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

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF CONSERVATION

GEOLOGIC MAP OF CALIFORNIA
TRONA SHEET

TOPOGRAPHIC BASE MAP

Prepared by the U.S. Army Topographic Command (XCBM), Washington, D.C. Compiled in 1957 by photogrammetric methods and from United States quadrangles, 1:25,000, 1:48,000, 1:50,000, and 1:62,500, 1943-54. Planimetry revised in part from aerial photographs taken 1952-54. Map field checked 1957. Revised by the U.S. Geological Survey 1969.
Land net prepared by U.S. Geological Survey

Contact
(Dashed where approximately located, gradational or inferred)

Fault
(Dashed where approximately located; dotted where concealed)

Thrust fault
(Barbs on upper plate; dashed where approximately located, dotted where concealed)

LOCATION MAP FOR TRONA 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
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

GEOLOGIC MAP OF CALIFORNIA
OLAF P. JENKINS EDITION
TRONA SHEET

COMPILATION BY CHARLES W. JENNINGS, JOHN L. BURNETT, AND BENNIE W. TROXEL, 1962.
FOURTH PRINTING, 1978

Wilmore & Heintz Map Corporation, Washington, D.C. 20027

INDEX TO GEOLOGIC MAPPING
(COMPLETE INDEX ON EXPLANATORY DATA SHEET)

1. Byers, F. M., Jr., 1956
2. Byers, F. M., Jr. and Ellis, R. C., unpublished
3. Chesterman, C. W., unpublished
4. Dibblee, T. W., Jr., unpublished
5. Dibblee, T. W., Jr., 1952
6. Dibblee, T. W., Jr., 1958
7. Dibblee, T. W., Jr., 1958
8. Dibblee, T. W., Jr., 1959
9. Dibblee, T. W., Jr., unpublished
10. Grose, L. T., 1959
11. Jahns, R. H., and Wright, L. A., unpublished
12. Johnson, R. K., 1957
13. Kupfer, D. H., 1960
14. Mason, J. F., 1948
15. McAllister, J. F., unpublished
16. McCulloh, T. H., 1960
17. Muehlberger, W. R., 1954
18. Munsiig, S., unpublished
19. Noble, L. F., 1941
20. Smith, G. I., 1956
21. Smith, G. I., unpublished
22. Smith, G. I., unpublished
23. Smith, G. I., and Ellis, R. C., unpublished
24. Southern Pacific Company, Land Department, unpublished
25. Southern Pacific Company, Land Department, unpublished
26a. Troxel, B. W., and Gray, C. H., Jr., unpublished
26b. Troxel, B. W., and Gray, C. H., Jr., unpublished
26c. Troxel, B. W., and Gray, C. H., Jr., unpublished
27. Troxel, B. W., unpublished
28. Troxel, B. W., unpublished
29. von Huene, R. E., unpublished
30. von Huene, R. E., and Troxel, B. W., unpublished
31a. Wright, L. A., unpublished
31b. Wright, L. A., unpublished
32. Wright, L. A., and Troxel, B. W., unpublished
33. Wrucke, C. T., unpublished

EXPLANATION

SEDIMENTARY AND METASEDIMENTARY ROCKS

CENOZOIC — QUATERNARY — Holocene
- Qs — Dune sand
- Qal — Alluvium
- Qsc, Qf, Qc — Stream channel deposits, Fan deposits, Basin deposits (GREAT VALLEY)
- Qsl — Salt deposits
- Ql — Quaternary lake deposits

CENOZOIC — QUATERNARY — Pleistocene
- Qg — Glacial deposits
- Qt — Quaternary nonmarine terrace deposits
- Qm — Pleistocene marine and marine terrace deposits
- Qn — Pleistocene nonmarine
- QP — Plio-Pleistocene nonmarine

CENOZOIC — TERTIARY — Pliocene
- Pu — Undivided Pliocene nonmarine
- Pun — Upper Pliocene nonmarine
- Pm — Upper Pliocene marine
- Pmn — Middle and/or lower Pliocene nonmarine
- Pmm — Middle and/or lower Pliocene marine

CENOZOIC — TERTIARY — Miocene
- Mu — Undivided Miocene nonmarine
- Mun — Upper Miocene nonmarine
- Mm — Upper Miocene marine
- Mmn — Middle Miocene nonmarine
- Mmm — Middle Miocene marine
- Ml — Lower Miocene marine

CENOZOIC — TERTIARY — Oligocene
- Oc — Oligocene nonmarine
- O — Oligocene marine

CENOZOIC — TERTIARY — Eocene
- Ec — Eocene nonmarine
- E — Eocene marine

CENOZOIC — TERTIARY — Paleocene
- Pc — Paleocene nonmarine
- Paleocene marine

CENOZOIC — TERTIARY — Undivided
- Tc — Cenozoic nonmarine
- Tn — Tertiary nonmarine
- Tl — Tertiary lake deposits
- Tm — Tertiary marine

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

MESOZOIC — JURASSIC
- Kn — Knoxville Formation
- Ju — Upper Jurassic marine
- Jm — Middle and/or Lower Jurassic marine

MESOZOIC — TRIASSIC
- Tr — Triassic marine

PALEOZOIC — UNDIVIDED
- Pzm — Pre-Cretaceous metamorphic rocks (ls = limestone or dolomite)
- Pzs — Pre-Cretaceous metasedimentary rocks
- Pzl — Paleozoic marine (ls = limestone or dolomite)

PALEOZOIC — PERMIAN
- PL — Permian marine

PALEOZOIC — CARBONIFEROUS
- C — Undivided Carboniferous marine
- CP — Pennsylvanian marine
- CM — Mississippian marine

PALEOZOIC — DEVONIAN
- D — Devonian marine

PALEOZOIC — SILURIAN
- S — Silurian marine
- SSs — Pre-Silurian metasedimentary rocks

PALEOZOIC — ORDOVICIAN
- O — Ordovician marine

PALEOZOIC — CAMBRIAN
- C — Cambrian marine
- Cambrian – Precambrian marine

PRECAMBRIAN
- pCu — Undivided Precambrian metamorphic rocks (pCg = gneiss, pCs = schist)
- pCs — Later Precambrian sedimentary and metamorphic rocks
- pCe — Earlier Precambrian metamorphic rocks

IGNEOUS AND META-IGNEOUS ROCKS

- Qv — Recent volcanic: Qv^r—rhyolite; Qv^a—andesite; Qv^b—basalt; Qv^x—pyroclastic rocks
- Qp — Pleistocene volcanic: Qp^r—rhyolite; Qp^a—andesite; Qp^b—basalt; Qp^x—pyroclastic rocks
- Qb — Quaternary and/or Pliocene cinder cones
- Pv — Pliocene volcanic: P^r—rhyolite; P^a—andesite; P^b—basalt; P^x—pyroclastic rocks
- Mv — Miocene volcanic: M^r—rhyolite; M^a—andesite; M^b—basalt; M^x—pyroclastic rocks
- Ov — Oligocene volcanic: O^r—rhyolite; O^a—andesite; O^b—basalt; O^x—pyroclastic rocks
- Ev — Eocene volcanic: E^r—rhyolite; E^a—andesite; E^b—basalt; E^x—pyroclastic rocks
- CTv — Cenozoic volcanic: QTv^r—rhyolite; QTv^a—andesite; QTv^b—basalt; QTv^x—pyroclastic rocks
- Tg — Tertiary granitic rocks
- Ti — Tertiary intrusive (hypabyssal) rocks: T^r—rhyolite; T^a—andesite; T^b—basalt
- Tv — Tertiary volcanic: T^r—rhyolite; T^a—andesite; T^b—basalt; T^x—pyroclastic rocks
- Franciscan — Franciscan volcanic and metavolcanic rocks
- gr — Mesozoic granitic rocks: gr^g—granite and adamellite; gr^d—granodiorite; gr^t—tonalite and diorite
- bi — Mesozoic basic intrusive rocks
- ui — Mesozoic ultrabasic intrusive rocks
- JTrv — Jura-Trias metavolcanic rocks
- Pzv — Pre-Cretaceous metavolcanic rocks
- pCgr — Pre-Cenozoic granitic and metamorphic rocks
- Pzv — Paleozoic metavolcanic rocks
- Pv — Permian metavolcanic rocks
- Cv — Carboniferous metavolcanic rocks
- Dv — Devonian metavolcanic rocks
- DvS — Devonian and pre-Devonian? metavolcanic rocks
- pSv — Pre-Silurian metavolcanic rocks
- pSm — Pre-Silurian metamorphic rocks
- pCv — Precambrian igneous and metamorphic rock complex
- pCgr — Undivided Precambrian granitic rocks
- pCan — Precambrian anorthosite

HEAVY BORDER ON BOXES INDICATES UNITS THAT APPEAR ON THIS SHEET