(Sheet two of explanation to accompany geologic map of Lander County, Nevada by John H. Stewart and Edwin H. McKee)

U.S. GEOLOGICAL SURVEY
OPEN FILE MAP

JURASSIC TO TERTIARY

TJg

Granitic rocks
mostly quartz monzonite and granodiorite

JURASSIC

Jg

Granitic rocks
mostly quartz monzoni

TRIASSIC

Upper Triassic

Ro

Osobb Formation
Quartz sandstone, minor amounts of limestone, shale, and conglomerate

Rcs

Crane Spring Formation
Thick bedded to massive limestone and dolomite, sparse shale and conglomerate

Middle Triassic

Ra

Augusta Mountain Formation
Massive limestone, sparse dolomite, shale, and conglomerate. Limestone is generally bioclastic.

Ru

Limestone conglomerate and sparse shale in Toiyabe Range. Temporal equivalent of Augusta Mountain Formation

Rpc

Panther Canyon Formation
Impure dolomite and limestone, interbedded shale, sandstone and conglomerate. Present only in northern part of Fish Creek Mountains

Lower and Middle(?) Triassic

Rf

Favret Formation
Thin bedded limestone, interbedded calcareous shale and siltstone.

Rcg

Massive conglomerate, purple siltstone and tuff in lower part

Rc

China Mountain(?) Formation
Conglomerate, limy sandstone, sandstone, mudstone, and siltstone. Present only in Mt. Lewis area of Shoshone Range.

UNCONFORMITY

PENNSYLVANIAN AND PERMIAN

ABOVE GOLCONDA TRUST

PIPu | PIPh | IPp

Havallah sequence
PIPh, Havallah Formation, shale, sandstone (or quartzite), chert, limestone, and conglomerate
IPp, Pumpernickel Formation, chert and siltstone, sparse greenstone flows and pyroclastics.
PIPu, Undifferentiated Pumpernickel and Havallah Formations.

BELOW GOLCONDA THRUST

PIPa

Antler sequence
Consists, from bottom to top, of 1) Battle Formation, conglomerate, minor sandstone, shale, and limestone 2) Antler Peak Limestone limestone and shaly limestone and 3) Edna Mountain Formation, calcareous sandstone with conglomerate and limestone.

UNCONFORMITY

ABOVE ROBERTS MOUNTAINS THRUST

DEVONIAN

Ds

Slaven Chert
Dark gray to black chert, sparse siltstone

THRUST

SILURIAN

Se

Elder Sandstone
Feldspathic sandstone and minor amounts of thin bedded chert and shale

THRUST

ORDOVICIAN

Ov

Valmy Formation
Dark gray, black, green, and red chert, vitreous quartzite, and subordinate greenstone, pillow lavas, and shale.

Ovi

Vinini Formation
Chert and shale, sparse limestone, quartzite, and greenstone.

THRUST

CAMBRIAN

Middle and Upper Cambrian

Eh

Harmony Formation
Micaceous sandstone, arkose, shale, and subordinate calcareous shale and limestone.

THRUST

Lower Cambrian

Esc

Scott Canyon Formation
Chert, shale, and argillite, subordinate greenstone flows, pillow lavas, and pyroclastics.

BELOW ROBERTS MOUNTAINS THRUST

Dl

Thick bedded to massive limestone, subordinate silty limestone. Consists of Wenban Limestone north of 40th Parallel and of unnamed limestone in Toiyabe Range south of Austin.

Srm

Roberts Mountains Formation
Platy silty limestone and limy siltstone. Black chert locally at base.

Ol

Limestone and subordinate shale dolomite, and quartzite. Consists of the Eureka Quartzite and Hanson Creek Formation north of 40th Parallel, and of the Goodwin Limestone, Ninemile Formation, Antelope Valley Limestone, and strata equivalent to the Copenhagen and (or) Hanson Creek Formation south of 40th Parallel.

BELOW EASTSIDE THRUST IN TOIYABE RANGE

Srm

Roberts Mountains Formation
Platy silty limestone and limy siltstone

Oa

Antelope Valley Limestone
Massive cliff-forming limestone

CAMBRIAN AND ORDOVICIAN

OEbc

Broad Canyon Formation
Dark gray phyllite and slate; light gray to dark gray laminated limestone

Es

Shwin Formation
Argillite, phyllite, greenstone, slate, and limestone

Eha

Hamburg Dolomite
Massive dolomite

Ecc

Crane Canyon Formation
Laminated limestone and subordinate black shale

Eq

Quartzite and subordinate shale, ledge-forming limestone at top.

Eq

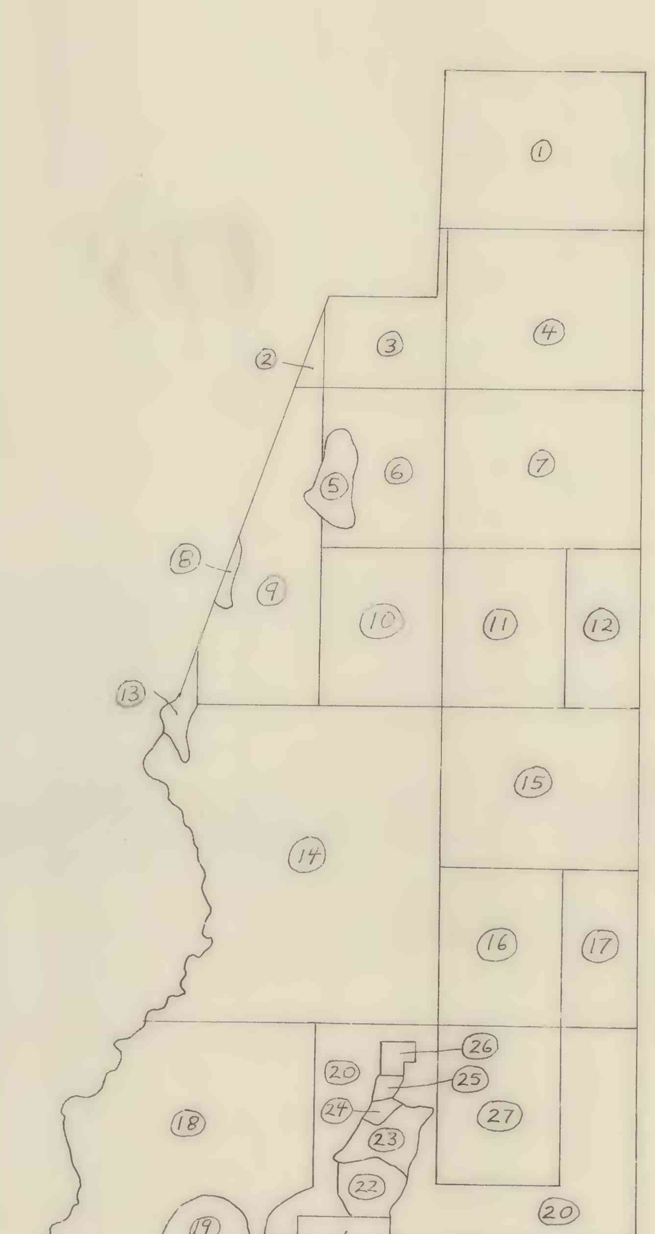
Quartzite and subordinate shale, ledge-forming limestone at top

Contact

Fault
Dashed where approximately located. Dotted where concealed. Ball on downthrown side.

Thrust fault
Dashed where approximately located. Queried where uncertain. Sawteeth on upper plate.

Fault scarp
Hachures on downthrown side; dashed where approximately located or uncertain.



INDEX MAP OF LANDER COUNTY, NEVADA SHOWING SOURCES OF GEOLOGIC DATA

SOURCES OF DATA USED IN COMPILING GEOLOGIC MAP OF LANDER COUNTY, NEVADA

(numbers correspond to those shown on index map)

1. J. H. Stewart, unpublished geologic mapping done during 1968, based in part on mapping during 1959-1960 by W. A. Oesterling, R. J. Anctil, G. W. Olcott of the Southern Pacific Land Department.
2. J. H. Stewart, photogeologic mapping in 1968
3. Roberts (1964)
4. Stewart (1969)
5. Ferguson, Muller, and Roberts (1951) with modifications and additions by E. H. McKee in 1968. Shown at 1:62,500 scale by McKee and Stewart (1969a) and McKee (1969).
6. McKee and Stewart (1969a)
7. Gilluly and Gates (1965), slightly modified by J. H. Stewart and E. H. McKee in 1968-1969.
8. Ferguson, Muller, and Roberts (1951) with modifications by McKee (1969)
9. McKee (1969)
10. McKee and Stewart (1969b)
11. Stewart and McKee (1969a) with modifications by J. H. Stewart in 1969.
12. Gilluly and Masursky (1965)
13. Mapping of pre-Tertiary rocks by R. C. Speed in 1967 and 1968 based in part on work of Muller, Ferguson, and Roberts (1951). Mapping of Tertiary rocks by E. H. McKee in 1968. Shown in part on 1:62,500 scale map of Stewart and McKee (1969b)
14. Stewart and McKee (1969b) with additions by J. R. MacMillan, 1969
15. Stewart and McKee (1969c) with modifications by J. H. Stewart in 1969
16. Stewart and McKee (1968a)
17. McKee (1968a)
18. McKee (1968c)
19. E. H. McKee, mapped in 1967 based in part on work by H. F. Bonham.
20. Stewart and McKee (1968b)
21. Means (1962). Shown at 1:62,500 scale by Stewart and McKee (1968b)
22. Mapping by J. H. Stewart in 1967 and 1969 based in part on work of D. B. MacLachlan (written commun., 1967). Slightly modified from Stewart and McKee (1968b)
23. Washburn (1966) with modifications by J. H. Stewart in 1967 and 1969. Slightly modified from Stewart and McKee (1968b)
24. Hansen (1961) with modifications by J. H. Stewart in 1967. Shown at 1:62,500 scale by Stewart and McKee (1968b)
25. Lowell (1958) with modifications by J. H. Stewart in 1967. Shown at 1:62,500 scale by Stewart and McKee (1968b)
26. Nye (1958) with modifications by J. H. Stewart in 1967. Shown at 1:62,500 scale by Stewart and McKee (1968b)
27. McKee (1968b).

REFERENCES CITED

Ferguson, H. G., Muller, S. W., and Roberts, R. J., 1951, Geology of the Mount Moses quadrangle, Nevada: U.S. Geol. Survey Geol. Quad. Map GQ-12, scale 1:125,000

Gilluly, James, and Gates, Olcott, 1965, Tectonic and igneous geology of the northern Shoshone Range, Nevada, with a section on Gravity in Crescent Valley by Donald Plouff, and Economic geology by K. B. Ketner: U.S. Geol. Survey Prof. Paper 465, 153 p., map scale 1:31,680

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. Geol. Survey Bull. 1175, 117 p., map scale 1:62,500

Hansen, H. J., 3d, 1960, Geology of the Big Creek area, Toiyabe Range, Lander County, Nevada: New York, Columbia Univ. M.A. thesis

Lowell, J. D., 1958, Lower and Middle Ordovician stratigraphy in eastern and central Nevada: New York, Columbia Univ. Ph. D. thesis, map scale 1:24,000

Means, W. D., 1962, Structure and stratigraphy in the central Toiyabe Range, Nevada: California Univ. Pubs. Geol. Sci., v. 42, no. 2, p. 71-110

McKee, E. H., 1968a, Geologic map of the Ackerman Canyon quadrangle, Lander and Eureka Counties, Nevada: U.S. Geol. Survey Geol. Quad. Map GQ-761, scale 1:62,500

——— 1968b, Geologic map of the Spencer Hot Springs quadrangle, Lander County, Nevada: U.S. Geol. Survey Geol. Quad. Map GQ 770, scale 1:62,500

——— 1968c, Geologic map of southwestern part of Lander County, Nevada: U.S. Geol. Survey open-file map, scale 1:62,500

——— 1969, Geologic map of the Mt Moses and southeast part of the Buffalo Springs quadrangles, Lander County, Nevada: U.S. Geol. Survey open-file map, scale 1:62,500

McKee, E. H., and Stewart, J. H., 1969a, Geologic map of the McCoy quadrangle, Lander County, Nevada: U.S. Geol. Survey open-file map, scale 1:62,500

——— 1969b Geologic map of The Cedars quadrangle, Lander County, Nevada: U.S. Geol. Survey open-file map, scale 1:62,500

Muller, S. W., Ferguson, H. G., and Roberts, R. J., 1951, Geology of the Mount Tobin quadrangle, U.S. Geol. Survey Geol. Quad. Map GQ-7, scale 1:125,000

Nye, T. S., 1958, Geology of the Apex uranium mine, Lander County, Nevada: Berkeley, California Univ., M.S. thesis, map scale 1:9,600

Roberts, R. J., 1964, Stratigraphy and structure of the Antler Peak quadrangle, Humboldt and Lander Counties, Nevada: U.S. Geol. Survey Prof. Paper 459-A, 93 p., map scale 1:62,500

Stewart, J. H., 1969, Geologic map of the Battle Mountain and part of the Dunphy quadrangles, Nevada: U.S. Geol. Survey open-file map, scale 1:62,500

Stewart, J. H., and McKee, E. H., 1968a, Geologic map of the Mount Callaghan quadrangle, Lander County, Nevada: U.S. Geol. Survey Geol. Quad. Map GQ-730, scale 1:62,500

——— 1968b, Geologic map of southeastern part of Lander County, Nevada: U.S. Geol. Survey open-file map, scale 1:62,500

——— 1969a, Geologic map of the Carico Lake quadrangle, Lander County, Nevada: U.S. Geol. Survey open-file map, scale 1:62,500

——— 1969b Geologic map of west-central part of Lander County, Nevada (revised and expanded from open-file map of 1968): U.S. Geol. Survey open-file map, scale 1:62,500

——— 1969c, Geologic map of the Hall Creek and western part of the Walti Hot Springs quadrangles, Lander County, Nevada: U.S. Geol. Survey open-file map, scale 1:62,500

Washburn, R. H., 1966, Structure and Paleozoic stratigraphy of the Toiyabe Range, southern Lander County, Nevada: New York, Columbia Univ., Ph. D. thesis, map scale 1:31,250

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey standards and nomenclature.

70-313