volcanic rocks, probably intrusive, locally showing grading into breccia without a contact
T5a, volcanic breccia; fragments of volcanic rocks in a lava or tuffaceous matrix
T5b, tuff, chiefly tuff and lapilli tuff; some larger fragments
T5c, sandstone, arkosic sandstone; a little conglomerate

Bedrock Spring Formation
T6a, epiclastic rock, mostly fine arkosic sandstone and conglomerate, some siltstone, claystone, limestone, and lignite
T6b, pyroclastic breccia; coarse volcanic debris in a matrix of tuff or lapilli tuff
T6c, tuff, chiefly tuff and lapilli tuff, and some interstratified calcic material

Volcanic rocks older than the Bedrock Spring Formation
T7, mostly intrusive volcanic rocks, some tuff breccia, bedded tuff and lapilli tuff, sandstone, and tuffaceous sandstone; completely faulted and crushed; most outcrops are along the axis of Dunes Mountain anticline

Albita Quartz Monzonite
P7a, Plutonic rocks approximating quartz monzonite in composition, include apatite and monzonitic rocks in the northeastern area and some hornblende gneiss in the northeastern area; probably of Cretaceous age

Metamorphic rocks
In the northeastern outcrops, include siliceous marble, mica-schist, and quartzite

Contact
Dashed where approximately located; queried where inferred; dotted where concealed

Marker contact within formation boundaries
Upright bar

Fault showing dip
Upright bar with arrowhead
U, unknown side; D, downthrown side; Dashed where approximately located; queried where inferred; dotted where concealed

Fault located from aerial photographs
Thrust fault
See fault on upper plate
Fault zone or shear zone

Anticline
Trace of axial plane and direction of dip; Dashed where approximately located; queried where concealed

Syncline
Trace of axial plane, dashed where approximately located

Strike and dip of beds
Dashed strike and dip bar indicates approximate altitude

Strike and dip of vertical beds
Dashed strike and dip bar indicates approximate altitude

Horizontal beds
Strike and dip of fracture cleavage
Dashed strike and dip bar indicates approximate altitude

Strike of vertical fracture cleavage
Strike and dip of planar flow structure defined by photocrystals
Dashed strike and dip bar indicates approximate altitude

Vertical planar flow structures defined by photocrystals
Strike and dip of planar structures defined by color
Dashed strike and dip bar indicates approximate altitude

Strike of vertical planar structures defined by color
Trend and dip of columnar joint

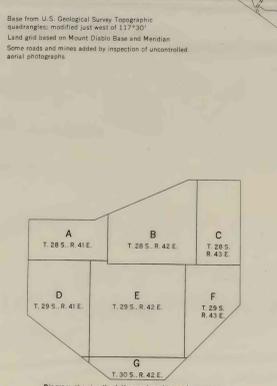
Fossil locality and number
Circle with number

INDEX MAP SHOWING AREA OF THIS REPORT

Area mapped in most detail is cross-hatched; remainder is detailed reconnaissance. RELATIVE RELIABILITY OF MAP

Geology mapped by George I. Smith, 1952-53

APPROXIMATE MEAN DECLINATION, 1964



GEOLOGIC MAP OF THE LAVA MOUNTAINS, SAN BERNARDINO COUNTY, CALIFORNIA

