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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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NORTH DAKOTA

GEOLOGIC AND WATER-SUPPLY REPORTS AND MAPS

NORTH DAKOTA

June 1976

This list contains reports and maps published by the Geological Survey relating to the geology and mineral and water resources of North Dakota. A separate list of bibliographies and publications of general interest is available on request, as are a general catalog of Geological Survey publications (not including topographic maps), and State indexes to topographic mapping.

Bulletins, professional papers, water-supply papers, and other book reports for which a price is stated, including some that have gone out of print at the Government Printing Office, as indicated by an asterisk (*), are for sale by the BRANCH OF DISTRIBUTION, U.S. GEOLOGICAL SURVEY, 1200 SOUTH EADS STREET, ARLINGTON, VA 22202, and from the U.S. Geological Survey, Public Inquiries Office: Room 1012, Federal Bldg., 1961 Stout Street, Denver, CO 80202 (authorized agent of Superintendent of Documents). Prepayment is required and should be made by check or money order payable to the U.S. Geological Survey. Numerous libraries and educational institutions throughout the country are depositories for this material and a list of North Dakota depositories is included.

Maps, folios, hydrologic atlases, and charts are sold by the Geological Survey. They may be purchased over the counter or ordered from the BRANCH OF DISTRIBUTION, U.S. GEOLOGICAL SURVEY, BLDG. 41, FEDERAL CENTER, DENVER, CO 80225. Remittances should be made by check or money order payable to the Geological Survey. A discount of 30 percent is allowed on an order of \$300 or more, based on the retail price. No other discount is applicable. Maps may also be purchased *over the counter* at the U.S. Geological Survey offices where books are sold, and at the Survey's Public Inquiries Offices: Room 1C402, Geological Survey, National Center, 12201 Sunrise Valley Drive, Reston, VA 22092; and General Services Building, 19th and F Streets NW, Room 1028, Washington, DC 20244.

References to geologic information on North Dakota may be obtained from the following Geological Survey publications: Geologic Map Index of North Dakota, described herein, and from Bibliographies of North American Geology - Bulletins *746 (1785-1918), *747 (1785-1918), *823 (1919-28), 937 (1929-39) \$4.25, *985 (1950), *1025 (1951), *1035 (1952-53), *1049 (1940-49), *1054 (1954), *1065 (1955), *1075 (1956), *1095 (1957), *1115 (1958), *1145 (1959), *1195 (1950-59) set of 4 volumes, *1196 (1960), *1197 (1961), *1232 (1962), 1233 (1963) \$3.25, *1234 (1964), 1235 (1965) \$4.75, 1266 (1966) \$8.25, *1267 (1967), *1268 (1968), 1269 (1969) \$11.35, and 1370 (1970) \$8.70. Bibliographies and indexes of publications relating to ground water are Water-Supply Papers *992 (1879-1945), *1492 (1946-55), *1863

(1963), and 1864 (1964) \$1. A water resources investigations folder, available free upon request to the Geological Survey, National Center (420), 12201 Sunrise Valley Drive, Reston, VA 22092, shows the location of stream-gaging stations, observation wells, quality-of-water sample collection sites, areal hydrologic studies, average annual runoff, average discharge of principal streams, and availability of ground water. A brief text lists the hydrologic network, the areal and Statewide projects, and selected references. Additional information is obtainable from U.S. Geological Survey, P.O. Box 778, Bismark, ND 58501 (Office address: New Federal Bldg., Rm. 332, 3d Street and Rosser Ave., Bismarck), and the State Geologist, North Dakota Geological Survey, University Station, Grand Forks, ND 58201.

Information on altitudes in the United States is contained in Bulletins *5, *76, *160, *274, *689, *817, and *1212; information on boundaries and areas of the United States with historical outlines of boundary changes is contained in Bulletins *13, *171, *226, *302, *689, *817, and *1212, and Professional Paper 909; information on results of primary triangulation and primary traverse from 1894 to 1918 is contained in Bulletins *122, *181, *201, *216, *245, *276, *310, *440, *496, *551, *664, *709, and Parts *1 of the *18th *19th, *20th, and *21st Annual Reports. Further information on more recent triangulation, transit traverse, and spirit leveling in North Dakota is obtainable upon specific request.

Current publications are announced by means of monthly notices, "New Publications of the Geological Survey." Free on application to the Geological Survey, National Center (329), 12201 Sunrise Valley Drive, Reston, VA 22092.

ANNUAL REPORTS

- *Third, 1881-82. 1883. Contains: Preliminary paper on the terminal moraine of the second glacial epoch, by T. C. Chamberlin. p. 291-402; A review of the nonmarine fossil Mollusca of North America, by C. A. White. p. 403-550.
- *Seventh, 1885-86. 1888. Contains: The rock scorings of the great ice invasions, by T. C. Chamberlin. p. 147-248.
- *Eighth, 1886-87., 1889. Part 2 contains: The geographical distribution of fossil plants, by L. F. Ward. p. 663-960.
- *Eleventh, 1889-90. 1891. Part 2 contains: The arid lands, by J. W. Powell. p. 201-289.
- *Sixteenth, 1894-95. 1896. Part 1 contains: Summary of the primary triangulation executed by the United States Geological Survey between the years 1882 and 1894, by Henry Gannett. p. 875-885. Part 2 (1895) contains: The public lands and their water supply, by F. H. Newell. p. 457-533.
- *Seventeenth, 1895-96. 1896. Part 1 contains: Magnetic declination in the United States, by Henry Gannett. p. 203-440. Part 2 contains: Preliminary report on artesian waters of a portion of the Dakotas, by N. H. Darton. p. 603-694.
- *Eighteenth, 1896-97. 1897. Part 2 (1898) contains: A table of North American Tertiary horizons, correlated with one another and with those of Western Europe, with annotations, by W. H. Dall. p. 323-348.
- *Nineteenth, 1897-98. 1898. Part 5 (1899) contains: The forests of the United States, by Henry Gannett. p. 1-66.

ANNUAL REPORTS--Continued

- *Twentieth, 1898-99. Part 2 (1900) contains: Status of the Mesozoic floras of the United States: The older Mesozoic, by L. F. Ward and others. p. 211-748.
- *Twenty-first, 1899-1900. 1900. Part 4 (1901) contains: The High Plains and their utilization, by W. D. Johnson. p. 601-741.
- *Twenty-second, 1900-1901. Part 3 (1902) contains: The Rocky Mountain coal fields, by L. S. Storrs. p. 415-471. Part 4 (1902) contains: Report of progress of stream measurements for the calendar year 1900, by F. H. Newell. p. 9-506; The High Plains and their utilization (conclusion), by W. D. Johnson. p. 631-669.

(Beginning with the twenty-third (1901-2), the annual reports of the Geological Survey contain no technical papers but were published separately until 1933. Since 1933 a condensed form has been included in the annual report of the Secretary of the Interior. For the fiscal years 1936 to 1963, a limited number of copies of the report as it appeared in the annual report of the Secretary were reprinted separately for official use; copies of these may be had free by persons directly interested, insofar as they are in stock.)

MINERAL RESOURCES OF THE UNITED STATES

The annual volumes of Mineral Resources of the United States contain statistics of production by calendar years and matters relating to technology and resources. Some of the chapters deal with a particular mineral or group of minerals, but much of the information is statistical. These volumes are not listed. The volumes of Mineral Resources were issued by the Geological Survey for the years 1882 to 1923. Reports for 1924 and subsequent years are published by the Bureau of Mines, Washington, DC 20240, as Minerals Yearbooks.

MONOGRAPHS

- *25. The glacial Lake Agassiz, by Warren Upham. 1895 (1896). 658 p.
- *35. The later extinct floras of North America, by J. S. Newberry--A posthumous work, edited by Arthur Hollick. 1898. 295 p.
- *51. Cambrian Brachiopoda, by C. D. Walcott. 1912. In two parts. Part 1, 872 p.; part 2, 363 p.
- *55. The titanotheres of ancient Wyoming, Dakota, and Nebraska, by H. F. Osborn. 1929. In two volumes. Volume 1, p. 1-701; Volume 2, p. 703-953.

GEOLOGIC FOLIOS

- *117. Casselton-Fargo, North Dakota--Minnesota, by C. M. Hall and D. E. Willard. 1905. 7 p., 6 maps.
- *168. Jamestown-Tower, N. Dak. (Jamestown, Eckelson, and Tower quadrangles), by D. E. Willard. 1909. 10 p.
- *181. Bismarck, N. Dak., by A. G. Leonard. 1912. 8 p.

PROFESSIONAL PAPERS

- *65. Geology and water resources of the northern portion of the Black Hills and adjoining regions in South Dakota and Wyoming, by N. H. Darton. 1909. 105 p.

PROFESSIONAL PAPERS--Continued

- *98. Shorter contributions to general geology, 1916. 1917. Contains: The flora of the Fox Hills sandstone, by F. H. Knowlton. p. 85-93; North American Upper Cretaceous corals of the genus *Micrabacia*, by L. W. Stephenson. 1917. p. 115-131.
- *100. The coal fields of the United States, by M. R. Campbell and J. A. Bownocker. 1929. Contains: General introduction, by M. R. Campbell. p. 1-33. (Published in June 1917.)
- *108. Shorter contributions to general geology, 1917. 1918. Contains: The Flaxville gravel and its relation to other terrace gravels of the northern Great Plains, by A. J. Collier and W. T. Thom, Jr. p. 179-184.
- *128. Shorter contributions to general geology, 1920. 1921. Contains: The fauna of the Cannonball marine member of the Lance formation, by T. W. Stanton. p. 1-60; Corals from the Cannonball marine member of the Lance formation, by T. W. Vaughan. p. 61-66.
- *135. The composition of the river and lake waters of the United States, by F. W. Clarke. 1924. 199 p.
- *151. The cephalopods of the Eagle sandstone and related formations in the western interior of the United States, by J. B. Reeside, Jr. 1927. 87 p.
- *158. Shorter contributions to general geology, 1929. 1930. Contains: The contact of the Fox Hills and Lance formations, by C. E. Dobbins and J. B. Reeside, Jr. p. 9-25.
- *161. Quaternary geology of Minnesota and parts of adjacent States, by Frank Leverett, with contributions by F. W. Sardeson. 1932. 149 p.
- *174. Physiography and glacial geology of eastern Montana and adjacent areas, by W. C. Alden. 1932. 133 p.
- *189-I. Fossil plants from the Colgate member of the Fox Hills sandstone and adjacent strata, by R. W. Brown. 1939. p. 239-275.
- *272-D. Evaporation from the 17 Western States, by J. S. Meyers, with a section on Evaporation rates, by T. J. Nordenson, U. S. Weather Bureau. 1962. p. 71-100.
- *318. Occurrence of nonpegmatite beryllium in the United States, by L. A. Warner, W. T. Holser, V. R. Wilmarth, and E. N. Cameron. 1959. 198 p.
- *325. Geology of the Souris River area, North Dakota, by R. W. Lemke. 1960. 138 p.
- *326. Cenozoic history of northeastern Montana and northwestern North Dakota with emphasis on the Pleistocene, by A. D. Howard. 1960 (1961). 107 p.
- *356-D. Geology of uranium in coaly carbonaceous rocks, by J. D. Vine. 1962. p. 113-170.
- *375. Paleocene flora of the Rocky Mountains and Great Plains, by R. W. Brown. 1962. 119 p.
- *392-A. Stratigraphy of the Pierre Shale, Valley City and Pembina Mountain areas, North Dakota, by J. R. Gill and W. A. Cobban. 1965. p. A1-A20.
- *400-A. Geological Survey Research 1960, Synopsis of geologic results. 1960. p. A1-A136.
- *400-B. Short papers in the geological sciences, Articles 1-232. 1960. p. B1-B515. Contains the following article, which is not available separately.
205. Stratigraphic variations in mineralogy and chemical composition of the Pierre shale in South Dakota and adjacent parts of North Dakota, Nebraska, Wyoming, and Montana, by H. A. Tourtelot, L. G. Schultz, and J. R. Gill. p. B447.

PROFESSIONAL PAPERS--Continued

- *424-A. Geological Survey Research 1961, Synopsis of geologic and hydrologic results. 1961. p. A1-A194.
- *424-D. Short papers in the geologic and hydrologic sciences, Articles 293-435. 1961. p. D1-D408. Contains the following articles, which are not available separately.
350. Artesian water in the Spiritwood buried valley complex, North Dakota, by C. J. Huxel, Jr. p. D179.
352. Stratigraphy of lower and middle parts of the Pierre shale, Northern Great Plains, by J. R. Gill and W. A. Cobban. p. D185.
- *426. Data on uranium and radium in ground water in the United States, 1954 to 1957, by R. C. Scott and F. B. Barker. 1962. 115 p.
- *450-A. Geological Survey Research 1962, Synopsis of geologic, hydrologic, and topographic results. 1962. p. A1-A257.
- *463. Uranium-bearing lignite and carbonaceous shale in the southwestern part of the Williston Basin—A regional study, by N. M. Denson and J. R. Gill, with a section on Heavy minerals in Cretaceous and Tertiary rocks associated with uranium occurrences, by W. A. Chisholm. 1965. 75 p.
- *475-A. Geological Survey Research 1963, Summary of investigations. 1963. p. A1-A300.
- *475-D. Short papers in geology and hydrology, Articles 122-172. 1964. p. D1-D223. Contains the following article, which is not available separately.
141. Age of basement rocks from the Williston basin of North Dakota and adjacent areas, by Z. E. Peterman and C. E. Hedge. p. D100.
- *491-A. Introduction, spread, and areal extent of saltcedar (*Tamarix*) in the Western States, by T. W. Robinson. 1965. p. A1-A12.
- *501-A. Geological Survey Research 1964. 1964. p. A1-A367.
- *501-D. Geological Survey Research 1964. 1964 (1965). p. D1-D209. Contains the following article, which is not available separately.
- Geologic factors affecting discharge of the Sheyenne River in southeastern North Dakota, by Q. F. Paulson. p. D177.
- *525-A. Geological Survey Research 1965. 1965 (1966). p. A1-A376.
- *525-C. Geological Survey Research 1965. 1965. p. C1-C219. Contains the following article, which is not available separately.
- Diurnal variations of the chemical quality of water in two prairie potholes in North Dakota, by H. T. Mitten. p. C176.
- *525-D. Geological Survey Research 1965. 1965. p. D1-D231. Contains the following article, which is not available separately.
- Extractable organic material in nonmarine and marine shales of Cretaceous age, by H. A. Tourtelot and I. C. Frost. p. D73.
- *538. Geology of epigenetic uranium deposits in sandstone in the United States, by W. I. Finch. 1967. 121 p.
- *544-C. Hydrologic effects of the earthquake of March 27, 1964, outside Alaska, by R. C. Vorhis, E. E. Rexin, and R. W. Coble. 1967. p. C1-C54.
- *550-A. Geological Survey Research 1966. 1966. p. A1-A385.
- *550-B. Geological Survey Research 1966. 1966. p. B1-B227. Contains the following article, which is not available separately.
- The Milnor channel, an ice-marginal course of the Sheyenne River, N. Dak., by C. H. Baker, Jr. p. B77.
- *550-C. Geological Survey Research 1966. 1966. p. C1-C269. Contains the following article, which is not available separately.

PROFESSIONAL PAPERS--Continued

*550-C--Continued

- Eocene paleosol in the northern Great Plains, by W. A. Pettyjohn. p. C61.
- *554-B. Big Snowy and Amsden Groups and the Mississippian-Pennsylvanian boundary in Montana, by E. K. Maughan and A. E. Roberts. 1967. p. B1-B27.
- *561. Chemical composition of sedimentary rocks in Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, and Wyoming, compiled by T. P. Hill, M. A. Werner, and M. J. Horton, with an introduction by W. W. Rubey. 1967. 241 p.
- *575-A. Geological Survey Research 1967. 1967. p. A1-A377.
- *575-B. Geological Survey Research 1967. 1967. p. B1-B265. Contains the following article, which is not available separately.
New observations on the Sheyenne delta of glacial Lake Agassiz, by C. H. Baker, Jr. p. B62.
- *575-C. Geological Survey Research 1967. 1967. p. C1-C251. Contains the following articles, which are not available separately.
Volcanism and tectonism as reflected by the distribution of nonopaque heavy minerals in some Tertiary rocks of Wyoming and adjacent States, by Yoshiaki Sato and N. M. Denson. p. C42.
Winter loss and spring recovery of dissolved solids in two prairie-pothole ponds in North Dakota, by J. H. Ficken. p. C228.
- *585-A. Hydrologic investigations of prairie potholes in North Dakota, 1959-68, by W. S. Eisenlohr, Jr., and others. 1972. p. A1-A102.
- *585-B. Evapotranspiration and the water budget of prairie potholes in North Dakota, by J. B. Shjeflo. 1968. p. B1-B49.
- 585-C. Ground-water hydrology of prairie potholes in North Dakota, by C. E. Sloan. 1972 (1973). p. C1-C28. \$2.
- *585-D. Vegetation of prairie potholes, North Dakota, in relation to quality of water and other environment factors, by R. E. Stewart and H. A. Kantrud. 1972. p. D1-D36. (Includes title page and contents for volume.)
- *600-A. Geological Survey Research 1968. 1968. p. A1-A371.
- *600-B. Geological Survey Research 1968. 1968. p. B1-B235. Contains the following article, which is not available separately.
Origin of the sodium sulfate deposits of the northern Great Plains of Canada and the United States, by I. G. Grossman. p. B104.
- *600-C. Geological Survey Research 1968. 1968. p. C1-C225. Contains the following article, which is not available separately.
Notes on the geohydrology of the Dakota Sandstone, eastern North Dakota, by T. E. Kelly. p. C185.
- *650-A. Geological Survey Research 1969. 1969 (1970). p. A1-A425. \$7.55.
- *650-B. Geological Survey Research 1969. 1969. p. B1-B203. \$4.60. Contains the following article, which is not available separately.
New evidence on age relationships of possible Eocene rocks in southwestern North Dakota, by N. M. Denson. p. B63.
- *650-D. Geological Survey Research 1969. 1969 (1970). p. D1-D299. Contains the following article, which is not available separately.
Differences in soil chemistry induced by evaporation and flow of ground water, by R. F. Miller. p. D255.
- *700-A. Geological Survey Research 1970. 1970 (1971). p. A1-A426.
- 700-B. Geological Survey Research 1970. 1970. p. B1-B267. \$7.45. Contains the following article, which is not available separately.
Prairie potholes and the water table, by C. E. Sloan. p. B227.

PROFESSIONAL PAPERS--Continued

- *700-C. Geological Survey Research 1970. 1970. p. C1-C251. Contains the following article, which is not available separately.
Channel-scarp formation in western North Dakota, by T. M. Hamilton. p. C229.
- *750-A. Geological Survey Research 1971. 1971 (1972). p. A1-A418. \$5.95.
- *750-C. Geological Survey Research 1971. 1971. p. C1-C259. Contains the following article, which is not available separately.
Summary of mineralogic and lithologic characteristics of Tertiary sedimentary rocks in the middle Rocky Mountains and the northern Great Plains, by N. M. Denson and W. A. Chisholm. p. C117.
- *776. Stratigraphy and geologic history of the Montana Group and equivalent rocks, Montana, Wyoming, and North and South Dakota, by J. R. Gill and W. A. Cobban. 1973. 37 p.
- *800-A. Geological Survey Research 1972. 1972 (1973). p. A1-A320.
- *800-B. Geological Survey Research 1972. 1972. p. B1-B281. \$5.10. Contains the following article, which is not available separately.
Tritium in pine trees from selected locations in the United States, including areas near nuclear facilities, by G. L. Stewart, T. A. Wyerman, Max Sherman, and Robert Schneider. p. B265.
820. United States mineral resources, D. A. Brobst and W. P. Pratt, Editors. 1973. 722 p. \$14.35.
850. Geological Survey Research 1973. 1973 (1974). 366 p. \$5.30.
853. Paleotectonic investigations of the Pennsylvanian System in the United States, by E. D. McKee, E. J. Crosby, and others. 1975 (1976). Pt. I, Introduction and regional analyses of the Pennsylvanian System, 349 p.; Pt. II, Interpretive summary and special features of the Pennsylvanian System, 192 p.; Pt. III, 17 plates in pocket, \$41 per set.
874. North American species of *Tempskya* and their stratigraphic significance, by S. R. Ash and C. B. Read, with a section on Stratigraphy and age of the *Tempskya*-bearing rocks of southern Hidalgo County, N. Mex., by R. A. Zeller, Jr. 1976. 42 p.; 13 plates showing fossils. \$2.05.
900. Geological Survey Research 1974. 1974 (1975). 349 p. \$6.10.
909. Boundaries of the United States and the several States, by F. K. Van Zandt. 1975. 191 p. \$5.20.
940. Mineral Resource Perspectives 1975. 1976. 24 p. \$1.20.
964. A land use and land cover classification system for use with remote sensor data, by J. R. Anderson, E. E. Hardy, J. T. Roach, and R. E. Witmer. 1976. 28 p. 75c.
975. Geological Survey Research 1975. 1975 (1976). 373 p. \$5.
978. PACER—Data entry, retrieval, and update for the National Coal Resources Data System (Phase I), by S. M. Cargill, A. C. Olson, A. L. Medlin, and M. D. Carter. 1976. 107 p. \$2.20.
- BULLETINS**
- *21. The lignites of the Great Sioux Reservation—A report on the region between the Grand and Moreau Rivers, Dakota, by Bailey Willis. 1885. 16 p.
- *27. Report of work done in the division of chemistry and physics, mainly during the fiscal year 1884-85. 1886. Contains: Miscellaneous analyses. p. 62-76.
- *37. Types of the Laramie flora, by L. F. Ward. 1887. 126 p.
- *39. The upper beaches and deltas of the glacial Lake Agassiz, by Warren Upham. 1887. 84 p.

BULLETINS--Continued

- *52. Subaerial decay of rocks and origin of the red color of certain formations, by I. C. Russell. 1889. 65 p.
- *72. Altitudes between Lake Superior and the Rocky Mountains, by Warren Upham. 1891. 229 p.
- *82. Correlation papers: Cretaceous, by C. A. White. 1891. 273 p.
- *84. Correlation papers: Neocene, by W. H. Dall and G. D. Harris. 1892. 349 p.
- *87. A synopsis of American fossil Brachiopoda, including bibliography and synonymy, by Charles Schuchert. 1897. 464 p.
- *97. The Mesozoic Echinodermata of the United States, by W. B. Clark. 1893. 207 p.
- *106. The Colorado formation and its invertebrate fauna, by T. W. Stanton. 1893. 288 p.
- *144. The moraines of the Missouri Coteau and their attendant deposits, by J. E. Todd. 1896. 71 p.
- *185. Results of spirit leveling, fiscal year 1900-1901, by H. M. Wilson and others. 1901. 219 p.
- *225. Contributions to economic geology, 1903. 1904. Contains: Lignites of the middle and upper Missouri Valley, by E. F. Burchard. p. 276-288.
- *243. Cement materials and industry of the United States, by E. C. Eckel. 1905. 395 p. (See Bulletin 522.)
- *258. The origin of certain place names in the United States, by Henry Gannett. 1905. 334 p.
- *285. Contributions to economic geology, 1905. 1906. Contains: The North Dakota-Montana lignite area, by A. G. Leonard. p. 316-330.
- *341. Contributions to economic geology, 1907-Part 2. 1908. Contains: The Sentinel Butte lignite field, North Dakota and Montana, by A. G. Leonard and C. D. Smith. p. 15-35.
- *360. Pre-Cambrian geology of North America, by C. R. Van Hise and C. K. Leith. 1909. 939 p.
- *361. Cenozoic mammal horizons of western North America, by H. F. Osborn, with faunal lists of the Tertiary Mammalia of the West, by W. D. Matthew. 1909. 138 p.
- *381. Contributions to economic geology, 1908-Part 2. 1910. Contains: The Washburn lignite field, North Dakota, by C. D. Smith. p. 19-29; The Fort Berthold Indian Reservation lignite field, North Dakota, by C. D. Smith. p. 30-39.
- *431. Contributions to economic geology, 1909-Part 2. 1911. Contains: Natural gas in North Dakota, by A. G. Leonard. p. 7-10.
- *465. The State geological surveys of the United States. 1911. 177 p.
- *469. Results of spirit leveling in North Dakota, 1897-1910, inclusive. 1911. 23 p.
- *471. Contributions to economic geology, 1910-Part 2. Contains: Lignite in the Fort Berthold Indian Reservation, N. Dak., north of Missouri River, by M. A. Pishel. p. 170-186; Miscellaneous analyses of coal samples from various fields of the United States. p. 629-655.
- *507. The mining districts of the Western United States, by J. M. Hill, with a geologic introduction, by Waldemar Lindgren. 1912. 309 p.
- *522. Portland cement materials and industry in the United States, by E. C. Eckel, with contributions by E. F. Burchard and others. 1913. 401 p.
- *531. Contributions to economic geology, 1911-Part 2. 1913. Contains: The Williston lignite field, Williams County, N. Dak., by F. A. Herald.

BULLETINS--Continued

- *531--Continued
p. 91-157; Miscellaneous analyses of coal samples from various fields of the United States. p. 331-355.
- *541. Contributions to economic geology, 1912-Part 2. 1914. Contains: The Cannonball River lignite field, Morton, Adams, and Mettinger Counties, N. Dak., by E. R. Lloyd. p. 243-291.
- *575. Geology of the Standing Rock and Cheyenne River Indian Reservations, North and South Dakota, by W. R. Calvert and others. 1914. 49 p.
- *585. Useful minerals of the United States, compiled by Samuel Sanford and R. W. Stone. 1914. 250 p. (See Bulletin 624.)
- *599. Our mineral reserves-How to make America industrially independent, by G. O. Smith. 1914. 48 p.
- *611. Guidebook of the Western United States-Part A, The Northern Pacific Route, with a side trip to Yellowstone Park, by M. R. Campbell and others. 1915. 218 p.
- *621. Contributions to economic geology, 1915-Part 2. 1916. Contains: Analyses of coal samples from various parts of the United States, by M. R. Campbell and F. R. Clark. p. 251-375.
- *623. Petroleum withdrawals and restorations affecting the public domain, by M. W. Ball. 1916. 427 p.
- *624. Useful minerals of the United States, compiled by F. C. Schrader, R. W. Stone, and Samuel Sanford. 1916. 412 p.
- *691. Contributions to economic geology, 1918-Part 2. 1919. Contains: The Nesson anticline, Williams County, N. Dak., by A. J. Collier. p. 211-217.
- *726. Contributions to economic geology, 1921-Part 2. 1922. Contains: The New Salem lignite field, Morton County, N. Dak., by E. T. Hancock. p. 1-39; Lignite in the western part of the Fort Berthold Indian Reservation south of Missouri River, N. Dak., by C. M. Bauer and F. A. Herald. p. 109-172.
- *728. The occurrence and uses of peat in the United States, by E. D. Soper and C. C. Osborn. 1922. 207 p.
- *775. Geology and lignite resources of the Marmarth field, southwestern North Dakota, by C. J. Hares. 1928. 110 p.
- *801. Geology and water resources of the Edgeley and La Moure quadrangles, North Dakota, by H. A. Hard. 1929. 90 p.
- *838. Nitrate deposits of the United States, by G. R. Mansfield and Leona Boardman. 1932. 107 p.
- *896. Lexicon of geologic names of the United States (including Alaska), by M. G. Wilmarth. 1938. Part 1, A-L, p. 1-1244; part 2, M-Z. p. 1245-2396. (See Bulletins 1200 and 1350.)
- *906-B. Geology and coal resources of the Minot region, North Dakota, by D. A. Andrews. 1939. p. 43-84.
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1910	*285			*626			*956		1957	*1508	
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GEOLOGIC MAP OF THE UNITED STATES Scale 1:2,500,000. \$5.

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- GQ-26. Bowbells, N. Dak. Geology, by R. W. Lemke and C. A. Kaye. 1953 (1954). Lat 48° 45' to 49°, long 102° to 102° 15'. Scale 1:62,500. \$1.75.
- GQ-31. Velva, N. Dak. Geology, by R. W. Lemke. 1953 (1954). Lat 48° to 48° 15', long 100° 45' to 101°. Scale 1:62,500. \$1.75.
- GQ-44. Noonan, N. Dak. Geology, by R. C. Townsend, with a section on Ground-water resources, by G. A. La Rocque, Jr. 1954. Lat 48° 45' to 49°, long 103° to 103° 15'. Scale 1:62,500. \$1.75.
- GQ-46. Crosby, N. Dak. Geology, by R. C. Townsend, with a section on Ground-water resources, by G. A. La Rocque, Jr. 1954. Lat 48° 45' to 49°, long 103° 15' to 103° 30'. Scale 1:62,500. \$1.75.
- GQ-47. Portal, N. Dak. Geology, by R. C. Townsend, with a section on Ground-water resources by G. A. La Rocque, Jr. 1954. Lat 48° 45' to 49°, long 102° 30' to 102° 45'. Scale 1:62,500. \$1.75.

HYDROLOGIC INVESTIGATIONS ATLASES

- HA-61. Stream composition of the conterminous United States, by F. H. Rainwater. 1962. 3 sheets. \$6 per set.
- HA-194. Generalized map showing annual runoff and productive aquifers in the conterminous United States, by C. L. McGuinness. 1964. Scale 1:5,000,000. \$2.

HYDROLOGIC INVESTIGATIONS ATLASES--Continued

- HA-199. Preliminary map of the conterminous United States showing depth to and quality of shallowest ground water containing more than 1,000 parts per million dissolved solids, by J. H. Feth and others. 1965. Scale 1:3,168,000. 2 sheets. Accompanied by 31-page text. \$1.75 per set.
- HA-200. Chemical quality of public water supplies of the United States and Puerto Rico, 1963, shown as Statewide averages, mainly in graphic and tabular form, by C. N. Durfor and Edith Becker. 1964. \$1.25.
- HA-212. Annual runoff in the conterminous United States, by M. W. Busby. 1966. Scale 1:7,500,000. \$1.25.
- HA-217. General availability of ground water and depth to water level in the Missouri River basin, by G. A. La Rocque, Jr. 1966. Lat 36° to 49°, long 90° to 114°. Scale 1:2,500,000. \$1.75.
- HA-235. Temperature of surface waters in the conterminous United States, by J. F. Blakey. 1966. Scale 1:5,000,000. 3 sheets. Accompanied by 8-page text. \$1.75 per set.
- HA-428. Ground-water resources of Nelson County, northeastern North Dakota, by J. S. Downey. 1970. Lat about 47° 50' to about 48° 10', long about 98° to 98° 30'. Scale 1:126,720. \$1.25.
- HA-431. Ground-water resources of Walsh County, northeastern North Dakota, by J. S. Downey. 1971. Lat about 48° 10' to 48° 30', long about 97° 10' to 98° 20'. Scale 1:126,720. \$1.25.
- HA-475. Ground-water resources of McLean County, west-central North Dakota, by R. L. Klausung. 1972. Lat 47° 10' to 47° 50', long 100° 40' to 102° 20'. Scale 1:126,720. \$1.25.
- HA-476. Ground-water resources of Benson and Pierce Counties, north-central North Dakota, by P. G. Randich. 1972. Lat 48° to 48° 30', long 98° 40' to 100° 10'. Scale 1:126,720. \$1.25.

*INTERPRETING GEOLOGIC MAPS FOR ENGINEERING PURPOSES. 1953 (1954). Six maps of the Hollidaysburg, Pa., quadrangle. Scale 1:62,500.

*KNIFE RIVER AREA, NORTH DAKOTA. Preliminary structure contour map, by W. W. Benson and others. 1951. Scale 1:106,000.

*LAND CLASSIFICATION MAPS OF NORTHERN GREAT PLAINS, by A. E. Aldous and J. F. Deeds:

*Sheet 1, northwestern North Dakota and northeastern Montana.

*Sheet 6, southwestern North Dakota and northwestern South Dakota.

MISCELLANEOUS FIELD STUDIES MAPS

- *MF-120. Uranium deposits and principal ore-bearing formations of the central Cordilleran foreland region, by T. L. Finnell and I. S. Parrish. 1958. Scale 1:750,000. 2 sheets. (See Bulletin 1087-I.)
- *MF-125. Preliminary tectonic map of western North Dakota showing the distribution of uranium deposits, compiled by F. W. Osterwald and B. A. Dean. 1957. Scale 1:500,000. (See Bulletin 1087-I.)
- MF-590. Stripping coal deposits of the northern Great Plains, Mont., Wyo., N. Dak., and S. Dak. 1974. Lat 43° to 49°, long 100° to 109°. Scale 1:1,000,000. 75c.

MINERAL INVESTIGATIONS RESOURCE MAPS

The following maps cover the resources indicated for the United States, exclusive of Alaska and Hawaii. All are printed at a scale of 1:3,168,000 and are sold at \$1.25 each, unless otherwise indicated.

- MR-2. Uranium deposits, compiled by R. W. Schnabel. 1955. Scale 1:5,000,000. \$1.75.
- MR-3. Potash occurrences, by M. F. Byrd. 1955. Scale 1:5,000,000.
- MR-13. Copper in the United States, exclusive of Alaska and Hawaii, by A. R. Kinkel, Jr., and N. P. Peterson. 1962.
- MR-14. Borates in the United States, exclusive of Alaska and Hawaii, by W. C. Smith. 1962.
- MR-15. Lead in the United States, exclusive of Alaska and Hawaii, by E. T. McKnight, W. L. Newman, and A. V. Heyl. 1962.
- MR-16. Vanadium in the United States, exclusive of Alaska and Hawaii, by R. P. Fischer. 1962.
- MR-17. Asbestos in the United States, exclusive of Alaska and Hawaii, by A. H. Chidester and A. F. Shride. 1962.
- MR-18. Pyrophyllite, and kyanite and related minerals in the United States, exclusive of Alaska and Hawaii, by G. H. Espenshade. 1962.
- MR-19. Zine in the United States, exclusive of Alaska and Hawaii, by E. T. McKnight, W. L. Newman, and A. V. Heyl. 1962.
- MR-20. Antimony in the United States, exclusive of Alaska and Hawaii, by D. E. White. 1962.
- MR-21. Epigenetic uranium deposits, by A. P. Butler, Jr., W. I. Finch, and W. S. Twenhofel. 1962.
- MR-22. Bismuth in the United States, exclusive of Alaska and Hawaii, by J. R. Cooper. 1962.
- MR-23. Manganese in the United States, exclusive of Alaska and Hawaii, by M. D. Crittenden and Louis Pavlides. 1962.
- *MR-24. Gold in the United States, exclusive of Alaska and Hawaii, by A. H. Koschmann and M. H. Bergendahl. 1962.
- MR-25. Tungsten in the United States, exclusive of Alaska and Hawaii, by D. M. Lemmon and O. L. Tweto. 1962.
- MR-26. Chromite in the United States, exclusive of Alaska and Hawaii, by T. P. Thayer and M. H. Miller. 1962.
- MR-27. Magnesite and brucite in the United States, exclusive of Alaska and Hawaii, by Benjamin Gildersleeve. 1962.
- MR-28. Thorium and rare earths in the United States, exclusive of Alaska and Hawaii, by J. C. Olson and J. W. Adams. 1962.
- MR-29. Titanium in the United States, exclusive of Alaska and Hawaii, by C. L. Rogers and M. C. Jaster. 1962.
- MR-30. Mercury in the United States, exclusive of Alaska and Hawaii, by E. H. Bailey. 1962.
- MR-31. Talc and soapstone in the United States, exclusive of Alaska and Hawaii, by A. H. Chidester and H. W. Worthington. 1962.
- MR-33. Gypsum and anhydrite, by C. F. Withington. 1962.
- MR-35. Beryllium in the United States, exclusive of Alaska and Hawaii, by W. R. Griffiths, D. M. Larrabee, and J. J. Norton. 1962.
- MR-36. Niobium and tantalum in the United States, exclusive of Alaska and Hawaii, by R. L. Parker. 1963.

MINERAL INVESTIGATIONS RESOURCE MAPS--Continued

- MR-37. High-alumina kaolinitic clay, by H. R. Mark. 1963.
MR-51. Iron in the United States, exclusive of Alaska and Hawaii, by M. S. Carr, P. W. Guild, and W. B. Wright. 1967. Accompanied by 20-page text.
MR-55. Molybdenum, by R. U. King. 1970. Accompanied by 21-page text.

MISCELLANEOUS INVESTIGATIONS SERIES

- I-175. Paleotectonic maps, Jurassic system, by E. D. McKee and others, with a separate section on Paleogeography, by R. W. Imlay. 1956. Scale 1:5,000,000. 6 p., 9 pls., 5 figs., 2 charts. \$15.
I-299. Epigenetic uranium deposits in the United States, by W. I. Finch, I. S. Parrish, and G. W. Walker. 1959 (1960). Scale 1:5,000,000. 3 sheets. \$4.25.
I-300. Paleotectonic maps, Triassic System, by E. D. McKee and others. 1959 (1960). 33 p., 9 pls., 32 figs. Scale 1:5,000,000 for pls. 1-6, 8. \$15.
*I-331. Preliminary glacial map of North Dakota, by R. B. Colton, R. W. Lemke, and R. M. Lindvall. 1963. Scale 1:500,000.
I-387. Fluoride content of ground water in the conterminous United States, by Michael Fleischer. 1962. Scale 1:5,000,000. \$1.25.
I-450. Paleotectonic maps of the Permian System, by E. D. McKee, S. S. Oriel, and others. 1967. 20 plates and text (164 pages) in paper case. \$38. (See also Professional Paper 515, p. 1.)
I-688. Generalized tectonic map of North America, by P. B. King and G. J. Edmonston. 1972. Scale 1:15,000,000. \$1.75.
I-911. Magnetic declination in the United States—Epoch 1975.0, by E. B. Fabiano. 1975. Scale 1:5,000,000. \$3.

MISSOURI BASIN STUDIES MAPS

1. Mineral resources of the Missouri Valley region, compiled by D. H. Dow, D. M. Larrabee, and S. E. Clabaugh. 1946. These maps cover the entire basin. They show the sedimentary and igneous rocks of different ages. Structure-contour lines are also given. Part 1, shows the metallic mineral resources, part 2, the nonmetallic mineral resources, part 3, the fuel resources, and part 4, construction materials. Scale 1:2,500,000. 4 sheets. 40c a sheet, or \$1.50 per set.
*3. Preliminary map showing sand and gravel deposits of North Dakota, by D. M. Larrabee, L. C. Huff, and C. Ahlman. 1946. Scale 1:500,000.
14. Map showing construction materials and nonmetallic mineral resources of North Dakota, by A. F. Shride, E. C. Fischer, D. M. Larrabee, and others. 1947. Includes a brief text. Scale 1:500,000. 50c.
*20. Reconnaissance map showing locations of possible sources of riprap in western North Dakota and in northwestern South Dakota, by P. E. Trusdell and G. S. Hilton. 1947. This map covers an area of about 61,000 square miles. Includes a brief text. Scale 1:500,000.

OIL AND GAS INVESTIGATIONS MAPS

- OM-10. Maps showing thickness and general character of the Cretaceous deposits in the western interior of the United States, by J. B. Reeside, Jr. 1944. Ten maps on a single sheet show the thickness and general character of the Cretaceous rocks in the western interior region. Scale 1:13,939,200. \$1.25.
*OM-148. Geologic map of the Square Buttes district, Oliver and Mercer Counties, N. Dak., by W. D. Johnson, Jr., and R. P. Kunkel. 1954.

OIL AND GAS INVESTIGATIONS MAPS--Continued

- *OM-148--Continued
Geologic map covers an area of about 720 square miles in the Williston Basin in west-central North Dakota. Scale 1:63,360.
*OM-165. Structure contour map of the base of Mississippian rocks in the Williston basin and adjoining areas of Montana, North Dakota, South Dakota, and Wyoming, by R. P. Kunkel. 1954 (1955). Covers eastern Montana, all but the eastern one-third of North Dakota, northwestern and north-central South Dakota, and part of northeastern Wyoming. Scale 1:1,000,000.
OM-179. Structure contour map on top of the middle member of the Piper formation of Middle Jurassic age in the Williston basin and adjacent areas in Montana, North Dakota, and South Dakota, by D. T. Sandberg. 1959. Scale 1:760,320. \$1.50.
*PALEOCENE DEPOSITS OF THE ROCKY MOUNTAINS AND PLAINS, by R. W. Brown. 1949. Shows the areas of outcrop of the earliest Tertiary (Paleocene) rocks from Montana and North Dakota to Arizona and New Mexico. The upper and lower boundaries of the Paleocene deposits and their areal relations with Cretaceous and younger Tertiary rocks are indicated. A brief discussion of Paleocene formations is printed on the same sheet. Scale 1:1,000,000. (See Professional Paper 375.)

MISCELLANEOUS REPORTS (free upon application to the Branch of Distribution, U.S. Geological Survey, 1200 South Eads Street, Arlington, VA 22202):

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List 2. Press releases, preliminary maps, and preliminary reports released between Jan. 1, 1945, and Jan. 1, 1948.

REFERENCE LIBRARIES

Many of the publications listed herein may be consulted in the following libraries in North Dakota:

BISMARCK:
State Historical Society.
DICKINSON:
State College.
FARGO:
North Dakota State University.
GRAND FORKS:
North Dakota Geological Survey.

GRAND FORKS--Continued
University of North Dakota.
MINOT:
Minot State College.
VALLEY CITY
State College.

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