SOURCE REFERENCES

[Keyed to fig. 2]

1. Albers, J. P., and Robertson, J. F., 1961, Geology and ore deposits of East Shasta copper-zinc district, Shasta County, California: U.S. Geological Survey Professional Paper 338, 107 p.
*2. Albers, J. P., and Stewart, J. H., 1972, Geology and mineral deposits of Esmeralda County, Nevada: Nevada Bureau of Mines and Geology Bulletin 78, 80 p.
3. Allen, C. R., 1957, San Andreas fault zone in San Gorgonio Pass, southern California: Geological Society of America Bulletin, v. 68, no. 3, p. 315–350.
*4. Al-Rawi, Y. T., 1969, Cenozoic history of the northern part of Mono Basin, California and Nevada: Berkeley, California, University of California, Ph.D. Dissertation, 163 p.
5. Anderson, C. A., 1933, The Tuscan Formation of northern California, with a discussion concerning the origin of volcanic breccias: University of California Publications, Department of Geological Sciences Bulletin, v. 23, no. 7, p. 215–276.
6. ——1933, Volcanic history of Glass Mountain, northern California: American Journal of Science, 5th ser., v. 26, no. 155, p. 485–506.
7. ——1936, Volcanic history of the Clear Lake area, California: Geological Society of America Bulletin, v. 47, no. 5, p. 629–664.
*8. ——1940, Hat Creek lava flow [California]: American Journal of Science, v. 238, no. 7, p. 477–492. [Geologic estimate date]
9. ——1941, Volcanoes of the Medicine Lake highland, California: University of California Publications, Department of Geological Sciences Bulletin, v. 25, no. 7, p. 347–422.
10. Anderson, C. A., and Russell, R. D., 1939, Tertiary formations of northern Sacramento Valley, California: California Journal of Mines and Geology, v. 35, no. 3, p. 219–253.
11. Anderson, R. E., 1971, Thin skin distention in Tertiary rocks of southeastern Nevada: Geological Society of America Bulletin, v. 82, no. 1, p. 43–58.
12. ——1973, Large-magnitude late Tertiary strike-slip faulting north of Lake Mead, Nevada: U.S. Geological Survey Professional Paper 794, 18 p.
13. ——1977, Geologic map of the Boulder City 15-minute quadrangle, Clark County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–1395.
14. ——1978, Geologic map of the Black Canyon 15-minute quadrangle, Mohave County, Arizona, and Clark County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–1394.
15. ——1978, Written communication.
**16. Anderson, R. E., Longwell, C. R., Armstrong, R. L., and Marvin, R. F., 1972, Significance of K-Ar ages of Tertiary rocks from the Lake Mead region, Nevada-Arizona: Geological Society of America Bulletin, v. 83, no. 2, p. 273–288.
17. Anderson, Robert, and Pack, R. W., 1915, Geology and oil resources of the west border of the San Joaquin Valley north of Coalinga, California: U.S. Geological Survey Bulletin 603, 220 p.
18. Andrews, Phillip, 1936, Geology of the Pinnacles National Monument: University of California Publications, Department of Geological Sciences Bulletin, v. 24, no. 1, p. 1–38.
19. Arkley, R. J., 1962, The geology, geomorphology, and soils of the San Joaquin Valley in the vicinity of the Merced River, California, *in* American Association of Petroleum Geologists and the Society of Economic Paleontologists and Mineralogists Guidebook, Geologic guide to the Merced Canyon and Yosemite Valley, California: California Division of Mines and Geology Bulletin 182, p. 25–32.
**20. Armstrong, R. L., 1963, Geochronology and geology of the eastern Great Basin in Nevada and Utah: New Haven, Connecticut, Yale University, Ph.D. Dissertation, 202 p.
**21. ——1966, K-Ar dating using neutron activation for Ar analysis: granitic plutons of the eastern Great Basin, Nevada and Utah: Geochimica et Cosmochimica Acta, v. 30, no. 5, p. 565–600.
**22. ——1970, Geochronology of Tertiary igneous rocks, eastern Basin and Range Province, western Utah, eastern Nevada, and vicinity, U.S.A.: Geochimica et Cosmochimica Acta, v. 34, no. 2, p. 203–232.
**23. Armstrong, R. L., Dick, Henry, and Vitaliano, C. J., 1972, K-Ar dates and strontium isotope initial ratios of some Cenozoic volcanic rocks from west-central Nevada: Isochron/West, no. 3, p. 23–28.
**24. Armstrong, R. L., Speed, R. C., Graustein, W. C., and Young, A. Y., 1976, K-Ar dates from Arizona, Montana, Nevada, Utah, and Wyoming: Isochron/West, no. 16, p. 1–6.
25. Ashley, R. P., 1974, Goldfield mining district, *in* Guidebook to the geology of four Tertiary volcanic centers in central Nevada: Nevada Bureau of Mines and Geology Report 19, p. 49–66.
26. ——1975, Preliminary geologic map of the Goldfield mining district, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF–681.
**27. Ashley, R. P., and Silberman, M. L., 1976, Direct dating of mineralization at Goldfield, Nevada, by potassium-argon and fission-track methods: Economic Geology, v. 71, no. 5, p. 904–924.
28. Averitt, Paul, 1945, Quicksilver deposits of the Knoxville district, Napa, Yolo, and Lake Counties, California: California Journal of Mines and Geology, v. 41, no. 2, p. 65–89.
**29. Bacon, C. R., and Dalrymple, G. B., 1978, Written communication.
30. Bailey, E. H., 1967, Road log for Santa Catalina Island: American Association of Petroleum Geologists Guidebook, p. 1–21.
31. Bailey, E. H., and Everhart, D. L., 1964, Geology and quicksilver deposits of the New Almaden district, Santa Clara County, California: U.S. Geological Survey Professional Paper 360, 206 p.
32. Bailey, R. A., and Koeppen, R. P., 1977, Preliminary geologic map of Long Valley caldera, Mono County, California: U.S. Geological Survey Open-File Report 77–468, 20 p.
**33. Bailey, R. A., Dalrymple, G. B., and Lanphere, M. A., 1976, Volcanism, structure, and geochronology of Long Valley caldera, Mono County, California: Journal of Geophysical Research, v. 81, no. 5, p. 725–744.
34. Ball, S. H., 1907, A geologic reconnaissance in southwestern Nevada and eastern California: U.S. Geological Survey Bulletin 308, 218 p.
35. Barca, R. A., 1966, Geology map and sections of the northern portion of Old Dad Mountain quadrangle, San Bernardino County, California: California Division of Mines and Geology Map Sheet MS–7.
36. Barnes, Harley, Christiansen, R. L., and Byers, F. M., Jr., 1965, Geologic map of the Jangle Ridge quadrangle, Nye and Lincoln Counties, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–363.
**37. Bartow, J. A., 1979, Age control for the latest movements on the Melones fault zone in the Sierra Nevada foothills belt from K-Ar dates for late Tertiary intrusions: U.S. Geological Survey Open-File Report 79–582, 10 p.
38. Bassett, A. M., and Kupfer, D. H., 1964, A geological reconnaissance in the southeastern Mojave Desert, California: California Division of Mines and Geology Special Report 83, 43 p.
39. Bateman, P. C., 1965, Geologic map of the Blackcap Mountain quadrangle, Fresno County, California: U.S. Geological Survey Geologic Quadrangle Map GQ–428.
40. ——1965, Geology and tungsten mineralization of the Bishop district, California, *with a section on* Gravity study of Owens Valley, by L. C. Pakiser and M. F. Kane, *and a section on* Seismic profile, by L. C. Pakiser: U.S. Geological Survey Professional Paper 470, 208 p.
**41. Bateman, P. C., and Lockwood, J. P., 1976, Shaver Lake quadrangle, central Sierra Nevada, California—analytic data: U.S. Geological Survey Professional Paper 774–D, 20 p.
42. Bateman, P. C., and Moore, J. G., 1965, Geologic map of the Mount Goddard quadrangle, Fresno and Inyo Counties, California: U.S. Geological Survey Geologic Quadrangle Map GQ–429.
43. Bateman, P. C., and Wones, D. R., 1972, Geologic map of the Huntington Lake quadrangle, central Sierra Nevada, California: U.S. Geological Survey Geologic Quadrangle Map GQ–987.
*44. Bateman, P. C., Lockwood, J. P., and Lydon, P. A., 1971, Geologic map of the Kaiser Peak quadrangle, central Sierra Nevada, California: U.S. Geological Survey Geologic Quadrangle Map GQ–894.
**45. Berry, A. L., Dalrymple, G. B., Lanphere, M. A., and Von Essen, J. C., and others, eds., 1976, Summary of miscellaneous potassium-argon age measurements, U.S. Geological Survey, Menlo Park, California, for the years 1972–74: U.S. Geological Survey Circular 727, 13 p.
46. Bingler, E. C., 1977, Geologic map of the New Empire quadrangle: Nevada Bureau of Mines and Geology Map 59.
47. Bingler, E. C., and Bonham, H. F., Jr., 1973, Reconnaissance geologic map of McCullough Range and adjacent areas, Clark County, Nevada: Nevada Bureau of Mines and Geology Map 45.
48. Birkeland, P. W., 1963, Pleistocene volcanism and deformation of the Truckee area, north of Lake Tahoe, California: Geological Society of America Bulletin, v. 74, no. 12, p. 1453–1464.
49. Bishop, C. C., 1963, Geologic map of California—Needles sheet: California Division of Mines and Geology, scale 1:250,000.
50. Blake, M. C., Jr., and others, 1974, Preliminary geologic map of Marin and San Francisco Counties and parts of Alameda, Contra Costa, and Sonoma Counties, California: U.S. Geological Survey Miscellaneous Field Studies Map MF–574.
51. Bohannon, R. G., 1977, Preliminary geologic map and sections of White Basin and Bitter Spring Valley, Muddy Mountains, Clark County, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF–922.
*52. Bonham, H. F., Jr., 1969, Geology and mineral deposits of Washoe and Storey Counties, Nevada, *with a section on* Industrial rock and mineral deposits, by K. G. Papke: Nevada Bureau of Mines Bulletin 70, 140 p.
53. ——1970, Geologic map and sections of a part of the Shoshone Mountains, Lander and Nye Counties, Nevada: Nevada Bureau of Mines Map 38.
54. Bowen, O. E., Jr., 1954, Geology and mineral deposits of Barstow quadrangle, San Bernardino County, California: California Division of Mines and Geology Bulletin 165, p. 1–185.
**55. Bowen, P. A., and Dalrymple, G. B., 1978, Written communication. [Radiometric and fission track dates.]
56. Bowyer, Ben, Pampeyan, E. H., and Longwell, C. R., 1958, Geologic map of Clark County, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF–138.
**57. Brandau, B. L., and Noakes, J. E., 1975, University of Georgia radiocarbon dates IV: Radiocarbon, v. 17, no. 1, p. 99–111. [Radiocarbon dates.]
58. Branner, J. C., Newsom, J. F., and Arnold, Ralph, 1909, Description of the Santa Cruz quadrangle [California]: U.S. Geological Survey Geologic Atlas, Folio no. 163, 12 p.
59. Bremner, C. St. J., 1932, Geology of Santa Cruz Island, Santa Barbara County, California: Santa Barbara Museum of Natural History Occasional Papers, no. 1, 33 p.
60. ——1933, Geology of San Miguel Island, Santa Barbara County, California: Santa Barbara Museum of Natural History Occasional Papers, no. 2, 23 p.
61. Brice, J. C., 1953, Geology of Lower Lake quadrangle, California: California Division of Mines Bulletin 166, 72 p.
**62. Brown, Laurie, and Mertzman, S. A., Jr., 1979, Negative inclination anomalies from the Medicine Lake Highland lavas, northern California: Earth and Planetary Science Letters, v. 42, no. 1, p. 121–126.
63. Burchfiel, B. C., 1966, Reconnaissance geologic map of the Lathrop Wells 15-minute quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Investigations Map I–474.
64. ——1969, Geology of the Dry Mountain quadrangle, Inyo County, California: California Division of Mines and Geology Special Report 99, 19 p.
65. Burnett, J. L., and Jennings, C. W., 1962, Geologic map of California—Chico sheet: California Division of Mines and Geology, scale 1:250,000.
66. Burnett, J. L., Ford, R. S., and Scott, R. G., 1969, Geologic map and sections of the Richardson Springs quadrangle, Butte and Tehama Counties, California: California Division of Mines and Geology Map Sheet MS–13.
67. Bushnell, Kent, 1967, Geology of the Rowland quadrangle, Elko County, Nevada: Nevada Bureau of Mines Bulletin 67, 38 p.
68. Byers, F. M., Jr., 1960, Geology of the Alvord Mountain quadrangle, San Bernardino County, California: U.S. Geological Survey Bulletin 1089–A, 71 p.
69. Byers, F. M., Jr., and Barnes, Harley, 1967, Geologic map of the Paiute Ridge quadrangle, Nye and Lincoln Counties, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–577.
70. Byers, F. M., Jr., and others, 1976a, Geologic map of the Timber Mountain caldera area, Nye County, Nevada: U.S. Geological Survey Miscellaneous Investigations Map I–891.
71. ——1976b, Volcanic suites and related cauldrons of Timber Mountain-Oasis Valley caldera complex, southern Nevada: U.S. Geological Survey Professional Paper 919, 70 p.
72. California Department of Water Resources, 1963, Northeastern counties ground water investigations: California Department of Water Resources Bulletin 98, 224 [22] p.
73. Campbell, R. H., and others, 1970, Preliminary geologic map of the Point Dume quadrangle, Los Angeles County, California: U.S. Geological Survey Open-File Report.
74. Carlson, J. E., Stewart, J. H., Johannesen, Dann, and Kleinhampl, F. J., 1978, Geologic map of the Walker Lake 1° by 2° quadrangle, Nevada-California: U.S. Geological Survey Open-File Report 78–523.
**75. Chesterman, C. W., 1955, Age of the obsidian flow at Glass Mountain, Siskiyou County, California: American Journal of Science, v. 253, no. 7, p. 418–424. [Radiocarbon dates.]
76. ——1956, Pumice, pumicite, and volcanic cinders in California: California Division of Mines and Geology Bulletin 174, 119 p.
77. ——1968, Volcanic history of the Bodie Hills, Mono County, California, *in* Coats, R. R., Hay, R. L., and Anderson, C. A., eds., Studies in volcanology—A memoir in honor of Howel Williams: Geological Society of America Memoir 116, p. 45–68.
78. ——1973, Geology of the N.E. ¼ Shoshone 15-minute quadrangle, Inyo County, California: California Division of mines and Geology Map Sheet MS–18.
79. ——1975, Geology of the Matterhorn Peak 15-minute quadrangle, Mono and Tuolumne Counties, California: California Division of Mines and Geology Map Sheet MS–22.
80. Chesterman, C. W., and Gray, C. H., Jr., 1975, Geology of the Bodie [15-minute] quadrangle, Mono County, California: California Division of Mines and Geology Map Sheet MS–21.
81. Christiansen, R. L., 1978a, Written communication.
*82. ——1978b, Written and oral communications.
83. Christiansen, R. L., and others, 1977, Timber Mountain—Oasis Valley caldera complex of southern Nevada: Geological Society of America Bulletin, v. 88, no. 7, p. 943–959.
84. Clark, L. D., Stromquist, A. A., and Tatlock, D. B., 1963, Geologic map of the San Andreas quadrangle, Calaveras County, California: U.S. Geological Survey Geologic Quadrangle Map GQ–222.
85. Coash, J. R., 1967, Geology of the Mount Velma quadrangle, Elko County, Nevada: Nevada Bureau of Mines Bulletin 68, 21 p.
*86. Coats, R. R., 1964, Geology of the Jarbidge quadrangle, Nevada-Idaho: U.S. Geological Survey Bulletin 1141–M, 24 p.
87. ——1968a, Preliminary geologic map of the southwestern part of the Mountain City quadrangle, Elko County, Nevada: U.S. Geological Survey Open-File Report.
*88. ——1968b, The Circle Creek Rhyolite, a volcanic dome complex in northern Elko County, Nevada, *in* Coats, R. R., Hay, R. L., and Anderson, C. A., eds., Studies in volcanology—A memoir in honor of Howel Williams: Geological Society of America Memoir 116, p. 69–106.
89. ——1971, Geologic map of the Owyhee quadrangle, Nevada-Idaho: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–665.
90. Coats, R. R., Green, R. C., Cress, L. D., and Marks, L. Y., 1977, Mineral resources of the Jarbidge Wilderness and adjacent areas, Elko County, Nevada, *with a section on* Interpretation of aeromagnetic data, by W. E. Davis: U.S. Geological Survey Bulletin 1439, 79 p.
**91. Coe, R. S., 1967, Paleo-intensities of the Earth's magnetic field determined from Tertiary and Quaternary rocks: Journal of Geophysical Research, v. 72, no. 12, p. 3247–3262.
92. Colton, R. B., and McKay, E. J., 1966, Geologic map of the Yucca Flat quadrangle, Nye and Lincoln Counties, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–582.
93. Colton, R. B., and Noble, D. C., 1967, Geologic map of the Groom Mine SW quadrangle, Nye and Lincoln Counties, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–719.
94. Cornwall, H. R., 1972, Geology and mineral deposits of southern Nye County, Nevada: Nevada Bureau of Mines and Geology Bulletin 77, 49 p.
95. Cornwall, H. R., and Kleinhampl, F. J., 1961, Geology of the Bare Mountain quadrangle, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–157.
96. ——1964, Geology of Bullfrog quadrangle and ore deposits related to Bullfrog Hills caldera, Nye County, Nevada, and Inyo County, California: U.S. Geological Survey Professional Paper 454–J, 25 p.
**97. Cox, Allan, Doell, R. R., and Dalrymple, G. B., 1963a, Geomagnetic polarity epochs and Pleistocene geochronometry: Nature, v. 198, no. 4885, p. 1049–1051.
**98. ——1963b, Geomagnetic polarity epochs—Sierra Nevada II: Science, v. 142, no. 3590, p. 382–385.
**99. Crandell, D. R., 1972, Glaciation near Lassen Peak, northern California, *in* Geological Survey Research 1972: U.S. Geological Survey Professional Paper 800–C, p. C179–C188. [Radiocarbon date.]
**100. Crandell, D. R., Mullineaux, D. R., Sigafoos, R. S., and Rubin, Meyer, 1974, Chaos Crags eruptions and rockfall-avalanches, Lassen Volcanic National Park, California: U.S. Geological Survey Journal of Research, v. 2, no. 1, p. 49–59. [Radiocarbon dates.]
101. Creely, R. S., 1965, Geology of the Oroville quadrangle, California: California Division of Mines and Geology Bulletin 184, 86 p.
102. Crittenden, M. D., Jr., 1951, Geology of the San Jose—Mount Hamilton area, California: California Division of Mines Bulletin 157, 74 p.
103. Crowder, D. F., and Sheridan, M. F., 1972, Geologic map of the White Mountain Peak quadrangle, Mono County, California: U.S. Geological Survey Geologic Quadrangle Map GQ–1012.
104. Crowder, D. F., Robinson, P. T., and Harris, D. L., 1972, Geologic map of the Benton quadrangle, Mono County, California, and Esmeralda and Mineral Counties, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–1013.
105. Crowe, B. M., 1978, Cenozoic volcanic geology and probable age of inception of basin-range faulting in the southeasternmost Chocolate Mountains, California: Geological Society of America Bulletin, v. 89, no. 2, p. 251–264.
**106. Crowe, B. M., Crowell, J. C., and Krummenacher, Daniel, 1976, Regional stratigraphy and K-Ar ages of Cenozoic volcanic rocks of southeastern California: Los Alamos Scientific Laboratory Informal Report LA–UR 76–2706, 59 p.
**107. Curry, R. R., 1966, Glaciation about 3,000,000 years ago in the Sierra Nevada: Science, v. 154, no. 3750, p. 770–771.
108. Curtis, G. H., 1954, Mode of origin of pyroclastic debris in the Mehrten Formation of the Sierra Nevada: University of California Publications in Geological Sciences, v. 29, no. 9, p. 453–502.
**109. Dalrymple, G. B., 1963, Potassium-argon dates of some Cenozoic volcanic rocks of the Sierra Nevada, California: Geological Society of America Bulletin, v. 74, no. 4, p. 379–390.
**110. ——1964, Cenozoic chronology of the Sierra Nevada, California: University of California Publications in Geological Sciences, v. 47, 41 p.
**111. ——1967, Potassium-argon ages of Recent rhyolites of the Mono and Inyo Craters, California: Earth and Planetary Science Letters, v. 3, no. 4, p. 289–298.
**112. Dalrymple, G. B., and Hirooka, Kimio, 1965, Variation of potassium, argon, and calculated age in a late Cenozoic basalt: Journal of Geophysical Research, v. 70, no. 20, p. 5291–5296.
**113. Dalrymple, G. B., Cox, Allan, and Doell, R. R., 1965, Potassium-argon age and paleomagnetism of the Bishop Tuff, California: Geological Society of America Bulletin, v. 76, no. 6, p. 665–674.
**114. Dalrymple, G. B., Cox, Allan, Doell, R. R., and Grommé, C. S., 1967, Pliocene geomagnetic polarity epochs: Earth and Planetary Science Letters, v. 2, no. 3, p. 163–173.
**115. Damon, P. E., 1965, Correlation and chronology of ore deposits and volcanic rocks: U.S. Atomic Energy Commission Annual Progress Report C00–689–50, 60 p.
**116. ——1966, Correlation and chronology of ore deposits and volcanic rocks: U.S. Atomic Energy Commission Annual Progress Report C00–689–60, 46 p.
117. Davis, S. N., and Hall, F. R., 1959, Water quality of eastern Stanislaus and northern Merced Counties, California: Stanford University Publications, Geological Sciences, v. 6, no. 1, 112 p.
118. Davis, W. E., Kleinhampl, F. J., and Ziony, J. I., 1971, Aeromagnetic and generalized geologic map of the San Antonio Mountains, Nevada: U.S. Geological Survey Geophysical Investigations Map GP–744.
119. Decker, R. W., 1962, Geology of the Bull Run quadrangle, Elko County, Nevada: Nevada Bureau of Mines Bulletin 60, 65 p.
120. Dibblee, T. W., Jr., 1950, Geology of southwestern Santa Barbara County, California—Point Arguello, Lompoc, Point Conception, Los Olivos, and Gaviota quadrangles: California Division of Mines Bulletin 150, 95 p.
121. ——1952, Geology of the Saltdale quadrangle, California: California Division of Mines Bulletin 160, p. 7–44.
122. ——1958a, Geologic map of the Boron quadrangle, Kern and San Bernardino Counties, California: U.S. Geological Survey Miscellaneous Field Studies Map MF–204.
123. ——1958b, Geologic map of the Castle Butte quadrangle, Kern County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF–170.
124. ——1959, Preliminary geologic map of the Mojave quadrangle, California: U.S. Geological Survey Mineral Investigations Field Studies Map 219.
125. ——1960a, Geologic map of the Barstow quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF–233.
126. ——1960b, Geologic map of the Hawes quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF–226.
127. ——1960c, Geology of the Rogers Lake and Kramer quadrangles, California: U.S. Geological Survey Bulletin 1089–B, p. 73–139.
128. ——1962, Displacements on the San Andreas rift zone and related structures in Carrizo Plain and vicinity, *in* Guidebook—Geology of Carrizo Plains and San Andreas fault: San Joaquin Geological Society and Pacific Section American Association of Petroleum Geologists-Society of Economic Paleontologists and Mineralogists Guidebook, p. 5–12.
129. ——1963, Geology of the Willow Springs and Rosamond quadrangles, California: U.S. Geological Survey Bulletin 1089–C, p. 141–253.
130. ——1964a, Geological map of the Rodman Mountains quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–430.
131. ——1964b, Geologic map of the Lucerne Valley quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–426.
132. ——1964c, Geologic map of the Ord Mountains quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–427.
133. ——1964d, Geologic map of the San Gorgonio Mountain quadrangle, San Bernardino and Riverside Counties, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–431.
134. ——1966a, Geologic map and sections of the Palo Alto 15-minute quadrangle, California: California Division of Mines and Geology Map Sheet MS–8.
135. ——1966b, Geologic map of the Lavic quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–472.
136. ——1967a, Areal geology of the western Mojave Desert, California: U.S. Geological Survey Professional Paper 522, 153 p.
137. ——1967b, Geologic map of the Broadwell Lake quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–478.
138. ——1967c, Geologic map of the Deadman Lake quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–488.
139. ——1967d, Geologic map of the Emerson Lake quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–490.
140. ——1967e, Geologic map of the Joshua Tree quadrangle, San Bernardino and Riverside Counties, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–516.
141. ——1967f, Geologic map of the Ludlow quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–477.
142. ——1967g, Geologic map of the Morongo Valley quadrangle, San Bernardino and Riverside Counties, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–517.
143. ——1967h, Geologic map of the Old Woman Springs quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–518.
144. ——1968, Geology of the Fremont Peak and Opal Mountain quadrangles, California: California Division of Mines and Geology Bulletin 188, 64 p.
145. ——1970, Geologic map of the Daggett quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–592.
146. Dibblee, T. W., Jr., and Bassett, A. M., 1966a, Geologic map of the Cady Mountains quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–467.
147. ——1966b, Geologic map of the Newberry quadrangle, San Bernardino County, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–461.
148. Dibblee, T. W., Jr., and Louke, G. P., 1970, Geologic map of the Tehachapi quadrangle, Kern County, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–607.
149. Dibblee, T. W., Jr., and Warne, A. H., 1970, Geologic map of the Cummings Mountain quadrangle, Kern County, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–611.
150. Diller, J. S., 1895, Description of the Lassen Peak sheet [California]: U.S. Geological Survey Geologic Atlas, Folio no. 15, 4 p.
151. ——1906, Description of the Redding folio [California]: U.S. Geological Survey Geologic Atlas, Folio no. 138, 14 p.
152. ——1908, Geology of the Taylorsville region, California: U.S. Geological Survey Bulletin 353, 128 p.
**153. Doell, R. R., Dalrymple, G. B., and Cox, Allan, 1966, Geomagnetic polarity epochs—Sierra Nevada data, 3: Journal of Geophysical Research, v. 71, no. 2, p. 531–541.
154. Dolgoff, Abraham, 1963, Volcanic stratigraphy of the Pahranagat area, Lincoln County, southeastern Nevada: Geological Society of America Bulletin, v. 74, no. 7, p. 875–899.
**155. Donnelly-Nolan, J. M., Hearn, B. C., Jr., Curtis, G. H., and Drake, R. E., in press, Geochronology and evolution of the Clear Lake Volcanics, *in* McLaughlin, R. J., and Donnelly-Nolan, J. M., eds., Research in the Geysers-Clear Lake area, northern California: U.S. Geological Survey Professional Paper 1141.
156. Drewes, H. D., 1963, Geology of the Funeral Peak quadrangle, California, on the east flank of Death Valley: U.S. Geological Survey Professional Paper 413, 78 p.
157. Duffield, W. A., and Bacon, C. R., in press, Preliminary geologic map of the Coso volcanic field and adjacent areas, Inyo County, California: U.S. Geological Survey Miscellaneous Investigations Map I–1200.
**158. Duffield, W. A., and McKee, E. H., 1977, Written communication.
**159. Duffield, W. A., and Smith, G. I., 1978, Pleistocene history of volcanism and the Owens River near Little Lake, California: U.S. Geological Survey Journal of Research, v. 6, no. 3, p. 395–408. [Geologic estimate date.]
160. Duffield, W. A., and Weldin, R. D., 1976, Mineral resources of the South Warner Wilderness, Modoc County, California, *with a section on* Aeromagnetic data, by W. E. Davis: U.S. Geological Survey Bulletin 1385–D, 31 p.
*161. Duffield, W. A., Bacon, C. R., and Dalrymple, G. B., 1977, Written communication.
**162. ——in press, Late Cenozoic volcanism, geochronology, and structure of the Coso Range, Inyo County, California: Journal of Geophysical Research. [Radiometric and hydration rind dates.]
163. Durrell, Cordell, 1959, Tertiary stratigraphy of the Blairsden quadrangle, Plumas County, California: University of California Publications in Geological Sciences, v. 34, no. 3, p. 161–192.
164. ——1966, Tertiary and Quaternary geology of the northern Sierra Nevada, *in* Bailey, E. H., ed., Geology of northern California: California Division Mines and Geology Bulletin 190, p. 185–197.
164a. Eichelberger, J. C., 1975, Origin of andesite and dacite; evidence of mixing at Glass Mountain in California and at other Circum-Pacific volcanoes: Geological Society of America Bulletin, v. 86, no. 10, p. 1381–1391.
165. Ekren, E. B., and Sargent, K. A., 1965, Geologic map of the Skull Mountain quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–387.
166. Ekren, E. B., Hinrichs, E. N., and Dixon, G. L., 1972, Geologic map of the Wall quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–719.
167. Ekren, E. B., Rogers, C. L., and Dixon, G. L., 1973, Geologic and Bouguer gravity map of the Reveille quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–806.
168. Ekren, E. B., Anderson, R. E., Rogers, C. L., and Noble, D. C., 1971, Geology of northern Nellis Air Force Base Bombing and Gunnery Range, Nye County, Nevada: U.S. Geological Survey Professional Paper 651, 91 p.
169. Ekren, E. B., Hinrichs, E. N., Quinlivan, W. D., and Hoover, D. L., 1973, Geologic map of the Moores Station quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–756.
170. Ekren, E. B., Orkild, P. P., Sargent, K. A., and Dixon, G. L., 1977, Geologic map of Tertiary rocks, Lincoln County, Nevada: U.S. Geological Survey Miscellaneous Investigations Series Map I–1041.
171. Ekren, E. B., Rogers, C. L., Anderson, R. E., and Botinelly, Theodore, 1967, Geologic map of the Belted Peak quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–606.
**172. Ekren, E. B., and others, 1980, Stratigraphy, preliminary petrology, and some structural features of Tertiary volcanic rocks in the Gabbs Valley and Gillis Ranges, Mineral County, Nevada: U.S. Geological Survey Bulletin 1464.
173. Engel, René, 1959, Geology of the Lake Elsinore quadrangle, California: California Division of Mines Bulletin 146, p. 9–58.
174. Eric, J. H., Stromquist, A. A., and Swinney, C. M., 1955, Geology and mineral deposits of the Angels Camp and Sonora quadrangles, Calaveras and Tuolumne Counties, California: California Division of Mines Special Report 41, 55 p.
175. Erickson, R. L., and Marsh, S. P., 1974a, Geologic map of the Golconda quadrangle, Humboldt County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–1174.
176. ——1974b, Geologic map of the Iron Point quadrangle, Humboldt County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–1175.
**177. Erickson, R. L., Silberman, M. L., and Marsh, S. P., 1978, Age and composition of igneous rocks, Edna Mountain quadrangle, Humboldt County, Nevada: U.S. Geological Survey Journal of Research, v. 6, no. 6, p. 727–743.
178. Ernst, W. G., and Hall, C. A., Jr., 1974, Geology and petrology of the Cambria Felsite, a new Oligocene formation, west-central California Coast Ranges: Geological Society of America Bulletin, v. 85, no. 4, p. 523–532.
179. Evans, J. G., 1974, Geologic map of the Rodeo Creek NE quadrangle, Eureka County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–1116.
180. ——1974b, Geologic map of the Welches Canyon quadrangle, Eureka County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–1117.
181. Evans, J. R., 1971, Geology and mineral deposits of the Mescal Range quadrangle, San Bernardino County, California: California Division of Mines and Geology Map Sheet MS–17.
**182. Evernden, J. F., and James, G. T., 1964, Potassium-argon dates and the Tertiary floras of North America: American Journal of Science, v. 262, no. 8, p. 945–974.
**183. Evernden, J. F., Curtis, G. H., and Lipson, J. I., 1957, Potassium-argon dating of igneous rocks [California]: American Association of Petroleum Geologists Bulletin, v. 41, no. 9, p. 2120–2127.
**184. Evernden, J. F., Curtis, G. H., Obradovich, J., and Kistler, R., 1961, On the evaluation of glauconite and illite for dating sedimentary rocks by the potassium-argon method: Geochimica et Cosmochimica Acta, v. 23, no. 1, p. 78–99.
**185. Evernden, J. F., Savage, D. E., Curtis, G. H., and James, G. T., 1964, Potassium-argon dates and the Cenozoic mammalian chronology of North America: American Journal of Science, v. 262, no. 2, p. 145–198.
186. Fairbanks, H. W., 1904, Description of the San Luis folio, California: U.S. Geological Survey Geologic Atlas no. 101, 14 p.
187. Ferguson, H. G., and Cathcart, S. H., 1954, Geologic map of the Round Mountain quadrangle, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–40.
188. Ferguson, H. G., and Gannett, R. W., 1932, Gold quartz veins of the Alleghany district, California: U.S. Geological Survey Professional Paper 172, 139 p.
189. Ferguson, H. G., Muller, S. W., and Cathcart, S. H., 1953, Geologic map of the Coaldale quadrangle, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–23.
190. ——1954, Geologic map of the Mina quadrangle, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–45.
191. Ferguson, H. G., Muller, S. W., and Roberts, R. J., 1951a, Geologic map of the Mount Moses quadrangle, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–12.
192. ——1951b, Geologic map of the Winnemucca quadrangle, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–11.
193. Ferguson, H. G., Robers, R. J., and Muller, S. W., 1952, Geologic map of the Golconda quadrangle, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–15.
194. Fiedler, W. M., 1944, Geology of the Jamesburg quadrangle, Monterey County, California: California Journal of Mines and Geology, v. 40, no. 2, p. 177–250.
195. Finch, R. H., 1933, Burnt Lava Flow in northern California: Zeitschrift fur Vulkanologie, v. 15, no. 3, p. 180–183.
196. Finch, R. H., and Anderson, C. A., 1930, The quartz basalt eruptions of Cinder Cone, Lassen Volcanic National Park, California: University of California Publications, Department of Geological Sciences Bulletin, v. 19, no. 10, p. 245–273.
**197. Fleck, R. J., 1970, Age and tectonic significance of volcanic rocks, Death Valley area, California: Geological Society of America Bulletin, v. 81, no. 9, p. 2807–2816.
**198. Fleck, R. J., Carr, W. J., and Byers, F. M., 1978, Written communication.
199. Fox, K. F., Jr., Sims, J. D., Bartow, J. A., and Helley, E. J., 1973, Preliminary geologic map of eastern Sonoma County and western Napa County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF–483.
**200. Friedman, Irving, 1968, Hydration rind dates rhyolite flows: Science, v. 159, no. 3817, p. 878–880. [Hydration rind and radiocarbon dates.]
201. Gay, T. E., Jr., and Aune, Q. A., 1958, Geologic map of California, Alturas sheet: California Division of Mines and Geology, scale 1:250,000.
202. Gealey, W. K., 1951, Geology of the Healdsburg quadrangle, California: California Division of Mines Bulletin 161, p. 7–50.
203. Gester, G. C., 1962, The geological history of Eagle Lake, Lassen County, California: California Academy of Science Occasional Papers, no. 34, 29 p.
*204. Gilbert, C. M., and Reynolds, M. W., 1973, Character and chronology of basin development, western margin of the Basin and Range Province: Geological Society of America Bulletin, v. 84, no. 8, p. 2489–2510.
*205. Gilbert, C. M., Christensen, M. N., Al-Rawi, Yehya, and Lajoie, K. R., 1968, Structural and volcanic history of Mono Basin, California—Nevada, *in* Coats, R. R., Hay, R. L., and Anderson, C. A., eds., Studies in volcanology—A memoir in honor of Howel Williams: Geological Society of America Memoir 116, p. 275–329.
**206. Gilbert, N. J., 1969, Chronology of post-Tuscan volcanism in the Manton area, California: Berkeley, California, University of California, Master's thesis.
*207. Gilluly, James, 1967, Geologic map of the Winnemucca quadrangle, Pershing and Humboldt Counties, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–656.
208. Gilluly, James, and Gates, Olcott, 1965, Tectonic and igneous geology of the northern Shoshone Range, Nevada, *with sections on* Gravity in Crescent Valley, by Donald Plouf and Economic geology, by K. B. Ketner: U.S. Geological Survey Professional Paper 465, 153 p.
209. Gilluly, James, and Masursky, Harold, 1965, Geology of the Cortez quadrangle, Nevada, *with a section on* Gravity and aeromagnetic surveys, by D. R. Mabey: U.S. Geological Survey Bulletin 1175, 117 p.
**210. Giovannetti, D. M., 1978, Written communication.
211. Greene, R. C., 1972, Preliminary geologic map of Jordan Meadow quadrangle, Nevada—Oregon: U.S. Geological Survey Miscellaneous Field Studies Map MF–341.
212. ——1976, Volcanic rocks of the McDermitt caldera, Nevada-Oregon: U.S. Geological Survey Open-File Report 76–753, 80 p.
213. Haefner, Richard, 1976, Geology of the Shoshone Volcanics, Death Valley region, eastern California, *in* Troxel, B. W., and Wright, L. A., eds., Geologic features, Death Valley, California: California Division of Mines and Geology Special Report 106, p. 67–72.
214. Hall, C. A., Jr., 1958, Geology and paleontology of the Pleasanton area, Alameda and Contra Costa Counties, California: University of California Publication in Geological Sciences, v. 34, no. 1, p. 1–90.
215. Hall, C. E., 1973, Geology of the Arroyo Grande [15-minute] quadrangle, San Luis Obispo County, California: California Division of Mines and Geology Map Sheet MS–24.
*216. Hall, W. E., 1971, Geology of the Panamint Butte quadrangle, Inyo County, California: U.S. Geological Survey Bulletin 1299, 67 p.
217. Hall, W. E., and MacKevett, E. M., Jr., 1963, Geology and ore deposits of the Darwin quadrangle, Inyo County, California: U.S. Geological Survey Professional Paper 368, 87 p.
218. Hall, W. E., and Stephens, H. G., 1963, Economic geology of the Panamint Butte quadrangle and Modoc district, Inyo County, California: California Division of Mines and Geology Special Report 73, 39 p.
219. Hamilton, W. B., and Neuerburg, G. J., 1956, Olivine-sanidine trachybasalt from the Sierra Nevada, California: American Mineralogist, v. 41, nos. 11–12, p. 851–873.
**220. Harkness, H. A., 1874, A recent volcano in Plumas County [California]: California Academy of Scientific Proceedings, 1st ser., v. 5, p. 408–412. [Geologic estimate and historic dates.]
**221. Hawkins, J. W., 1970, Petrology and possible tectonic significance of late Cenozoic volcanic rocks, southern California and Baja California: Geological Society of America Bulletin, v. 81, no. 11, p. 3323–3338.
222. Hearn, B. C., Jr., 1978, Oral communication.
*223. Hearn, B. C., Jr., Donnelly, J. M., and Goff, F. E., 1976, Preliminary geologic map and cross-section of the Clear Lake volcanic field, Lake County, California: U.S. Geological Survey Open-File Report 76–751.
**224. Heath, J. P., 1959, Dating Chaos Jumbles, an avalanche-deposit in Lassen Volcanic National Park [California]: American Journal of Science, v. 257, no. 7, p. 537–538. [Tree-ring and geologic estimate dates.]
**224a. Heiken, Grant, 1978, Plinian-type eruptions in the Medicine Lake Highland, California, and the nature of the underlying magma: Journal Volcanology and Geothermal Research, v. 4, no. 314, p. 375–402. [Radiocarbon date.]
225. Henshaw, P. C., 1942, Geology and mineral deposits of the Cargo Muchacho Mountains, Imperial County, California: California Journal of Mines and Geology, v. 38, no. 2, p. 147–196.
226. Hewett, D. F., 1931, Geology and ore deposits of the Goodsprings quadrangle, Nevada: U.S. Geological Survey Professional Paper 162, 172 p.
227. ——1956, Geology and mineral resources of the Ivanpah quadrangle, California and Nevada: U.S. Geological Survey Professional Paper 275, 172 p.
228. Hill, J. M., 1915, Some mining districts in northeastern California and northwestern Nevada: U.S. Geological Survey Bulletin 594, 200 p.
229. Hinrichs, E. N., 1968, Geologic map of the Camp Desert Rock quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–726.
230. Hinrichs, E. N., and McKay, E. J., 1965, Geologic map of the Plutonium Valley quadrangle, Nye and Lincoln Counties, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–384.
231. Hope, R. A., 1970, Preliminary geologic map of Elko County, Nevada: U.S. Geological Survey Open-File Report.
232. Hope, R. A., and Coats, R. R., 1976, Preliminary geologic map of Elko County, Nevada: U.S. Geological Survey Open-File Report 76–779.
233. Hotz, P. E., and Willden, Ronald, 1964, Geology and mineral deposits of the Osgood Mountains quadrangle, Humboldt County, Nevada: U.S. Geological Survey Professional Paper 431, 128 p.
234. Huber, N. K., 1968, Geologic map of the Shuteye Peak quadrangle, Sierra Nevada, California: U.S. Geological Survey Geologic Quadrangle Map GQ–728.
**235. ——1977, Silica content of some late Cenozoic volcanic rocks from the southern Sierra Nevada, California—applications as a correlation tool: U.S. Geological Survey Open-File Report 77–755, 42 p.
**236. ——1979, Written communication.
237. Huber, N. K., and Rinehart, C. D., 1965, Geologic map of the Devils Postpile quadrangle, Sierra Nevada, California: U.S. Geological Survey Geologic Quadrangle Map GQ–437.
**238. ——1967, Cenozoic volcanic rocks of the Devils Postpile quadrangle, eastern Sierra Nevada, California: U.S. Geological Survey Professional Paper 554–D, 21 p.
239. Hudson, F. S., 1951, Mount Lincoln-Castle Peak area, Sierra Nevada, California: Geological Society of America Bulletin, v. 62, no. 8, p. 931–952.
240. Hulin, C. D., 1925, Geology and ore deposits of the Randsburg quadrangle, California: California State Mining Bureau Bulletin 95, 152 p.
241. Hunt, C. B., and Mabey, D. R., 1966, Stratigraphy and structure, Death Valley, California: U.S. Geological Survey Professional Paper 494–A, 162 p.
**242. Ives, P. C., Levin, Betsy, Oman, C. L., and Rubin, Meyer, 1967, U.S. Geological Survey radiocarbon dates IX: Radiocarbon, v. 9, p. 505–529. [Radiocarbon dates.]
**243. Ives, P. C., Levin, Betsy, Robinson, R. D., and Rubin, Meyer, 1964, U.S. Geological Survey radiocarbon dates VII: Radiocarbon, v. 6, p. 37–76. [Radiocarbon dates.]
**244. Izett, G. A., and Naeser, C. W., 1976, Age of the Bishop Tuff of eastern California as determined by the fission-track method: Geology, v. 4, no. 10, p. 587–590. [Fission-track date.]
245. Jennings, C. W., 1958a, Geologic map of California—Death Valley sheet: California Division of Mines and Geology, scale 1:250,000.
246. ——1959a, Geologic map of California—San Luis Obispo sheet: California Division of Mines and Geology, scale 1:250,000.
247. ——1959b, Geologic map of California—Santa Maria sheet: California Division of Mines and Geology, scale 1:250,000.
248. ——1961, Geologic map of California—Kingman sheet: California Division of Mines and Geology, scale 1:250,000.
249. ——1962, Geologic map of California—Long Beach sheet: California Division of Mines and Geology, scale 1:250,000.
250. ——1967, Geologic map of California—Salton Sea sheet: California Division of Mines and Geology, scale 1:250,000.
251. Jennings, C. W., and Burnett, J. L., 1961, Geologic map of California—San Francisco sheet: California Division of Mines and Geology, scale 1:250,000.
252. Jennings, C. W., and Strand, R. G., 1958, Geologic map of California—Santa Cruz sheet: California Division of Mines and Geology, scale 1:250,000.
253. ——1960, Geologic map of California—Ukiah sheet: California Division of Mines and Geology, scale 1:250,000.
254. ——1969, Geologic map of California—Los Angeles sheet: California Division of Mines and Geology, scale 1:250,000.
255. Jennings, C. W., Burnett, J. L., and Troxel, B. W., 1962, Geologic map of California—Trona sheet: California Division of Mines and Geology, scale 1:250,000.
256. Jennings, C. W., Strand, R. G., and Rogers, T. H., 1977, Geologic map of California: California Division of Mines and Geology, scale 1:750,000.
257. Johnson, B. K., 1957, Geology of a part of the Manly Peak quadrangle, southern Panamint Range, California: University of California Publications, Department of Geological Sciences Bulletin, v. 30, no. 5, p. 353–424.
258. Johnson, M. G., 1977, Geology and mineral deposits of Pershing County, Nevada: Nevada Bureau of Mines and Geology Bulletin 89, 115 p.
259. Kieth, W. J., 1977, Geology of the Red Mountain mining district, Esmeralda County, Nevada: U.S. Geological Survey Bulletin 1423, 45 p.
*260. Kennedy, M. P., 1977, Recency and character of faulting along the Elsinore fault zone in southern Riverside County, California: California Division of Mines and Geology Special Report 131, 12 p.
261. Kew, W. S. W., 1924, Geology and oil resources of a part of Los Angeles and Ventura Counties, California: U.S. Geological Survey Bulletin 753, 202 p.
262. ——1927, Geologic sketch of Santa Rosa Island, Santa Barbara County, California: Geological Society of America Bulletin, v. 38, no. 4, p. 645–654.
263. Kirby, J. M., 1943, Rumsey Hills area, *in* Jenkins, O. P., ed., Geologic formations and economic development of the oil and gas fields of California: California Division of Mines Bulletin 118, p. 601–605.
264. Kistler, R. W., 1966a, Geologic map of the Mono Craters quadrangle, Mono and Tuolumne Counties, California: U.S. Geological Survey Geologic Quadrangle Map GQ–462.
265. ——1966b, Structure and metamorphism in the Mono Craters quadrangle, Sierra Nevada, California: U.S. Geological Survey Bulletin 1221–E, 53 p.
**266. ——1968, Potassium-argon ages of volcanic rocks in Nye and Esmeralda Counties, Nevada, *in* Eckel, E. B., ed., Nevada Test Site: Geological Society of America Memoir 110, p. 251–262.
267. Kleinhampl, F. J., and Ziony, J. I., 1967, Preliminary geologic map of northern Nye County, Nevada: U.S. Geological Survey Open-File Report.
268. Kleinhampl, F. J., and others, 1975, Aeromagnetic and limited gravity studies and generalized geology of the Bodie Hills region, Nevada and California: U.S. Geological Survey Bulletin 1384, 38 p.
269. Knopf, Adolph, 1918a, A geologic reconnaissance of the Inyo range and the eastern slope of the southern Sierra Nevada, California: U.S. Geological Survey Professional Paper 110, 138 p.
270. ——1918b, Geology and ore deposits of the Yerington district, Nevada: U.S. Geological Survey Professional Paper 114, 68 p.
271. Koenig, J. B., 1963a, Geologic map of California—Santa Rosa sheet: California Division of Mines and Geology, scale 1:250,000.
272. ——1963b, Geologic map of California—Walker Lake sheet: California Division of Mines and Geology, scale 1:250,000.
273. Korringa, M. K., 1973, Linear vent area of the Soldier Meadow Tuff, an ash-flow sheet in northwestern Nevada: Geological Society of America Bulletin, v. 84, no. 12, p. 3849–3866.
274. Krauskopf, K. B., 1953, Tungsten deposits of Madera, Fresno, and Tulare Counties, California: California Division of Mines Special Report 35, 83 p.
275. ——1971, Geologic map of the Mt. Barcroft quadrangle, California-Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–960.
276. Krauskopf, K. B., and Bateman, P. C., 1977, Geologic map of the Glass Mountain quadrangle, Mono County, California, and Mineral County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–1099.
**277. Krueger, H. W., and Schilling, J. H., 1971, Geochron/Nevada Bureau of Mines K/Ar age determinations—List 1: Isochron/West, no. 71–1, p. 9–14.
**278. Kuniyoshi, Shingi, and Freeman, Tom, 1974, Potassium-argon ages of Tertiary volcanic rocks from the eastern Mojave Desert [Abs.]: Geological Society of America Abstracts with Programs, v. 6, no. 3, p. 204.
279. Kunkel, Fred, and Riley, F. S., 1959, Geologic reconnaissance and test-well drilling, Camp Irwin, California: U.S. Geological Survey Water-Supply Paper 1460–F, p. 233–271.
280. Kunkel, Fred, and Upson, J. E., 1960, Geology and ground water in Napa and Sonoma Valleys, Napa and Sonoma Counties, California: U.S. Geological Survey Water-Supply Paper 1495, 252 p.
**281. Lajoie, K. R., 1968, Late Quaternary stratigraphy and geologic history of the Mono Basin, California: Berkeley, California, University of California, Ph.D. Dissertation, 271 p. [Radiocarbon dates.]
**282. Lanphere, M. A., Dalrymple, G. B., and Smith, R. L., 1975, K-Ar ages of Pleistocene rhyolitic volcanism in the Coso Range, California: Geology, v. 3, no. 6, p. 339–341.
283. Larsen, E. S., Jr., 1948, Batholith and associated rocks of Corona, Elsinore, and San Luis Rey quadrangles, southern California: Geological Society of America Memoir 29, 182 p.
284. Lawson, A. C., 1914, Description of the San Francisco district [California]: U.S. Geological Survey Geologic Atlas, Folio no. 193, 24 p.
285. Leith, C. J., 1949, Geology of the Quien Sabe quadrangle, California: California Division of Mines Bulletin 147, p. 7–35.
286. Lindgren, Waldemar, 1894, Description of the Sacramento sheet [California]: U.S. Geological Survey Geologic Atlas, Folio no. 5, 2 p.
287. ——1896, Description of the Pyramid Peak quadrangle [California]: U.S. Geological Survey Geologic Atlas, Folio no. 31, 6 p.
288. ——1897, Description of the Truckee quadrangle [California]: U.S. Geological Survey Geologic Atlas, Folio no. 39, 6 p.
289. ——1900, Description of the Colfax quadrangle [California]: U.S. Geological Survey Geologic Atlas, Folio no. 66, 10 p.
290. Lindgren, Waldemar, and Turner, H. W., 1894, Description of the Placerville sheet [California]: U.S. Geological Survey Geologic Atlas, Folio no. 3, 3 p.
291. ——1895a, Description of the Marysville sheet [California]: U.S. Geological Survey Geologic Atlas, Folio no. 17, 2 p.
292. ——1895b, Description of the Smartsville sheet [California]: U.S. Geological Survey Geologic Atlas, Folio no. 18, 4 p.
293. Lipman, P. W., and McKay, E. J., 1965, Geologic map of the Topopah Spring SW quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–439.
294. Lockwood, J. P., and Bateman, P. C., 1976, Geologic map of the Shaver Lake quadrangle, central Sierra Nevada, California: U.S. Geological Survey Geologic Quadrangle Map GQ–1271.
295. Loney, R. A., 1968, Flow structure and composition of the southern Coulee, Mono Craters, California—a pumiceous rhyolite flow, *in* Coats, R. R., Hay, R. L., and Anderson, C. A., eds., Studies in volcanology—A memoir in honor of Howel Williams: Geological Society of America Memoir 116, p. 415–440.
296. Longwell, C. R., Pampeyan, E. H., Bowyer, Ben, and Roberts, R. J., 1965, Geology and mineral deposits of Clark County, Nevada: Nevada Bureau of Mines Bulletin 62, 218 p.
**297. Luedke, R. G., and Lanphere, M. A., 1979, Oral communication.
298. Lydon, P. A., 1967, The origin of Tuscan Buttes and the volume of the Tuscan Formation in northern California, *in* Short contributions to California geology: California Division of Mines and Geology Special Report 91, p. 17–26.
299. ——1968, Geology and lahars of the Tuscan Formation, northern California, *in* Coats, R. R., Hay, R. L., and Anderson, C. A., eds., Studies in volcanology—A memoir in honor of Howel Williams: Geological Society of America Memoir 116, p. 441–476.
300. Lydon, P. A., Gay, T. E., Jr., and Jennings, C. W., 1960, Geologic map of California—Westwood sheet: California Division of Mines and Geology, scale 1:250,000.
301. Macdonald, G. A., 1941, Geology of the western Sierra Nevada between the Kings and San Joaquin Rivers, California: University of California Publications, Department of Geological Sciences Bulletin, v. 26, no. 2, p. 215–286.
302. ——1963, Geology of the Manzanita Lake quadrangle, California: U.S. Geological Survey Geologic Quadrangle Map GQ–248.
303. ——1964, Geology of the Prospect Peak quadrangle, California: U.S. Geological Survey Geologic Quadrangle Map GQ–345.
304. ——1965, Geologic map of the Harvey Mountain quadrangle, Lassen County, California: U.S. Geological Survey Geologic Quadrangle Map GQ–443.
305. Macdonald, G. A., and Katsura, Takashi, 1965, Eruption of Lassen Peak, Cascade Range, California, in 1915—Example of mixed magmas: Geological Society of America Bulletin, v. 76, no. 5, p. 475–482.
306. Macdonald, G. A., and Lydon, P. A., 1972, Geologic map of the Whitmore quadrangle, California: U.S. Geological Survey Geologic Quadrangle Map GQ–993.
**307. Mankinen, E. A., 1972, Paleomagnetism and potassium-argon ages of the Sonoma Volcanics, California: Geological Society of America Bulletin, v. 83, no. 7, p. 2063–2072.
308. Mann, J. F., Jr., 1955, Geology of a portion of the Elsinore fault zone, California: California Division of Mines Special Report 43, 22 p.
309. Mapel, W. J., and Hall, W. J., Jr., 1959, Tertiary geology of the Goose Creek district, Cassia County, Idaho, Box Elder County, Utah, and Elko County, Nevada: U.S. Geological Survey Bulletin 1055–H, p. 217–254.
**310. Mark, R. K., and others, 1975, A high $^{87}Sr/^{86}Sr$ mantle source for low alkali tholeiite, northern Great Basin: Geochimica et Cosmochimica Acta, v. 39, no. 12, p. 1671–1678.
311. Marsh, S. P., and Erickson, R. L., 1978, Geologic map of the Goldrun Creek quadrangle, Humboldt County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–1407.
**312. Marvin, R. F., and Cole, J. C., 1978, Radiometric ages; Compilation A, U.S. Geological Survey: Isochron/West, no. 22, p. 3–14.
**313. Marvin, R. F., Mehnert, H. H., and McKee, E. H., 1973, A summary of radiometric ages of Tertiary volcanic rocks in Nevada and eastern California; Part III—Southeastern Nevada: Isochron/West, no. 6, p. 1–30.
**314. Marvin, R. F., Mehnert, H. H., and Noble, D. C., 1970, Use of Ar^{36} to evaluate the incorporation of air by ash flows: Geological Society of America Bulletin, v. 81, no. 11, p. 3385–3392.
**315. Marvin, R. F., Mehnert, H. H., Speed, R. C., and Cogbill, A. H., 1977, K-Ar ages of Tertiary igneous and sedimentary rocks of the Mina-Candelaria region, Mineral County, Nevada: Isochron/West, no. 18, p. 9–12.
**316. Marvin, R. F., and others, 1970, Radiometric ages and stratigraphic sequence of volcanic and plutonic rocks, southern Nye and western Lincoln Counties, Nevada: Geological Society of America Bulletin, v. 81, no. 9, p. 2657–2676.
317. Mason, J. F., 1948, Geology of the Tecopa area, southeastern California: Geological Society of America Bulletin, v. 59, no. 4, p. 333–352.
318. Matthews, R. A., and Burnett, J. L., 1966, Geologic map of California—Fresno sheet: California Division of Mines and Geology, scale 1:250,000.
319. McAllister, J. F., 1956, Geologic map of the Ubehebe Peak quadrangle, California: U.S. Geological Survey Geologic Quadrangle Map GQ–95.
320. ——1970, Geologic map and sections of the Furnace Creek borate area, Death Valley, Inyo County, California: California Division of Mines and Geology Map Sheet MS–14.
321. ——1971, Preliminary geologic map of the Funeral Mountains in the Ryan quadrangle, Death Valley region, Inyo County, California: U.S. Geological Survey Open-File Report.
*322. ——1973, Geologic map and sections of the Amargosa Valley borate area—southeast continuation of the Furnace Creek area—Inyo County, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–782.
*323. ——1978, Written communication.
324. McCulloh, T. H., 1960, Geologic map of the Lane Mountain quadrangle, California: U.S. Geological Survey Open-File Report.
325. McKay, E. J., and Williams, W. P., 1964, Geology of the Jackass Flats quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–368.
326. McKay, E. J., and Sargent, K. A., 1970, Geologic map of the Lathrop Wells quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–883.
*327. McKee, E. H., 1968, Geology of the Magruder Mountain area, Nevada-California: U.S. Geological Survey Bulletin 1251–H, 40 p.
328. ——1969, Geologic map of the Mount Moses and southeast part of the Buffalo Springs quadrangles, Lander County, Nevada: U.S. Geological Survey Open-File Report.
**329. ——1976, Origin of the McDermitt caldera in Nevada and Oregon and related mercury deposits: American Institute of Mining, Metallurgical, and Petroleum Engineers Transactions, v. 260, p. 196–199.
**330. McKee, E. H., and Duffield, W. A., 1979, Written communication.
**331. McKee, E. H., and Marvin, R. F., 1974, Summary of radiometric ages of Tertiary volcanic rocks in Nevada; Part IV—Northwestern Nevada: Isochron/West, no. 10, p. 1–6.
332. McKee, E. H., and Nelson, C. A., 1967, Geologic map of the Soldier Pass quadrangle, California and Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–654.
**333. McKee, E. H., and Silberman, M. L., 1970, Geochronology of Tertiary igneous rocks in central Nevada: Geological Society of America Bulletin, v. 81, no. 8, p. 2317–2328.
334. McKee, E. H., and Stewart, J. H., 1969, Geologic map of the McCoy quadrangle, Lander County, Nevada: U.S. Geological Survey Open-File Report.
**335. McKee, E. H., Tarshis, A. L., and Marvin, R. F., 1976, Summary of radiometric ages of Tertiary volcanic and selected plutonic rocks in Nevada; Part V—Northeastern Nevada: Isochron/West, no. 16, p. 15–27.
**336. McKee, E. H., Silberman, M. L., Marvin, R. E., and Obradovich, J. D., 1971, A summary of radiometric ages of Tertiary volcanic rocks in Nevada and Eastern California; Part I—Central Nevada: Isochron/West, no. 2, p. 21–42.
337. McKeown, F. A., Healey, D. L., and Miller, C. H., 1976, Geologic map of the Yucca Lake quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–1327.
338. McNitt, J. R., 1968a, Geologic map and sections of the Kelseyville quadrangle, Mendicino, Lake, and Sonoma Counties, California: California Division of Mines and Geology Map Sheet MS–9.
339. ——1968b, Geologic map of the Lakeport quadrangle, Lake County, California: California Division of Mines and Geology Map Sheet MS–10.
340. ——1968c, Geology of the Clearlake Oaks 15-minute quadrangle, Lake County, California: California Division of Mines and Geology Open-File Report 68–12.
**341. Merifield, P. M., Lamar, D. L., and Stout, M. L., 1971, Geology of central San Clemente Island, California: Geological Society of America Bulletin, v. 82, no. 7, p. 1989–1994.
**342. Mertzman, S. A., Jr., 1977, The petrology and geochemistry of the Medicine Lake volcano California: Contributions of Mineralogy and Petrology, v. 62, no. 3, p. 221–247.
**343. Miller, C. D., 1978, Holocene pyroclastic-flow deposits from Shastina and Black Butte, west of Mount Shasta, California: U.S. Geological Survey Journal of Research, v. 6, no. 5, p. 611–624.
**344. Miller, C. D., and Crandell, D. R., 1975, Postglacial pyroclastic-flow deposits and lahars from Black Butte and Shastina, west of Mt. Shasta, California [Abs.]: Geological Society of America Abstracts with Programs, v. 7, no. 3, p.347–348.
*345. Miller, F. K., and Morton, D. M., 1977, Comparison of granitic intrusions in the Pelona and Orocopia Schists, southern California: U.S. Geological Survey Journal of Research, v. 5, no. 5, p. 643–649.
346. Miller, W. J., 1944a, Geology of Palm Springs-Blythe strip, Riverside County, California: California Journal of Mines and Geology, v. 40, no. 1, p.11–72.
347. ——1944b, Geology of the Needles-Goffs region, San Bernardino County, California: California Journal of Mines and Geology, v. 40, no. 1, p. 113–129.
348. Miller, W. J., and Webb, R. W., 1940, Descriptive geology of the Kernville quadrangle, California: California Journal of Mines and Geology, v. 36, no. 4, p. 343–378.
349. Moore, J. G., 1963, Geology of the Mount Pinchot quadrangle, southern Sierra Nevada, California: U.S. Geological Survey Bulletin 1130, 152 p.
350. ——1969, Geology and mineral deposits of Lyon, Douglas, and Ormsby Counties, Nevada, *with a section on* Industrial mineral deposits, by N. L. Archbold: Nevada Bureau of Mines Bulletin 75, 45 p.
351. ——1978, Geologic map of the Marion Peak quadrangle, Fresno County, California: U.S. Geological Survey Geologic Quadrangle Map GQ–1399.
352. Moore, J. G., and Marks, L. Y., 1972, Mineral resources of the High Sierra Primitive Area, California, *with a section on* Aeromagnetic interpretation, by H. W. Oliver: U.S. Geological Survey Bulletin 1371–A, 40 p.
**353. Moore, J. G., and Silberman, M. L., 1978, Oral communication.
**354. Moore, J. G., and others, 1979, Geologic guide to the Kings Canyon Highway, central Sierra Nevada, California: Geological Society of America Guidebook, 75th Annual Meeting, Cordilleran Section, San Jose, California, 33 p.
355. Morrison, R. B., 1964, Lake Lahontan: Geology of the southern Carson Desert, Nevada: U.S. Geological Survey Professional Paper 401, 156 p.
356. Morton, D. M., 1973, Geology of parts of the Azusa and Mount Wilson quadrangles, San Gabriel Mountains, Los Angeles County, California: California Division of Mines and Geology Special Report 105, 21 p.
**357. Morton, J. L., 1977, K-Ar ages of volcanic rocks, plutonic rocks, and ore deposits in Nevada and eastern California—determinations run under the USGS-NBMG cooperative program: Isochron/West, no. 20, p. 19–29.
**358. Morton, J. L., and Morton, D. M., 1979a, K-Ar ages of Cenozoic volcanic rocks along the Elsinore fault zone, southwestern Riverside County, California [Abs.]: Geological Society of America Abstracts with Programs, v. 11, no. 3, p. 119.
**359. ——1979b, Oral communication.
360. Morton, P. K., 1977, Geology and mineral resources of Imperial County, California: California Division of Mines and Geology County Report 7, 104 p.
**361. Muffler, L. J. P., and White, D. E., 1969, Active metamorphism of upper Cenozoic sediments in the Salton Sea geothermal field and the Salton Trough, southeastern California: Geological Society of America Bulletin, v. 80, no. 2, p. 157–182.
362. Muller, S. W., Ferguson, H. G., and Roberts, R. J., 1951, Geologic map of the Mount Tobin quadrangle, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–7.
363. Nelson, C. A., 1966a, Geologic map of the Blanco Mountain quadrangle, Inyo and Mono Counties, California: U.S. Geological Survey Geologic Quadrangle Map GQ–529.
364. ——1966b, Geologic map of the Waucoba Mountain quadrangle, Inyo County, California: U.S. Geological Survey Geologic Quadrangle Map GQ–528.
365. ——1971, Geologic map of the Waucoba Spring quadrangle, Inyo County, California: U.S. Geological Survey Geologic Quadrangle Map GQ–921.
*366. Noble, D. C., 1968, Kane Springs Wash volcanic center, Lincoln County, Nevada, *in* Eckel, E. B., ed., Nevada Test Site: Geological Society of America Memoir 110, p. 109–116.
367. Noble, D. C., and Christiansen, R. L., 1968, Geologic map of the southwest quarter of the Black Mountain quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–562.
**368. Noble, D. C., and McKee, E. H., 1973, Description and K-Ar ages of volcanic units of the Caliente volcanic field, Lincoln County, Nevada, and Washington County, Utah: Isochron/West, no. 5, p. 17–24.
**369. Noble, D. C., Anderson, R. E., Ekren, E. B., and O'Connor, J. T., 1964, The Thirsty Canyon Tuff of Nye and Esmeralda Counties, Nevada, *in* Geological Survey Research 1963: U.S. Geological Survey Professional Paper 475–D, p. D24–D27.
**370. Noble, D. C., McKee, E. H., Smith, J. G., and Korringa, M. K., 1970, Stratigraphy and geochronology of Miocene volcanic rocks in northwestern Nevada, *in* Geological Survey Research 1970: U.S. Geological Survey Professional Paper 700–D, p. D23–D32.
**371. Noble, D. C., and others, 1968, Silent Canyon volcanic center, Nye County, Nevada, *in* Eckel, E. B., ed., Nevada Test Site: Geological Society of America Memoir 110, p. 65–75.
**372. ——1974, Eureka Valley Tuff, east-central California and adjacent Nevada: Geology, v. 2, no. 3, p. 139–142.
373. Noble, L. F., 1941, Structural features of the Virgin Spring area, Death Valley, California: Geological Society of America Bulletin, v. 52, no. 7, p. 941–1000.
374. Olmsted, F. H., 1958, Geologic reconnaissance of San Clemente Island, California: U.S. Geological Survey Bulletin 1071–B, p. 55–68.
375. Olmsted, F. H., and Davis, G. H., 1961, Geologic features and ground-water storage capacity of the Sacramento Valley, California: U.S. Geological Survey Water-Supply Paper 1497, 241 p.
376. Olmsted, F. H., Loeltz, O. J., and Irelan, Burdge, 1973, Geohydrology of the Yuma area, Arizona and California: U.S. Geological Survey Professional Paper 486–H, 227 p.
377. Orkild, P. P., 1963, Geologic map of Tippipah Spring quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–213.
378. ——1968, Geologic map of the Mine Mountain quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–746.
379. ——1978, Written communication.
380. Orkild, P. P., Sargent, K. A., and Snyder, R. P., 1969, Geologic map of Pahute Mesa, Nevada Test Site and vicinity, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–567.
381. Pampeyan, E. H., 1963, Geology and mineral deposits of Mount Diablo, Contra Costa County, California: California Division Mines and Geology Special Report 80, 31 p.
382. Parker, R. B., 1963, Recent volcanism at Amboy Crater, San Bernardino County, California: California Division of Mines and Geology Special Report 76, 23 p.
383. Peacock, M. A., 1931, The Modoc lava field, northern California: Geographical Review, v. 21, no. 2, p. 259–275.
384. Peck, D. L., 1964, Preliminary geologic map of the Merced Peak quadrangle, California: U.S. Geological Survey Mineral Investigations Field Studies Map MF–281.
**385. Peck, D. L., and Dalrymple, G. B., 1979, Oral communication.
386. Piper, A. M., Gale, H. S., Thomas, H. E., and Robinson, T. W., 1939, Geology and ground-water hydrology of the Mokelumne area, California: U.S. Geological Survey Water-Supply Paper 780, 230 p.
387. Poole, F. G., 1965, Geologic map of the Frenchman Flat quadrangle, Nye, Lincoln, and Clark Counties, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–456.
388. Poole, F. G., Elston, D. P., and Carr, W. J., 1965, Geologic map of the Cane Spring quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–455.
389. Powers, H. A., 1932, The lavas of the Modoc Lava-Bed quadrangle, California: American Mineralogist, v. 17, no. 7, p. 253–294.
390. Proctor, R. J., 1968, Geology of the Desert Hot Springs—upper Coachella Valley area, California: California Division of Mines and Geology Special Report 94, 50 p.
*391. Proffett, J. M., Jr., 1977, Cenozoic geology of the Yerington district, Nevada, and implications for the nature and origin of Basin and Range faulting: Geological Society of America Bulletin, v. 88, no. 2, p. 247–266.
**392. Prowell, D. C., 1974, Geology of selected Tertiary volcanics in the central Coast Range Mountains of California and their bearing on the Calaveras and Hayward fault problems: Santa Cruz, California, University of California, Ph.D. Dissertation, 182 p.
393. Putnam, W. C., 1960, Origin of Rock Creek and Owens River Gorges, Mono County, California: University of California Publications in Geological Sciences, v. 34, no. 5, p. 221–280.
394. Quinlivan, W. D., Rogers, C. L., and Dodge, H. W., Jr., 1974, Geologic map of the Portuguese Mountain quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–804.
395. Radbruch, D. H., and Case, J. E., 1967, Preliminary geologic map and engineering geologic information, Oakland and vicinity, California: U.S. Geological Survey Open-File Report.
396. Ransome, F. L., 1898, Some lava flows of the western slope of the Sierra Nevada, California: U.S. Geological Survey Bulletin 89, 74 p.
397. ——1909, The geology and ore deposits of Goldfield, Nevada: U.S. Geological Survey Professional Paper 66, 258 p.
398. Reynolds, M. W., 1976, Geology of the Grapevine Mountains, Death Valley, California—A summary, *in* Troxel, B. W., and Wright, L. A., eds., Geologic features, Death Valley, California: California Division of Mines Special Report 106, p. 19–25.
399. Rich, E. I., 1971, Geologic map of the Wilbur Springs quadrangle, Colusa and Lake Counties, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–538.
400. Riehle, J. R., McKee, E. H., and Speed, R. C., 1972, Tertiary volcanic center, west-central Nevada: Geological Society of America Bulletin, v. 83, no. 5, p. 1383–1396.
**401. Rinehart, C. D., and Huber, N. K., 1965, The Inyo Crater Lakes—A blast in the past: California Division of Mines and Geology Mineral Information Service, v. 18, no. 9, p. 169–172. [Radiocarbon dates.]
402. Rinehart, C. D., and Ross, D. C., 1957, Geology of the Casa Diablo Mountain quadrangle, California: U.S. Geological Survey Geologic Quadrangle Map GQ–99.
403. ——1964, Geology and mineral deposits of the Mount Morrison quadrangle, Sierra Nevada, California: U.S. Geological Survey Professional Paper 385, 106 p.
404. Roberts, R. J., 1964, Stratigraphy and structure of the Antler Peak quadrangle, Nevada: U.S. Geological Survey Professional Paper 459–A, 93 p.
405. Roberts, R. J., Montgomery, K. M., and Lehner, R. E., 1967, Geology and mineral resources of Eureka County, Nevada: Nevada Bureau of Mines Bulletin 64, 152 p.
406. Robinson, O. D., 1956, Geology of the Hayward quadrangle, California: U.S. Geological Survey Geologic Quadrangle Map GQ–88.
407. Robinson, P. T., 1972, Petrology of the Silver Peak volcanic center, western Nevada: Geological Society of America Bulletin, v. 83, no. 6, p. 1693–1708.
408. Robinson, P. T., and Crowder, D. F., 1973, Geologic map of the Davis Mountain quadrangle, Esmeralda and Mineral Counties, Nevada, and Mono County, California: U.S. Geological Survey Geologic Quadrangle Map GQ–1078.
409. Robinson, P. T., Elders, W. A., and Muffler, L. J. P., 1976, Quaternary volcanism in the Salton Sea geothermal field, Imperial Valley, California: Geological Society of America Bulletin, v. 87, no. 3, p. 347–360.
*410. Robinson, P. T., McKee, E. H., and Moiola, R. J., 1968, Cenozoic volcanism and sedimentation, Silver Peak region, western Nevada and adjacent California, *in* Coats, R. R., Hay, R. L., and Anderson, C. A., eds., Studies in volcanology—A memoir in honor of Howel Williams: Geological Society of America Memoir 116, p. 577–611.
411. Rogers, C. L., Anderson, R. E., Ekren, E. B., and O'Connor, J. T., 1967, Geologic map of the Quartzite Mountain quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–672.
412. Rogers, C. L., Ekren, E. B., Noble, D. C., and Weir, J. E., 1968, Geologic map of the northern half of the Black Mountain quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–545.
413. Rogers, T. G., 1965, Geologic Atlas map of California—Santa Ana sheet: California Division of Mines and Geology, scale 1:250,000.
414. ——1966, Geologic atlas map of California—San Jose sheet: California Division of Mines and Geology, scale 1:250,000.
415. ——1967, Geologic atlas map of California—San Bernardino sheet: California Division of Mines and Geology, scale 1:250,000.
416. Rose, R. L., 1959, Tertiary volcanic domes near Jackson, California: California Division of Mines Special Report 60, 21 p.
417. ——1969, Geology of parts of the Wadsworth and Churchill Butte quadrangles, Nevada: Nevada Bureau of Mines Bulletin 71, 27 p.
418. Ross, D. C., 1961, Geology and mineral deposits of Mineral County, Nevada: Nevada Bureau of Mines Bulletin 58, 98 p.
419. ——1965, Geology of the Independence quadrangle, Inyo County, California: U.S. Geological Survey Bulletin 1181–O, 64 p.
420. ——1967a, Generalized geologic map of the Inyo Mountains region, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–506.
421. ——1967b, Geologic map of the Waucoba Wash quadrangle, Inyo County, California: U.S. Geological Survey Geologic Quadrangle Map GQ–612.
**422. ——1970, Pegmatitic trachyandesite plugs and associated volcanic rocks in the Saline Range—Inyo Mountains region, California: U.S. Geological Survey Professional Paper 614–D, 29 p.
**423. Rubin, Meyer, and Alexander, Corrinne, 1960, U.S. Geological Survey radiocarbon dates V: American Journal of Science Radiocarbon Supplement, v. 2, p. 129–185. [Radiocarbon dates.]
424. Rytuba, J. J., 1976, Geology and ore deposits of the McDermitt caldera, Nevada-Oregon: U.S. Geological Survey Open-File Report 76–535, 9 p.
*424a. Rytuba, J. J., Conrad, W. K., and Glanzman, R. K., 1979, Uranium, thorium, and mercury distribution through the evolution of the McDermitt caldera complex: U.S. Geological Survey Open-File Report 79–541, 12 p.
425. Samsel, H. S., 1962, Geology of the southeast quarter of the Cross Mountain quadrangle, Kern County, California: California Division of Mines and Geology Map Sheet no. 2.
426. Sargent, K. S., and Orkild, P. P., 1973, Geologic map of the Wheelbarrow Peak—Rainier Mesa area, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–754.
427. ——1976, Preliminary geologic map of the northwest quarter of the Springdale quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Field Studies Map MF–751.
428. Sargent, K. A., and Stewart, J. H., 1971, Geologic map of the Specter Range NW quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–884.
429. Sargent, K. A., McKay, E. J., and Burchfiel, B. C., 1970, Geologic map of the Striped Hills quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–882.
**430. Sarna-Wojcicki, A. M., 1976, Correlation of late Cenozoic tuffs in the central Coast Ranges of California by means of trace- and minor-element chemistry: U.S. Geological Survey Professional Paper 972, 30 p.
431. Schaeffer, F. E., and Anderson, W. L., 1960, Geology of the Silver Island Mountains, Box Elder and Tooele Counties, Utah, and Elko County, Nevada: Utah Geological Society Guidebook to the Geology of Utah, no. 15, 185 p.
432. Schoellhamer, J. E., Kinney, D. M., Yerkes, R. F., and Vedder, J. G., 1954, Geologic map of the northern Santa Ana Mountains, Orange and Riverside Counties, California: U.S. Geological Survey Oil and Gas Investigations Map OM–154.
433. Scholl, D. W., 1960, Relationship of the insular shelf sediments to the sedimentary environments and geology of Anacapa Island, California: Journal of Sedimentary Petrology, v. 30, no. 1, p. 123–139.
434. Scott, D. H., and Trask, N. J., 1971, Geology of the Lunar Crater volcanic field, Nye County, Nevada: U.S. Geological Survey Professional Paper 599–I, 22 p.
435. Sharp, R. P., 1957, Geomorphology of the Cima Dome, Mojave Desert, California: Geological Society of America Bulletin, v. 68, no. 3, p. 273–290.
436. Shelton, J. S., 1955, Glendora volcanic rocks, Los Angeles Basin, California: Geological Society of America Bulletin, v. 66, no. 1, p. 45–90.
437. Sherlock, D. G., and Hamilton, Warren, 1958, Geology of the north half of the Mt. Abbot quadrangle, Sierra Nevada, California: Geological Society of America Bulletin, v. 69, no. 10, p. 1245–1268.
438. Silberling, N. J., and Wallace, R. E., 1967, Geologic map of the Imlay quadrangle, Pershing County, Nevada: U. S. Geological Survey Geologic Quadrangle Map GQ–666.
**439. Silberman, M. L., and Chesterman, C. W., 1972, K-Ar age of volcanism and mineralization, Bodie mining district and Bodie Hills volcanic field, Mono County, California: Isochron/West, no. 3, p. 13–22.
**440. Silberman, M. L., and McKee, E. H., 1972, A summary of radiometric age determinations on Tertiary volcanic rocks from Nevada and eastern California; Part II—Western Nevada: Isochron/West, no. 4, p. 7–28.
**441. Silberman, M. L., Bonham, H. F., Jr., Garside, L. J., and Osborne, D. H., 1975, New K-Ar ages of volcanic and plutonic rocks and ore deposits in western Nevada: Isochron/West, no. 13, p. 13–21.
**442. Silberman, M. L., and others, 1979, Duration of hydrothermal activity at Steamboat Springs, Nevada, from ages of spatially associated volcanic rocks: U.S. Geological Survey Professional Paper 458–D, 14 p.
**443. Sims, J. D., and White, D. E., 1978, Mercury in the sediments of Clear Lake; geological and environmental implications [Abs.]: Geological Society of America Abstracts with Programs, v. 10, no. 3, p. 146. [Radiocarbon date.]
444. Sims, J. D., Fox, K. F., Jr., Bartow, J. A., and Helley, E. J., 1973, Preliminary geologic map of Solano County and parts of Napa, Contra Costa, Marin, and Yolo Counties, California: U.S. Geological Survey Miscellaneous Field Studies Map MF–484.
445. Smith, A. R., 1964, Geologic map of California—Bakersfield sheet: California Division of Mines and Geology, scale 1:250,000.
446. Smith, G. I., 1964, Geology and volcanic petrology of the Lava Mountains, San Bernardino County, California: U.S. Geological Survey Professional Paper 457, 97 p.
447. Smith, J. F., Jr., and Howard, K. A., 1977, Geologic map of the Lee 15-minute quadrangle, Elko County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–1393.
448. Smith, J. F., Jr., and Ketner, K. B., 1972, Generalized geologic map of the Carlin, Dixie Flats, Pine Valley, and Robinson Mountain quadrangles, Elko and Eureka Counties, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF–481.
449. ——1976, Stratigraphy of post-Paleozoic rocks and summary of resources in the Carlin—Piñon Range area, Nevada: U.S. Geological Survey Professional Paper 867–B, 48 p.
450. ——1978, Geologic map of the Carlin—Piñon Range area, Elko and Eureka Counties, Nevada: U.S. Geological Survey Miscellaneous Investigations Series Map I–1028.
451. Smith, J. G., 1973, Geologic map of the Duffer Peak quadrangle, Humboldt County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–606.
452. Smith, W. S. T., 1897, The geology of Santa Catalina Island: California Academy of Science Proceedings, 3d ser., v. 1, no. 1, p. 1–71.
453. ——1898, A geological sketch of San Clemente Island: U.S. Geological Survey 18th Annual Report, pt. 2, p. 459–496.
454. Snyder, R. P., Ekren, E. B., and Dixon, G. L., 1972, Geologic map of the Lunar Crater quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–700.
455. Soliman, S. M., 1965, Geology of the east half of the Mount Hamilton quadrangle, California: California Division of Mines and Geology Bulletin 185, 32 p.
**456. Stern, T. W., Newell, M. F., and Hunt, C. B., 1966, Uranium-lead and potassium-argon ages of parts of the Amargosa thrust complex, Death Valley, California, *in* Geological Survey Research 1966, Chapter B: U.S. Geological Survey Professional Paper 550–B, p. B142–B147.
457. Stewart, J. H., and Carlson, J. E., 1974, Preliminary geologic map of Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF–609.
458. ——1978, Geologic map of Nevada: U.S. Geological Survey, scale 1:500,000.
459. Stewart, J. H., McKee, E. H., and Stager, H. K., 1977, Geology and mineral deposits of Lander County, Nevada: Nevada Bureau of Mines and Geology Bulletin 88, 106 p.
460. Stewart, J. H., Robinson, P. T., Albers, J. P., and Crowder, D. F., 1974, Geologic map of the Piper Peak quadrangle, Nevada-California: U.S. Geological Survey Geologic Quadrangle Map GQ–1186.
461. Stinson, M. C., 1977a, Geologic map and sections of the Haiwee Reservoir 15-minute quadrangle, Inyo County, California: California Division of Mines and Geology Map Sheet MS–37.
462. ——1977b, Geologic map and sections of the Keeler 15-minute quadrangle, Inyo County, California: California Division of Mines and Geology Map Sheet MS–38.
463. Strand, R. G., 1962a, Geologic map of California—Redding sheet: California Division of Mines and Geology, scale 1:250,000.
464. ——1962b, Geologic map of California—San Diego-El Centro sheet: California Division of Mines and Geology, scale 1:250,000.
465. ——1963, Geologic map of California—Weed sheet: California Division of Mines and Geology, scale 1:250,000.
466. ——1967, Geologic map of California—Mariposa sheet: California Division of Mines and Geology, scale 1:250,000.
467. Strand, R. G., and Koenig, J. B., 1965, Geologic map of California—Sacramento sheet: California Division of Mines and Geology, scale 1:250,000.
**468. Taddeucci, Adriano, Broecker, W. S., and Thurber, D. L., 1968, ^{230}Th dating of volcanic rocks: Earth and Planetary Science Letters, v. 3, no. 4, p. 338–342. [Radiometric ^{230}Th dates.]
469. Taff, J. A., 1935, Geology of Mount Diablo and vicinity: Geological Society of America Bulletin, v. 46, no. 7, p. 1079–1100.
470. Taliaferro, N. L., 1948, Geologic map of the Hollister quadrangle, California: California Division of Mines Bulletin 143.
471. Taliaferro, N. L., and Solari, A. J., 1948, Geology of the Copperopolis quadrangle, California: California Division of Mines Bulletin 145, (map, no text, scale 1:62,500).
472. Tatlock, D. B., 1969, Preliminary geologic map of Pershing County, Nevada: U.S. Geological Survey Open-File Report.
473. Thomasson, H. G., Jr., Olmsted, F. H., and LeRoux, E. F., 1960, Geology, water resources, and usable ground-water storage capacity of part of Solano County, California: U.S. Geological Survey Water-Supply Paper 1464, 693 p.
474. Thompson, G. A., 1956, Geology of the Virginia City quadrangle, Nevada: U.S. Geological Survey Bulletin 1042–C, p. 45–77.
475. Thompson, G. A., and White, D. E., 1964, Regional geology of the Steamboat Springs area, Washoe County, Nevada: U.S. Geological Survey Professional Paper 458–A, 52 p.
476. Travis, R. B., 1952, Geology of the Sebastopol quadrangle, California: California Division of Mines Bulletin 162, 33 p.
477. Tschanz, C. M., and Pampeyan, E. H., 1970, Geology and mineral deposits of Lincoln County, Nevada: Nevada Bureau of Mines and Geology Bulletin 73, 187 p.
**478. Turner, D. L., 1970, Potassium-argon dating of Pacific coast Miocene foraminiferal stages, *in* Bandy, O. L., ed., Radiometric dating and paleontologic zonation: Geological Society of America Special Paper 124, p. 91–129.
479. Turner, H. W., 1894, Description of the Jackson sheet [California]: U.S. Geological Survey Geologic Atlas, Folio no. 11, 4 p.
480. ——1897, Description of the Downieville quadrangle [California]: U.S. Geological Survey Atlas, Folio no. 37, 6 p.
481. ——1898, Description of the Bidwell Bar quadrangle [California]: U.S. Geological Survey Geologic Atlas, Folio no. 43, 6 p.
482. Turner, H. W., and Ransome, F. L., 1897, Description of the Sonora quadrangle [California]: U.S. Geological Survey Geologic Atlas, Folio no. 41, 5 p.
483. ——1898, Description of the Big Trees quadrangle [California]: U.S. Geological Survey Geologic Atlas, Folio no. 51, 6 p.
484. Vedder, J. G., 1970, Geologic map of the Wells Ranch and Elkhorn Hills quadrangles, San Luis Obispo and Kern Counties, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I–585.
485. Vedder, J. G., and Repenning, C. A., 1965, Geologic map of the southeastern Caliente Range, San Luis Obispo County, California: U.S. Geological Survey Oil and Gas Investigations Map OM–217.
486. Vedder, J. G., Yerkes, R. F., and Schoellhamar, J. E., 1957, Geologic map of the San Joaquin Hills—San Juan Capistrano area, Orange County, California: U.S. Geological Survey Oil and Gas Investigations Map OM–193.
487. Vitaliano, C. J., 1963, Cenozoic geology and sections of the Ione quadrangle, Nye County, Nevada: U.S. Geological Survey Mineral Investigations Field Studies Map MF–255.
488. Vitaliano, C. J., and Callaghan, Eugene, 1963, Geology of the Paradise Peak quadrangle, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–250.
*489. Volborth, Alexis, 1973, Geology of the granite complex of the Eldorado, Newberry, and northern Dead Mountains, Clark County, Nevada: Nevada Bureau of Mines and Geology Bulletin 80, 40 p. [Radiometric and fission track dates.]
490. Wallace, R. E., Silberling, N. J., Irwin, W. P., and Tatlock, D. B., 1969, Geologic map of the Buffalo Mountain quadrangle, Pershing and Churchill Counties, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–821.
491. Wallace, R. E., Tatlock, D. B., Silberling, N. J., and Irwin, W. P., 1969, Geologic map of the Unionville quadrangle, Pershing County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ–820.
492. Weaver, C. E., 1949, Geology of the Coast Ranges immediately north of the San Francisco Bay region, California: Geological Society of America Memoir 35, 242 p.
493. Webb, R. W., 1946, Geomorphology of the middle Kern River basin, southern Sierra Nevada, California: Geological Society of America Bulletin, v. 57, no. 4, p. 355–382.
494. ——1950, Volcanic geology of Toowa Valley, southern Sierra Nevada, California: Geological Society of America Bulletin, v. 61, no. 4, p. 349–357.
495. Weber, F. H., Jr., 1963, Geology and mineral deposits of the Ord Mountain district, San Bernardino County, California: California Division of Mines and Geology Special Report 77, 45 p.
**496. Wells, J. D., and Silberman, M. L., 1973, K-Ar age of mineralization at Buckhorn, Eureka County, Nevada: Isochron/West, no. 8, p. 37–38.
**497. Wells, J. D., Elliott, J. E., and Obradovich, J. D., 1971, Age of the igneous rocks associated with ore deposits, Cortez-Buckhorn area, Nevada, *in* Geological Survey Research 1971: U.S. Geological Survey Professional Paper 750, p. C127–C135.
498. Willden, Ronald, 1963, General Geology of the Jackson Mountains, Humboldt County, Nevada: U.S. Geological Survey Bulletin 1141–D, 65 p.
499. ——1964, Geology and mineral deposits of Humboldt County, Nevada: Nevada Bureau of Mines Bulletin 59, 154 p.
500. Willden, Ronald, and Speed, R. C., 1974, Geology and mineral deposits of Churchill County, Nevada: Nevada Bureau of Mines and Geology Bulletin 83, 95 p.
501. Williams, Howel, 1928, A Recent volcanic eruption near Lassen Peak, California: University of California Publications, Department of Geological Sciences Bulletin, v. 17, no. 7, p. 241–263.
502. ——1929, Geology of the Marysville Buttes, California: University of California Publications, Department of Geological Sciences Bulletin, v. 18, no. 5, p. 103–220.
503. ——1932a, Geology of the Lassen Volcanic National Park, California: University of California Publications, Department of Geological Sciences Bulletin, v. 21, no. 8, p. 195–385.
504. ——1932b, Mount Shasta, a Cascade volcano: Journal of Geology, v. 40, no. 5, p. 417–429.
505. ——1934, Mount Shasta, California: Zeitschrift fur Vulkanologie, v. 15, no. 4, p. 225–253.
506. ——1949, Geology of the Macdoel quadrangle, [California]: California Division of Mines Bulletin 151, p. 7–60.
*507. Williams, Howel, and Curtis, G. H., 1977, The Sutter Buttes of California; A study of Plio-Pleistocene volcanism: University of California Publications in Geological Sciences, v. 116, 57 p.
*508. Wilshire, H. G., and Trask, N. J., 1971, Structural and textural relationships of amphibole and phlogopite in peridotite inclusions, Dish Hill, California: American Mineralogist, v. 56, no. 1, p. 240–255. [Fission-track dates.]
**509. Wilshire, H. G., Schwarzman, E. C., and Trask, N. J., (n.d.), Distribution of ultramafic xenoliths at 12 North American sites: U.S. Geological Survey Interagency Report, Astrogeology no. 42, 87 p. [Fission-track date.]
**510. Wilshire, H. G., Pike, J. E., Nielsen, Meyer, C. E., and Schwarzman, E. C., 1980, Amphibole-rich veins in lherzolite xenoliths, Dish Hill and Deadman Lake, California: American Journal of Science, v. 280–B, p. 576–593.
511. Wilson, I. F., 1943, Geology of the San Benito quadrangle, California: California Journal of Mines and Geology, v. 39, no. 2, p. 183–270.
512. Wise, W. S., 1966, Zeolitic basanite from southeastern California *in* IAV International Symposium on Volcanology, New Zealand, 1965: Bulletin Volcanologique, v. 29, p. 235–250.
513. ——1969, Origin of basaltic magmas in the Mohave Desert area, California: Contributions to Mineralogy and Petrology, v. 23, no. 1, p. 53–64.
**514. Wood, S. H., 1977, Distribution, correlation, and radiocarbon dating of late Holocene tephra, Mono and Inyo craters, eastern California: Geological Society of America Bulletin, v. 88, no. 1, p. 89–95. [Radiocarbon dates.]
515. Yates, R. G., and Hilpert, L. S., 1945, Quicksilver deposits of central San Benito and northwestern Fresno Counties, California: California Journal of Mines and Geology, v. 41, no. 1, p. 11–35.
516. ——1946, Quicksilver deposits of eastern Mayacmas district, Lake and Napa Counties, California: California Journal of Mines and Geology, v. 42, no. 3, p. 231–286.

*Geologic and geochronologic data
**Geochronologic data only (not shown on fig. 2)

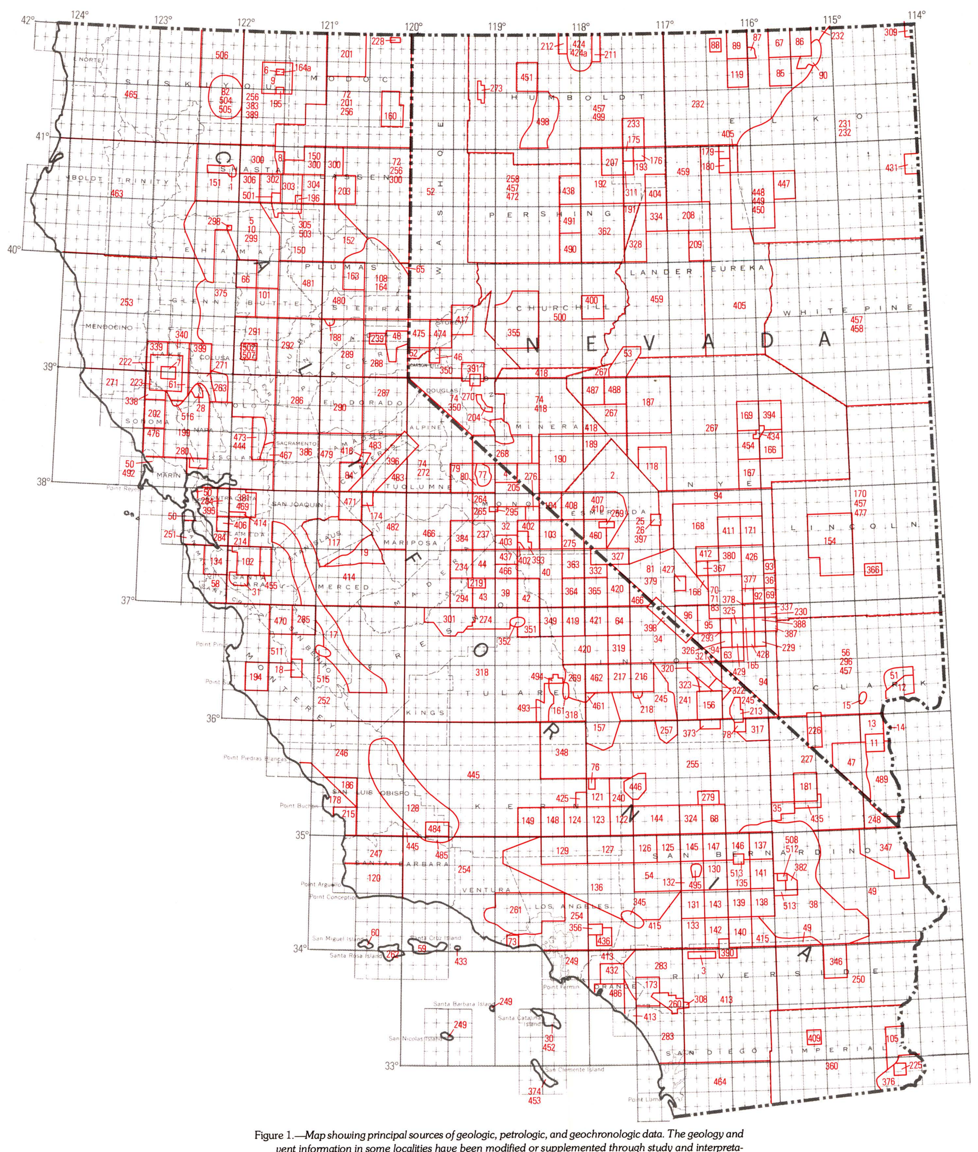
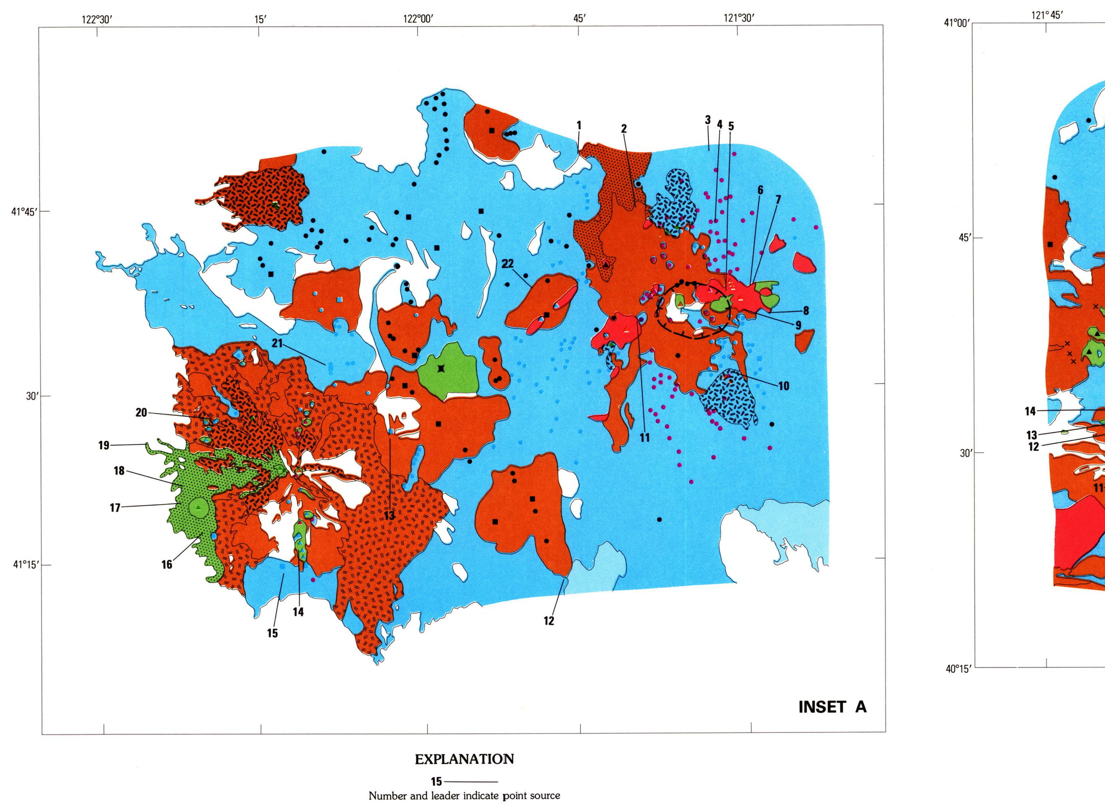


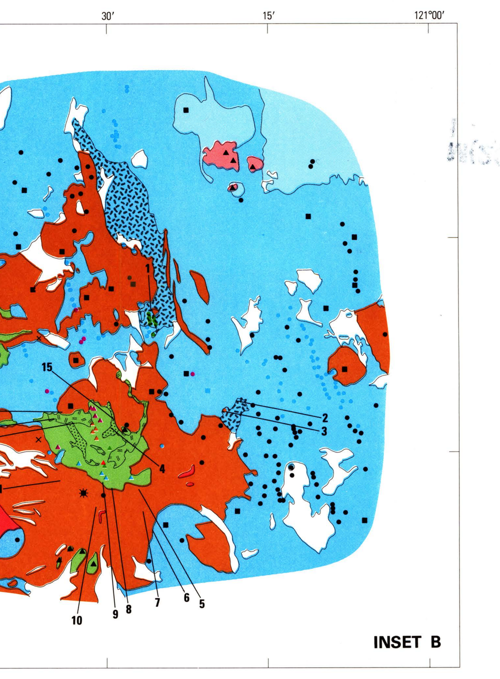
Figure 1.—*Map showing principal sources of geologic, petrologic, and geochronologic data. The geology and vent information in some localities have been modified or supplemented through study and interpretation of topographic maps and aerial photographs. Where applicable, an original source is used and indicated, although it might have been in part superseded or incorporated in a more recent source.*



EXPLANATION

15—— Number and leader indicate point source

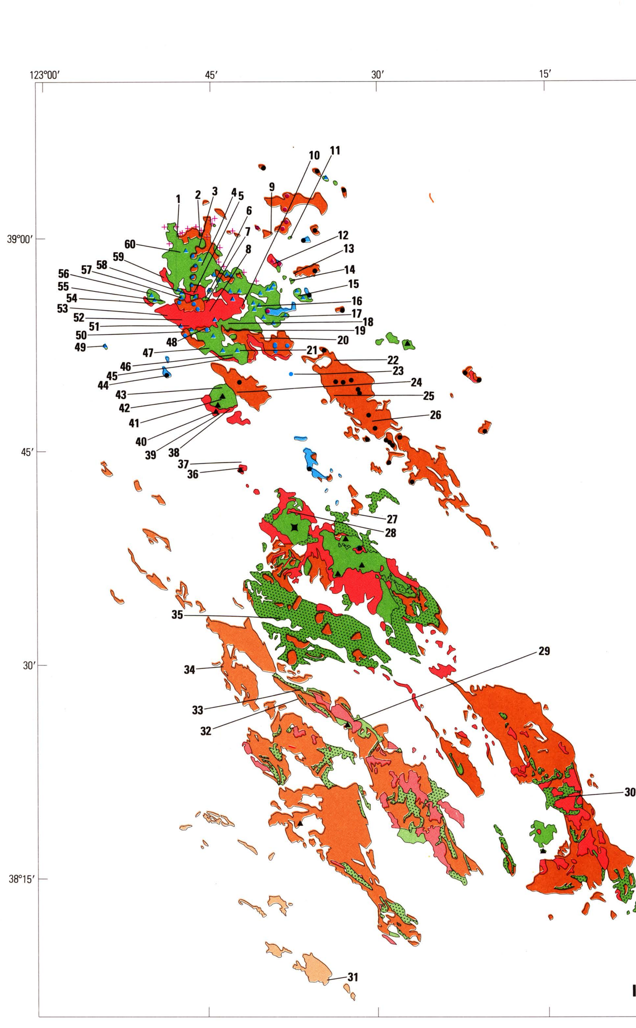
1, 1.22±0.07(297)
2, 0.07±0.04(342)
3, 1.02±0.55(342)
4, <0.15(62)
5, 90±200B.P.(242); 380±200B.P.(242)
6, 1360±240B.P.(75)
7, 190±200B.P.(242)
8, 970±200B.P.(242)
9, 130±200B.P.(242); 390±200B.P.(242)
10, 200±200B.P.(243); 220±200B.P.(243); 320±200B.P.(243); 200±200B.P.(243)
11, 1065±90B.P.(224a)
12, 2.15±0.13(297)
13, 0.247±0.040(82)
14, 0.240±0.100(82)
15, 0.469±0.050(82)
16, 9500±350B.P.(343)
17, 9230±300B.P.(344)
18, 9360±300B.P.(343)
19, 9360±300B.P.(343)
20, 0.340±0.060(82)
21, 0.30±0.09(82)
22, 0.52±0.21(62)



EXPLANATION

11—— Number and leader indicate point source

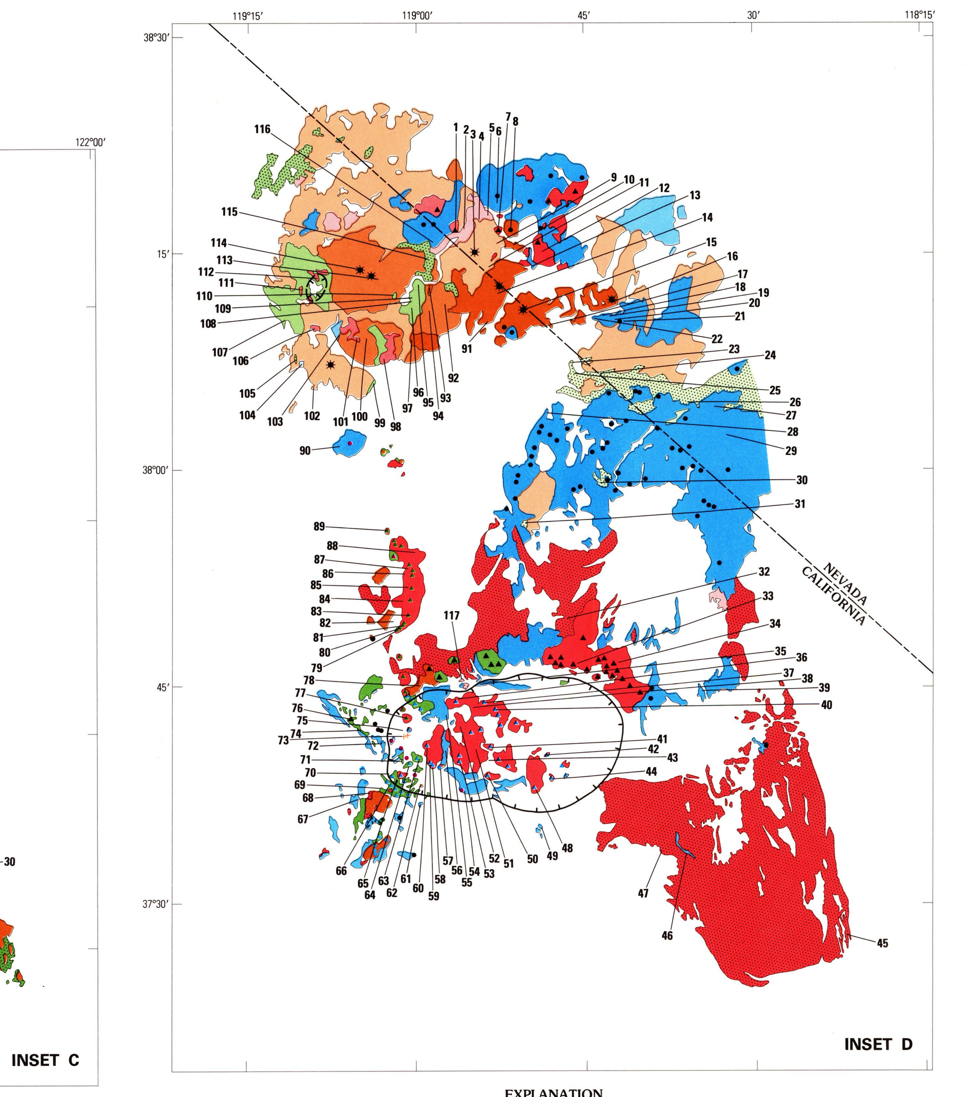
1, ~2000B.P.(8)
2, 510±160B.P.(423)
3, 1850–51A.D.(220)
4, 1010±250B.P.(100)
5, 0.233±0.008(55)
6, <0.230(55)
7, 0.477±0.014(55)
8, 0.20±0.10(55)
9, 0.248±0.012(55); 0.703±0.030(55)
10, 0.472±0.009(55)
11, 0.591±0.013(55)
12, 1120±300B.P.(100); 1230±300B.P.(100)
13, >32,000B.P.(99)
14, >263<275B.P.(224)
15, 1320±200B.P.(423)



EXPLANATION

31—— Number and leader indicate point source

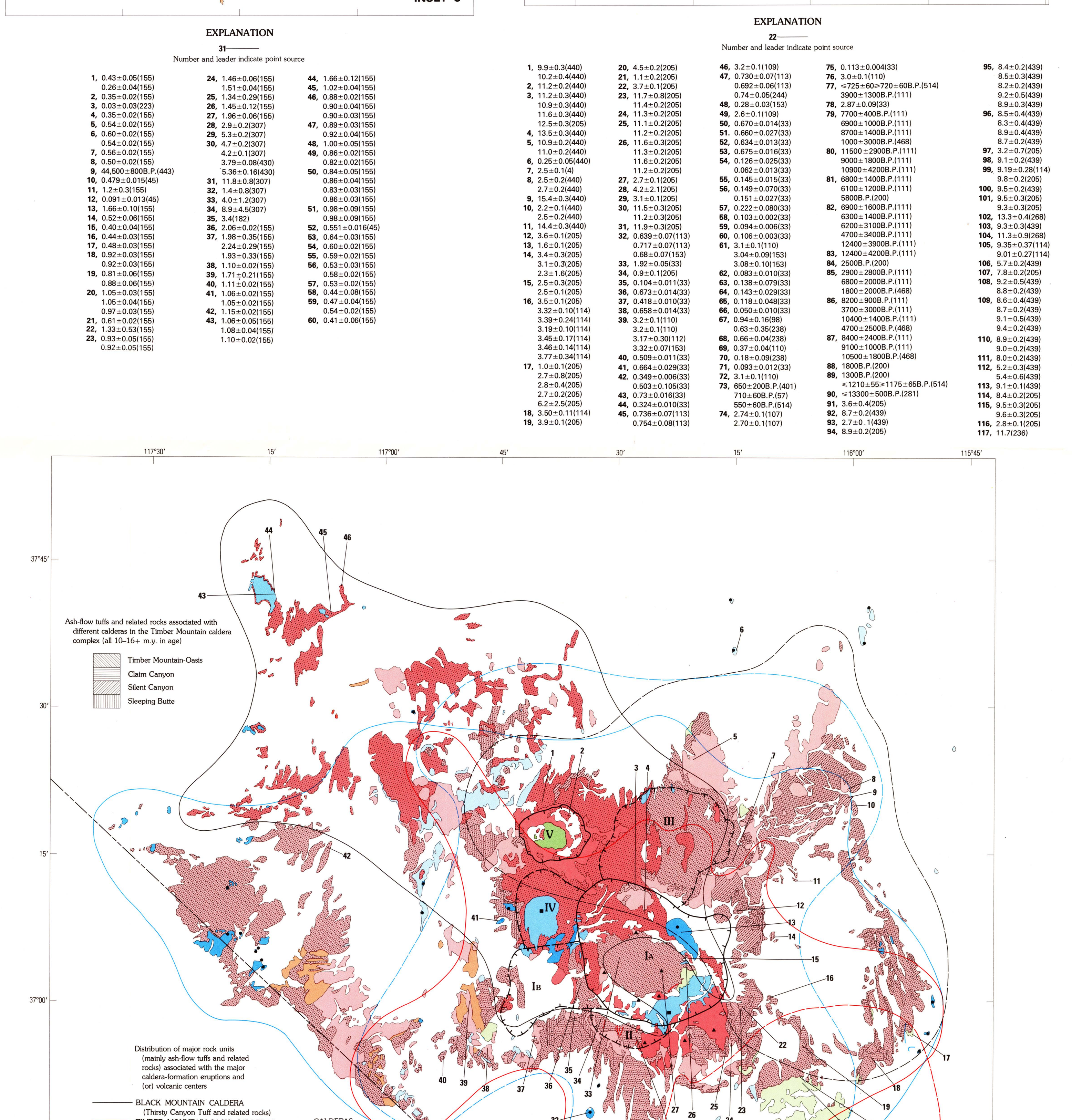
1, 0.43±0.05(155); 0.26±0.04(155)
2, 0.35±0.02(155)
3, 0.03±0.03(223)
4, 0.35±0.02(155)
5, 0.54±0.02(155)
6, 0.60±0.02(155); 0.54±0.02(155)
7, 0.56±0.02(155)
8, 0.50±0.02(155)
9, 44,500±800B.P.(443)
10, 0.479±0.015(45)
11, 1.2±0.3(155)
12, 0.091±0.013(45)
13, 1.66±0.10(155)
14, 0.52±0.06(155)
15, 0.40±0.04(155)
16, 0.44±0.03(155)
17, 0.48±0.03(155)
18, 0.92±0.03(155); 0.92±0.03(155)
19, 0.81±0.06(155); 0.88±0.06(155)
20, 1.05±0.03(155); 1.05±0.04(155); 0.97±0.03(155)
21, 0.61±0.02(155)
22, 1.33±0.53(155)
23, 0.93±0.05(155); 0.92±0.05(155)
24, 1.46±0.06(155); 1.51±0.04(155)
25, 1.34±0.29(155)
26, 1.45±0.12(155)
27, 1.96±0.06(155)
28, 2.9±0.2(307)
29, 5.3±0.2(307)
30, 4.7±0.2(307); 4.2±0.1(307); 3.79±0.08(430); 5.36±0.16(430)
31, 11.8±0.8(307)
32, 1.4±0.8(307)
33, 4.0±1.2(307)
34, 8.9±4.5(307)
35, 3.4(182)
36, 2.06±0.02(155)
37, 1.98±0.35(155); 2.24±0.29(155); 1.93±0.33(155)
38, 1.10±0.02(155)
39, 1.71±0.21(155)
40, 1.11±0.02(155)
41, 1.06±0.02(155); 1.05±0.02(155)
42, 1.15±0.02(155)
43, 1.06±0.05(155); 1.08±0.04(155); 1.10±0.02(155)
44, 1.66±0.12(155)
45, 1.02±0.04(155)
46, 0.88±0.02(155); 0.90±0.04(155); 0.90±0.03(155)
47, 0.89±0.03(155); 0.92±0.04(155)
48, 1.00±0.05(155)
49, 0.86±0.02(155); 0.82±0.02(155)
50, 0.84±0.05(155); 0.86±0.04(155); 0.83±0.03(155); 0.86±0.03(155)
51, 0.98±0.09(155); 0.98±0.09(155)
52, 0.551±0.016(45)
53, 0.64±0.03(155)
54, 0.60±0.02(155)
55, 0.59±0.02(155)
56, 0.53±0.03(155); 0.58±0.02(155)
57, 0.53±0.02(155)
58, 0.44±0.08(155)
59, 0.47±0.04(155); 0.54±0.02(155)
60, 0.41±0.06(155)



EXPLANATION

22—— Number and leader indicate point source

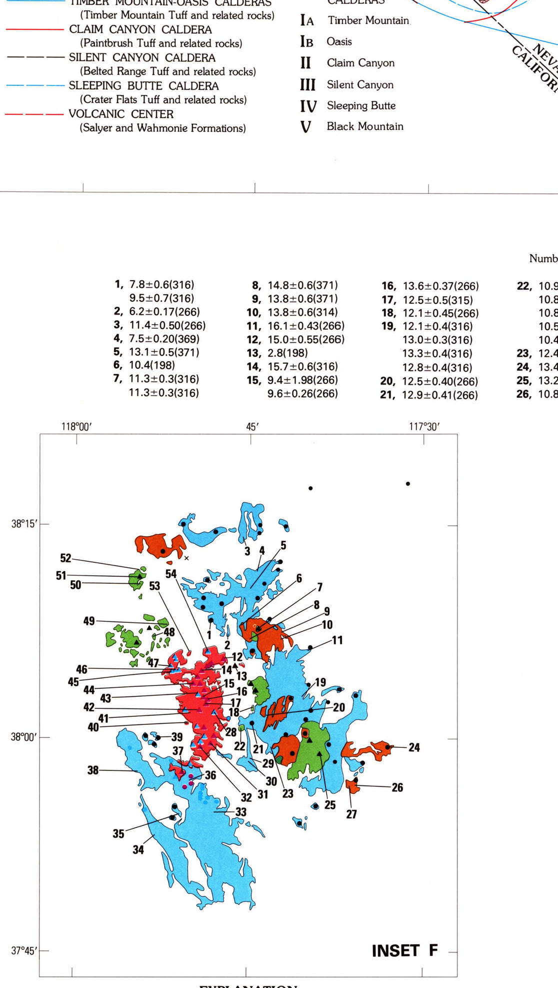
1, 9.9±0.3(440); 10.2±0.4(440)
2, 11.2±0.2(440)
3, 11.2±0.3(440); 10.9±0.3(440); 11.6±0.3(440); 12.5±0.3(205)
4, 13.5±0.3(440)
5, 10.9±0.2(440); 11.0±0.2(440)
6, 0.25±0.05(440)
7, 2.5±0.1(4)
8, 2.5±0.2(440); 2.7±0.2(440)
9, 15.4±0.3(440)
10, 2.2±0.1(440); 2.5±0.2(440)
11, 14.4±0.3(440)
12, 3.6±0.1(205)
13, 1.6±0.1(205)
14, 3.4±0.3(205); 3.1±0.3(205); 2.3±1.6(205)
15, 2.5±0.3(205); 2.5±0.1(205)
16, 3.5±0.1(205); 3.32±0.10(114); 3.39±0.24(114); 3.19±0.10(114); 3.45±0.17(114); 3.46±0.14(114); 3.77±0.34(114)
17, 1.0±0.1(205); 2.7±0.8(205); 2.8±0.4(205); 2.7±0.2(205); 6.2±2.5(205)
18, 3.50±0.11(114)
19, 3.9±0.1(205)
20, 4.5±0.2(205)
21, 1.1±0.2(205)
22, 3.7±0.1(205)
23, 11.7±0.8(205); 11.4±0.2(205)
24, 11.3±0.2(205)
25, 11.1±0.2(205); 11.2±0.2(205)
26, 11.6±0.3(205); 11.3±0.2(205); 11.6±0.2(205); 11.2±0.2(205)
27, 2.7±0.1(205)
28, 4.2±2.1(205)
29, 3.1±0.1(205)
30, 11.5±0.3(205); 11.2±0.3(205)
31, 11.9±0.3(205)
32, 0.639±0.07(113); 0.717±0.07(113); 0.68±0.07(153)
33, 1.92±0.05(33)
34, 0.9±0.1(205)
35, 0.104±0.011(33)
36, 0.673±0.014(33)
37, 0.418±0.010(33)
38, 0.658±0.014(33)
39, 3.2±0.1(110); 3.2±0.1(110); 3.17±0.30(112); 3.32±0.07(153)
40, 0.509±0.011(33)
41, 0.664±0.029(33)
42, 0.349±0.006(33); 0.503±0.105(33)
43, 0.73±0.016(33)
44, 0.324±0.010(33)
45, 0.736±0.07(113); 0.754±0.08(113)
46, 3.2±0.1(109)
47, 0.730±0.07(113); 0.692±0.06(113); 0.74±0.05(244)
48, 0.28±0.03(153)
49, 2.6±0.1(109)
50, 0.670±0.014(33)
51, 0.660±0.027(33)
52, 0.634±0.013(33)
53, 0.675±0.016(33)
54, 0.126±0.025(33); 0.062±0.013(33)
55, 0.145±0.015(33)
56, 0.149±0.070(33); 0.151±0.027(33)
57, 0.222±0.080(33)
58, 0.103±0.002(33)
59, 0.094±0.006(33)
60, 0.106±0.003(33)
61, 3.1±0.1(110); 3.04±0.09(153); 3.08±0.10(153)
62, 0.083±0.010(33)
63, 0.138±0.079(33)
64, 0.143±0.029(33)
65, 0.118±0.048(33)
66, 0.050±0.010(33)
67, 0.94±0.16(98); 0.63±0.35(238)
68, 0.66±0.04(238)
69, 0.37±0.04(110)
70, 0.18±0.09(238)
71, 0.093±0.012(33)
72, 3.1±0.1(110)
73, 650±200B.P.(401); 710±60B.P.(57); 550±60B.P.(514)
74, 2.74±0.1(107); 2.70±0.1(107)
75, 0.113±0.004(33)
76, 3.0±0.1(110)
77, ≤725±60≥720±60B.P.(514); 3900±1300B.P.(111)
78, 2.87±0.09(33)
79, 7700±400B.P.(111); 6900±1000B.P.(111); 8700±1400B.P.(111); 1000±3000B.P.(468)
80, 11500±2900B.P.(111); 9000±1800B.P.(111); 10900±4200B.P.(111)
81, 6800±1400B.P.(111); 6100±1200B.P.(111); 5800B.P.(200)
82, 6900±1600B.P.(111); 6300±1400B.P.(111); 6200±3100B.P.(111); 4700±3400B.P.(111); 12400±3900B.P.(111)
83, 12400±4200B.P.(111)
84, 2500B.P.(200)
85, 2900±2800B.P.(111); 6800±2000B.P.(111); 1800±2000B.P.(468)
86, 8200±900B.P.(111); 3700±3000B.P.(111); 10400±1400B.P.(111); 4700±2500B.P.(468)
87, 8400±2400B.P.(111); 9100±1000B.P.(111); 10500±1800B.P.(468)
88, 1800B.P.(200)
89, 1300B.P.(200); ≤1210±55≥1175±65B.P.(514)
90, ≤13300±500B.P.(281)
91, 3.6±0.4(205)
92, 8.7±0.2(439)
93, 2.7±0.1(439)
94, 8.9±0.2(205)
95, 8.4±0.2(439); 8.5±0.3(439); 8.2±0.2(439); 9.2±0.5(439); 8.9±0.3(439)
96, 8.5±0.4(439); 8.3±0.4(439); 8.9±0.4(439); 8.7±0.2(439)
97, 3.2±0.7(205)
98, 9.1±0.2(439)
99, 9.19±0.28(114); 9.8±0.2(205)
100, 9.5±0.2(205)
101, 9.5±0.3(205); 9.3±0.3(205)
102, 13.3±0.4(268)
103, 9.3±0.3(439)
104, 11.3±0.9(268)
105, 9.35±0.37(114); 9.01±0.27(114)
106, 5.7±0.2(439)
107, 7.8±0.2(205)
108, 9.2±0.5(439); 8.8±0.2(439)
109, 8.6±0.4(439); 8.7±0.2(439); 9.1±0.5(439); 9.4±0.2(439)
110, 8.9±0.2(439); 9.0±0.2(439)
111, 8.0±0.2(439)
112, 5.2±0.3(439); 5.4±0.6(439)
113, 9.1±0.1(439)
114, 8.4±0.2(205)
115, 9.5±0.3(205); 9.6±0.3(205)
116, 2.8±0.1(205)
117, 11.7(236)



EXPLANATION

30—— Number and leader indicate point source

1, 7.8±0.6(316); 9.5±0.7(316)
2, 6.2±0.17(266)
3, 11.4±0.50(266)
4, 7.5±0.20(369)
5, 13.1±0.5(371)
6, 10.4(198)
7, 11.3±0.3(316); 11.3±0.3(316)
8, 14.8±0.6(371)
9, 13.8±0.6(371)
10, 13.8±0.6(314)
11, 16.1±0.43(266)
12, 15.0±0.55(266)
13, 2.8(198)
14, 15.7±0.6(316)
15, 9.4±1.98(266); 9.6±0.26(266)
16, 13.6±0.37(266)
17, 12.5±0.5(315)
18, 12.1±0.45(266)
19, 12.1±0.4(316); 13.0±0.3(316); 13.3±0.4(316); 12.8±0.4(316)
20, 12.5±0.40(266)
21, 12.9±0.41(266)
22, 10.9±0.35(266); 10.8±0.29(266); 10.8±0.51(266); 10.5±0.28(266); 10.4±0.27(266)
23, 12.4±0.46(266)
24, 13.4±0.43(266)
25, 13.2±0.42(266)
26, 10.8±0.45(266); 10.9±0.45(266); 10.6±0.34(266); 10.9±0.35(266)
27, 11.7±0.43(266); 11.1±0.30(266); 11.4±0.31(266)
28, 12.7±0.6(316); 12.5±0.6(316)
29, 0.25(198); 2.0±0.6(313)
30, 13.8±0.4(316); 14.1±0.4(316); 13.1±0.4(316); 12.9±0.4(316)
31, 1.2(198)
32, 1.4(198); 1.2(198)
33, 11.1±0.30(266)
34, 12.6±1.1(316); 11.3±1.1(316)
35, 11.0±0.40(266); 11.2±0.30(266)
36, 11.2±0.49(266)
37, 11.3±0.36(266)
38, 11.1±0.4(312)
39, 12.5±0.4(313)
40, 12.4±0.40(266)
41, 0.45(198)
42, 11.3±3.3(314)
43, 7.6±1.7(23); 8.0±2.0(23); 6.8±1.5(23); 8.7±1.5(23)
44, 6.7±0.10(23); 6.8±0.14(23)
45, 7.1±0.5(23)
46, 7.3±0.5(314)



EXPLANATION

43—— Number and leader indicate point source

1, 4.23±0.13(162); 5.91±0.18(162); 3.53±0.17(162)
2, 3.32±0.10(282)
3, 3.56±0.10(162)
4, 3.64±0.11(162)
5, 3.60±0.08(162)
6, 3.54±0.08(162)
7, 3.33±0.20(162)
8, 3.66±0.08(162)
9, 4.31±0.27(162); 4.15±0.21(162); 3.37±0.07(162)
10, 3.50±0.19(162)
11, 3.46±0.07(162)
12, 0.072±0.031(282)
13, 1.04±0.02(162)
14, 0.101±0.033(282)
15, 0.057±0.016(282)
16, 0.090(162)
17, 0.099±0.072(282)
18, 3.31±0.42(162); 2.95±0.13(162)
19, 2.98±0.12(162)
20, 3.10±0.22(162)
21, 3.67±0.16(162)
22, 3.42±0.10(162); 2.20±0.70(162)
23, 3.64±0.08(162)
24, 1.75±0.10(162)
25, 3.66±0.07(162); 3.39±0.06(162)
26, 8.33±0.98(162)
27, 4.02±0.06(162)
28, 0.587±0.018(162)
29, 0.234±0.022(162)
30, 1.07±0.14(162)
31, 0.088±0.038(282)
32, 0.090±0.025(282)
33, 0.188±0.035(162)
34, 0.399±0.045(162); 0.486±0.108(162)
35, 1.07±0.12(162)
36, 0.039±0.033(282)
37, 0.081±0.008(282)
38, 0.140±0.089(162)
39, 2.06±0.34(162)
40, 1.08±0.06(162)
41, 0.16(162)
42, 0.044±0.022(282)
43, 0.293±0.035(282)
44, 0.093±0.026(282)
45, 0.244±0.028(282)
46, 0.235(162)
47, 0.30(162); 0.96±0.19(282)
48, 2.54±0.05(162)
49, 2.51±0.05(162)
50, 5.50±0.08(162); 6.79±0.23(162)
51, 3.75±0.32(162); 3.09±0.09(162)
52, 2.0(185)
53, 2.46±0.98(162); 3.04±0.20(162)
54, 0.56±0.24(282)

EXPLANATION

ROCK TYPE (silica range) / AGE (m.y.)	Basalt (46–54 percent)	Andesite (54–62 percent)	Dacite and related rocks (62–70 percent)	Rhyolite (>70 percent)
0–5				
5–10				
10–16+				

Ash-flow tuff—Rock type and age indicated by color

Dominantly volcaniclastic flows—Rock type and age indicated by color

Basic lava flow 0.01 m.y. in age (table 8, U.S.G.S. Circular 726)

Dike, sill—Rock type indicated by color

Caldera

14.1(330) Radiometric age in m.y.—Number in parentheses indicates data source. All data are radiometric (K-Ar) determinations unless otherwise noted (B. P., B. C., A. D.)

VENT TYPE / AGE (m.y.)	>1.0	1.0–0.1	0.1–0.01	0.01–0.001	0.001–0.0001	<0.0001
Cone, cinder, etc.	•	•	•	•	•	
Dome	▲	▲	▲	▲	▲	▲
Shield	■	■		■		
Stratovolcano	✸					
Maar	+		+		+	
Dome cluster	✱					
Volcanic neck	×					

Note—Potassium-argon ages shown are from original sources and are not recalculated using decay constants and isotopic abundance adopted by the International Union of Geological Sciences on Geochronology August 24, 1976

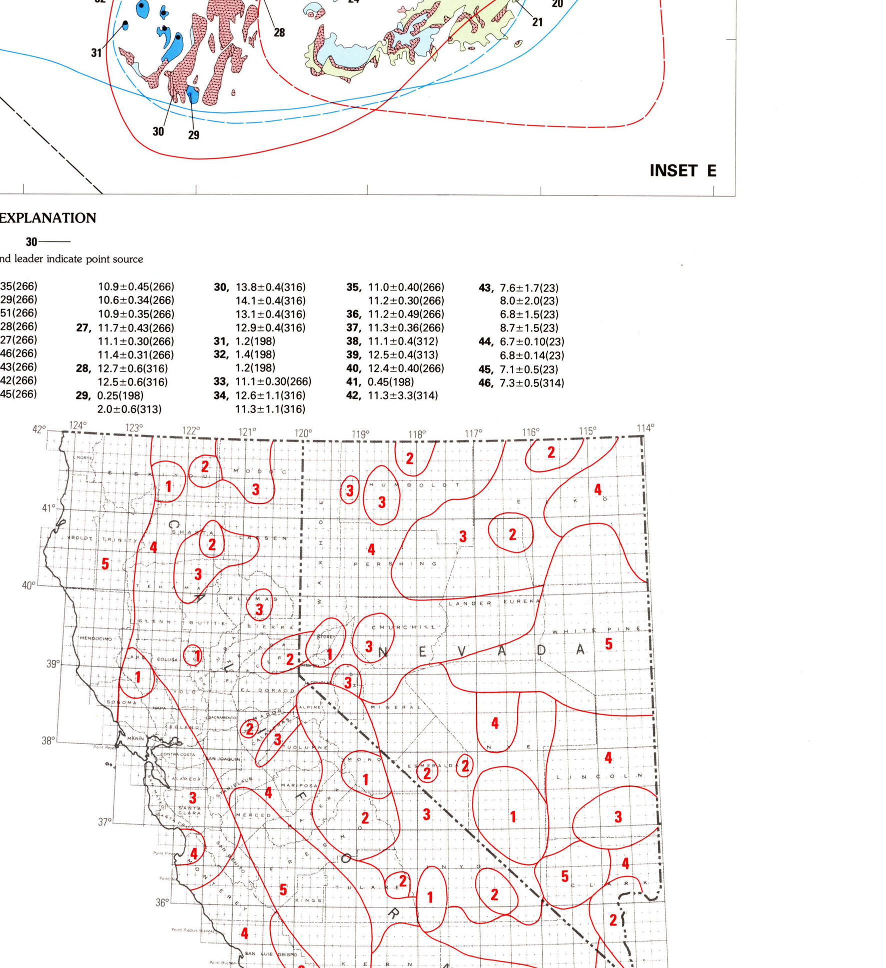


Figure 2.—*Data reliability map for volcanic fields within the map area. Area rank is based on the availability of (a) detailed geologic maps, (b) detailed chemical and/or petrographic data, and (c) adequate geochronologic data. RANK 1—Must satisfy all above criteria. RANK 2—Must satisfy 2 of above criteria. RANK 3—Must satisfy 1 of above criteria. RANK 4—Little or no adequate data. RANK 5—Not applicable.*
This classification is in part subjective; greatest weight is placed upon geologic maps; rock chemistry and (or) geochronologic data without detailed geologic relations and locations have minimal value. It cannot be overemphasized that a prime purpose for this reliability diagram is to point out those areas where geologic information is needed. Regardless of area rank, data gaps exist in all areas.

INTERIOR—GEOLOGICAL SURVEY, RESTON, VA.—1981—G80111

SCALE 1:500 000
10 0 10 20 30 40 50 MILES
10 0 10 20 30 40 50 KILOMETERS

MAP SHOWING DISTRIBUTION, COMPOSITION, AND AGE OF LATE CENOZOIC VOLCANIC CENTERS IN CALIFORNIA AND NEVADA

By
Robert G. Luedke and Robert L. Smith

1981

U. S. GEOLOGICAL SURVEY RESTON, VA.
LIBRARY
M(200)
I-1091C
SHEET 2
c1
USGS LIBRARY - RESTON
3 1818 00085447 9