
OKLAHOMA GEOLOGICAL SURVEY

CHARLES J. MANKIN, *Director*

KENNETH S. JOHNSON, *Associate Director*

# LIST OF PUBLICATIONS OF OKLAHOMA GEOLOGICAL SURVEY 1902–1978

Compiled by

ELIZABETH A. HAM
and CLAREN M. KIDD

The University of Oklahoma
830 Van Vleet Oval, Room 163
Norman, Oklahoma 73019
1979

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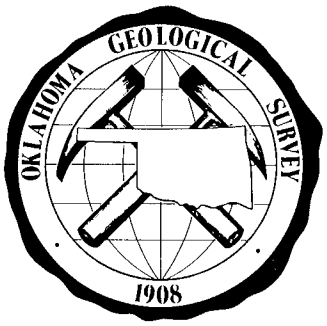


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## PREFACE

This list includes only publications prepared and published by the Oklahoma Geological Survey; its predecessor, the Oklahoma Territory Department of Geology and Natural History; and the 1923-24 interim Bureau of Geology. Some reports and maps issued by other organizations are also available through the Oklahoma Geological Survey. Information on in-print items offered, including prices, is published annually in the List of Available Publications, which can be obtained free on request at the address given on the front cover.

Entries marked herein with an asterisk (*) are currently out of print. Copies of most of these reports are stored at the Oklahoma Geological Survey, and most are included also in the collection at the Geology and Geophysics Library at The University of Oklahoma. Those reposited at The University of Oklahoma can be obtained on interlibrary loan upon request from your librarian to Bizzell Memorial Library, The University of Oklahoma, Norman, Oklahoma 73019. A collection is shelved also by the Oklahoma Department of Libraries, Allen Wright Memorial Library, 200 Northeast 18th Street, Oklahoma City, Oklahoma 73105. The larger geological libraries at universities and geological surveys throughout the country contain publications of the Oklahoma Geological Survey. Also, the Survey will provide single photocopies, at cost, of out-of-print publications.

Elizabeth A. Ham
Claren M. Kidd

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DEPARTMENT OF GEOLOGY AND NATURAL HISTORY, TERRITORY OF OKLAHOMA

The manuscript of the first biennial report of the pre-Statehood Oklahoma Territory Department of Geology and Natural History Survey was destroyed in a fire, and only an advance bulletin to the report was issued.

Provision for the establishment of a "State Geological and Economic Survey" was incorporated into the State Constitution, which was formulated in November 1907, and the Oklahoma Geological Survey as such came into being the following summer.

*First Biennial Report, Advance Bulletin. Invertebrate paleontology of the Red Beds, by J. W. Beede. 1902. 11 pages, 1 plate.

*Second Biennial Report, 1901-1902, by A. H. Van Vleet, with sections on: General geology of Oklahoma, by Chas. N. Gould; On some vertebrate fossils from the Permian beds of Oklahoma, by E. C. Case; Oklahoma gypsum, by Chas. N. Gould; Plants of Oklahoma, by A. H. Van Vleet; Birds of Oklahoma, by A. H. Van Vleet; and Snakes of Oklahoma, by A. H. Van Vleet. 1902. 173 pages.

*Third Biennial Report, 1903-1904. Contains papers on: A preliminary report on the contact of the Permian and Pennsylvanian in Oklahoma, by Charles Townsend Kirk; Geology of the Wichita Mountains of Oklahoma, by Charles Newton Gould; and Present status of the mining industry in the Wichita Mountains, by E. G. Woodruff. 1904. 24 pages.

## BULLETINS

*Bulletin 1. Preliminary report on the mineral resources of Oklahoma, by C. N. Gould, L. L. Hutchison, and G. Nelson. 1908. 88 pages, 11 figures.

*Bulletin 2. Preliminary report on the rock asphalt, asphaltite, petroleum and natural gas in Oklahoma, by L. L. Hutchison. 1911. 256 pages, 30 figures, 13 plates.

*Bulletin 3. A report on the geological and mineral resources of the Arbuckle Mountains, Oklahoma, by C. A. Reeds. 1910. 69 pages, 10 figures, 24 plates.

*Bulletin 4. Coal in Oklahoma, by C. W. Shannon and others. Revised by C. L. Cooper. 1926. 110 pages, 12 figures, 23 plates, 7 tables.

*Bulletin 5. Preliminary report on the structural materials of Oklahoma, by C. N. Gould. 1911. 182 pages, 10 figures, 1 plate.

*Bulletin 6. Part 1. Director's biennial report to the Governor of Oklahoma. Part 2. Brief chapters on Oklahoma's mineral resources, by C. N. Gould. 1910. 96 pages.

*Bulletin 7. Preliminary report on the clays and clay industries of Oklahoma, by L. C. Snider. 1911. 270 pages, 53 figures, 12 plates.

*Bulletin 8. Preliminary report on the road materials and road conditions of Oklahoma, by L. C. Snider. 1911. 191 pages, 44 figures, 3 plates.

*Bulletin 9. Preliminary report on the lead and zinc in Oklahoma, by L. C. Snider. 1912. 97 pages, 16 figures.

*Bulletin 10. The glass sands of Oklahoma, by Frank Buttram. 1913. 91 pages, 3 figures, 8 plates.

*Bulletin 11. The gypsum and salt of Oklahoma, by L. C. Snider. 1913. 214 pages, 67 figures.

*Bulletin 12. Preliminary report on the geology of the Arbuckle and Wichita Mountains, by Joseph A. Taff. 1927. 95 pages, 1 figure, 8 plates.

*Bulletin 13. Volcanic dust in Oklahoma, by Frank Buttram. 1914. 49 pages, 1 figure, 8 plates.

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*Bulletin 13. Volcanic dust in Oklahoma, by Frank Buttram. 1914. 49 pages, 1 figure, 8 plates.

*Bulletin 14. Chemical analyses of Oklahoma mineral raw materials, by A. C. Shead, G. Y. Williams, and C. N. Gould. 1929. 138 pages. (Originally issued as University of Oklahoma Bulletin, New Series 423, Studies No. 32, December 1928).

*Bulletin 15. Part 1. Director's biennial report to the Governor of Oklahoma. Part 2. Mineral production of Oklahoma from 1901 to 1911, by D. W. Ohern. 1912. 47 pages, 2 figures.

*Bulletin 16. The Ponca City oil and gas field, Oklahoma, by D. W. Ohern and Robert E. Garrett. 1912. 30 pages, 1 figure, 2 plates.

*Bulletin 17. Geology of east central Oklahoma, by L. C. Snider. 1914. 25 pages, 1 figure, 2 plates.

*Bulletin 18. The Cushing oil and gas field, Oklahoma, by Frank Buttram. 1914. 105 pages, 1 figure, 12 plates.

*Bulletin 19. Petroleum and natural gas in Oklahoma. Part 1. General information concerning oil and gas, by C. W. Shannon and L. E. Trout. 1915. 133 pages, 4 figures, 7 plates. Part 2. A discussion of the oil and gas fields, and undeveloped areas of the state, by counties, by C. W. Shannon and others. 1917. 536 pages, 24 figures, 41 plates.

*Bulletin 20. Granites of Oklahoma, by C. H. Taylor. 1915. 108 pages, 3 figures, 20 plates.

*Bulletin 21. The Neva limestone in northern Oklahoma, with remarks upon the correlation of the vertebrate fossil beds of the state, by J. W. Beede. 1914. 37 pages, 3 figures, 8 plates.

*Bulletin 22. Part 1. Director's biennial report to the Governor of Oklahoma. Part 2. Mineral resources of Oklahoma and statistics of production from 1901 to 1914, by C. W. Shannon. 1914. 142 pages, 8 figures, 4 plates.

*Bulletin 23. The geology and economic value of the Wapanucka limestone of Oklahoma, by B. F. Wallis. 1915. 102 pages, 6 figures, 10 plates.

*Bulletin 24. Part 1. Geology of a portion of northeastern Oklahoma. Part 2. Paleontology of the Chester group in Oklahoma, by L. C. Snider. 1915. 130 pages, 3 figures, 7 plates.

*Bulletin 25. Bibliography of Oklahoma geology with subject index, by L. E. Trout and G. H. Myers. 1915. 105 pages.

*Bulletin 26. Lime resources and industry of Oklahoma, by John Cullen. 1917. 70 pages, 7 plates.

*Bulletin 27. Geography of Oklahoma, by L. C. Snider. 1917. 325 pages, 9 figures, 40 plates.

*Bulletin 28. Tripoli deposits in Oklahoma, by E. S. Perry. 1917. 32 pages, 1 figure, 11 plates.

*Bulletin 29. Travertine deposits of the Arbuckle Mountains, Oklahoma, with reference to the plant agencies concerned in their formation, by W. H. Emig. 1917. 76 pages, 5 figures, 15 plates.

*Bulletin 30. Geology of the Redbeds of Oklahoma, by Fritz Aurin. 1917. 66 pages, 4 figures, 8 plates.

*Bulletin 31. Criteria for the recognition of heavy minerals occurring in the Mid-Continent field, by Fanny Carter Edson. 1925. 32 pages, 4 plates.

*Bulletin 32. Geology of the southern Ouachita Mountains of Oklahoma, parts I and II, by C. W. Honess. 1923. 355 pages, 9 figures, 120 plates.

✓ *Bulletin 33. Geology of Love County, Oklahoma, by Fred M. Bullard. 1925. 77 pages, 1 figure, 30 plates.

~~*Bulletin 34.~~ Index of Cimarron County, Oklahoma, by E. P. Rothrock, with a section on Dakota plants from Cimarron County, Oklahoma, by A. C. Noe. 1925. 110 pages, 3 figures, 24 plates.

~~*Bulletin 35.~~ Index to the stratigraphy of Oklahoma, by Chas. N. Gould, with lists of characteristic fossils by Chas. E. Decker. 1925. 115 pages, 1 chart.

~~*Bulletin 36.~~ Petroleum engineering in the Papoose oil field, by John R. Bunn, with a chapter on Geology of the Papoose oil field by Louis Roark. 1926. 61 pages, 6 figures, 5 plates.

✓ ~~*Bulletin 37.~~ Geology of Texas County, Oklahoma, by Chas. N. Gould and John T. Lonsdale, with a chapter on Agriculture by H. H. Finnell, and a chapter on History of the County, by M. L. Wardell. 1926. 62 pages, 6 figures, geologic map, 10 plates.

✓ ~~*Bulletin 38.~~ Geology of Beaver County, Oklahoma, by Chas. N. Gould and John T. Lonsdale, with sections on Fossil leaves, by E. W. Berry; Agriculture, by Ernest Slocum; and History by F. C. Tracy. 1926. 71 pages, 2 figures, 16 plates.

✓ ~~*Bulletin 39.~~ Geology of Marshall County, Oklahoma, by Fred M. Bullard. 1926. 101 pages, 5 figures, 31 plates.

Bulletin 40. Oil and gas in Oklahoma. Issued as three volumes; titles of sections are given below.

*Vol. I. 1928. 276 pages exclusive of index, 15 figures, 7 plates, 4 maps. Includes 7 papers: 40-B, 40-D, 40-G, 40-J, 40-P, 40-AA, and 40-Q.

*Vol. II. 1930. 501 pages, 70 figures, 11 plates, 41 maps. Includes 17 papers: 40-A, 40-E, 40-H, 40-I, 40-K, 40-M, 40-N, 40-O, 40-DD, 40-GG, 40-Z, 40-HH, 40-MM, 40-PP, 40-UU, 40-SS, and 40-WW.

*Vol. III. 1930. 663 pages, 136 figures, 2 plates, 50 maps. Includes 26 papers: 40-C, 40-F, 40-L, 40-R, 40-S, 40-T, 40-U, 40-V, 40-W, 40-X, 40-Y, 40-BB, 40-CC, 40-EE, 40-FF, 40-II, 40-JJ, 40-KK, 40-LL, 40-NN, 40-OO, 40-QQ, 40-RR, 40-TT, 40-VV, and 40-XX.

The papers of these volumes were also issued as the following separates:

*40-A-Woods, Alfalfa, Harper, Major, Woodward, and Ellis Counties, by R. L. Clifton. 1926. 24 pages, 5 plates.
*40-B-Subsurface distribution and correlation of the pre-Chattanooga ("Wilcox" sand) series of northeastern Oklahoma, by Luther H. White. 1926. 23 pages, 2 plates.
*40-C-Oil and gas in Creek County, Oklahoma, by John W. Merritt and O. G. McDonald. 1926. 47 pages, 8 figures, 6 plates.
*40-D-Subsurface stratigraphy of western Oklahoma, by Frank C. Green. 1926. 14 pages, 2 plates.
*40-E-The geology of the oil and gas fields of Stephens County, Oklahoma, by Frank Gouin. 1926. 52 pages, 1 figure, 6 plates.
*40-F-Geology of Okmulgee County, Oklahoma, by Robt. W. Clark. 1926. 52 pages, 6 figures, 1 plate.
*40-G-Petroleum geology in Oklahoma, by Sidney Powers. 1926. 24 pages.
*40-H-Geology of Kay, Grant, Garfield, and Noble Counties, by G. C. Clark and C. L. Cooper. 1927. 44 pages, 1 figure, 6 plates.
*40-I-Geology of Caddo and Grady Counties, by Clyde M. Becker. 1927. 18 pages, 4 figures, 3 plates.
*40-J-Pennsylvanian paleogeography, by Robt. H. Dott. 1927. 22 pages, 11 figures.
*40-K-Geology of Garvin County, Oklahoma, by Robt. H. Dott; and The Robberson Field, by Robert Roth. 1927. 52 pages, 7 figures, 8 plates.
*40-L-Geology of Wagoner County, Oklahoma, by J. Phillip Boyle. 1927. 18 pages, 6 figures, 2 plates.
*40-M-Geology of Beckham County, by Frank Gouin. 1927. 17 pages, 2 figures, 2 plates.
*40-N-Geology of Cleveland and McClain Counties, by G. E. Anderson. 1927. 18 pages, 1 figure, 2 plates.
*40-O-Geology of Kingfisher and Canadian Counties, by W. C. Kite. 1927. 13 pages, 2 figures, 1 plate.
*40-P-Structural trends in southern Oklahoma, by LaVerne Decker. 1927. 13 pages, 1 plate.

*40-Q-Digest of Oklahoma oil and gas fields, compiled by Bess Mills-Bullard. 1928. 188 pages, 1 plate.
*40-R-Atoka, Pushmataha, McCurtain, Bryan, and Choctaw Counties, by C. W. Honess. 1927. 32 pages, 3 figures.
*40-S-Geology of Pontotoc County, by R. A. Conkling. 1927. 27 pages, 5 figures, 1 plate.
*40-T-Geology of Osage County, by H. T. Beckwith. 1927. 62 pages, 17 figures, 4 plates.
*40-U-Geology of Rogers County, by E. G. Woodruff and C. L. Cooper. 1928. 24 pages, 3 figures, 2 plates.
*40-V-Geology of Washington County, by Everett Carpenter. 1927. 20 pages, 5 figures, 4 plates.
*40-W-McIntosh County, by Robert W. Clark. 1927. 14 pages, 1 figure, 4 plates.
*40-X-Payne County, by A. H. Koschman. 1927. 13 pages, 4 figures, 1 plate.
*40-Y-Harmon, Tillman, Jackson, and Greer Counties, by R. L. Clifton. 1927. 24 pages, 1 figure, 1 plate.
*40-Z-Carter County, by C. W. Tomlinson. 1928. 71 pages, 14 figures, 2 tables, 11 well logs.
*40-AA-Oklahoma petroleum--An industrial survey, by Chas. E. Bowles. 1928. 25 pages, 4 figures, 6 plates, 4 tables.
*40-BB-Geology of Seminole County, by A. I. Levorsen. 1928. 70 pages, 15 figures.
*40-CC-Geology of Pawnee County by Frank C. Greene. 1928. 28 pages, 8 figures, 3 plates.
*40-DD-Geology of Comanche County, by Frank Gouin. 1928. 25 pages, 1 figure, 2 plates.
*40-EE-Geology of Nowata and Craig Counties, by Edward Bloesch. 1928. 30 pages, 2 figures, 1 plate.
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*40-GG-Geology of Logan County, by Hubert E. Bale. 1928. 18 pages, 2 figures, 2 plates.
*40-HH-Kiowa and Washita Counties, by Roger W. Sawyer. 1929. 15 pages, 1 figure, 2 plates.
*40-II-Haskell, Latimer, Le Flore, and Sequoyah Counties, by J. A. Stone and C. L. Cooper. 1929. 24 pages, 2 figures, 2 plates.
*40-JJ-Coal and Pittsburg Counties, by W. W. Clawson, Jr. 1928. 2 figures, 2 plates.
*40-KK-Okfuskee County, by J. Phillip Boyle. 1929. 24 pages, 5 figures, 3 plates.
*40-LL-Johnston and Murray Counties, by F. A. Melton. 1930. 24 pages, 1 figure.
40-MM-Cotton County, by W. F. Cloud. 1930. 21 pages, 2 figures, 1 plate.
*40-NN-Mayes, Ottawa, and Delaware Counties, by H. A. Ireland. 1930. 37 pages, 2 figures, 1 plate.
*40-OO-Love and Marshall Counties, by Fred M. Bullard and John S. Redfield. 1930. 30 pages, 5 figures, 1 plate.

*40-PP-Jefferson County, by John R. Bunn. 1930. 45 pages, 5 figures, 2 plates.
*40-QQ-Cherokee and Adair Counties, by Ira H. Cram. 1930. 60 pages, 4 figures, 3 plates.
*40-RR-Tulsa County, by W. F. Cloud. 1930. 29 pages, 4 figures, 3 plates.
*40-SS-Oklahoma County, by A. Travis. 1930. 32 pages, 7 figures, 3 plates.
*40-TT-Pottawatomie County, by T. E. Weirich. 1930. 15 pages, 6 figures.
*40-UU-Blaine, Dewey, Custer, and Roger Mills Counties, by Ray L. Six. 1930. 53 pages, 6 figures, 3 plates.
*40-VV-Lincoln County, by Dollie Radler. 1930. 16 pages, 7 figures, 1 plate.
*40-WW-Beaver, Texas, and Cimarron Counties, by Ray L. Six. 1930. 35 pages, 4 figures, 5 plates.
*40-XX-Hughes County, by J. Phillip Boyle. 1930. 19 pages, 5 figures, 1 plate.

*Bulletin 41. The upper Paleozoic rocks of Oklahoma, by Chas. N. Gould and Roy A. Wilson. 1927. 66 pages, 30 figures, 1 plate. With paleogeographic maps.

*Bulletin 42. Mineral resources in Oklahoma, by John S. Redfield. 1927. 130 pages, 8 figures, 34 plates.

*Bulletin 43. Oil sands and production relations, by H. C. George and W. F. Cloud. 1927. 142 pages, 19 figures.

Bulletin 44. Age relations of the Carboniferous rocks of the Ouachita Mountains of Oklahoma and Arkansas, by H. D. Miser and C. W. Honess. 1927. 28 pages, 2 figures.

Bulletin 45. Fossiliferous boulders in the Ouachita "Caney" shale, and the age of the shale containing them, by E. O. Ulrich. 1927. 48 pages, 3 figures, 6 plates.

*Bulletin 46. The Pennsylvanian system in the Ardmore basin, by C. W. Tomlinson. 1929. 79 pages, 3 figures, 20 plates.

~~*Bulletin 47.~~ Lower Cretaceous of western Oklahoma, by Fred M. Bullard. 1928. 116 pages, 7 figures, 11 plates.

*Bulletin 48. Sedimentation in the Anadarko Basin, by A. J. Freie. 1930. 80 pages, 13 figures, 1 plate.

*Bulletin 49. Dolomites of western Oklahoma, by G. G. Suffel. 1930. 155 pages, 12 figures, 17 plates.

~~*Bulletin 50~~. Structure of the Ouachita Mountains of Oklahoma and Arkansas, by Hugh D. Miser. 1929. 30 pages, 7 figures, 3 plates.

*Bulletin 51. A chemical study of Oklahoma coals, by Joe E. Moose and V. C. Searle. 1929. 112 pages, 1 figure, 7 plates.

*Bulletin 52. Geology and petrology of the Wichita Mountains, by Malvin G. Hoffman. 1930. 82 pages, 4 figures, 22 plates.

*Bulletin 53. Micropaleontology of the Wetumka, Wewoka, and Holdenville formations, by A. S. Warthin, Jr. 1930. 94 pages, 1 figure, 8 plates.

*Bulletin 54. The stabilization of the petroleum industry, by Leonard M. Logan. 1930. 248 pages, 11 tables, plus 4 tables in appendix.

*Bulletin 55. The stratigraphy and physical characteristics of the Simpson Group, by C. E. Decker and C. A. Merritt, with a section on Descriptions and illustrations of ostracodes and conodonts by R. W. Harris. 1931. 112 pages, 2 figures, 15 plates, and geologic map.

*Bulletin 56. The Miami-Picher zinc-lead district, Oklahoma, by Samuel Weidman. 1932. 177 pages, 12 figures, 11 plates.

*Bulletin 57. Geology of the Muskogee-Porum district, Oklahoma, by C. W. Wilson, Jr., with a chapter on Carboniferous stratigraphy by N. D. Newell. 1937. 184 pages, 5 figures, 7 plates (including two-color geologic map), 10 tables.

Bulletin 58. Traverse and leveling in Oklahoma: Part I--southwestern Oklahoma, compiled by N. E. Wolfard. 1938. 157 pages, 4 plates, 1 map, 2 tables.

*~~Bulletin 59.~~ Geology and ground water resources of Texas County, Oklahoma, by Stuart L. Schoff. 1939. 248 pages, 13 figures, 5 plates, 12 tables.

*Bulletin 60. Rock wool possibilities in Oklahoma, by F. C. Wood. 1939. 125 pages, 19 figures, 6 tables.

*Bulletin 61. Traverse and leveling in Oklahoma. Part II--northwestern Oklahoma, compiled by N. E. Wolfard. 1940. 287 pages, 4 plates, 1 map.

*~~Bulletin 62.~~ Geology and mineral resources of Washington County, Oklahoma, by M. C. Oakes. 1940. 208 pages, 19 figures, 3 plates (including geologic map), 18 tables.

*Bulletin 63. A bibliography of Oklahoma oil and gas pools, compiled by Alan G. Skelton and Martha B. Skelton. 1942. 230 pages.

*~~Bulletin 64~~. Geology and ground water resources of Cimarron County, Oklahoma, by S. L. Schoff, with a section on Mesozoic stratigraphy by J. W. Stovall. 1943. 317 pages, 27 figures, 23 plates (including 2 geologic maps), 24 tables.

Bulletin 65. Geology and glass sand resources, central Arbuckle Mountains, Oklahoma, by W. E. Ham. 1945. 103 pages, 4 figures, 10 plates, 13 tables.

*Bulletin 66. The Morrow series of northeastern Oklahoma, by Carl A. Moore. 1947. 151 pages, 8 figures, 15 plates, 2 tables.

Bulletin 67. Geology and mineral resources of Haskell County, Oklahoma, by M. C. Oakes and M. M. Knechtel. November 1948. 134 pages, 8 figures, 6 plates (including geologic map), 5 tables.

Bulletin 68. Geology and coal and natural gas resources of northern Le Flore County, Oklahoma, by M. M. Knechtel. November 1949. 76 pages, 1 figure, 7 plates (including geologic map), 3 tables.

*Bulletin 69. Geology and mineral resources of Tulsa County, Oklahoma, by Malcolm C. Oakes with sections on Oil and gas, by Glen S. Dille, and Water resources, by John H. Warren. 1952. 234 pages, 12 figures, 4 plates (including geologic map), 15 tables.

*Bulletin 70. Geology and mineral resources of Hughes County, Oklahoma, by O. D. Weaver, Jr. February 22, 1955. 150 pages, 13 figures, 4 plates (including geologic map), 6 tables.

Bulletin 71. Geology and mineral resources of Okfuskee County, Oklahoma, by R. E. Ries. March 1, 1955. 120 pages, 25 figures, 2 plates (including geologic map), 3 tables.

Bulletin 72. Geology and ground-water resources of Ottawa County, Oklahoma, by E. W. Reed, S. L. Schoff, and C. C. Branson. February 9, 1955. 203 pages, 14 figures, 1 plate (geologic map), 14 tables.

Bulletin 73. Geology and ground water resources of Grady and northern Stephens Counties, Oklahoma, by L. V. Davis. July 8, 1955. 184 pages, 14 figures, 2 plates (including geologic map), 15 tables.

Bulletin 74. Geology of Seminole County, Oklahoma, by W. F. Tanner. February 1, 1956. 170 pages, 20 figures, 9 plates (including geologic map), 6 tables.

Bulletin 75. Ostracoda of the Simpson group, by R. W. Harris. June 1, 1957. 333 pages, 19 figures, 10 plates, 5 range charts.

Bulletin 76. Igneous geology of the Lake Altus area, by C. A. Merritt. January 31, 1958. 70 pages, 6 plates (including geologic map), 10 tables.

Bulletin 77. Geology of the flanks of the Ozark Uplift, northeastern Oklahoma, by G. G. Huffman. May 9, 1958. 281 pages, 22 figures, 6 plates (geologic maps), 6 tables.

Bulletin 78. Stratigraphy and paleontology of the Hunton group in the Arbuckle Mountain region. Part II. Haragan articulate brachiopods, by Thomas W. Amsden. Part III. Supplement to the Henryhouse brachiopods, by Thomas W. Amsden. Part IV. New genera of brachiopods, by Arthur J. Boucot and Thomas W. Amsden. June 27, 1958. 199 pages, 42 figures, 14 plates, 17 tables.

Bulletin 79. Petrology of Pennsylvanian sandstones and conglomerates in the Ardmore basin, by Lynn Jacobsen. April 27, 1959. 144 pages, 44 figures, 17 tables.

Bulletin 80. Geology of Harper County, Oklahoma, by Arthur J. Myers, with a section on Petroleum geology, by Louise Jordan, J. Durwood Pate, and Sydney R. Williamson. January 26, 1959. 108 pages, 20 figures, 3 plates, 1 panel, 4 tables.

Bulletin 81. Geology and mineral resources of Creek County, Oklahoma, by Malcolm C. Oakes, with a section on Oil and gas in Creek County, Oklahoma, by Louise Jordan. December 12, 1959. 134 pages, 20 figures, 3 plates in map box (including geologic map in color), 10 tables.

Bulletin 82. Stratigraphy and paleontology of the Hunton group in the Arbuckle Mountains region. Part V. Bois d'Arc articulate brachiopods, by Thomas W. Amsden. December 10, 1958. 110 pages, 18 figures, 5 plates, 2 tables.

Bulletin 83. Geology of Pawnee County, Oklahoma, by Paul B. Greig, Jr. October 27, 1959. 188 pages, 37 figures, 4 plates in map box (including geologic map in color), 7 tables.

Bulletin 84. Stratigraphy and paleontology of the Hunton group in the Arbuckle Mountain region. Part VI. Stratigraphy, by Thomas W. Amsden. January 14, 1959. 311 pages, 56 figures, 3 panels, 17 plates.

Bulletin 85. Stratigraphy of the Late Paleozoic rocks of the Ouachita Mountains, Oklahoma, by L. M. Cline. August 27, 1960. 113 pages, 45 figures, 2 plates.

Bulletin 86. Geology and ground-water resources of southern McCurtain County, Oklahoma, by Leon Davis. February 26, 1960. 108 pages, 19 figures, 1 plate (geologic map in color), 8 tables.

Bulletin 87. Ground water resources of Canadian County, Oklahoma, by J. L. Mogg, S. L. Schoff, and E. W. Reed. April 7, 1960. 112 pages, 3 figures, 2 plates, 9 tables.

Bulletin 88. Geology of the Boktukola syncline, southeastern Oklahoma, by O. B. Shelburne, Jr. September 20, 1960. 84 pages, 18 figures, 1 plate (geologic map).

Bulletin 89. Geology and mineral resources of Blaine County, Oklahoma. Part I. Stratigraphy and general geology of Blaine County, by R. O. Fay. Part II. Economic geology and petrology of gypsum and anhydrite in Blaine County, by W. E. Ham. Part III. Petroleum geology of Blaine County, by John T. Bado and Louise Jordan. September 18, 1962. 252 pages, 61 figures, 9 plates (including geologic map in color), 14 tables.

Bulletin 90. Stratigraphy of the Frisco and Sallisaw formations (Devonian) of Oklahoma, by Thomas W. Amsden. June 13, 1961. 121 pages, 26 figures, 13 plates (including geologic map in color of the Marble City Area, Sequoyah County), 13 tables.

Bulletin 91. Geology and water resources of Okmulgee County, Oklahoma. Part I. Geology of Okmulgee County, by Malcolm C. Oakes. Part II. Water resources of Okmulgee County, by W. S. Motts. April 17, 1963. 164 pages, 19 figures, 2 plates (including geologic map in color), 7 tables.

Bulletin 92. Borate minerals in Permian gypsum of west-central Oklahoma by W. E. Ham, C. J. Mankin, and J. A. Schleicher. October 11, 1961. 77 pages, 20 figures, 3 plates, 8 tables.

Bulletin 93. Late Desmoinesian crinoid faunule from Oklahoma, by Harrell L. Strimple. December 14, 1961. 189 pages, 23 figures, 19 plates.

Bulletin 94. Early Devonian brachiopods of Oklahoma. Part I. Articulate brachiopods of the Frisco Formation (Devonian), by Thomas W. Amsden and W. P. S. Ventress. Part II. Articulate brachiopods of the Sallisaw Formation (Devonian), by Thomas W. Amsden. Part III. Supplement to the Haragan (Devonian) brachiopods by Thomas W. Amsden. April 22, 1963. 238 pages, 51 figures, 21 plates, 10 tables.

Bulletin 95. Basement rocks and structural evolution of southern Oklahoma, by W. E. Ham, Rodger E. Denison, and Clifford A. Merritt. December 22, 1964. 302 pages, 19 figures, 16 plates (including 5 geologic maps and sections in separate folder), 18 tables.

Bulletin 96. Pennsylvanian cephalopods of Oklahoma, by A. G. Unklesbay. January 30, 1962. 150 pages, 16 figures, 19 plates, 2 tables.

Bulletin 97. Ground-water resources of Beaver County, Oklahoma, by I. Wendell Marine and Stuart L. Schoff. May 30, 1962. 74 pages, 12 figures, 2 plates, 11 tables.

Bulletin 98. The Blaine and related formations of northwestern Oklahoma and southern Kansas, by R. O. Fay. June 26, 1964. 238 pages, 3 figures, 24 plates.

*~~Bulletin 99.~~ Geology and oil and gas resources of Craig County, Oklahoma. Part I. Geology of Craig County, by Carl C. Branson and George G. Huffman. Part II. Oil and gas in Craig County, by Daniel M. Strong and George G. Huffman. July 8, 1965. 109 pages, 36 figures, 2 plates.

Bulletin 100. Crinoids of the Hunton Group (Devonian-Silurian) of Oklahoma, by H. L. Strimple. August 14, 1963. 169 pages, 30 figures, 12 plates.

Bulletin 101. Structure and stratigraphy of the Rich Mountain area, Oklahoma and Arkansas, by D. R. Seely. December 13, 1963. 168 pages, 57 figures, 2 plates, 1 table.

Bulletin 102. Permian salt and associated evaporites in the Anadarko basin of the western Oklahoma-Texas Panhandle region, by Louise Jordan and David L. Vosburg. October 10, 1963. 76 pages, 13 figures, 3 plates, 1 table.

Bulletin 103. Geology of the eastern part of Winding Stair Range, Le Flore County, Oklahoma, by O. D. Hart. December 14, 1963. 87 pages, 15 figures, 1 plate (geologic map).

Bulletin 104. Biostratigraphy and rugose corals of the Lower Pennsylvanian Wapanucka Formation in Oklahoma, by Charles L. Rowett and Patrick K. Sutherland. March 3, 1964. 124 pages, 13 figures, 9 plates, 12 tables.

~~Bulletin 105.~~ Silurian stratigraphy of northeastern Oklahoma, by Thomas W. Amsden and T. L. Rowland. February 27, 1965. 174 pages, 19 figures, 20 plates (including 2 geologic maps).

~~Bulletin 106~~. Geology and mineral resources of Woods County, Oklahoma, by Robert O. Fay. December 29, 1965. 189 pages, 40 figures, 4 plates in separate folder (including geologic map), 1 table.

Bulletin 107. Petrology of the Hogshooter Formation (Missourian), Washington and Nowata Counties, Oklahoma, by William R. Cronoble and Charles J. Mankin. February 26, 1965. 148 pages, 9 figures, 5 plates, 8 tables.

Bulletin 108. Ostracodes of the Henryhouse Formation (Silurian) in Oklahoma, by Robert F. Lundin. May 3, 1965. 104 pages, 45 figures, 18 plates, 16 tables.

Bulletin 109. Rugose corals of the Henryhouse Formation (Silurian) in Oklahoma, by Patrick K. Sutherland. December 30, 1965. 92 pages, 26 figures, 34 plates.

Bulletin 110. Late Cambrian and earliest Ordovician trilobites, Timbered Hills and lower Arbuckle Groups, western Arbuckle Mountains, Murray County, Oklahoma, by James H. Stitt. August 2, 1971. 83 pages, 5 figures, 12 plates.

Bulletin 111. Geology and petroleum of McIntosh County, Oklahoma. Part I. Geology and mineral resources of McIntosh County by Malcolm C. Oakes and others. Part II. Petroleum geology of McIntosh County, by Terry Koontz. July 20, 1967. 88 pages, 13 figures, 4 plates (including geologic map), 5 tables.

Bulletin 112. Palynology of the Red Branch Member of the Woodbine Formation (Cenomanian), Bryan County, Oklahoma, by Richard Hedlund. October 14, 1966. 69 pages, 1 figure, 10 plates.

Bulletin 113. Pennsylvanian fusulinids in the Ardmore basin, Love and Carter Counties, Oklahoma, by Dwight E. Waddell. December 12, 1966. 128 pages, 11 figures, 13 plates.

Bulletin 114. Geology and mineral resources (exclusive of petroleum) of Custer County, Oklahoma, by Robert O. Fay and D. L. Hart, Jr. Part 1. Stratigraphy and general geology of Custer County, by Robert O. Fay. Part 2. Economic geology of Custer County, by Robert O. Fay. Part 3. Ground water in Custer County, by D. L. Hart, Jr. December 1978. 88 pages, 53 figures, 3 plates (including geologic map), 4 tables.

Bulletin 115. Trilobites of the Henryhouse Formation (Silurian) in Oklahoma, by K. S. W. Campbell. November 16, 1967. 68 pages, 7 figures, 19 plates, 4 tables.

Bulletin 116. Ostracodes of the Haragan Formation (Devonian) in Oklahoma, by Robert F. Lundin. December 26, 1968. 121 pages, 51 figures, 22 plates, 18 tables.

Bulletin 117. Articulate brachiopods of the Viola Formation (Ordovician) in the Arbuckle Mountains, Oklahoma, by Leonard P. Alberstadt. February 5, 1973. 90 pages, 38 figures, 9 plates, 1 table.

Bulletin 118. Models of sand and sandstone deposits: A methodology for determining sand genesis and trend, by John W. Shelton. October 2, 1973. 122 pages, 141 figures, 3 tables.

Bulletin 119. Late Ordovician and Early Silurian articulate brachiopods from Oklahoma, southwestern Illinois, and eastern Missouri, by Thomas W. Amsden. February 5, 1975. 154 pages, 51 figures, 28 plates, 13 tables.

Bulletin 120. Geology and mineral resources of Choctaw County, Oklahoma, by George G. Huffman, P. P. Alfonsi, R. C. Dalton, Andres Duarte-Vivas, and E. L. Jeffries. October 2, 1975. 39 pages, 18 figures, 1 color plate (geologic map). 5 tables.

Bulletin 121. Hunton Group (Late Ordovician, Silurian, and Early Devonian) in the Anadarko basin of Oklahoma, by Thomas W. Amsden. June 2, 1976. 214 pages, 41 figures, 15 plates, 11 color map panels.

~~Bulletin 122.~~ Geology and mineral resources (exclusive of petroleum) of Muskogee County, Oklahoma, by Malcolm C. Oakes. September 19, 1977. 78 pages, 8 figures, 2 plates (including color geologic map).

Bulletin 123. Trilobites of the Haragan, Bois d'Arc, and Frisco Formations (Early Devonian), Arbuckle Mountains region, Oklahoma, by K. S. W. Campbell. December 7, 1977. 227 pages, 36 figures, 40 plates, 5 tables.

Bulletin 124. Late Cambrian and earliest Ordovician trilobites, Wichita Mountains area, Oklahoma, by James H. Stitt. April 21, 1977. 79 pages, 12 figures, 6 plates.

Bulletin 125. Articulate brachiopods of the Quarry Mountain Formation (Silurian), eastern Oklahoma, by Thomas W. Amsden. October 24, 1978. 75 pages, 22 figures, 13 plates, 2 tables.

~~Bulletin 126.~~ Geology and mineral resources of Bryan County, by George G. Huffman and others. December 1978 [1979]. 108 pages, 49 figures, 1 plate (geologic map), 11 tables.

## PUBLICATIONS OF THE BUREAU OF GEOLOGY

In July of 1923 the Oklahoma Geological Survey ceased to exist for the brief period of one year, owing to the veto of its appropriations by the then governor of Oklahoma, Jack Walton. The Bureau of Geology represents an attempt by C. W. Shannon, who had been director of the Survey, to keep the work going on a self-supporting basis. The following significant publications were issued during this interim:

*Bulletin 2. Geology of the Stonewall quadrangle, Oklahoma, by Geo. D. Morgan, published by the Bureau of Geology. 1924. 248 pages, 2 figures, 53 plates (including geologic map, structure map, cross sections, and faunal chart), 14 tables.

*Circular 2. Boggy unconformity and overlap in southern Oklahoma, by Geo. D. Morgan, published by the Bureau of Geology. 1924. 8 pages, 2 plates.

*Circular 3. Geology of southern Le Flore and northwestern McCurtain Counties, Oklahoma, by C. W. Honess, published by the Bureau of Geology. 1924. 23 pages, 2 figures, 5 plates.

*Bureau Monthly, Vol. 1, No. 1. April 1925. 28 pages. No further issues of this periodical were published.

## CIRCULARS

*Circular 1. The Oklahoma Geological Survey, its origin, scope and purposes, by Chas. N. Gould and L. L. Hutchison. 1908. 12 pages.

*Circular 2. Brief statement of the geological history of Oklahoma, by Chas. N. Gould. 1911. 16 pages, 1 plate (geologic map).

*Circular 3. Oklahoma among the southern states, by Chas. N. Gould. 1911. 15 pages.

*Circular 4. The trees and shrubs of Oklahoma, by C. W. Shannon. 1913. 41 pages.

*Circular 5. Rock asphalts of Oklahoma and their use in paving, by L. C. Snider. 1913. 22 pages, 7 figures.

~~*Circular 6.~~ Animal and plant life in Oklahoma. 1917. 68 pages, 1 plate.

*Circular 7. Correlation of the oil sands in Oklahoma, by Fritz Aurin. 1917. 16 pages, 1 plate (correlation chart).

*Circular 8. Methods of exploring for oil and gas, by George E. Burton. 1917. 20 pages, 2 figures, 2 plates.

*Circular 9. The Sycamore limestone, by C. L. Cooper. 1926. 27 pages, 4 figures, 5 plates (including geologic map).

*Circular 10. A Siluro-Devonian oil horizon in southern Oklahoma, by Geo. D. Morgan. 1922. 13 pages.

*Circular 11. Arkose of the northern Arbuckle area, by Geo. D. Morgan. 1922. 7 pages.

Circular 12. Stratigraphic position of the Franks and Seminole formations of Oklahoma, by Geo. D. Morgan. 1923. 17 pages, 1 plate.

*Circular 13. The Permian of western Oklahoma and the Panhandle of Texas, by Chas. N. Gould and Frank E. Lewis. 1926. 29 pages, 2 plates, 3 tables.

*Circular 14. The Arbuckle Mountains, Oklahoma, by Chester A. Reeds. 1927. 15 pages, 11 figures (including geologic map).

Circular 15. Physical characteristics of the Arbuckle limestone, by Charles E. Decker and Clifford A. Merritt. 1928. 56 pages, 2 figures, 5 plates.

*Circular 16. Oklahoma, the geologists' laboratory, by Chas. N. Gould. 1927. 16 pages, 7 plates.

*Circular 17. Preliminary report on road materials of western Oklahoma, by O. F. Evans. 1928. 19 pages, 1 figure, 1 plate.

*Circular 18. A comparative faunal chart of the Mississippian and Morrow formations of Oklahoma and Arkansas, by Robert Roth. 1929. 16 pages, 1 figure, 2 charts.

*Circular 19. Accelerated weathering properties of Oklahoma asphalts, by Paul G. Shelley. 1929. 37 pages, 1 figure, 5 plates, 3 tables.

*Circular 20. Native road materials and highway maintenance, by N. E. Wolfard. 1929. 42 pages, 2 figures, 12 plates.

*Circular 21. Foraminifera from the Atoka formation of Oklahoma, by J. J. Galloway and Charles Ryniker. 1930. 37 pages, 5 plates.

*Circular 22. Progress report on the classification of the Timbered Hills and Arbuckle groups of rocks, Arbuckle and Wichita Mountains, Oklahoma, by Charles E. Decker. 1939. 62 pages, 1 figure, 5 plates (including geologic map), 1 table.

Circular 23. Barite in Oklahoma, by William E. Ham and C. A. Merritt. 1944. 42 pages, 2 figures, 4 plates.

*Circular 24. Broken Arrow coal and associated strata, western Rogers, Wagoner, and southeastern Tulsa Counties, Oklahoma, by Malcolm C. Oakes. 1944. 40 pages, 2 plates (including geologic map).

*Circular 25. Fluoride removal from drinking water, by A. L. Burwell, L. C. Case, and C. H. Goodnight. 1945. 41 pages, 4 figures, 1 plate.

Circular 26. Geology and dolomite resources, Mill Creek-Ravia area, Johnston County, Oklahoma, by William E. Ham. 1949. 104 pages, 5 figures, 12 plates, 7 tables, geologic map.

Circular 27. Cellular products from Oklahoma volcanic ash, by A. L. Burwell, with a section on geology and petrology, by William E. Ham. 1949. 89 pages, 7 figures, 10 plates, 13 tables.

Circular 28. Ground-water resources of the Arkansas River flood plain near Fort Gibson, Muskogee County, Oklahoma, by Stuart L. Schoff and Edwin W. Reed. 1951. 55 pages, 1 figure, 12 plates, 7 tables.

*Circular 29. Mineral production of Oklahoma 1855-1949, by Phyllis Dale and J. O. Beach. 1951. 42 pages, 4 figures.

Circular 30. Ilmenite in alluvial sands of the Wichita Mountain system, Oklahoma, by Gerald W. Chase. 1952. 44 pages, 10 figures, 2 plates.

Circular 31. Desmoinesian fusulinids of northeastern Oklahoma, by Richard D. Alexander, with sections on Stratigraphy, by Carl C. Branson, and Stratigraphic significance, by Carl C. Branson and Richard D. Alexander. September 1954. 58 pages, 4 figures, 4 plates.

Circular 32. Pennsylvanian plant microfossils of the Croweburg coal in Oklahoma, by L. R. Wilson and William S. Hoffmeister. April 1956. 57 pages, 4 figures, 5 plates.

Circular 33. Geology and economic geology of the Baum limestone, Ravia-Mannsville area, Oklahoma, by John Rex Wayland and William E. Ham. July 1955. 44 pages, 1 figure, 9 plates (including geologic map).

*Circular 34. Geology of the core of the Ouachita Mountains of Oklahoma, by William D. Pitt. June 1955. 34 pages, 15 figures, 1 plate (geologic map), 1 table.

Circular 35. Post-Boone outliers of northeastern Oklahoma, by R. C. Slocum. November 1955. 44 pages, 12 figures, including 8 colored maps, 2 tables.

Circular 36. Spores of McAlester-Stigler coal, by James Leland Morgan. November 1955. 56 pages, 3 figures, 3 plates, 1 table.

Circular 37. A new Pleistocene fauna from Harper County, Oklahoma, by Dwight W. Taylor and Claude W. Hibbard. September 1955. 23 pages, 1 figure.

Circular 38. Catalog of fossils from the Hunton group, Oklahoma, by Thomas W. Amsden. June 1956. 63 pages.

Circular 39. Chester Foraminifera and Ostracoda from the Ringwood Pool of Oklahoma, by R. W. Harris and Thomas C. Jobe. June 1956. 41 pages, 4 plates.

Circular 40. Geology of northeastern Osage County, Oklahoma, by W. F. Tanner. October 1956. 76 pages, 17 figures, 4 plates (including geologic map).

*Circular 41. Two measured sections of Jackfork group in southeastern Oklahoma, by L. M. Cline and Frank Moretti. October 1956. 20 pages.

~~Circular 42~~. Geology and gypsum resources of the Carter area, Oklahoma, by George L. Scott, Jr., and William E. Ham. September 1957. 64 pages, 5 figures, 8 plates (including geologic map).

Circular 43. Catalog of fossils from the Middle and Upper Ordovician of Oklahoma, by Thomas W. Amsden. March 1957. 41 pages.

Circular 44. Stratigraphy and paleontology of the Hunton group in the Arbuckle Mountain Region. Part I. Introduction to stratigraphy, by Thomas W. Amsden. June 1957. 57 pages, 4 figures, 3 plates.

Circular 45. A Pliocene vertebrate fauna from Ellis County, Oklahoma, by David B. Kitts. August 1957. 27 pages, 2 figures, 1 plate.

Circular 46. Chesterian and Morrowan rocks in the McAlester basin of Oklahoma, by Richard B. Laudon. November 1958. 30 pages, 14 figures.

Circular 47. Atoka formation on the north side of the McAlester Basin, by Jack G. Blythe. July 1959. 74 pages, 24 figures.

~~Circular 48.~~ Cenozoic geology of northern Roger Mills County, Oklahoma, by David B. Kitts, with a section on A Pliocene vertebrate fauna from Roger Mills County, by David B. Kitts and Craig C. Black. July 1959. 48 pages, 11 figures, 2 plates (including geologic map).

Circular 49. Permian plant microfossils from the Flowerpot Formation, Greer County, Oklahoma, by L. R. Wilson. February 1962. 50 pages, 2 figures, 3 colored plates, 1 table.

~~Circular 50.~~ Geology of northern Latimer County, Oklahoma, by Dearl T. Russell. January 1960. 57 pages, 12 figures, 1 plate (geologic map).

~~Circular 51.~~ Geology of the Cavanal syncline, Le Flore County, Oklahoma, by Philip K. Webb. May 1960. 65 pages, 1 figure, 1 plate (geologic map).

Circular 52. Type section of the Caney shale, by Maxim K. Elias and Carl C. Branson. December 1959. 24 pages, 2 figures, 34 tables.

~~Circular 53.~~ Geology of the Featherston area, Pittsburg County, Oklahoma, by Robert E. Vanderpool. May 1960. 36 pages, 10 figures, 1 plate (geologic map).

Circular 54. Coal mining and landscape modification in Oklahoma, by Arthur H. Doerr. March 1961. 48 pages, 13 figures.

Circular 55. The genus Paragassizocrinus in Oklahoma, by Harrell L. Strimple. November 1960. 37 pages, 2 figures, 3 plates.

Circular 56. Pollen and spores from the Permian deposits of the Cherdyn' and Aktyubinsk areas, Cis-Urals, by R. S. Samoilovich. Translated from the Russian by M. K. Elias. March 1961. 103 pages, 17 plates, 4 tables.

~~Circular 57~~. Geology of northeastern Cherokee County, Oklahoma, by John M. Starke, Jr. August 1961. 62 pages, 16 figures, 1 plate (geologic map).

Circular 58. Correlation of Paleozoic rocks from Coal County, Oklahoma, to Sebastian County, Arkansas, by Sherwood F. Frezon. February 1962. 53 pages, 1 figure, 2 plates, 1 table.

Circular 59. Permian vertebrates from Oklahoma and Texas. Part I. Vertebrates from the Flowerpot Formation, Permian of Oklahoma, by Everett C. Olson and Herbert Barghusen. Part II. The osteology of Captorhinikos chozaensis Olson, by Everett C. Olson. August 1962. 68 pages, 15 figures, 3 plates, 7 tables.

Circular 60. Crinoids from the Oolagah Formation (Pennsylvanian), Tulsa County, Oklahoma, by Harrell L. Strimple. July 1962. 75 pages, 9 plates.

~~Circular 61.~~ Ground-water resources of the Rush Springs Sandstone in the Caddo County area, Oklahoma, by Harry H. Tanaka and Leon V. Davis. May 1963. 63 pages, 11 figures, 2 plates (including geologic map), 10 tables.

~~Circular 62.~~ Petroleum geology of Pawnee County, Oklahoma, by Patrick H. Clare. February 1963. 62 pages, 4 figures, 2 plates, 10 tables.

~~Circular 63.~~ Geology and petroleum of Love County, Oklahoma. Part I. Geology of Love County, by E. A. Frederickson and R. H. Redman. Part II. Petroleum geology of Love County, by Jerome M. Westheimer. December 1965. 91 pages, 29 figures, 2 plates (including geologic map).

Circular 64. Copper in the Flowerpot Shale (Permian) of the Creta area, Jackson County, Oklahoma, by W. E. Ham and Kenneth S. Johnson. February 1964. 32 pages, 10 figures, 2 plates, 3 tables.

~~Circular 65.~~ Geology of the western part of Winding Stair Range, Latimer and Le Flore Counties, Oklahoma, by L. D. Fellows. July 1964. 102 pages, 29 figures, 1 plate (geologic map).

Circular 66. Chitons from the Kindblade Formation (Lower Ordovician), Arbuckle Mountains, southern Oklahoma, by Allyn G. Smith and Donald F. Toomey. July 1964. 41 pages, 2 figures, 8 plates.

Circular 67. The ammonoid family Girtyoceratidae in the southern Midcontinent, by J. A. McCaleb, J. H. Quinn, and W. M. Furnish. July 1964. 41 pages, 8 figures, 4 plates.

~~Circular 68.~~ Geology of northern Adair County, Oklahoma, by George G. Huffman, Jackson M. Langton, and James M. Hancock, Jr. February 1966. 50 pages, 21 figures, 1 plate (geologic map).

~~Circular 69.~~ Geology of the Cenozoic rocks of Ellis County, Oklahoma, by David B. Kitts. June 1965. 30 pages, 5 figures, 1 plate (geologic map).

Circular 70. New Permian vertebrates from the Chickasha Formation in Oklahoma, by Everett C. Olson. December 1965. 70 pages, 5 figures, 8 plates, 2 tables.

~~Circular 71.~~ Ground-water resources in Cleveland and Oklahoma Counties, Oklahoma, by P. R. Wood and L. C. Burton. April 1968. 75 pages, 8 figures, 2 plates (including geologic map), 9 tables.

Circular 72. Studies of Pennsylvanian corals in Oklahoma: Part I. Tabulate corals of the Wapanucka Formation, by Charles L. Rowett. Part II. New species of Dibunophyllum from the Dewey Formation, by J. M. Cocke. August 1966. 58 pages, 2 figures, 3 plates, 2 tables.

Circular 73. Palynological zonation of the Woodford Formation (Devonian) in Carter County, Oklahoma, by James B. Urban and L. R. Wilson. In preparation.

Circular 74. Early Permian vertebrates of Oklahoma, by Everett C. Olson. December 1967. 111 pages, 12 figures, 3 plates.

~~Circular 75.~~ Geology of the eastern part of the Lynn Mountain syncline, Le Flore County, Oklahoma, by Garrett Briggs. July 23, 1973. 34 pages, 13 figures, 1 plate (geologic map by Garrett Briggs and Donald L. Smith).

Circular 76. Shale and carbonate-rock resources of Osage County, Oklahoma, by William H. Bellis and T. L. Rowland. November 22, 1976. 50 pages, 18 figures, 1 color map panel, 4 tables.

Circular 77. Stratiform copper deposits of the Midcontinent region, a symposium, Kenneth S. Johnson and Rosemary L. Croy, editors. Proceedings of a symposium held March 8, 1974, at the South-Central Section meeting of The Geological Society of America, held at Oklahoma State University, Stillwater. February 3, 1977. 10 papers, 3 abstracts, 99 pages, 99 figures, 4 plates, 13 tables.

Circular 78. Calceocrinids from the Bromide Formation (Middle Ordovician) of southern Oklahoma, by James C. Brower. November 11, 1977. 27 pages, 2 figures, 4 plates, 3 tables.

Circular 79. Thirteenth Annual Forum on the Geology of Industrial Minerals, Kenneth S. Johnson and Judy A. Russell, editors. December 1978. Proceedings of 13th annual meeting of Forum on Industrial Minerals held May 12-14, 1977, in Norman, Oklahoma. Sponsored by Oklahoma Geological Survey and University of Oklahoma. 14 papers, 2 abstracts, 107 pages, 60 figures, 53 tables.

## CONTROL SURVEY CIRCULARS

See also Bulletins 58 and 61

*Control Survey Circular 1. Traverse and leveling in central Oklahoma, compiled by N. E. Wolfard. 1940. 111 pages, 5 figures, 1 plate.

*Control Survey Circular 2. Traverse and leveling in south-central Oklahoma, compiled by N. E. Wolfard. 1941. 167 pages, 6 figures, 1 plate.

*Control Survey Circular 3. Traverse and leveling in north-central Oklahoma, compiled by N. E. Wolfard. 1941. 99 pages, 5 figures, 1 plate.

## MINERAL REPORTS

(Series discontinued in 1959)

Mineral Report 1. Volcanic ash and tripoli, compiled by J. O. Beach. 1938. 27 pages, 1 plate (map), 3 tables.

*Mineral Report 2. Phosphate, compiled by M. C. Oakes. 1938. 24 pages, 1 figure, 1 plate (map), 1 table.

Mineral Report 3. Glass sands, compiled by Charles N. Gould and J. O. Beach. 1939. 21 pages, 1 figure (map).

*Mineral Report 4. Iron ores, by C. A. Merritt. 1940. 38 pages, 1 figure (map).

Mineral Report 5. Limestone analyses, by S. G. English, Robert H. Dott, and J. O. Beach. 1940. 28 pages, 1 plate (map), 3 tables.

Mineral Report 6. Dolomite and magnesium limestone, by J. O. Beach and S. G. English. 1940. 20 pages, 3 tables.

Mineral Report 7. A selective bibliography on the theories of the origin of petroleum, compiled by Alan G. Skelton and Martha B. Skelton. 1942. 14 pages.

Mineral Report 8. Copper in the "Red Beds" of Oklahoma, by C. A. Merritt. 1940. 20 pages.

Mineral Report 9. Raw materials used in glass making, by Jay Randolph. 1941. 21 pages.

Mineral Report 10. Manganese deposits of Oklahoma, by C. A. Merritt. 1941. 36 pages, 4 figures.

*Mineral Report 11. Geology of Oklahoma ground water supplies, by Robert H. Dott. 1942. 30 pages, 6 plates (maps), 6 tables.

*Mineral Report 12. Carbonizing properties of Henryetta bed coal from Atlas No. 2 Mine, Henryetta, Okmulgee County, Oklahoma (preliminary report), by Joseph D. Davis and D. A. Reynolds. 1941. 8 pages, 7 tables.

Mineral Report 13. Mineral production of Oklahoma 1885-1940, compiled by J. O. Beach. 1942. 38 pages, 5 figures, 4 plates (maps).

Mineral Report 14. The possibility of magnesia from Oklahoma oil field brines, by A. L. Burwell. 1943. 26 pages, 1 figure, 6 tables.

Mineral Report 15. Carbonizing properties of McAlester bed coal from Dow No. 10 mine, Dow, Pittsburg County, Oklahoma, by Joseph D. Davis and D. A. Reynolds. 1942. 10 pages, 1 figure, 7 tables.

*Mineral Report 16. Geology and chemical composition of the St. Clair limestone near Marble City, Oklahoma, by W. E. Ham, R. H. Dott, A. L. Burwell, and M. C. Oakes. 1943. 24 pages, 2 plates.

*Mineral Report 17. Bibliography of oil pool names in Oklahoma for 1942, by Alan G. Skelton. 1944. 48 pages.

*Mineral Report 18. Ground-water irrigation in the Duke area, Jackson and Greer Counties, Oklahoma, by Stuart L. Schoff. 1948. 10 pages, 1 plate, 1 table.

Mineral Report 19. Ground water in Kingfisher County, Oklahoma, by Stuart L. Schoff. 1949. 23 pages, 1 plate (map), 3 tables.

Mineral Report 20. Ground water supplies in the Oklahoma City area, Oklahoma, by C. L. Jacobsen and E. W. Reed. 1949. 21 pages. 2 figures.

Mineral Report 21. Ground water in the Cherokee area, Alfalfa County, Oklahoma, by Stuart L. Schoff. 1950. 17 pages, 1 plate, 5 tables.

*Mineral Report 22. Ground water in the Pond Creek basin, Caddo County, Oklahoma, by Leon V. Davis. 1950. 23 pages, 5 figures, 1 plate (map), 6 tables.

Mineral Report 23. Oil possibilities near Idabel, McCurtain County, by L. V. Davis. 1953. 26 pages, 3 figures, 1 plate (map), 2 tables.

Mineral Report 24. Lightweight aggregate from certain Oklahoma shales, by A. L. Burwell. September 1954. 24 pages, 3 figures, 7 tables.

Mineral Report 25. Mineral industry of Oklahoma in 1952, by F. F. Netzeband, W. E. Ham, and J. H. Warren. November 1954. 26 pages, 7 tables.

*Mineral Report 26. Occurrence of radioactive material in sandstone lenses of southwestern Oklahoma, by Gerald W. Chase. November 1954. 7 pages, 1 plate (map).

Mineral Report 27. Uranium in Oklahoma, 1955, by Carl C. Branson, A. L. Burwell, and G. W. Chase. September 1955. 22 pages, 2 plates (maps). Supersedes Mineral Report 26.

Mineral Report 28. The Henryhouse marlstone in the Lawrence uplift, Pontotoc County, Oklahoma, and its commercial possibilities, by Albert L. Burwell, with a section on General geology by William E. Ham. November 1955. 21 pages, 2 figures, 5 tables.

Mineral Report 29. An investigation of industrial possibilities of Oklahoma gypsum and anhydrite, by Albert L. Burwell. November 1955. 21 pages, 1 figure (map).

Mineral Report 30. Asphaltite in the Ouachita Mountains of southeastern Oklahoma, by William E. Ham. February 1956. 12 pages, 1 figure (map), 3 tables.

*Mineral Report 31. The mineral industries of Oklahoma in 1954 and 1955, by P. E. Tribble, F. F. Netzeband, and W. E. Ham. March 1956. 13 pages, 3 tables.

Mineral Report 32. The mineral industries of Oklahoma in 1955 and 1956, by Peter Grandone and William E. Ham. May 1957. 13 pages, 3 tables.

Mineral Report 33. Uranium-bearing carbonaceous nodules in Oklahoma, by James W. Hill. September 1957. 8 pages, 2 figures (1 map), 1 plate.

Mineral Report 34. The mineral industries of Oklahoma in 1956 and 1957, by Peter Grandone and William E. Ham. May 1958. 24 pages, 13 tables.

Mineral Report 35. Gypsum resources in the Clinton-Weatherford district, by William E. Ham and Neville M. Curtis, Jr. June 1958. 32 pages, 2 figures, 5 plates, 4 tables.

*Mineral Report 36. The mineral industries of Oklahoma in 1957 and 1958, by Peter Grandone, L. E. Edwards, and William E. Ham. March 1959. 24 pages, 13 tables.

## DIRECTOR'S REPORTS

(For earlier reports see section on Territorial Survey and also Bulletin 6, Bulletin 15, and Bulletin 22.)

*Director's Biennial Report for 1935-1936, by Robert H. Dott. December 1936. 63 pages, 5 tables.

*Director's Biennial Report for 1937-1938. The Oklahoma Geological Survey, what it is--what it does, by Robert H. Dott. December 1938. 34 pages, 13 photographs, 3 tables.

*Director's Biennial Report for 1939-1940. The Oklahoma Geological Survey and industrial development, by Robert H. Dott. December 1940. 32 pages, 13 photographs, 3 tables.

*Director's Biennial Report for 1941-1942. Mineral resources and mineral industries, an outline for future development in Oklahoma, by Robert H. Dott. December 1942. 48 pages, 1 chart, 9 photographs, 2 tables.

*Director's Biennial Report for 1943-1944. Research and industrial development, by Robert H. Dott. December 1944. 24 pages, 2 tables.

*Director's Biennial Report for 1945-1946. Oklahoma needs more manufacturing, by Robert H. Dott. January 1947. 32 pages, 4 figures, 2 tables.

*Director's Biennial Report for 1947-1948. Minerals of Oklahoma, by Robert H. Dott. January 1949. 32 pages, 1 table, illustrations.

(No Biennial Report issued for 1949-1950, 1951-1952.)

*Director's Biennial Report for 1953-1955, by Carl C. Branson. April 1955. 18 pages.

### Semi-Centennial Report

Semi-Centennial Report. 1908-1958, by Carl C. Branson, Louise Jordan, and William E. Ham. July 1958. 147 pages, 6 figures, 5 maps, 9 photographs, 7 tables.

Subsequent reports of the director are included annually in Oklahoma Geology Notes.

## GUIDEBOOKS

### Guidebook Series

*~~Guidebook~~ 1. Pre-Atokan rocks in western part of the Ozark uplift, northeastern Oklahoma, by George G. Huffman. April 1953. 41 pages, 23 figures, 7 graphic measured sections.

*~~Guidebook~~ 2. Desmoinesian rocks of northeastern Oklahoma, by Carl C. Branson. May 1954. 41 pages, 17 figures, 6 maps.

*~~Guidebook~~ 3. Geology of the Arbuckle Mountain region, by William E. Ham. Part I. Geology of the Arbuckle and Timbered Hills group. Part II. Regional stratigraphy and structure of the Arbuckle Mountain region. April 1955. 61 pages, 21 figures, geologic map, 2 tables.

~~Guidebook 4.~~ Geology of the Turner Turnpike, prepared by Oklahoma Geological Survey, Oklahoma City Geological Society, Tulsa Geological Society, and University of Oklahoma, with sections on Vegetation, by Elroy L. Rice; History, by Gaston Litton; Stratigraphy, by Malcolm C. Oakes and Carl C. Branson; Subsurface geology, by R. P. Clinton, Louise Jordan, and Harry Christian; and Subsurface geology of a part of Lincoln County, by Daniel A. Busch. April 1956. 76 pages, 3 figures, aerial photograph, road log, geologic profile, strip map.

*~~Guidebook 5.~~ Geology of the Wichita Mountain region, by William E. Ham, Clifford A. Merritt, and E. A. Frederickson. May 1957. 58 pages, 14 figures, geologic map, 1 table.

~~Guidebook 6.~~ Subsurface stratigraphic names of Oklahoma, by Louise Jordan. December 1957. 220 pages, 212 figures.

*~~Guidebook 7.~~ Guide to Robber's Cave State Park and Camp Tom Hale, Latimer County, Oklahoma, by Dearl T. Russell. December 1958. 23 pages, 12 figures, 2 plates.

*Guidebook 8. The composite interpretive method of logging drill cuttings, by John C. Maher. June 1959. 48 pages, 14 figures, 1 plate, 6 tables.

~~Guidebook 9.~~ Guide to Roman Nose State Park, Blaine County, Oklahoma, by Robert O. Fay. August 1959. 31 pages, 9 figures, 4 plates.

~~Guidebook 10~~. Common minerals, rocks, and fossils of Oklahoma, by William E. Ham and Neville M. Curtis, Jr. November 1960. 28 pages, 28 figures, 2 tables.

*Guidebook 11. Guide to Beavers Bend State Park, by William D. Pitt and others. January 1963. 46 pages, 15 figures.

Guidebook 12. A guide to the State parks and scenic areas in the Oklahoma Ozarks, by George G. Huffman, Tyson A. Cathey, and James E. Humphrey. March 1963. 95 pages, 56 figures.

Guidebook 13. Sample descriptions and correlations for wells on a cross section from Barber County, Kansas, to Caddo County, Oklahoma, by W. L. Adkison and Mary G. Sheldon. September 1963. 139 pages, 2 figures, 1 table.

Guidebook 14. The composite interpretive method of logging drill cuttings, second edition, by John C. Maher. December 1964. 48 pages, 14 figures, 1 plate, 6 tables.

Guidebook 15. Guide to Alabaster Cavern and Woodward County, Oklahoma, by Arthur J. Myers, Arrell M. Gibson, Bryan P. Glass, and Carol R. Patrick. September 1969. 38 pages, 41 figures.

Guidebook 16. Late Paleozoic conodonts from the Ouachita and Arbuckle Mountains of Oklahoma, by Maxim K. Elias. December 1966. 39 pages, 2 plates.

Guidebook 17. Regional geology of the Arbuckle Mountains, Oklahoma, by William E. Ham, with contributions by James H. Stitt, James R. Derby, Robert O. Fay, and A. Allen Graffham. June 1969. 52 pages, 41 figures, 1 plate (geologic map), 1 table.

Guidebook 18. Upper Chesterian--Morrowan stratigraphy and the Mississippian--Pennsylvanian boundary in northeastern Oklahoma and northwestern Arkansas (Patrick K. Sutherland and Walter L. Manger, editors). Guidebook for field trip no. 5, August 5-7, 1977, North American Paleontological Convention II. July 29, 1977. 17 papers, 185 pages, 79 figures, 21 plates, 14 tables.

## Guidebooks for Geological Society of America Field Trips

The following guidebooks were published by the Oklahoma Geological Survey in cooperation with the Geological Society of America for GSA field trips offered in connection with annual meetings as indicated.

[1] The structure and igneous rocks of the Wichita Mountains, Oklahoma, George T. Stone, editor, with articles by William E. Ham, Hugh E. Hunter, Clifford A. Merritt, and George T. Stone. April 1, 1967. 46 pages, 11 figures, 4 tables. Published in cooperation with University of Oklahoma School of Geology and Geophysics, Oil Information Center, and Oklahoma Geological Survey for 1st annual meeting of South-Central Section of GSA.

[2] Regional geology of the Arbuckle Mountains, Oklahoma, by William E. Ham, compiled by T. L. Rowland, with contributions by Thomas W. Amsden, Rodger E. Denison, James R. Derby, Robert O. Fay, A. Allen Graffham, T. L. Rowland, Richard L. Squires, and James H. Stitt. November 9, 1973. 56 pages, 50 figures. Published by Oklahoma Geological Survey for field trip no. 5 of 1973 annual meeting of GSA; reprinted with minor revisions for field trip no. 1 of 1978 annual meeting of American Association of Petroleum Geologists/Society of Economic Paleontologists and Mineralogists.

[3] Igneous geology of the Wichita Mountains and economic geology of the Wichita Mountains and economic geology of Permian rocks in southwest Oklahoma, by Kenneth S. Johnson and Rodger E. Denison, with contributions by Douglas C. Brockie, Hugh E. Hunter, and Nancy L. Scofield. November 9, 1973. Published by Oklahoma Geological Survey for field trip no. 6 of 1973 annual meeting of GSA.

[4] Guidebook to the depositional environment of selected Pennsylvanian sandstones and carbonates of Oklahoma, by John W. Shelton and T. L. Rowland. March 7, 1974. 75 pages, 33 figures, 15 plates. Published in cooperation with Oklahoma Geological Survey and Oklahoma State University for field trip no. 3 of 8th annual meeting of South-Central Section of GSA.

[5] Plutonic igneous geology of the Wichita Magmatic Province Oklahoma, by Benjamin N. Powell and Joseph F. Fischer, with contributions by David W. Phelps and Martin A. Pruatt. February 26, 1976. 35 pages, 52 figures, 7 tables. Published by Oklahoma Geological Survey for field trip no. 2 of 10th annual meeting of South-Central Section of GSA.

## Highway Geology Symposium Guidebook

Highway geology in the Arbuckle Mountains and Ardmore area, southern Oklahoma, by Kenneth S. Johnson and Willard McCasland. April 1971. 31 pages, 18 figures. Published by Oklahoma Geological Survey in cooperation with Oklahoma Department of Highways for field trip of 22nd Annual Highway Geology Symposium held in Norman, Oklahoma, April 22-23, 1971.

## Industrial Field Trip Guides

*[1] Mineral resources field trip, Ada district, by W. E. Ham. November 30, 1945. 17 pages, 1 map.

*[2] Mineral resources field trip, Wichita Mountain district, by William E. Ham. May 21, 1946. 14 pages, 1 map.

*[3] Mineral resources field trip, Ada district, by W. E. Ham. November 8, 1946. 19 pages, 1 map.

*[4] Industrial Tour. Manufacturing districts of Tulsa and Sand Springs, by Malcolm C. Oakes. November 18, 1947. 10 pages.

*[5] Field trip in the Arbuckle Mountains for industrial minerals division, AIME, by William E. Ham. October 19, 1950. 30 pages, 1 map.

## EDUCATIONAL PUBLICATIONS

Educational Publication 1. Geology and earth resources of Oklahoma--An atlas of maps and cross sections, by Kenneth S. Johnson, Carl C. Branson, Neville M. Curtis, Jr., William E. Ham, Melvin V. Marcher, and John F. Roberts. July 1972. 8 pages. Introductory text and 6 map sheets showing topography, geomorphic provinces, geology, mineral resources, oil and gas, and water resources, plus one sheet of cross sections.

Educational Publication 2. Introduction, guidelines, and geologic history of Oklahoma, Book I of Guidebook for geologic field trips in Oklahoma, by Kenneth S. Johnson. January 1971. 15 pages, 16 figures, 7 photographs, 1 table.

Educational Publication 3. Northwest Oklahoma, Book II of Guidebook for geologic field trips in Oklahoma, by Kenneth S. Johnson. September 1972. 42 pages, 54 figures, 26 field trip sites.

## MAPS

### Miscellaneous Maps

*[1] Geologic map and sections of southern Ouachita Mountains, by C. W. Honess. 1923. Scale: 1:63,360.

*[2] Structure map of northeastern Oklahoma, by W. H. Thom, Jr. 1925.

*[3] Geologic map of Oklahoma, by H. D. Miser. 1926. Scale: 1:500,000.

*[4] Oil and gas maps, by Bess M. Bullard. 1926.

*[5] Oil and gas producing areas in Oklahoma, by Bess M. Bullard. 1928. Included in Bulletin 40-Q.

*[6] Topographic maps of lead and zinc area. Set of 4 topographic maps of part of northern Ottawa County. 1927 [March 1929]. Scale: 4 inches = 1 mile; contour interval: 10 feet.

*[7] Oil and gas map of Oklahoma. 1931.

*[8] Mineral map of Oklahoma. 1940.

*[9] Minerals of Oklahoma, by R. H. Dott, J. O. Beach, N. T. Dilday, and A. L. Burwell. 1944.

[10] Geologic map of Oklahoma, by H. D. Miser and others. 1954. Scale: 1:500,000.

Set of the following 4 maps of Tulsa County from Tulsa Geological Society Digest, v. 37, Tulsa's physical environment, Allan P. Bennison, principal editor. Maps prepared by cartography section of Oklahoma Geological Survey in cooperation with Tulsa Geological Society. 1972. Scale: 1 inch = 1 mile.

[11] Map 1. Surface geology and Bouguer gravity of Tulsa County, Oklahoma, by Allan P. Bennison, Philip A. Chenoweth, Louis Desjardins, and Craig Ferris.

[12] Map 2. General soil map of Tulsa County, Oklahoma, and environs, by U.S. Soil Conservation Service, Tulsa, Oklahoma.

[13] Map 3. General construction conditions at a glance, Tulsa County, Oklahoma, and environs.

[14] Map 4. Locations of all known or reported oil wells, gas wells, and dry holes drilled in Tulsa County and adjacent portions of Creek, Osage, Rogers, and Wagoner Counties, Oklahoma, prior to January 1, 1971.

[15] Energy-fuels map of Oklahoma. Published cooperatively by Oklahoma Geological Survey and Phillips Petroleum Company. September 1973. Scale: 1:2,000,000 (1 inch = 32 miles).

[16] Map of eastern Oklahoma showing active coal mines (January 1, 1976), compiled by S. A. Friedman. September 15, 1976. Scale: 1:500,000.

[17] Map of eastern Oklahoma showing active coal mines (January 1, 1977), compiled by S. A. Friedman. July 28, 1977. Scale: 1:500,000.

Set of the following 6 maps of Oklahoma from Oklahoma Geological Survey Educational Publication 1. These maps have also been issued individually. 1972. Scale: 1:2,000,000.

[18] Topographic map of Oklahoma, compiled by Kenneth S. Johnson.

[19] Geomorphic provinces of Oklahoma, by Neville M. Curtis, Jr., and William E. Ham.

[20] Generalized geologic map of Oklahoma, compiled by Carl C. Branson and Kenneth S. Johnson.

[21] Mineral resources map of Oklahoma exclusive of oil and gas fields, compiled by Kenneth S. Johnson.

[22] Generalized oil and gas map of Oklahoma, compiled by John F. Roberts.

[23] Major sources of water in Oklahoma, compiled by Melvin V. Marcher.

Map 72-1. Mineral map of Oklahoma, by John H. Warren. September 1955. Scale: 1:750,000. (Superseded by Map GM-15.)

Map 72-2. Map of ground-water reservoirs of Oklahoma, by Stuart L. Schoff. November 1955. Scale: 1:750,000.

Map A-1. Geologic map of basic igneous rocks in the Raggedy Mountains, Wichita Mountain System, Oklahoma, by Gerald W. Chase. 1950. Scale: 2 inches = 1 mile.

Map A-2. Geologic map and sections of the Arbuckle Mountains, Oklahoma, by W. E. Ham and Myron E. McKinley. 1954 [1955]. Scale: 0.88 inch = 1 mile. (Same map as in Guidebook 17.)

Map A-3. Geologic map of northeastern Osage County, by W. F. Tanner. 1956. Scale: 1 inch = 1 mile. (Plate I of Circular 40.)

Map A-4. Geologic map of the Carter area, by George Scott, Jr. 1957. Scale: 2 inches = 1 mile. (Plate I of Circular 42.)

Map A-5. Geologic map of the Lake Altus area, Oklahoma, by C. A. Merritt. 1957. Scale: 2 inches = 1 mile. (Plate I of Bulletin 76.)

Map C-1. Geologic map of Washington County and parts of adjacent counties, Oklahoma, by Malcolm C. Oakes. Scale: 1 inch = 1 mile. (Same as map in Bulletin 62.)

Map C-2. Geologic map of Hughes County, Oklahoma, by O. D. Weaver, Jr. 1954. Scale: 1 inch = 1 mile. (Same as map in Bulletin 70.)

Map C-3. Geologic map of Okfuskee County, Oklahoma, by Edward R. Ries. 1954. Scale: 1 inch = 1 mile. (Same as map in Bulletin 71.)

Map C-4. Geologic map of Seminole County, Oklahoma, by William F. Tanner. 1956. Scale: 1 inch = 1 mile. (Same as map in Bulletin 74.)

Educational Series Maps

Discontinued map series which was superseded by maps in Educational Publication 1. The 5 maps listed below can be found in the Director's Semi-Centennial Report, 1958.

*Educational Series Map 1. Geologic map of Oklahoma. 1957. Scale: 1:2,000,000.

*Educational Series Map 2. Fuels map of Oklahoma. 1957. Scale: 1:2,000,000.

Educational Series Map 3. Mineral map of Oklahoma. 1957. Scale: 1:2,000,000.

Educational Series Map 4. Physiographic map of Oklahoma, by N. M. Curtis and W. E. Ham. 1957. Scale: 1:2,000,000.

Educational Series Map 5. Ground-water reservoirs of Oklahoma. 1957. Scale: one inch = 53.33 miles.

Geologic Map Series

*Map GM-1. Mineral map of Oklahoma (exclusive of petroleum and natural gas fields), by John H. Warren. 1955. Scale: 1:720,000.

Map GM-2. Map showing ground-water reservoirs of Oklahoma, by S. L. Schoff. November 1955. Scale: 1:750,000. Accompanied by text describing ground-water conditions.

Map GM-3. Tectonic map of Oklahoma, by J. Kaspar Arbenz. November 1956. Scale: 1:750,000.

Map GM-4. Geologic map of the Criner Hills area, Oklahoma, by E. A. Frederickson. September 1957. Scale: 1:750,000.

~~Map GM-5~~. Geologic map and section of pre-Pennsylvanian rocks in Oklahoma, showing surface and subsurface distribution, by Louise Jordan. August 1962. Scale: 1:750,000.

~~Maps GM-6, 7~~. Magnetic and gravity maps of Oklahoma. Set of 2 maps at a scale of 1:750,000, with accompanying text (15 pages), by Paul L. Lyons, V. L. Jones, and Peter Jacobsen. October 1964.

GM-6. Vertical-intensity magnetic map of Oklahoma, by V. L. Jones and Paul L. Lyons.
GM-7. Bouguer gravity-anomaly map of Oklahoma, by Paul L. Lyons.

~~Map GM-8.~~ Petroleum-impregnated rocks and asphaltite deposits in Oklahoma, by Louise Jordan. October 1964. Explanatory text, 16 pages, Scale:

~~Map GM-9~~. Geologic map and section of pre-Woodford rocks in Oklahoma, showing surface and subsurface distribution, by Russell S. Tarr, Louise Jordan, and T. L. Rowland. June 1965. Scale: 1:750,000.

*~~Maps GM-10, 11, 12, 13.~~ Pipelines and oil and gas fields of Oklahoma, 1965. 1966. Set of 4 maps. Scale: 1:750,000.

GM-10. Oil and gas fields of Oklahoma, 1965.
GM-11. Products pipelines of Oklahoma, 1965.
GM-12. Crude-oil pipelines of Oklahoma, 1965.
GM-13. Natural gas pipelines of Oklahoma, 1965.

~~Map GM-14~~. Geologic maps and stratigraphic cross sections of Silurian strata and lower Devonian Formations in Oklahoma, by Thomas W. Amsden and T. L. Rowland. November 1967. Scales: 1 map at 1:750,000 and 6 maps at 1 inch = 64 miles, all on one sheet.

~~Map GM-15~~. Mineral map of Oklahoma (exclusive of oil and gas fields), by Kenneth S. Johnson. February 1970. In color. Scale: 1:750,000.

Map GM-16. Vertical-intensity magnetic map of McClain and southern Cleveland Counties, central Oklahoma, by John A. E. Norden, John L. Bedwell, Arthur J. Blair II, Carl B. Kaupp III, John W. Marchetti, Jr., and J. M. Markas. August 1972. Magnetic contours printed in red; contour interval, 10 gammas. Oil and gas fields in green and pink. Scale: 1:63,360 (1 inch = 1 mile).

Map GM-17. Maps and description of disturbed and reclaimed surface-mined coal lands in eastern Oklahoma, showing acreage disturbed and reclaimed through June 1973, by Kenneth S. Johnson. August 1974. Three map sheets at a scale of 1:125,000 (1 inch = 2 miles) delineating disturbed lands, mined areas partially reclaimed, and those fully reclaimed. Accompanying 12-page text.

Map GM-18. Stereoscopic and mosaic aerial-photograph study of the structure of the central Ouachita Mountains in Oklahoma and Arkansas, by Frank A. Melton. April 1976. One 4-color map sheet, with 3 maps at scales of 1:250,000, 1:125,000, and 1:62,500 each, showing principal structures visible from aerial photographs.

## INDEX TO GEOLOGIC MAPPING

The index to geologic mapping in Oklahoma comprises three sets of maps, the original index and supplements 1 and 2. The index maps are of two types, one for surface mapping and one for subsurface and geophysical mapping. Each map is bibliographically indexed to published and unpublished sources.

*Index to Geologic Mapping in Oklahoma, by Carl C. Branson and Louise Jordan. November 1961. Five maps: one for surface mapping from 1901 through 1960, and four for subsurface and geophysical mapping from 1940 through 1960.

Index to Geologic Mapping in Oklahoma--Supplement 1, by Carl C. Branson and Louise Jordan. October 1964. Two index maps: surface mapping from 1901 through 1963, and subsurface and geophysical mapping from 1961 through 1963. Scale 1:1,000,000.

Index to Geologic Mapping in Oklahoma--Supplement 2, by Carl C. Branson, Louise Jordan, and John F. Roberts. November 1967. Two index maps: surface mapping from 1901 through 1966, and subsurface and geophysical mapping from 1964 through 1966. Scale 1:1,000.000.

## MISCELLANEOUS PUBLICATIONS

*[1] Resources of Oklahoma in a pocket-book, by C. W. Shannon. 1912. 64 pages.

*[2] Handbook on the natural resources of Oklahoma. 1916. 98 pages.

*[3] Facts about Oklahoma, by Fred M. Bullard. 1920. 12 pages.

*[4] Descriptive catalogue of the geological and mineralogical collections presented to colleges, normal schools and high schools of Oklahoma, by Fred M. Bullard. 1921. 12 mimeographed pages.

*[5] Facts about Oklahoma, by Fred M. Bullard. 1921. 12 pages.

*[6] Oklahoma Geological Survey. 1921. 18 pages.

*[7] Facts about Oklahoma, by Fred M. Bullard. 1922. 16 pages.

*[8] Oklahoma's mineral resources, by C. W. Shannon. 1922. Leaflet.

*[9] Robberson oil and gas field, Garvin County, Oklahoma, by Leon E. English and L. T. Burlingame. 1922. Map with text on reverse. (Press Bulletin 10.)

*[10] The Oklahoma Geological Survey and Oklahoma minerals, by C. N. Gould. 1925. 8 pages.

*[11] The Oklahoma Geological Survey and Oklahoma minerals, by C. N. Gould. 1925. 10 pages.

*[12] Oklahoma has lying dormant in her hills, by C. N. Gould. 1925. Leaflet.

*[13] Oklahoma's hidden treasures, by C. N. Gould. 1926. 8 pages.

*[14] Oklahoma's mineral wealth, by C. N. Gould. 1926. 8 pages.

*[15] Arbuckle Mountains and Ardmore basin. 1927. Maps for field conference.

*[16] Five hundred million dollars, by C. N. Gould. 1928. 10 pages.

*[17] Catalog of one hundred rocks, minerals, and fossils from Oklahoma, by W. M. Plaster. 1928.

*[18] Directory, manufacturing and mining in Oklahoma, by J. A. Stone. 1928. 45 pages.

*[19] Five hundred million dollars, by C. N. Gould. 1928. 10 pages.

*[20] One billion dollars, by C. N. Gould. 1929. 16 pages. Reissued January 1930; December 1930; March 1931.

*[21] Preliminary report on the oil and gas geology of Oklahoma County, by C. L. Cooper. 1929. 25 pages, mimeographed.

*[22] Handbook on the natural resources of Oklahoma.

*[23] Oklahoma glass sands, by C. N. Gould and J. O. Beach. 1930. 12 pages.

*[24] Summer birds of Oklahoma, by L. B. Nice and M. Nice. 1930. 7 pages, mimeographed.

*[25] Catalog of one hundred rocks, minerals, and fossils from Oklahoma [second edition], by W. M. Plaster. 1936. 39 pages.

*[26] Graphic history of oil field expansion in Oklahoma from 1885-1935 by five-year periods, by R. H. Dott. 1936. 16 pages.

*[27] Oklahoma Geological Survey, program and needs, by R. H. Dott. 1936. 11 pages.

*[28] Underground water resources of Muskogee County, by J. O. Beach. 1936. 16 pages.

*[29] Your Geological Survey, what it is--what it does, by R. H. Dott. 1936. 4 pages.

*[30] Catalog of one hundred rocks, minerals, and fossils from Oklahoma [new edition], by W. E. Ham, with glossary by Eloise Tittle. 1942. 90 pages, 39 figures.

## CATALOG

Core catalog 4. Complete list of cores acquired by The University of Oklahoma Core and Sample Library through March 1970. March 1970. 34 pages (multilith).

Supersedes Core Catalogs 1, 2, 3.

COAL REPORT

An investigation of the coal reserves in the Ozark section of Oklahoma and their potential uses, by S. A. Friedman. July 10, 1974. Final report to the Ozark Regional Commission; published by Oklahoma Geological Survey and distributed by permission of the Commission. 117 pages, 24 figures, 77 tables.

## MINERAL PRODUCERS DIRECTORY

Mineral producers in Oklahoma, 1970, John F. Roberts, compiler. November 1, 1970. 50 pages (multilith).

## HYDROLOGIC ATLASES

The hydrologic atlas series is the result of a long-term cooperative investigation program between the Oklahoma Geological Survey and the Water Resources Division of the U.S. Geological Survey. When completed it will provide reconnaissance appraisals of nine 2° quadrangles of the State, excluding only the Panhandle region.

Hydrologic Atlas 1. Reconnaissance of the water resources of the Fort Smith quadrangle, east-central Oklahoma, by Melvin V. Marcher. October 27, 1969. Set of 4 maps (including geologic map), most at a scale of 1:250,000.

Hydrologic Atlas 2. Reconnaissance of the water resources of the Tulsa quadrangle, northeastern Oklahoma, by Melvin V. Marcher and Roy H. Bingham. August 19, 1971. Set of 4 maps (including geologic map), most at a scale of 1:250,000.

Hydrologic Atlas 3. Reconnaissance of the water resources of the Ardmore and Sherman quadrangles, southern Oklahoma, by Donald L. Hart, Jr. October 15, 1974. Set of 4 maps (including geologic map), most at a scale of 1:250,000.

Hydrologic Atlas 4. Reconnaissance of the water resources of the Oklahoma City quadrangle, central Oklahoma, by Roy H. Bingham and Robert L. Moore. June 3, 1975. Set of 4 maps (including geologic map), most at a scale of 1:250,000.

Hydrologic Atlas 5. Reconnaissance of the water resources of the Clinton quadrangle, west-central Oklahoma, by Jerry E. Carr and DeRoy L. Bergman. September 28, 1976. Set of 4 maps (including geologic map), most at scale of 1:250,000.

Hydrologic Atlas 6. Reconnaissance of the water resources of the Lawton quadrangle, southwestern Oklahoma, by John S. Havens. October 24, 1977. Set of 4 maps (including geologic map), most at a scale of 1:250,000.

## HIGHWAY GEOLOGY SYMPOSIUM PROCEEDINGS

Proceedings of the 22nd Annual Highway Geology Symposium, Rosemary Kellner and William D. Rose, editors. 1972. 12 papers, 123 pages, 74 figures, 14 tables. Published by Oklahoma Geological Survey in cooperation with Oklahoma Department of Highways for 22nd Annual Highway Geology Symposium held in Norman, Oklahoma, April 22-23, 1971.

## OKLAHOMA ACADEMY OF SCIENCE ANNALS

Oklahoma Academy of Science Annals No. 2. Environmental aspects of geology and engineering in Oklahoma, William D. Rose, editor. Proceedings of a symposium held December 4, 1970, at Oklahoma State University, Stillwater. Published by the Oklahoma Geological Survey in cooperation with the Oklahoma Academy of Science. December 1971. 8 papers, 70 pages, 32 figures, 4 tables.

Oklahoma Academy of Science Annals No. 5. Oklahoma Reservoir Resources, Loren G. Hill and Robert C. Summerfelt, editors. Proceedings of a symposium held in November 1974 at Southeastern Oklahoma State University, Durant. Published by the Oklahoma Geological Survey in cooperation with the Oklahoma Academy of Science. March 1, 1976. 18 papers, 151 pages, 33 figures, 52 tables.

## OKLAHOMA GEOLOGY NOTES AND THE HOPPER

Periodical publications of the Oklahoma Geological Survey containing short scientific and technical articles, mineral and petroleum statistics, the Director's annual report, news items, abstracts, and since 1958 an annual bibliography of Oklahoma geology.

The Hopper was issued monthly from 1941 through 1955; publication was continued thereafter as Oklahoma Geology Notes with volume numbers successive. From volume 16 through volume 27 Oklahoma Geology Notes was published 10 times a year under 12 issue numbers; since 1958 publication has been bimonthly, with issues numbered accordingly. All issues of The Hopper are out of print.

*The Hopper

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MR5, MR15, MR25, MR30, MR31, MR32, MR34, MR36
SCR

Pontotoc
B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, B12, B19, B24, B27, B30, B40-S, B53, B55, B60, B65, B78, B82, B84, B88, B94, B95, B96, B100, B104, B108, B109, B115, B116, B117, B119, B121, B123
BR1935/36, BR1941/42
C5, C9, C10, C11, C14, C15, C18, C19, C22, C27, C38, C55, C58, C72, C79
C(BG)2
CSC2
GB3, GB6, GB17
GM-8
GSA-GB[2]
HA3
IFTG[1], IFTG[3], IFTG[5]
Map A-2
MR2, MR3, MR4, MR5, MR8, MR25, MR28, MR31, MR32, MR34, MR36
SCR

Pottawatomie
B1, B5, B6, B8, B19, B27, B30, B40-TT, B121
B(BG)2
BR(TS)2, BR(TS)3
C23, C74
GB6
HA3, HA4
MR8, MR11, MR25, MR31, MR32, MR34, MR36
SCR

Pushmataha
B5, B7, B8, B10, B19, B27, B40-R, B44, B50, B85, B88, B120
BR1935/36
C5, C41, C75
C(BG)3
GM-8, GM-18
MM[1]
MR25, MR30, MR31, MR32, MR34
SCR

Roger Mills
B1, B5, B6, B8, B11, B19, B27, B40-UU, B48, B60, B102, B114, B121
BR1935/36
BR(TS)2
C13, C48
HA5
MR1, MR11
SCR

Rogers
B1, B2, B4, B5, B6, B8, B19, B26, B27, B30, B40-U, B51, B62, B96
BR1935/36, BR1947/48
C24, C31, C32, C54
CR
CSC3
GB2, GB6
GM-8, GM-17
HA2
MM[14], MM[16], MM[17]
MR2, MR5, MR24, MR31, MR32, MR34, MR36
SCR

Seminole
B2, B5, B8, B19, B26, B27, B30, B36, B40-BB, B74, B96, B121
B(BG)2
GB6
HA3, HA4
Map C-4
MR5, MR8, MR25, MR31, MR32, MR34, MR36
SCR

Sequoyah
B1, B5, B6, B8, B19, B24, B27, B40-II, B60, B77, B88, B90, B94, B96, B105, B123, B125
BR1935/36, BR1947/48, BR1941/42
C36, C46, C47, C64, C58
CR
GB1, GB12, GB18
GM-8, GM-17
HA1
MR5, MR16, MR25, MR31, MR32, MR34, MR36
SCR

Stephens
B2, B5, B8, B19, B27, B30, B40-E, B48, B73, B79, B95
BR1935/36
C5, C23, C70
CSC2
GB6
GM-8
HA3, HA6
MR11, MR26, MR31, MR32, MR34, MR36
SCR

Texas
B1, B5, B6, B8, B19, B27, B30, B37, B40-WW, B47, B48, B59, B60, B114
BR1935/36, BR1947/48
C13, C27
GB6
MR1, MR5, MR25, MR31, MR32, MR34, MR36
SCR

Tillman
B5, B8, B19, B27, B30, B40-Y, B95
BR1935/36
C17, C23, C27, C74
GB6
GSA-GB[1], GSA-GB[3], GSA-GB[5]
HA6
MR25, MR26, MR27, MR31, MR32, MR34, MR36
SCR

Tulsa
B1, B2, B4, B5, B6, B8, B19, B26, B27, B40-RR, B51, B53, B60, B69, B96
BR1935/36, BR1941/42
C24, C31, C54, C55, C60
CR
CSC3
GB4, GB6
GM-17
HA, HA2, HA4
IFTG[4]
MM[11], MM[12], MM[13], MM[14]
MR2, MR5, MR24, MR25, MR31, MR32, MR34, MR36
SCR

Wagoner
B4, B5, B6, B7, B8, B19, B24, B27, B40-L, B51, B77
BR1935/36, BR1947/48
C24, C27, C31, C32, C36, C47, C54
CR6
CSC3
GB1, GB2, GB12, GB18
GM-17
HA1, HA2
MM[14], MM[16], MM[17]
MR1, MR5, MR25, MR31, MR32, MR34, MR36
SCR

Washington
B1, B4, B5, B6, B8, B19, B27, B40-V, B47, B60, B62, B96, B107
BR1947/48
C55
CR
GB6
GM-8
HA2
Map C-1
MR2, MR5, MR11, MR31, MR32, MR34, MR36
SCR

Washita
B1, B5, B6, B8, B11, B19, B27, B30, B40-HH, B48, B49, B95, B102, B114, B121
BR1935/36
BR(TS)2
C17, C27, C61, C79
HA5
MR1, MR6, MR8, MR11, MR31, MR32, MR34, MR36
SCR

Woods
B1, B5, B6, B8, B11, B13, B19, B27, B30, B40-A, B48, B98, B102, B106, B114, B121
BR1935/36, BR1937/38
BR(TS)2
C13, C27, C79
EP3
MR1, MR6, MR8, MR25, MR29, MR31, MR32, MR34, MR36
SCR

Woodward
B1, B5, B6, B8, B11, B19, B27, B30, B40-A, B47, B49, B60, B98, B102, B114, B121
BR1935/36
BR(TS)2
C13, C27, C79
EP3
GB15
MR1, MR6, MR25, MR29, MR31, MR32, MR34, MR36
SCR

INDEX TO COMMODITIES

Coal
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B(BG)2
BR1935/36, BR1937/38, BR1939/40, BR1941/42, BR1943/44, BR1945/46, BR1947/48
BR(TS)2, BR(TS)3
C24, C29, C32, C36, C50, C51, C53, C54
CR
EP1
ESM2
GB2, GB10, GB12
GM-1, GM-15, GM-17
MM[16], MM[17], MM[21]
MR12, MR13, MR15, MR25, MR31, MR32, MR34, MR36
OAS-42
SCR

Copper
B1, B3, B6, B14, B22, B27, B42
BR(TS)2, BR(TS)3
C29, C64, C77
EP1
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MM[21]
MR8, MR13, MR27
OAS-A2

Dimension Stone
B1, B3, B23, B24, B26, B27, B42, B77, B114, B122
B(BG)2
BR1935/36, BR1937/38, BR1939/40, BR1941/42, BR1947/48
BR(TS)2, BR(TS)3
C3, C22, C29, C53, C68
EP1
ESM3
GB3, GB12
GM-1, GM-15
IFTG[1], IFTG[2]
MM[21]
MR6, MR13, MR16, MR25, MR28, MR31, MR32, MR34, MR36
SCR

Germanium
BR1947/48
C29
GM-1, GM-15
MR25, MR31, MR32, MR34, MR36
SCR

Glass Sand
B1, B3, B10, B22, B23, B42, B65
B(BG)2
BR1935/36, BR1937/38, BR1939/40, BR1941/42, BR1943/44, BR1947/48
C3, C22, C29, C79
EP1
ESM3
GB3, GB10
GM-1, GM-15
IFTG[1], IFTG[3], IFTG[5]
MM[21]
MR3, MR9, MR13, MR25, MR31, MR32, MR34, MR36
SCR

Gold and Silver
B1, B3, B6, B12, B14, B22, B27, B42
BR(TS)2, BR(TS)3
OAS-A2

Granite
B1, B3, B6, B8, B12, B14, B15, B20, B22, B27, B42, B52, B76, B95
BR1935/36, BR1937/38, BR1947/48
BR(TS)3
C3, C17, C29
EP1
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GB3, GB5, GB10, GB17
GM-1, GM-15
GSA-GB[1]
IFTG[2], IFTG[5]
MM[2]
MR13, MR25, MR31, MR32, MR34, MR36
SCR

Gypsum
B1, B6, B11, B14, B15, B22, B27, B42, B92, B98, B102, B114
BR1935/36, BR1939/40, BR1941/42, BR1943/44, BR1945/46, BR1947/48
BR(TS)2
C3, C13, C29, C42, C64, C79
EP1, EP3
ESM3
GB5, GB8, GB10, GB15
GM-1, GM-15
MM[21]
MR13, MR25, MR29, MR31, MR32, MR34, MR35, MR36
OAS-A2
SCR

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B14, B42
EP1
GM-15
MM[21]
OAS-A2

Iron
B1, B3, B6, B14, B22, B27, B42
BR1935/36, BR1937/38, BR1939/40, BR1941/42, BR1943/44, BR1947/48
C22, C29, C30
EP1
GM-15
IFTG[1], IFTG[2]
MM[21]
MR4, MR13
OAS-A2

Lead and Zinc
B1, B3, B6, B9, B14, B15, B22, B24, B27, B42, B56, B77
BR1935/36, BR1937/38, BR1939/40, BR1941/42, BR1943/44, BR1945/46, BR1947/48
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ESM3
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MM[6], MM[21]
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Lime (quicklime)
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BR1935/36, BR1937/38, BR1939/40, BR1941/42, BR1943/44, BR1945/46, BR1947/48
C26, C29, C33, C57, C68
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MR2, MR5, MR13, MR16, MR25, MR28, MR31, MR32, MR34, MR36
OAS-A2
SCR

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B1, B6, B8, B12, B14, B15, B22, B23, B24, B26, B42, B49, B77, B105, B114, B120, B122, B126
BR1935/36, BR1937/38, BR1939/40, BR1941/42, BR1943/44, BR1945/46, BR1947/48
BR(TS)3
C22, C26, C29, C33, C57, C76
EP1
ESM2
GB3, GB5, GB10, GB12, GB17, GB18
GM-1, GM-15
IFTG[1], IFTG[2], IFTG[3], IFTG[5]
MM[21]
MR5, MR6, MR13, MR16, MR25, MR28, MR31, MR32, MR34, MR36
OAS-A2
SCR

Magnesia
BR1937/38, BR1941/42, BR1947/48
MR14

Manganese
B3, B14, B23, B27, B32, B42
BR1935/36, BR1937/38, BR1941/42, BR1943/44, BR1945/46, BR1947/48
EP1
ESM3
GM-15
MM[21]
MR10, MR13, MR34, MR36
OAS-A2

Marble
B1, B6, B14, B15, B22, B27, B42
BR1935/36, BR1947/48
C29
MR13
SCR

Novaculite
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BR1935/36, BR1937/38
C79
GB11

Petroleum and Natural Gas
B1, B2, B6, B14, B15, B16, B17, B18, B19, B22, B27, B30, B36, B40, B42, B43, B46, B63, B68, B69, B75, B77, B79, B80, B81, B89, B95, B99, B102, B105, B111, B121, B126
B(BG)2
BR1935/36, BR1937/38, BR1939/40, BR1941/42, BR1945/46, BR1947/48
BR(TS)2
C3, C7, C8, C10, C22, C29, C39, C42, C46, C47, C50, C53, C57, C58, C62, C63, C68
C(BG)2
EP1
ESM2
GB1, GB4, GB5, GB6, GB8, GB10, GB12, GB13, GB14
GM-1, GM-8, GM-10, GM-11, GM-12, GM-13, GM-16
IFTG[1], IFTG[3]
MM[4], MM[5], MM[7], MM[14], MM[15], MM[22]
MR7, MR13, MR14, MR17, MR23, MR25, MR31, MR32, MM34, MM36
OAS-A2
SCR

Phosphate
B3, B14, B77
BR1935/36, BR1941/42
GB12
IFTG[1]
MR2

Quartz
B12, B32
BR1947/48
GB10, GB11
GM-1

Rock Wool
B60
BR1935/36, BR1937/38, BR1939/40, BR1941/42, BR1945/46, BR1947/48
GM-1
IFTG[3]
MR3, MR5

Salt
B1, B6, B11, B14, B15, B22, B27, B42, B102, B114
BR1935/36, BR1937/38, BR1939/40, BR1941/42, BR1943/44, BR1945/46, BR1947/48
BR(TS)2
C3, C13, C29
EP1, EP3
ESM3
GB10, GB15
GM-1, GM-15
MM[21]
MR13, MR25, MR31, MR32, MR34, MR36
OAS-A2
SCR

Sand and Gravel
B1, B6, B8, B15, B22, B27, B42, B77, B114, B120, B122, B126
BR1935/36, BR1939/40, BR1941/42, BR1943/44, BR1945/46, BR1947/48
C17, C29, C42, C68, C79
EP1, EP3
ESM3
GB10, GB15
GM-1, GM-15
IFTG[1], IFTG[3], IFTG[5]
MM[21]
MR13, MR25, MR31, MR32, MF34, MR36
OAS-A2
SCR

Sandstone
B1, B3, B6, B8, B12, B14, B15, B22, B27, B42, B79, B114, B120, B122
B(BG)2
BR1935/36, BR1947/48
BR(TS)3
C29, C53, C68
GB10
GM-1, GM-15
MR13, MR25, MR31, MR32, MR34, MR36
SCR

Titanium
BR1941/42, BR1947/48
C30
EP1
MR36
OAS-A2
SCR