DIVISION OF MINES
IAN CAMPBELL, CHIEF
GORDON B. OAKESHOTT, DEPUTY CHIEF

STATE OF CALIFORNIA
DEPARTMENT OF NATURAL RESOURCES

GEOLOGIC MAP OF CALIFORNIA
SAN FRANCISCO SHEET

WILLIAMS & HEINTZ MAP CORPORATION WASHINGTON 27, D.C.

EXPLANATION

SEDIMENTARY AND METASEDIMENTARY ROCKS — **IGNEOUS AND META-IGNEOUS ROCKS**

CENOZOIC

QUATERNARY

Recent
- Qs — Dune sand
- Qal — Alluvium
- Qsc — Stream channel deposits (GREAT VALLEY)
- Qf — Fan deposits (GREAT VALLEY)
- Qb — Basin deposits (GREAT VALLEY)
- Qrv — Recent volcanic: Qrv^r —rhyolite; Qrv^a —andesite; Qrv^b —basalt; Qrv^p —pyroclastic rocks
- Qst — Salt deposits
- Ql — Quaternary lake deposits
- Qg — Glacial deposits
- Qt — Quaternary nonmarine terrace deposits

Pleistocene
- Qm — Pleistocene marine and marine terrace deposits
- Qpv — Pleistocene volcanic: Qpv^r —rhyolite; Qpv^a—andesite; Qpv^b —basalt; Qpv^p —pyroclastic rocks
- Qc — Pleistocene nonmarine
- QP — Plio-Pleistocene nonmarine
- Quaternary and/or Pliocene cinder cones

TERTIARY

Pliocene
- Pc — Undivided Pliocene nonmarine
- Puc — Upper Pliocene nonmarine
- Pu — Upper Pliocene marine
- Pv — Pliocene volcanic: Pv^r —rhyolite; Pv^a—andesite; Pv^b —basalt; Pv^p —pyroclastic rocks
- Pmlc — Middle and/or lower Pliocene nonmarine
- Pml — Middle and/or lower Pliocene marine

Miocene
- Mc — Undivided Miocene nonmarine
- Muc — Upper Miocene nonmarine
- Mu — Upper Miocene marine
- Mv — Miocene volcanic: Mv^r —rhyolite; Mv^a —andesite; Mv^b —basalt; Mv^p —pyroclastic rocks
- Mmc — Middle Miocene nonmarine
- Mm — Middle Miocene marine
- Ml — Lower Miocene marine

Oligocene
- Φc — Oligocene nonmarine
- Φv — Oligocene volcanic: Φv^r—rhyolite; Φv^a —andesite; Φv^b —basalt; Φv^p —pyroclastic rocks
- Φ — Oligocene marine

Eocene
- Ec — Eocene nonmarine
- Ev — Eocene volcanic: Ev^r —rhyolite; Ev^a —andesite; Ev^b —basalt; Ev^p —pyroclastic rocks
- E — Eocene marine

Paleocene
- Epc — Paleocene nonmarine
- Ep — Paleocene marine

Undivided
- QTc — Cenozoic nonmarine
- QTv — Cenozoic volcanic: QTv^r—rhyolite; QTv^a—andesite; QTv^b —basalt; QTv^p —pyroclastic rocks
- Tc — Tertiary nonmarine
- Ti — Tertiary intrusive (hypabyssal) rocks: Ti^r—rhyolite; Ti^a —andesite; Ti^b—basalt
- Tl — Tertiary lake deposits
- Tm — Tertiary marine
- Tv — Tertiary volcanic: Tv^r —rhyolite; Tv^a —andesite; Tv^b —basalt; Tv^p —pyroclastic rocks

MESOZOIC

CRETACEOUS
- K — Undivided Cretaceous marine
- Ku — Upper Cretaceous marine
- Kl — Lower Cretaceous marine

JURASSIC
- Jk — Knoxville formation
- Ju — Upper Jurassic marine
- Jml — Middle and/or Lower Jurassic marine

TRIASSIC
- Ŧ — Triassic marine

- KJf — Franciscan formation
- KJfv — Franciscan volcanic and metavolcanic rocks
- gr — Mesozoic granitic rocks
- bi — Mesozoic basic intrusive rocks
- ub — Mesozoic ultrabasic intrusive rocks
- JŦv — Jura-Trias metavolcanic rocks

UNDIVIDED
- m, ls — Pre-Cretaceous metamorphic rocks (ls = limestone or dolomite)
- mv — Pre-Cretaceous metavolcanic rocks
- ms — Pre-Cretaceous metasedimentary rocks
- gr-m — Pre-Cenozoic granitic and metamorphic rocks
- P, ls — Paleozoic marine (ls = limestone or dolomite)
- PPv — Paleozoic metavolcanic rocks

PALEOZOIC

PERMIAN
- P — Permian marine
- Pmv — Permian metavolcanic rocks

CARBONIFEROUS
- C — Undivided Carboniferous marine
- Cv — Carboniferous metavolcanic rocks
- CP — Pennsylvanian marine
- CM — Mississippian marine

DEVONIAN
- D — Devonian marine
- Dv — Devonian metavolcanic rocks
- pDv — Undivided pre-Devonian and Devonian metavolcanic rocks

SILURIAN
- S — Silurian marine

ORDOVICIAN
- O — Ordovician marine

CAMBRIAN
- € — Cambrian marine
- €? — Cambrian – Precambrian marine

PRECAMBRIAN
- p€ — Undivided Precambrian metamorphic rocks; p€g = gneiss, p€s = schist
- p€gr — Undivided Precambrian granitic rocks
- lp€ — Later Precambrian sedimentary and metamorphic rocks
- ep€ — Earlier Precambrian metamorphic rocks

HEAVY BORDER ON BOXES INDICATES UNITS THAT APPEAR ON THIS SHEET

TOPOGRAPHIC BASE MAP

Prepared by the Army Map Service (GUSX), Corps of Engineers, U. S. Army, Washington, D. C. Compiled in 1956 from: United States Quadrangles, 1:24,000, U. S. Geological Survey, 1947-50; California, 1:25,000, Army Map Service, Sheets 1959 IV SE and 1959 IV SW, 1951; California, 1:50,000, Army Map Service, 1946-51; USC&GS Charts 5402, 1941; 5502, 1947; 5533, 1953; 5532, 1947; 5520, 1935; 5531, 1950, and 5599, 1941. Planimetric detail revised by photo-planimetric methods. Horizontal and vertical control by USGS and CE. Map field checked, 1956.

Land net prepared by U. S. Geological Survey

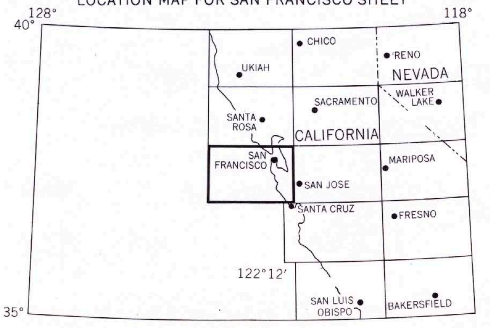
Submarine contours adapted from Shepard and Emery Special Paper No. 31, Geol. Soc. America

SUBMARINE CONTOUR INTERVAL 300 FEET

Local depressions 1500

Limit of danger; Reef
Rocks: Awash; Sunken
Foreshore flat
Intermittent or dry stream
Marsh or swamp

LOCATION MAP FOR SAN FRANCISCO SHEET



Scale 1:250,000

5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers

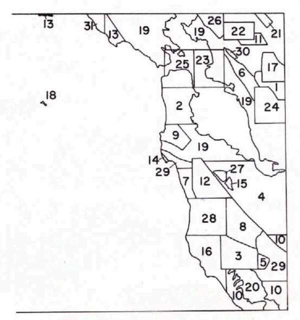
CONTOUR INTERVAL 200 FEET
TRANSVERSE MERCATOR PROJECTION

GEOLOGIC MAP OF CALIFORNIA
OLAF P. JENKINS EDITION
SAN FRANCISCO SHEET

COMPILATION BY CHARLES W. JENNINGS AND JOHN L. BURNETT 1961

Contact
(Dashed where approximately located, gradational or inferred)

Fault
(Dashed where approximately located; dotted where concealed)



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