OKLAHOMA GEOLOGICAL SURVEY

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President Stratton D. Brooks, Commission,
C. W. Shannon, Director.

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BIBLIOGRAPHY
OF
OKLAHOMA GEOLOGY
WITH
SUBJECT INDEX.

BY
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**BIBLIOGRAPHY OF OKLAHOMA GEOLOGY WITH SUBJECT INDEX.**

**INTRODUCTION.**

The bibliography of Oklahoma geology, including paleontology, petrology, and mineralogy, is intended to be complete for the years 1791 to 1915, inclusive, up to the time of publication. It must be understood, however, it is possible that some papers, which should have been included, have escaped notice of the compilers. Besides the publications pertaining directly to Oklahoma, practically all articles bearing directly upon Karsas, southeastern Missouri, western Arkansas, northeastern Louisiana, northern Texas, and southeastern Colorado are included. References to Oklahoma geology found in text books are, as a rule, omitted.

Following the plan of similar publications of the United States Geological Survey, the papers, with full title and medium of publication and explanatory notes (where necessary) are listed under the authors, arranged in alphabetical order. Following the authors' list, which is numbered consecutively, is an index to the papers listed. The entries in this index are of three kinds: first, subject, with various subdivisions; second, titles of papers, of which many are abbreviated or inverted under their leading words; and third, cross references, which have been used to avoid too much repetition.

The assistance of Chas. N. Gould, D. W. Ohern, L. L. Hutchison, Chas. W. Hamilton, Harve Loomis, C. W. Shannon, and L. C. Snider has done much to expedite the preparation of this publication, and is gratefully acknowledged by the compilers.
SERIALS EXAMINED.

American Association for the Advancement of Science: Proceedings, vols. 1, 12, 20, 36, 37, 39, and 43. Salem, Mass.
American Institute of Mining Engineers: Bi-monthly bulletin, Nos. 1, 11, 14; Bulletin, No. 43; Transactions, vols. 15, 18, 24, 31, and 37. New York, N. Y.
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American Mining Congress: Papers and Addresses, 10th Ann. Session, 1907.
Annals of Science: vol. 1. Cleveland, Ohio.
Cement Record: vol. 2, no. 3. Kansas City, Mo.
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Engineering and Mining Journal: vols. 33, 65, 71, 72, 73, 75, 76, 80, 81, 83, 84, 86, 87, 89, 92, 93, 95. New York, N. Y.
Geological Society of America: Bulletin, vols. 2, 5, 6, 11, 12, 14, 16, 18, 19-25, 34. New York, N. Y.
Governor's Report to the Secretary of the Interior: 1899, 1900. Washington, D. C.


Journal of Geology: vols. 2, 3, 6, 7, 9, 10; vol. 14, no. 2; vols. 15, 16; vol. 17, no. 8; vol. 18, no. 2; vol. 19, no. 2; vol. 22. Chicago, Ill.

Kansas Academy of Science: Transactions, vols. 8, 10, 11, 15-19, 21, 22. Topeka, Kans.


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Kansas University, Quarterly: vols. 2, 6, 7, 8, 9. Lawrence, Kans.


Lead and Zinc News: vol. 8.


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Mines and Minerals: vols. 20, 23; vol. 26, no. 6; vol. 27, no. 9; vol. 28, no. 4; vol. 29; vol. 30, no. 10; vol. 31; vol. 32. Scranton, Pa.


Mining and Scientific Press: vols. 80, 100, 103. San Francisco, Cal.

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Neues Jahrbuch für Mineralogie, Geologie, und Paläontologie: 1872. Stuttgart, Germany.


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Oklahoma Geological Survey: Biennial Reports, 1st (Advanced Bulletin only), 2d and 3d; Bulletins 1-25; Circumlars 1-5. Norman, Okla.


Petermann's Mitteilungen: vol. 21, 1875.

Petroleum and Natural Gas in Oklahoma: Harlow-Ratliff Co., Oklahoma City, Okla.


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Abert, S. J.

2. Geo. I.
   Describes the lithologic character and succession of the rocks forming the Carboniferous series in this region.

3. A section from Manhattan to Abilene [Kansas]: Kansas Univ. Geol. Survey, vol. 1, pp. 124-128, pl. 6, fig. 6, 1896.
   Gives the sections at Manhattan, Fort Riley, and Abilene, Kansas, of the Carboniferous and Permo-Carboniferous beds.

   Gives a summary of the views of various writers on the Cretaceous of Kansas, and a general section.

   Describes the general physiography of the Great Plains, the geologic structure of Kansas, and the physiographic features of the southeastern portion of the State.

6. A geological reconnaissance in Grant, Garfield, and Woods counties, Okla.: Kansas Univ. Quart., vol. 7, pp. 121-124, pls. 11-12, 1898.
   Describes the general geologic and geographic features of the region.

   Describes the physiographic and drainage features of the region.


   Describes the extension of these beds from Kansas into Oklahoma and discusses the evidence as to their age.

    Describes the general geology of the oil and gas fields of Kansas and Indian Territory, and the developments of the various localities. Describes the stratigraphy of the Texas oil fields and their developments.

    Describes the characteristics of the several physiographic divisions of the region.


    Describes the geologic position, occurrence and character of the zinc and lead ore deposits, and discusses their classification and origin.

    Defines the divisions and describes their topographic and geologic features.

    Describes occurrence, stratigraphy, and lithologic characters of the Red Beds of Texas, Oklahoma, Indian Territory, and Kansas, and discusses their relationships.

    Describes physiographic features briefly, the occurrence and character of Ordovician, Devonian, and Carboniferous formations, the geological history and structure, and the occurrence and origin of the zinc and lead ore deposits of this region.

Adams, Geo. I.—Continued.
  Gives a brief account of the position, history of development, and geologic structure of the field, and describes the occurrence, character, and source of the ores.


Geology of the eastern Ciaoctaw coal field, Indian Territory. See Taff and Adams, no. 562.

Physiography and geology of the Ozark region. See Bain, no. 32.

Adams, Geo. I., Girty, George H., and White, David.


Comprises a review of previous work upon the stratigraphy, and a description in detail of the geologic formations, including definition and synonymy, character and extent, and faunal lists of the Upper Carboniferous strata of Kansas and northern Indian Territory, by Geo. I. Adams; a discussion and tabulation of the invertebrate fossils, by George H. Girty, and an annotated list of the fossil plants recorded from the Upper Carboniferous and Permian formations of Kansas, by David White.

Adams, Geo. I., Haworth, Erasmus, and Crane, W. R.


Describes the general character and areal geology of the area, the character, occurrence, and relations of the Carboniferous formations, the geologic structure of the field, and in detail the occurrence, character, and origin of the natural gas and petroleum, and their utilization in the manufacture of cement, brick, and zinc spelter.

Adams, Geo. I., and Ulrich, E. O.


Describes the physiography, the occurrence, character, and relations of Ordovician, Devonian, and Carboniferous sedimentary strata, the history of the physical changes, and the economic resources.

Adams, Milton B.


Allen, W. C. B.


Antisell, Thomas.


Ashburner, Charles A.


Mentions the coal fields of the Indian Territory.

Aurin, Fritz.


Bache, Franklin.


Describes the location and extent of the field, the character and occurrence of the coal seams, and the mining developments.

Bailey, E. H. S.


Special report on gypsum and gypsum cement plasters. See Grimsley and Bailey, no. 258.

Bain, H. Foster.


Describes the stratigraphy of the Mississippi Valley and the character and occurrence of the coal mines.


Gives a summary of the previous work done in the region and describes the character and occurrence of the crystal-line rocks and the sedimentaries of Cambrian and Ordovician age.

32. Preliminary report on the lead and zinc deposits of the Ozark region. With an introduction by C. R. Van Hise
Bain, H. Foster.—Continued.

Discusses relations of ore deposits to the circulation of underground waters and describes the character and occurrence of minerals and ore deposits in this region.


Describes extent, general geologic relations, stratigraphy, and structure of this coal field occupying parts of Iowa, Missouri, and Kansas, and the character and occurrence of the coal and coal beds.


Describes the general geology of the zinc districts of Missouri, with a generalized section of the Boone formation, the geological structure, and the character, occurrence, and origin of the zinc-ore deposits.


Describes the investigation of reported gold deposits in Oklahoma. Includes a report on the assays by E. T. Allen.


Describes the general geology and the prospecting for gold.


Lead and zinc deposits of the Mississippi Valley, U. S. A. See Van Hise and Bain, no. 577.

Barnes, C. M.


Contains brief discussions of mines, minerals, undeveloped resources, and oil and gas.

Barnes, C. M.—Continued.


A brief discussion is given to oil and gas, guano deposits, and mining.

Bartow, Edward.


Bartow, Edward, and McColum, Elmer V.


Gives notes on the character and composition of petroleum from Kansas and other oil fields.

Bartram, William.

45. Travels through North and South Carolina, Georgia, east and west Florida, the Cherokee country, the extensive territories of the Muscogolges or Creek Confederacy, and the country of the Choctaws, containing an account of the soil and natural productions of those regions, together with observations on the manners of the Indians, XXIV, 520 pp., 6 pls. (map), Philadelphia, 1791; London, 1792.

Beede, I. W.


Describes several new species.


Describes the occurrence of fossils recently found, indicating the Permian age of the beds.


Discusses the age of the Red Beds and describes fossils collected from them.


Beede, J. W.—Continued.

Describes geologic formations and gives lists of fossils obtained from them.


Reviews the literature upon the Red Beds of Oklahoma, discusses their age and correlation, and gives descriptions of the fossils collected.


Describes the occurrence, characters, and relations of the formations in Kansas and adjacent parts of Oklahoma.

56. The bearing of the stratigraphic history and invertebrate fossils on the age of the anthracolitic rocks of Kansas and Oklahoma: Jour. Geology, vol. 17, no. 8, pp. 713-729, 1 fig., 1909.


59. The Neva limestone in northern Oklahoma, with remarks upon the correlation of the invertebrate fossil beds of the State. Eastern outcrop of the Permian Red Beds in Oklahoma, with a discussion of lithologic and color changes. Oklahoma Geol. Survey, Bull. 21, 37 pp., 8 pls., 3 figs., December, 1914.

Beede, J. W., and Rogers, Austin F.


Beede, J. W., and Rogers, Austin F.—Continued.

Describes the character and occurrence of lower Coal Measures formations and gives lists of fossils obtained from them.


Gives lists of fossils from the various formations of the coal measures of Kansas.

Beede, J. W., and Sellards, E. H.


Describes the occurrence and character of Permian formations in Kansas, giving numerous detailed sections.

Belt, Benjamin Carlton.


Bennett, John.

Native copper near Enid, Oklahoma. See Haworth and Bennett, no. 276.

General stratigraphy [of Kansas] See Haworth and Bennett, no. 277.

The nomenclature of the Kansas coal measures employed by the Kansas state geological survey. See Haworth and Bennett, no. 278.

Blake, William P.


Blatchley, Raymond S.

Bolster, R. H.  
Surface water supply of the United States, 1907-8. Part VII. Lower Mississippi basin. See Freeman, Lamb, and Bolster, no. 182.

Brady, L. Maimie.  

Bradley, Frank H.  
68. Geological chart of the United States east of the Rocky Mountains and of Canada, 16 by 24 inches in 12°, folder, New York, 1875.


Branner, John C.  

Describes the methods of observation used in the study of the erosion of the Arkansas River basin in Arkansas, the physical and chemical character of the sediment, and gives analyses of the filtered river water and tables showing the relations of suspended to dissolved matter and the amount of material carried by the Arkansas River past Little Rock during the year 1887-1888.


The coal fields lie in the drainage area of the Arkansas River. The coal-bearing rocks belong to true Coal Measure series, but the upper beds are probably Perm-Carboniferous, equivalent to those of Kansas and Nebraska. The lignites cover an area of 720 square miles, and are confined to the Tertiary area.


Describes the distribution of Paleozoic rocks in Arkansas and gives the thicknesses of the different series.


Describes the physiography of northern Arkansas, the character, occurrence, origin and relation of the ore bodies, the faults of the region, the local features of the region, and the local features of the various mines. Includes a discussion of the Paleozoic faunas by H. S. Williams.


Describes occurrence, mode of formation, and relations of bedded ores to the geologic structure of the region, and gives analyses of some of the ores.


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78. Warren's New Physical Geography, 144 pp., 4°, Philadelphia, [1890].

Bringler, L.  

Brittain, Doss.  
80. The new sheet ground of the Joplin district: Min. World, vol. 27, pp. 841-844, 6 figs., November 9, 1907.

Broadhead, G. C.  


85. Geological notes on a part of southeast Kansas: Kansas City Review, vol. 6, pp. 172-175, 1883.
Buehler, H. A.
The geology of the Granby area [Missouri]. See Buckley and Buehler, no. 94.

Burchard, Ernest F.
   Describes the glass-making industry of the region, the methods of preparation of the sand and its composition and physical properties, glass-sand deposits in use in Illinois and in Missouri, and undeveloped deposits in Missouri, Arkansas, Kansas, and Wisconsin.

Bush, B. F.

Buttram, Frank.

   Discusses briefly the different types of volcanoes, their distribution and origin, the origin, distribution, physical and chemical properties, and economic value of volcanic dust; the occurrence of volcanic dust in Oklahoma.

102. The Cushing oil and gas field, Oklahoma: Oklahoma Geol. Survey, Bull. 18, 66 pp., (tables), 12 pls. in pocket, 1 fig., December, 1914.
   Contains forty-two pages of well records.
   Brief chapters on Oklahoma minerals. See Gould and others, no. 255.

Carpenter, Everett.

Case, E. C.
Case, E. C.—Continued.


Case, Theo. S.


Chance, H. M.


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Clark, Chester Charles.


Clerc, F. L.


115. Ore deposits of the Joplin district: Colorado Sci., Proc., vol. 8, pp. 199-220, 1906. States and discusses the various explanations which have been given of the genesis of the zinc and lead ore deposits of the Joplin district, Missouri.


Collier, Arthur J.


Collier, Arthur J.—Continued.


Comstock, Theodore B.


Condra, George E.


Cope, E. D.


Cragin, F. W.


Crane, W. R.—Continued.

   Describes the distribution and characters of the coal-bearing strata.

   Contains observations on the character and occurrence of asphalt deposits.

   Describes the character and occurrence of the coal seams and the methods of mining.

   Contains notes on the occurrence and character of coal beds in western Arkansas.

   Describes the distribution, relations, and character of the coal deposits.


144. Lead and zinc mining in the Quapaw district, Oklahoma: Mines and Minerals, vol. 27, no. 9, pp. 445-446, 1 fig., May, 1907.
   Describes the character and occurrence of the ores.

Economic geology of the Iola quadrangle, Kansas. See Adams, Haworth, and Crane, no. 21.

Cross, Whitman, and Howe, Ernest.

   Discusses the occurrence, character, and relations of strata, collectively called Red Beds, in southwestern Colorado, their subdivisions and correlation with Red Beds elsewhere.


Cross, William Japheth.

Cummins, W. F.

Cummins, W. F., and Dumble, E. T.
Gives the section occurring at this locality in western Texas, with a list of fossils found, representing three divisions of the Cretaceous.

Darton, Nelson H.
Gives a list of papers on North American geology with notes descriptive of contents and index references.
Contains an author's list of titles of papers arranged chronologically under each author and a subject index.
Describes the physiography, the character and occurrence of the Pleistocene, Tertiary, and Cretaceous strata and of the underground waters.

Describes the occurrence, character, and relations of Archean, Algokian, Cambrian, Ordovician, Carboniferous, Triassic, Jurassic, Cretaceous, and Tertiary deposits, the geologic history of the central Great Plains region, and the underground waters and other economic resources of the area.
Describes the configuration and general geology, the occurrence, character, and relations of Cambrian, Ordovician, Carboniferous, Triassic (?), Cretaceous, Tertiary, and Quaternary formations and of igneous rocks, the geologic history, and the underground waters.

Day, David T.

DeBarr, Edwin.

Dillon, John H.
166. Report of inspector of oil in the Territory of Oklahoma, March 1, 1902, to December 1, 1902.

Drake, Noah Fields.
Describes the character, occurrence, distribution, and classification of the Coal Measures and the occurrence and character of the coals, and gives lists of fossils collected and description of three new species.
Dumble, E. T.

Gives a detailed section of the rocks of San Lorenzo, Coahuila. Describes the lithologic characters and names some of the fossils found in the Bosque, Fredericksburg, and Washita divisions of the Lower Cretaceous. Describes the distribution of the Dakota, Colorado, and Montana divisions of the Upper Cretaceous in Texas. Gives a general section of the Montana rocks and a list of fossils determined by T. W. Stanton.

The Kent section and Gryphaea tucumcarii Marceau. See Cummins and Dumble, no. 149.

Dunbar, William.
Observations. See Hunter and Dunbar, no. 336.

Dwight, Herbert B.

Eastman, Charles R.

Eckel, Edwin C.

Eckes, Charles Raymond.

Edwards, E. L.

Emery, Wilson B.
A structural reconnaissance in the vicinity of Beggs. See Fath and Emery, no. 176.

Everest, Herbert A.

Fath, A. E.

Fath, A. E., and Emery, Wilson B.

Fath, A. E.

Featherstonhaugh, G. W.

Finch, John.

Fitch, C. H.
180. Triangulation and spirit leveling in Indian Territory: U. S. Geol. Survey, Bull. 175, pp. 1-141, pl. 1, fig. 1, 1900.

Pollansbee, Robert.

Freeman, W. B., Lamb, W. A., and Bolster, R. H.

Fuller, Myron S.


Furman, John H.
Gallaher, John A.


Contains a statement of the author’s theory of the Cosmos and a description of the character and occurrence of the igneous and sedimentary rocks of Missouri.

Gannaway, C. B.


Gannett, Henry.


Illustrates the following types: A coast swamp—Norfolk sheet, Virginia–North Carolina; a graded river—Marshall sheet, Missouri; an overloaded stream—Lexington sheet, Nebraska; Appalachian ridges—Poteau Mountain sheet, Arkansas-Indian Territory; Ozark plateau—Marshall sheet, Arkansas; Hogbacks—West Denver sheet, Colorado; Volcanic peaks, plateaus, and necks—Mount Taylor sheet, New Mexico; Alluvial cones, Cucamonga sheet, California; a crater—Crater Lake special sheet, Oregon.


Gives list of names of towns, place names, and their origin.

Garrett, Robert E.

The Ponca oil and gas field. See Ohern and Garrett, no. 419.

Garrison, F. Lynwood.


Contains notes on the occurrence of the zinc ores.

Gidley, J. W.


Describes explorations in the Tertiary beds of northwestern Texas, and the character, occurrence, and fossil contents of Pleistocene, Pliocene, and Miocene formations.

Gilbert, Grove K.


Describes the character, distribution, and structure of the Jurassic and Cretaceous strata, the sands and gravels, and the general conditions of the artesian and ground waters.

Giles, J. M.


Surface water supply of lower western Mississippi River drainage, 1906. See Meeker and Giles, no. 394.

Girly, George H.


Describes the occurrence of the fossils and the relations of the beds in which they occur, and the general characteristics of the Lower Helderberg, Niagara, and Ordovician faunas. Discusses their relations to other faunas and describes the characters of the species collected.


The lithologic and faunal characters of the Carboniferous section examined by Shumard in 1888, and proposes the geographic term Guadalupian for the Permian strata of the region.

198. Tabulated list of invertebrate fossils from the Carboniferous section of Kansas: U. S. Geol. Survey, Bull. 211, pp. 73-83, 1903.


Discusses the relations and correlations of Carboniferous faunas and formations in the various parts of the United States to one another and to those of other parts of the world.
Girty, George H.—Continued.


Gives lists of invertebrate fossils identified from various localities.


Discusses the stratigraphic relations of the Caney shale and gives systematic descriptions and figures of the invertebrate fauna.


Stratigraphy and paleontology of the Upper Carboniferous rocks of the Kansas section. See Adams, Girty, and White, no. 26.

The Wichita formation of northern Texas. See Gordon, no. 208.

Gordon, Charles H.


Discusses the occurrence of chalk beds, to which the formation name Annona chalk has been given, in northeast Texas, and considers them to be the equivalent of the upper part of the Austin chalk of central Texas.


208. The Wichita formation of northern Texas, with discussions of the fauna and flora by George H. Girty and David White: Jour. Geology, vol. 19, no. 2, pp. 110-134, 1 fig., 1911.

Discusses the continuity, relations, and correlations of Carboniferous formations in northern Texas.

Gordon, Charles H.—Continued.


Gives a historic sketch of the geologic work on the Lower Cretaceous of Kansas; describes the occurrence, character, and relations at certain localities, and discusses the relations of the Comanche to the Dakota series.


212. Stratigraphy of the McCann sandstone: Kansas Univ. Quart., vol. 9, pp. 175-177, 1900.

Contains notes on local occurrence in Oklahoma.

213. The Dakota Cretaceous of Kansas and Nebraska: Kansas Acad. Sci., Trans., vol. 17, pp. 122-178, pls. 4-12, 1901.

Gives a historical sketch of work on the Dakota group, describes its geographic distribution, character, occurrence, and relations, its economic products, and the general characteristics of its faunas and flora. Includes a bibliography.


Gives a description of the character of the Red Beds and of the evidences on which they have been assigned to the Permian. Refers to fossils recently found in the beds.


Describes the occurrence of those springs at the contact between the Tertiary and the underlying Cretaceous or Red Bed strata.


Contains notes on the occurrence and character of the limestones.


This paper is a contribution to the Red Beds problem of the region and indicates that the strata are of Permian and Carboniferous age.


Describes the geologic formations of the region and the occurrence and character of the salt plains.
Gould, Charles N.—Continued.

   Describes the geologic features of the region and discusses the age of the beds.

   Describes their character and occurrence in Oklahoma.

   Describes the drainage, the occurrence, character, and relations of igneous rocks and sedimentary rocks of Carboniferous, Cretaceous, and Tertiary age, including an extended and detailed account of the Red Beds in Oklahoma, and a historical review of investigations upon their stratigraphic position and geologic age in Texas, Kansas, and Oklahoma.

   Describes the occurrence, character, and utilization of the gypsum deposits in Oklahoma, and discusses their geologic relations and origin.


   Describes character, occurrence, economic development, and geologic relations of gypsum deposits occurring in Permian strata.

   Describes the physiography of the region, and the character and occurrence of igneous rocks, and of sedimentary rocks of Cambrian, Ordovician, and Carboniferous age.


   Describes the topography, the character, occurrence, and

Gould, Charles N.—Continued.

relations of Cambrian, Ordovician, Carboniferous, Cretaceous, Tertiary, and Quaternary deposits, and the water supply.


   Describes the topography and drainage, the general geology and stratigraphy, and the occurrence and character of underground and surface waters.


   Describes briefly the organization and the field work of the season.


238. The tripoli deposits in Oklahoma: Min. World, vol. 29, p. 880, 1 fig., December 12, 1908.


   Part I is an administrative report. Part II is composed of brief chapters on mineral resources of Oklahoma.
Gould, Charles N.—Continued.

244. Future of natural gas in Oklahoma: Read at fifth annual meeting of the Natural Gas Association of America, Oklahoma City, Okla., May 19, 1910. Paper published by F. J. Heer Printing Company, Columbus, Ohio, 15 pp., 1910.


251. The occurrence of petroleum and natural gas in the mid-continent field: Intern. Geol. Cong., Twelfth, Canada, 8 pp., 1913 (advance copy).

Gould, Charles N., and Hutchison, L. L.


Gould, Charles N., Ohern, D. W., and Hutchison, L. L.


Discusses the occurrence, character, and relations of Pennsylvanian formations and their relations to those of Kansas and Arkansas. New names are proposed for the principal groups.

Gould, Charles N., and others.


Includes chapters on granites by Chas. H. Taylor; clays, by L. C. Snider; gypsum, by Charles N. Gould and Frank A. Herald; Portland cement, by Gaylord Nelson.

Grimsley, G. P.


Discusses the origin of oil and gas, the geological condition of accumulation, duration of supply, and their occurrence in Kansas.

Grimsley, G. P., and Bailey, E. H. S. (with the assistance of Erasmus Haworth).


Describes the general distribution of gypsum deposits and their occurrence, character, and origin in Kansas. Includes chemical analyses of samples and a bibliography of the subject.

Griswold, Leon S.


Harvey, F. L.

260. The minerals and rocks of Arkansas, 32 pp., Philadelphia, 1886.

Hawn, F.

The rocks of Kansas. See Swallow and Hawn, no. 531.

Haworth, Erasmus.


263. A contribution to the geology of the lead and zinc mining district of Cherokee County, Kansas, 47 pp., Oskaloosa, Iowa, 1884.


Describes the past production of oil and gas in southeastern Kansas and the character and distribution of the Coal Measure shales and sandstones in which they occur. Discusses the relation of oil and gas to anticlinals and synclinals and the evidences as to their original source.
Haworth, Erasmus.—Continued.

   
   Gives a historical account of the industry, describes their geographic extent, and the character of the Coal Measure strata in which the oil and gas occur, and discusses their origin and physical and chemical properties.

   
   Describes the physiography of the region, the character and occurrence of the Jura-Trias, Cretaceous, and Tertiary beds, and the water supply. Includes a geological map.

   
   Describes the physical character of the material forming the Tertiary deposits, and discusses their origin and mode of formation.

   
   Describes the distribution and surface features of the Mississippian series, the character, occurrence, and distribution of the subdivisions of the Coal Measures, the correlation of sections, and comparison with Missouri and Iowa Coal Measures. Discusses the nomenclature employed.

   
   Describes the physiography of the border area of Missouri, Kansas, and Arkansas, and the general geology, structure, and mineralization that has taken place in the region.

   
   Describes the general geology of the region and the occurrence of the ores.

   
   Describes the occurrence of economic minerals in the State.

   
   Describes the geographic and geologic distribution of the oil and gas.

273. Oil and gas in Kansas: Eng. and Min. Jour., vol. 73, p. 37, 1902.
   
   Describes the developments in oil and gas in 1901.

Haworth, Erasmus.—Continued.


   
   Discusses the conditions of occurrence of petroleum and natural gas and their origin.

Economic geology of the Iola quadrangle, Kansas. See Adams, Haworth, and Crane, no. 21.

Clay industries of the Independence quadrangle, Kansas. See Schrader and Haworth, no. 469.

Oil and gas of the Independence quadrangle, Kansas. See Schrader and Haworth, no. 470.


Haworth, Erasmus, and Bennet, John.

   
   Describes occurrence in small fractures in the Red Beds of the region and discusses the origin of the copper.

   
   Discusses the nomenclature, synonymy, areal distributions, characters, and relations of the Carboniferous formations of Kansas.


Haworth, Erasmus, and Kirk, M. Z.

279. A geologic section along the Neosho River from the Mississippian formation of the Indian Territory to White City, Kans., and along the Cottonwood River from Wyckoff to Peabody: Kansas, Univ. Quart., vol. 2, pp. 104-115, 1894.
   
   Describes the limestones, sandstone, and shales outcropping along the Neosho and Cottonwood rivers.

Haworth, Erasmus, and others.

   
   Includes chapters on discoveries of oil and gas geographical and historical, detailed geology of oil and gas, life of oil wells and gas wells, commercial conditions of oil and gas, chemical composition of gas, and chemical composition of petroleum.
Haworth, Erasmus, and Piatt, W. H. H.
281. A geologic section along the Verdigris River from the State line to Madison [Kans.]: Kansas, Univ. Quart., vol. 2, pp. 115-118, 1894.
Describes the stratigraphy along the Verdigris River.

Haworth, Erasmus, and Schrade, F. C.
Describes the occurrence and character of the raw materials, and the composition of the product.

Hay, Robert.


Describes the hydrographic, geologic, and topographic features and water-bearing formations of a portion of western Kansas and Nebraska and eastern Colorado.

Hay, Robert, and Thompson, A. H.

Hayes, C. W.
Describes distribution of coal in the United States, the geologic relations of the coal fields, fuel values of coals, and their development, production, and marketing.


Heald, Kenneth C.
Faulted structure in the vicinity of the recent oil and gas development near Paducah.
See Fath and Heald, no. 177.

Hedburg, Eric.

Reviews the mining industry of this district, and discusses geologic position and origin of the ores.

Herald, Frank A.
Preliminary report on the structural materials of Oklahoma. See Gould and others, no. 256.

Herrick, R. L.
Includes an account of the geology of the district.

Hershey, Oscar H.
Discusses correlation of the Carboniferous and Devonian formations of the region.

Discusses the Cretaceous and Tertiary peneplains, the Lafayette base level, the Ozarkian valleys and the modern valleys.

Discusses topographic development of west central Arkansas and reviews a paper by A. H. Purdy on "Physiography of the Boston Mountain, Arkansas."

Hilgard, Eugene W.

Hill, Robert T.—Continued.


Reviews the literature on the stratigraphic divisions and nomenclature of the Comanche series. Describes the position and characteristics of the Trinity division. Discusses the general characters of the Trinity fossils and the age and significance of the Trinity beds, gives a list of fossils found in them and describes some of the species.


Describes the stratigraphic position of the Caprina limestone in the Comanche series, gives a list of characteristic fossils, discusses the age of the beds, and describes some of the species found in the Caprina limestone.


Refers to the writer's previously published opinions on the geology of Tucumcari and gives a vertical section of the mesa and a list of fossils which indicate the beds are of Cretaceous age.


Describes the physiography of the region. Gives a list of the Cretaceous, Tertiary, and Pleistocene formations and their subdivisions, whose outcrops at different localities are described. Gives lists of fossils found at certain horizons,

Reviews the previous descriptions of the Cretaceous series in this region. Gives the section at Black Hills, Comanche County, Kans., and that near Belvidere. Reviews the descriptions of these sections by Professor Cragin. Includes notes on the fossil plants by F. H. Knowliton and on the fossil molluscs by T. W. Stanton. Compares the fauna of these beds with that of the Comanche series in Texas. Considers that these outlying beds represent the attenuated northern extension of the Washita and probably a portion of the Fredericksburg division of the Texas Comanche series.


Gives the history of the discovery of forms referred to Gryphaeas pitcheri Morton, discusses their differentiation, and describes the geographic and stratigraphic distribution, classification and evolution of the Texas Lower Cretaceous Gryphaeas, with descriptions of several species.


Describes area, relations, and subdivisions, the mountain and plain relief, and the drainage, climatic, and economic features. Illustrated by maps showing types of mountains, plains, and scarps, and types of rivers and canyons, and includes a map of Texas and parts of adjoining territories.


Describes the evidences of differential movement in this region and its bearing on the occurrence of oil.


Describes physiographic and drainage features, the character and occurrence of Azoic, Cambrian, Ordovician, Car-
Hitchcock, Charles H., and Blake, W. P.—Continued.


Hitchcock, Edward.


Hood, O. P.


Howe, Ernest.

Red Beds of southwestern Colorado and their correlation. See Cross and Howe, no. 145.

The Red Beds of southwestern Colorado. See Cross and Howe, no. 146.

Hoyt, John C.


Hoyt, John C., and Wood, B. D.


Hunter, Dr., and Dunbar, William.

336. Observations: Message from the President of the United States, communicating discoveries made in exploring the Missouri, Red River, and Washita, by Captains Lewis and Clark, Dr. Shelby, and Mr. Dunbar, with a statistical account of the country adjacent, pp. 116-171, 178 pp., plate, Washington, 1806.

Hutchison, L. L.


Jarvis, May M.


Johnson, Willard D.


Johnson, William H.

348. The lead and zinc fields of the Ozark uplift: Am. Bur. Geol., Bull., vol. 2, pp. 59-73, illus., 1901. Gives a general account of the development of the Missouri-Arkansas-Kansas lead and zinc mining district, and

discusses briefly the general geology and the formation and character of the ores.

Jones, A. W.


Describes the general character and occurrence of the beds in the Lower Cretaceous and gives a list of fossils.


Gives notes on occurrence and fauna in Kansas.

Keyes, Charles R.


Describes the topographic and drainage features, the distribution of the Archean, Algonkian, Cambrian, Silurian, Devonian, Carboniferous, and Cretaceous crystalline and sedimentary rocks, and the general features of the geologic structure and deformation. Discusses the age of the uplift.


Describes the general occurrence of the rocks, the structure of the coal region, and the occurrence and character of the coal beds.


Gives a historical review of the literature on this series, and a description of the character, distribution, and geologic structure of the subdivisions of the series.


Discusses the relations of the coal-bearing horizons of the trans-Mississippian region.


Discusses the Carboniferous deposits of the western interior coal field, tabulates the terranes and percentage of coal production of each, and gives a list of names that have been applied to the coal seams, with place of publication and stratigraphic position.

Keyes, Charles R.—Continued.


Discusses the evidences which indicate that there has been one uplift in the region and that the river eroded its bed as fast as the strata were raised.

357. [Review of "Zinc and lead region of north Arkansas" by John C. Branner]: Jour. Geology, vol. 9, pp. 634-636, 1901.


Gives list of geological formations and the coals occurring in each.


Describes the extent, character, and occurrence of the Carboniferous deposits of New Mexico and discusses their correlation with those of the Mississippi Valley and of the Appalachian region.


Calls attention to coals of Carboniferous age in New Mexico and describes briefly the geology of these deposits.


Kirk, Charles T.


Describes physiography of the region examined, the occurrence, character, and economic products of Carboniferous strata in Oklahoma and their differentiation into Pennsylvanian and Permian.

Kirk, M. Z.
A geologic section along the Neosho River from the Mississippian formation of the Indian Territory to White City, Kansas, and along the Cottonwood River from Wyckoff to Peabody. See Haworth and Kirk, no. 279.

Lakes, Arthur.

Lamb, W. A.
Surface water supply of the United States, 1907-8, Part VI. Lower Mississippi basin. See Freeman, Lamb, and Bolster, no. 182.

Larkin, Pierce.

Describes the character and distribution of the Trinity formation in Oklahoma.

Lawrence, B.


Logan, W. N.

Long, Charles A.

Long, Stephen H.

Lord, N. W.
376. Analyses of coals in the United States with descriptions of mine and field samples collected between July 1, 1904,

Lord, N. W.—Continued.

Loughridge, R. H.

Low, William H.

Macfarlane, James.
380. An American geological railway guide, giving the geological formation at every railway station, with notes on interesting places on the routes, and a description of each of the formations, 219 pp., New York, 1879.

Maclure, William.
Marcou, Jules.


Marcou, Jules.—Continued.

389. The Tucumcari fossils: Science, vol. 21, pp. 358-360, 1892. Reviews the determination of certain fossils from this region.

Marcy, R. B.


Includes appendices by various persons, including geology by E. Hitchcock and G. G. Shumard, and paleontology by B. F. Shumard, pp. 119-312.

Marshall, R. B.


Matthews, Thomas Buchanan.


McCollum, Elmer V.

Kansas petroleum. See Bartow and McCollum, no. 44.

McGee, W. J.


Meeker, R. L., and Giles, J. M.


Meek, F. B.


Meek, F. B., and Hayden, F. V.

Meinzer, O. G.
Ground water for irrigation in the vicinity of Enid, Oklahoma. With a note on ground water for irrigation on the Great Plains. See Schwennesen, no. 474.

Merrill, J. A.
Describes the general character of the flint nodules and of the contained organisms, the preservation of the sponge spicules, and the specific characters of the specimens, including some new species.

[Missouri Republican.]

Montgomery, Ira W.

Mosley, M. A.
400. Oil inspector's report: Governor's report to the 4th Ter. Legislature, pp. 18-22, Exhibit R., 1896.

Munn, M. J.

Murphy, E. C.


Nelson, Gaylord.

Newberry, John S.

Newell, Frederick Haynes.
Describes the character of the public lands of the Western States and their water supply.

Nichols, Henry Windsor.
Describes the occurrence, appearance, and constitution of concretions from various localities, and discusses the mode of their formation. After describing nodules from the Challenger and Argus banks in the Atlantic Ocean, discusses the formation of magnesian limestone.

Nickles, John M.


Bibliography of North American geology for 1906 and 1907, with subject index. See Weeks and Nickles, no. 602.

Ohern, D. W.
416. The stratigraphy of the older Pennsylvanian rocks of northeastern Oklahoma: Oklahoma State Univ., Research Bull. 4, 40 pp., geol. map, 1910.
Reviews the previous work on the area, and describes the geography and topography, the general structure, and the distribution, character, thickness, relations, and correlation of Carboniferous formations.

Obern, D. W.—Continued.

418. Director's biennial report to the Governor of Oklahoma from 1901 to 1911: Oklahoma Geol. Survey, Bull. 15, 47 pp., December, 1912.
Proposed groups of Pennsylvanian rocks of eastern Oklahoma. See Gould, Obern, and Hutchison, no. 254.

Obern, D. W., and Garrett, Robert E.

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Describes the stratigraphy, structure, and economic developments.

Oklahoma Geological Survey.

A series of six small maps of the State showing the location of: asphalt; oil and gas; glass sand and gypsum; salt, lead and zinc; and building stone deposits.


A sectioned base map of the State showing all post-offices, and giving accurate location of streams and railroads.

Owen, Richard.


Penrose, R. A. F., jr.
Relation of the uppermost Cretaceous beds of eastern and southern United States and the Tertiary-Cretaceous history of Arkansas and Texas. See Hill and Penrose, no. 326.

Perkins, Edwin T.

Includes notes on the geology, character, and occurrence of the zinc and lead ores.

Perry, T. O.


Perry, E. R., and Hutchison, L. L.


Phillips, D. McN.

Discusses the origin of petroleum and describes its occurrence in Texas, its chemical composition and uses.

Piatt, W. H. H.

429. A geologic section along the Verdigris River from the State line to Madison, [Kansas]. See Haworth and Piatt, no. 281.

Porter, Earl Sellers.


Prather, J. K.

Discusses the occurrence of fossils and gives faunal lists.

Prosper, Charles S.

Describes the topographic features of the region and the lithologic character and fauna of the Permian and Permian-Carboniferous rocks, and reviews previous descriptions of the geology of Kansas. Presents a table showing the stratigraphic position and character of the formations comprising the Upper Paleozoic of central Kansas.


434. The Permian and Upper Carboniferous of southern Kansas: Kansas Univ. Quart., vol. 6, pp. 149-175, pls. 18-19, 1897.
Describes several sections and discusses their correlation and faunal characters.

Describes the character, occurrence, correlation, and classification of the Upper Permian and Lower Cretaceous beds of Kansas.
Prosser, Charles S.—Continued.

    Describes the lithologic characters of the formations and their stratigraphic relations.

    Discusses conflicting views regarding the nomenclature of Upper Carboniferous formations of Kansas and their correlation.

    A critical discussion of the stratigraphic position of the Upper Paleozoic rocks of Kansas, and similar rocks of Oklahoma and Texas.

Purdue, A. H.


    Describes the general geology, and discusses the relations of the underground water supply and the geological formations of the State of Arkansas north of the Arkansas River.


    Discusses the occurrence and mode of formation of these sandstone deposits, which are held to be of Ordovician age.


    Describes the topography, the occurrence, character, and relations of Carboniferous strata, the geologic structure and history, and the mineral and water resources.

Purdue, A. H.—Continued.


    Describes the geology of the slate area and the character and origin of the slates.

Reed, W. J.

448. The Madill oil pool, Oklahoma. See Taff and Reed, no. 563.

Reeds, Artie Carl.


    Describes the physiography, stratigraphy, structure, and mineral resources.


Ries, Heinrich.

    Describes the geologic horizons and geographic distribution of the clays of Texas, and their composition, classification, and properties.

Robertson, James D.

    Describes the differences between the deposits of the southwestern portion of the State and those of the central and southeastern, the characters of the country rock, and the forms and mode of deposition of the ore bodies. Describes the lead and zinc compounds and accessory minerals. Reviews some of the theories advanced to account for the origin of these deposits, and discusses the evidence in support of the author's hypothesis.
Roemer, Ferdinand.

Roessler, A. R.

Rogers, Austin F.
458. Annotated list of the minerals occurring in the Joplin lead and zinc districts: [Kansas-Missouri]: Kansas Univ. Quart., vol. 9, pp. 161-165, 1900.

Gives descriptions of the minerals with bibliography of publications relating to them, and discusses their paragenesis.
Coal Measure faunal studies. III. Lower Coal Measures. See Beede and Rogers, no. 60.
Coal measures faunal studies. IV. Upper coal measures, Neosho River section. See Beede and Rogers, no. 61.

Rowley, R. R.

Ruhl, Otto.

Includes notes on the occurrence of the ores.

Sardeson, Frederick W.
Contains notes on the occurrence of fossils as indicating the mode of formation of the strata.

Schmidt, Adolf.
The lead and zinc regions of southwest Missouri. See Leonhard and Schmidt, no. 372.

Scholle, Carl.
466. The coal fields of Arkansas and Indian Territory: Min. Mag., vol. 11, pp. 520-524, 2 figs., 1905.

Schoolcraft, Henry R.
467. A view of the lead mines of Missouri, including some observations on the mineralogy, geology, geography, antiquities, soil, climate, population, and productions of Missouri, Arkansas, and other sections of the Western country, 299 pp., 3 pls., New York, 1819; (abstract), Am. Jour. Sci., vol. 3, pp. 59-72, 1821.

Schrader, F. C.
Describes the geography and general geology, the occurrence, character, and relations of Carboniferous strata and Quaternary deposits, the structure, the geologic and physiographic history, and the economic resources, petroleum, gas, coal, stone, and less important products.

Schrader, F. C., and Haworth, Erasmus.
Describes occurrence and character of clays, and their manufacture into brick and other wares.
Schrader, F. C., and Haworth, Erasmus.—Continued.

   Describes the stratigraphy and geologic structure, and the occurrence, character, and utilization of petroleum, natural gas, coal, and other mineral resources.

Schramm, E. F.


Schwennenesen, A. T.


Sellards, E. H.

   Describes occurrence of plant remains at various localities.

   Stratigraphy of the eastern outcrop of the Kansas Permian. See Beede and Sellards, no. 62.

Severin, Robert R.


Shaler, Millard K.

479. Notes on the geology of the Muskogee oil fields, Indian Territory. See Taff and Shaler, no. 564.

Shannon, C. W.


   A list of the trees and shrubs of Oklahoma and condition of growth in sixty-six counties of the State.

Shannon, C. W.—Continued.

481. Director's biennial report to the Governor of Oklahoma, 1914: Mineral resources of Oklahoma and statistics of production from 1901 to 1914, as Part II: Oklahoma Geol. Survey, Bull. 22, 142 pp., 4 pls., 3 figs., December, 1914.
   Petroleum and natural gas in Oklahoma, Part II. See Trout and Shannon, no. 569.

Shannon, C. W., and Trout, L. E.


Shattuck, G. B.

   Gives a short account of the geology of the Buda limestone in Texas, and descriptions of the molluscan fauna found therein.

Shepard, E. M.

   Includes an account of the stratigraphy and geologic history.

Sherwin, R. S.


   Gives a brief account of the geology of this region.

   Discusses the origin of the gypsum deposits of Kansas and Oklahoma.

Shumard, B. F.


Shumard, B. F.—Continued.

Shumard, George G.


Siebenthal, C. E.

Describes the stratigraphy, the geologic structure, and the mineral resources; lead, zinc, oil, gas, coal, cement materials, building stone, and water resources.

Description of the Joplin district [Missouri-Kansas]. See Smith and Siebenthal, no. 503.

Simonds, Frederick W.

Gives an account of the preparation of a list of Texas minerals and localities.

497. The geography of Texas, physical and political: Boston Ginn & Company, 237 pp., 133 figs., 1905.

Includes chapters on the geology, physiography, and economic resources of Texas.

Smith, Carl D.


Smith, George Otis.
500. Thirty-fifth annual report of the Director of the United States Geological Survey to the Secretary of the Interior for the fiscal year ended June 30, 1914.

An administrative report summarizing the activities of the Survey during the fiscal year 1912-1913.

Smith, W. T. S.

Describes briefly the stratigraphy and geologic structure of the region and the character, occurrence, and origin of the ores.


Smith, W. S. T., and Siebenthal, C. E.

Describes the topography, the occurrence and character of Carboniferous strata and Quaternary deposits, the geologic structure and history, and the occurrence and genesis of the lead and zinc ores.

Snider, L. C.


511. Oklahoma gypsum deposits and industry: Eng. and Min. Jour., vol. 95, no. 18, pp. 931-933, 4 figs., (incl. map), May 10, 1913.


Snider, L. C.—Continued.


Stabler, Herman.


St. John, O. H.


Stanton, T. W.


Stanton, T. W., and Vaughan, T. W.


Gives a columnar section of the Cretaceous strata and lists of fossils collected from the various beds.

Steele, James H.


Stevenson, John J.


Storm, C. D.


Straszer, Justin.


Swallow, G. C.

527. Geology of the Southwest: Geol. Survey Missouri, First and Second Annual Reports, pp. 204-207, plate, Jefferson City, 1855.


Swallow, G. C. and Hawn, F.


Taff, Joseph A.


Describes the geologic and petrographic features of the Cretaceous series and mentions some of the fossils found in them. Divides the report into two sections—the Bosque, which is the lowest of the Cretaceous in Texas, and the Llano-Williamson section, the latter comprising the whole Cretaceous in central Texas.


Continues the description of Cretaceous deposits contain-

Contains summary of paper read before the Geological Society of Washington.


Describes character and occurrence of the material and the geologic features of the region.


Describes the physiographic features, character, and structure of the Carboniferous strata, and the occurrence, distribution, and character of the coals of the region.


Describes the occurrence and character of the Eocene strata and the accompanying coal.


Briefly describes sections of Paleozoic rocks.


Describes the geographic and topographic features, the general geologic relations, the character and occurrence of the Carboniferous, Neocene and Pleistocene strata, and the occurrence of coal.
Taff, Joseph A.—Continued.


Describes the occurrence and character of coal beds and quality of the coal.


Describes the occurrence and character of the coal beds and the quality of the coal.


Describes the occurrence and character of the coal beds and quality of the coal.

551. Description of the leased segregated asphalt lands in the Chickasaw Nation, Indian Territory: U. S. Dept. Interior, Circ. 6, 14 pp., 1904.

Describes the occurrence and character of asphalt deposits.


Describes the physiographic features and history of the region, the occurrence, character, and relations of pre-Cambrian igneous rocks and Cambrian, Ordovician, Silurian, Devonian, Carboniferous, and Cretaceous sedimentary rocks, and the geologic structure of the Arbuckle and Wichita Mountains.


Describes the occurrence of limestones suitable for cement manufacture.


Describes the location, extent, and stratigraphy of the coal fields, the character and extent of the coal beds, and the mining developments.


Describes the physiographic relations and features, the character, occurrence, and relations of Ordovician, Silurian, Devonian, and Carboniferous formations, the history of the sedimentation, the geologic structure, and the economic resources.


Describes the physiographic features, the occurrence, character, and relations of pre-Cambrian, pre-Carboniferous and Carboniferous formations, the geologic structure and history, and the economic resources.


Describes the physiographic features, the occurrence, character, and relations of pre-Cambrian, pre-Carboniferous and Carboniferous formations, the geologic structure and history, and the economic resources.


Describes the stratigraphy and the structure of the field, and the physical properties, occurrence, development, and sources of the oil.


Taff, Joseph A., and Adams, Geo. I.


Describes the topographic, stratigraphic, and structural features of the region, the occurrence and character of the coals and the mining development.

Taff, Joseph A., and Reed, W. J.


Taff, Joseph A., and Shaler, Millard K.

564. Notes on the geology of the Muskogee oil fields, Indian
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class and occurrence of the oil, and discusses the strata
penetrated in the wells.

Tarr, William A.
565. Copper in the "Red Beds" of Oklahoma: Econ. Geology,
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Describes the occurrence of copper ores in Payne County
and explains their origin.

Taylor, C. H.
566. Granites of Oklahoma: Oklahoma Geol. Survey, Bull. 20,
about 100 pp., 14 pls., 15 maps, 1915.
Preliminary report on the structural materials of Oklaho-
ma. See Gould and others, no. 256.

Thompson, A. H.
Historical sketch of geological rocks in the State of Kan-
sas. See Hay and Thompson, no. 288.

Thompson, J. C.
567. The Neva limestone: Thesis, Library Univ. Oklahoma,
26 pp., 1912.

Trout, L. E.
568. The geology and paleontology of the Simpson formation:
Petroleum and natural gas in Oklahoma, Part I. See
Shannon and Trout, no. 482.

Trout, L. E., and Shannon, C. W.
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fields of Wichita and Clay counties, Texas: Texas Univ.,
Bull. 246 (Scient. ser. no. 23), 308 pp., 26 pls. (incl.
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571. Determination and correlation of formations [of northern
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and correlation of Ordovician, Silurian, Devonian, and Car-oniferous formations of northern Arkansas.

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574. Operations at river stations, 1899: U. S. Geol. Survey,
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States Geological Survey, Part III.
575. Second Ann. Rept. Reclamation Service, U. S. Geol. Sur-
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Van Hise, Charles R.
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deposits of the Ozark region," by H. F. Bain: U. S.
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zinc ores of the uppe: Mississippi Valley and of the Ozark
region of the lower Mississippi Valley.

Van Hise, Charles R., and Bain, H. Foster.
14 figs., 1902.
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ley and discusses the occurrence and genesis of the ore de-
posits.

Van Vleet, A. H.
578. [Second biennial report of the Department of Geology and
Natural History of Oklahoma.]: Oklahoma Dept. Geol.
Outlines the work and status of the Department of Ge-
ology and Natural History of the Territory of Oklahoma.
579. [Third biennial report of the Department of Geology and
Natural History of Oklahoma.]: Oklahoma Dept. Geol.

Vaughan, T. W.
580. Additional notes on the outlying areas of the Comanche
Discusses sections in various parts of the region, giving
lists of fossils collected, and discusses their bearing on the
relation and age of parts of the Comanche series.
Vaughan, T. W.—Continued.


Describes the physiographic features of the region, the character and occurrence of Silurian and Carboniferous strata and igneous rocks.

Section of the Cretaceous at El Paso, Texas. See Stanton and Vaughan, no. 522.
Austin folio, Texas. See Hill and Vaughan, no. 327.

Veatch, Arthur C.


Describes the geologic history and structure, the occurrence, character, and relations of Cretaceous, Tertiary, and Quaternary formations, the general underground water conditions and principal water-bearing horizons, and the underground water prospects by counties.

Waldo, C. A.


Wallis, B. F.


Warder, J. A.


Weeks, Fred B.


Includes a brief discussion of the origin and occurrence of manganese and notes on its occurrence in Alabama, Arkansas, California, Colorado, Georgia, Indian Territory, New Jersey, Pennsylvania, Tennessee, Vermont, Virginia, New Brunswick, Nova Scotia, and Cuba.

Weeks, Fred B.—Continued.


Contains an author's list of titles of papers and a subject index.


Contains a list of titles of papers arranged alphabetically by authors' names and a subject index.


Contains list of titles of papers arranged alphabetically by authors' names and a subject index.


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Weeks, Fred B.—Continued.


Weeks, Fred B., and Nickles, John M.


Wegemann, Carroll H.


Weller, Stuart.


Gives lists of Cambrian and Ordovician fossils collected by H. F. Bain and R. D. Salisbury.

West, E. P.

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Whipple, A. W.


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Gives lists of plants identified from various localities.

Stratigraphy and paleontology of the Upper Carboniferous rocks of the Kansas section.

See Adams, Girty, and White, no. 20.

The Wichita formation of northern Texas. See Gordon, no. 208.

White, Mark.


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Williams, Guy Yandell.


Williams, Henry S.


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A compilation of the data, published and unpublished, used in the preparation of the colored geologic map, 77 by 60 inches, scale 1:5,000,000.
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Williston, S. W.

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622. [Contribution to "A symposium of the classification and nomenclature of geologic time divisions."] Jour. Geology, vol. 6, pp. 342-345, 1898.

   Discusses the Permian age of these beds.

   Describes material from Red Beds of Indian Territory.

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Winslow, Arthur.


   Gives a historical sketch of lead and zinc, a description of their compounds, and their distribution and conditions of occurrence. Describes the occurrence of lead and zinc in foreign countries and in the various States of the United States. Describes the physiography and geology of the mining regions of Missouri, and includes an account of the development and occurrence of lead and zinc ores in this State. Discusses the nomenclature of the formations and describes their distribution and structure. Gives lists of fossils collected from the Silurian rocks. Includes a discussion of the origin of lead and zinc ores and tabies of production.

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   Presents a table showing the classification of the Missouri rocks. Describes the geologic changes which occurred in Algonkian, Cambrian, Silurian, Devonian, and Carboniferous times and the erosion during the Mesozoic and Tertiary eras.

Wittich, Lucius L.

   Gives various observations upon the occurrence of zinc ore in the Joplin district, Missouri.


Wood, Robert H.


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Woodworth, J. B.

   Discusses the occurrence of stratified boulders in the Caney shales, the criteria for determining glaciated stones and climate during the Carboniferous.

Wooster, L. C.

   Describes the occurrence, character, thickness, and economic resources of the various Carboniferous formations present in Kansas.
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Shannon, C. W.

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Greer formation: Clark, 113; Gould, 222, 228; Matthews, 392; Snider, 504, 514; Willis, 619.

Groveland: Taff, 552.

Guano deposits: Barnes, 42.

Gueda salt measures: Gould, 228.

Guertie sand: Taff, 541.

Gypsite. See Gypsum.

**Gypsum.** See also under names of Counties.

*General:* Clark, 113; Gould, 219, 222, 225, 228, 235; Gould et al., 253, 255, 256; Shannon, 481; Sherwin, 485, 487; Snider, 511, 514.

Analyses. See under Analyses.

Hackberry shales: Gould, 228.

Hale formation: Purdure, 444.

Hamilton formation: Purdure, 444.

Hamilton Switch oil and gas pool: Snider, 513; Trout and Shannon, 569.

Haragan shale: Reeds, 451; Shannon and Trout, 482; Wallis, 585.

**Harmon County.**

Geology: Adams, 6.

Oil and gas conditions: Snider, 513; Trout and Shannon, 569.

Road materials: Snider, 505.

Structural materials: Gould et al., 256.

Harper County. See also Tertiary.

Oil and gas field: Trout and Shannon, 569.

**Harper County.**

Gypsum: Gould et al., 255, 256; Shannon, 481; Snider, 514.

Oil and gas conditions: Snider, 513; Trout and Shannon, 569.

**Harper County.—(Continued).**

Road materials: Snider, 505.

Structural materials: Gould et al., 256.

Harper sandstone: Willis, 619.

Hartford anticline: Smith, 498; Snider, 515.

Hartshorne coal: Porter, 429; Shannon, 481; Taff, 541, 542, 543, 546, 548, 554; Taff and Adams, 562; Willis, 619.

Hartshorne, local faulting near: Snider, 513; Taff and Adams, 562

Hartshorne sandstone: Shannon and Trout, 482; Snider, 505; Taft, 541, 542, 543; Taff and Adams, 562; Willis, 619.

**Haskell County.**

Oil and gas conditions: Snider, 513; Trout and Shannon, 569.

Road materials: Snider, 505.

Structural materials: Gould et al., 256.


Haskell oil and gas field: Trout and Shannon, 569.

Haystack gypsum member: Clark, 113; Gould, 222, 228; Snider, 514; Willis, 619.

Headquarter Mountain group: Taff, 552.

Healdton oil and gas field: Trout and Shannon, 569.

Heavenier anticline: Smith, 498; Snider, 515; Taff and Adams, 562.

Henryetta coal: Shannon, 481; Sieben, 495; Taff, 554.

Henryetta oil and gas field: Blatchley, 66; Hutchison, 343; Snider, 513; Trout and Shannon, 569.

Henryhouse shale: Reeds, 451; Shannon and Trout, 482; Wallis, 585.

Herrington limestone: Ohern and Garrett, 419; Shannon and Trout, 482.

Hichita oil and gas field: Trout and Shannon, 569.

**High Plains Region.** (Included under Redbeds Region). See also Tertiary.

Hobart oil field: Trout and Shannon, 569.

Hoffman oil and gas field: Trout and Shannon, 569.

Hogshooter limestone: Ohern, 416; Ohern and Garrett, 419; Shannon and Trout, 482; Snider, 505; Wood, 632.

Hogshooter oil and gas pool: Blatchley, 66; Snider, 513; Trout and Shannon, 569.

Holdenville shale: Shannon and Trout, 482; Snider, 504; Taff, 541; Willis, 619.

Eominy district: Gould, 228.

Hominy gas field: Snider, 513; Trout and Shannon, 569.

Howe anticline: Severin, 478; Snider, 515.

Howe-Poteau district, segregated coal lands: Taff, 548.

**Hughes County.**

Oil and gas conditions: Snider, 513; Trout and Shannon, 569.

Road materials: Snider, 505.

Structural materials: Gould et al., 256.


Hunton anticline: Taff, 542, 545, 552.

Hunton formation: Eckel, 171; Eckes, 172; Grody, 201; Hutchison, 343; Nelson, 406; Reeds, 451; Shannon and Trout, 482; Snider, 505; Taff, 542, 545, 552, 553; Taff and Reed, 563; Willis, 619.

Paleontology: Reeds, 451, Taff, 545.

Hydrozincite. See Zinc.

**Igneous rocks.** See also Pre-Cambrian.

*General:* Eckes, 172; Gould, 221; Hutchison, 343; Snider, 505, 517; Taff, 542, 545, 552.

Arbuckle Mountains: Eckes, 172; Hutchison, 343; Snider, 505; Ouachita Mountains: Hutchison, 343; Taff, 552.

Spavinaw Creek: Drake, 167; Gould, 221; Hutchison, 343; Snider, 517.

Wichita Mountains: Taff, 552; Taylor, 566.

Inola oil and gas development: Trout and Shannon, 569.
Iron: Gould et al., 253, 255; Reeds, 450; Shannon, 481.
Irrigation: Gould, 228; Hood, 353; Schwennesen, 474, 475; Wilson, 625.
Jackfork sandstone: Girty, 201; Hutchinson, 343; Shannon and Trout, 482; Taff, 542, 558; Wallis, 585; Willis, 619.

**Jackson County.**
Gypsum: Gould et al., 255, 256; Shannon, 481, Snider, 514.
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Salt: Snider, 514.
Structural materials: Gould et al., 256.

**Jefferson County.**
Asphalt: Hutchinson, 343.
Oil and gas conditions: Snider, 514; Trout and Shannon, 569.
Road materials: Snider, 505.
Jenkins clays: Willis, 619.
Jenks oil and gas pool: Trout and Shannon, 569.

**Johnston County.**
Asphalt: Hutchinson, 343.
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Jenny clays: Snider, 515.
Jenkins syncline: Snider, 515.
Kiowa syncline: Snider, 515; Taff, 541; Taff and Adams, 562.
Killer gympsum member: Clarke, 113; Gould, 222, 225; Gould et al., 253, 255, 256; Shannon, 481; Snider, 514.
Krebs syncline: Snider, 515; Taff, 541; Willis, 619.

**Kay County.**
Gypsum: Clark, 113; Gould, 222, 225; Gould et al., 253, 255, 256; Shannon, 481; Snider, 514.
Oil and gas conditions: Hutchinson, 343; Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.
Water supply: Gould, 228.

Kerosene. See Petroleum.
Kiambili formation: Larkin, 368; Nelson, 405; Shannon and Trout, 482; Snider, 513; Taff, 542, 545; Taff and Reed, 563.
Kiambili Mountain: Taff, 542, 558.
Kiefer oil and gas pool: Trout and Shannon, 569.
Kiger division: Gould, 228.

**Kingfisher County.**
Gypsum: Gould, 222, 225; Gould et al., 253, 255, 256; Shannon, 481; Snider, 514.
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.
Water supply: Gould, 228.
Kingfisher formation: Willis, 619.
Kingfisher field: Gould, 228.
Kiowa syncline: Snider, 515.
Kiowa oil and gas development: Snider, 513.

**Kiowa County.**
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.
Water supply: Gould, 228.

Kleberdike oil and gas pool: Snider, 513; Trout and Shannon, 569.
Lawn oil and gas field: Hutchinson, 343; Snider, 513; Trout and Shannon, 569; Wegemann, 603.
Layton sand: Buttram, 102.
Leak: Bain, 32; Cross, 147; Gould et al., 253, 255; Purdue, 444; Reeds, 450; Shannon, 481; Siebenenthal, 495; Snider, 506, 509, 517.

**Le Flore County.**
Asphalt: Hutchinson, 343.
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.
Lehigh basin: Snider, 515; Taff, 541; Taff and Adams, 562.
Lenapah limestone: Gould et al., 254; Nelson, 406; Oehna, 416; Oehna and Garrett, 419; Shannon and Trout, 482; Snider, 505; Willis, 619.
Leonard oil and gas pool: Trout and Shannon, 569.
Lightening Creek oil and gas development: Trout and Shannon, 569.
Lime: Gould et al., 256; Shannon, 481; Taff, 542.
Limestone: Gould, 216; Gould et al., 253, 255, 256; Shannon, 481; Snider, 505, 506, 509; Taff, 541, 542, 545, 555.
Limestone Ridge: Taff, 541; Wallis, 565.
Limestone springs: Gould, 228.

**Lincoln County.**
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.
Water supply: Gould, 228.
Loco oil and gas field: Hutchinson, 343; Snider, 513; Trout and Shannon, 569; Wegemann, 604.

**Logan County.**
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.
Lost City limestone: Smith, 499.
Lost City oil and gas field: Trout and Shannon, 569.

**Love County.**
Asphalt: Hutchinson, 343.
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.
McAlester anticline: Severin, 478; Snider, 515; Taff and Adams, 562.
McAlester coals: Brown, 92; Porter, 429; Shannon, 461; Taff, 543, 546, 554; Taff and Adams, 562.
McAlester district, segregated coal lands: Taff, 546.
McAlester-Leigh oil fields: Snider, 515; Taff, 537, 546; Taff and Adams, 562.
McAlester shale: Shannon and Trout, 482; Smith, 498; Snider, 504, 515; Taff, 541, 542, 543, 554; Taff and Adams, 562; Willis, 619.
McCann sandstone: Gould, 220.

**McClain County.**
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.

**McIntosh County.**
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.

**McCurten County.**
Asphalt: Hutchinson, 343.
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.
McCurten-Massey district, segregated coal lands: Taff, 549.

**McKintosh County.**
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
McIntosh County.—(Continued).
Road materials: Snider, 505.
Structural materials: Gould et al., 256.

Madill oil and gas pool: Hutchison, 433; 
Snider, 513; Taft and Reed, 563; 
Trout and Shannon, 569.

Magpie dolomite: Gould, 222.

Major County.
Gypsum: Clark, 113; Gould et al., 
255, 256; Shannon, 481; Snider, 
514.
Oil and gas conditions: Snider, 
513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 
256.

Manganese: Reeds, 450; Weeks, 587.
Mangum dolomite member: Gould, 228; 
Willis, 619.
Mannford oil and gas development: 
Trout and Shannon, 569.
Mannsville, oil and gas development 
ear Trout and Shannon, 569.
Marble: Gould et al., 253, 255, 256; 
Shannon, 481.

Marcasite. See Lead.
Marion formation: Adams et al., 20; 
Clark, 113; Gould, 220; Hutchi- 
sion, 337; Snider, 513; Trout and 
Shannon, 569; Willis, 619.

Marshall County.
Asphalt: Hutchison, 343.
Oil and gas conditions: Trout and 
Shannon, 569.
Portland cement rock: Hutchison, 
338.
Road materials: Snider, 505.
Structural materials: Gould et al., 
256.

Massard Prairie anticline: Smith, 498.
Matfield shale: Adams et al., 20; Ohern 
and Garrett, 419; Shannon and 
Trout, 482; Snider, 513; Willis, 
619.

Mayes County.
Oil and gas conditions: Snider, 
513; Trout and Shannon, 569.
Road materials: Snider, 505.

Mayes County.—(Continued).
Structural materials: Gould et al., 
256.

Mayes formation: Snider, 517.

Medicine Lodge gypsum member: 
Clark, 113; Gould, 222, 228; 
Hutchison, 337; Willis, 619.

Metamorphic rocks.
General: Snider, 505.
Ouachita Mountains: Hutchison, 343.
Wichita Mountains: Taylor, 566.
Miami lead and zinc district: Chappo- 
doon, 112; Ruhl, 463; Snider, 
509.
Mid-continent oil and gas field: Gould, 
251; Hutchison, 339, 343; Lakes, 
367; Shannon, 481; Snider, 513.
Waste of oil and gas: Blatchley, 
66.

Mill Creek anticline: Smith, 498; 
Snider, 515; Taft, 549; Taft and 
Adams, 562.

Mineral oils. See Petroleum.
Mineral exhibit, State Fair: Gould et 
al., 253; Shannon, 481.
Mineral resources. See Economic ge- 
oLOGY under names of Physiogra- phic Provinces.

Mississippian.
Stratigraphy.
General: Adams, 10; Hutchison, 
343; Severin, 478; Shannon and 
Trout, 482; Snider, 504, 505, 513; 
Willis, 619.

Arkansas Mountains: Girty, 201; 
Taft, 532.

Gleason oil and gas pool: Smith, 499.
Muskogee quadrangle: Taft, 557.

Northwestern Oklahoma: Drake, 
167; Siebenthal, 495; Snider, 
509, 516, 517.
Southeastern Oklahoma: Girty, 201; 
Purdue, 446.

Tishiequah quadrangle: Taft, 555.
Tishomingo quadrangle: Taft, 545.

Paleontology.
Invertebrates: Drake, 167; Girty, 
201; Snider, 509, 516, 517; Taft, 
52, 555.

Plants: Girty, 201.

Moorefield thale: Girty, 201.
Morrow formation: Adams, 17; Nelson, 
406; Smith, 499; Snider, 517; 
Taff, 555, 557; Willis, 619.
Morris oil and gas pool: Blatchley, 66; 
Snider, 513; Trout and Shannon, 
569.
Mounds oil and gas pool: Trout and 
Shannon, 569.
Mount Pleasant dome: Buttram, 102.

Murray County.
Asphalt: Hutchison, 343.
Oil and gas conditions: Snider, 513; 
Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 
256.

Muskogee County.
Oil and gas conditions: Snider, 
513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 
256.

Water supply: Gould, 228.
Non-red Permian rocks: Snider, 
504, 513; Trout and Shannon, 569.
Norman division: Gould, 228.
Osculata: Gould et al., 253, 255; 
Shannon, 481.

Nowata County.
Oil and gas conditions: Snider, 
513; Trout and Shannon, 509.
Road materials: Snider, 505.
Structural materials: Gould et al., 
256.

Nowata-Claggett oil and gas pool: 
Snider, 513; Trout and Shannon, 
569.

Nowata shale: Hutchison, 337; Nelson, 
406; Ohern, 416; Ohern and 
Garrett, 419; Severin, 478; Shannon 
and Trout, 482; Snider, 504.
Ochelata limestone: Nelson, 406; Wood, 
632.
Ochelata oil and gas prospects. Trout 
and Shannon, 569.
Oil-bearing rock: Snider, 513.
Oil. See Petroleum.
Oil fields. See Petroleum.
Oil and gas conditions. See under 
names of Counties.
Okfuske County.
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.

Oklahoma County.
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.
Water supply: Gould, 228.

Oklumee County.
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.
Okmulgee oil and gas field: Snider, 513; Trout and Shannon, 569.
Oolitic limestone. See Limestone.
Oohugah formation: Adams et al., 20; Hutchison, 337; Oehr, 416; Reed, 448; Severin, 478; Snider, 504, 513; Trout and Shannon, 569.
Oohugah oil and gas development: Trout and Shannon, 569.
Opening of Indian Territory: Condron, 172.
Optimn well: Gould, 228.

Ordovician.

Stratigraphy.
General: Hutchison, 343; Gould, 228; Snider, 505, 509; Taff, 553; Willis, 619.
Arbuckle Mountains: Reed, 450; Taff, 552.
Atoka quadrangle: Taff, 542.
Northeastern Oklahoma: Drake, 167; Siebenthal, 495; Snider, 509, 517.
Southwestern Oklahoma: Hutchison, 343; Purdie, 445, 446, 447; Taff, 558.
Tablequah quadrangle: Taff, 555.
Tishomingo quadrangle: Taff, 545.
Wichita Mountains: Taff, 552.

Paleontology.

Ordovician.—(Continued).
Invertebrates: Girty, 196; Snider, 517; Taff, 552, 555; Trout, 568; Weller, 606.
Oread limestone: Adams et al., 20; Buttram, 102; Carpenter, 103; Oehr and Garrett, 419; Shannon and Trout, 482; Snider, 513.

Osage County.
Formations outcropping: Buttram, 102.
Oil and gas conditions: Hutchison, 343; Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.
Water supply: Gould, 228.
Osage oil and gas field: Blatchley, 66; Snider, 513; Trout and Shannon, 569.
Osage Nation, leasing for oil and gas: Hutchison, 343; Snider, 513; Trout and Shannon, 569.
Oswego lime. See Fort Scott formation.
Oto antiquum: Trout and Shannon, 569.

Ottawa County.
Asphalt: Hutchison, 343.
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.

Ouachita Mountain Region.
General geology: Hill, 314; Hutchison, 343; Purdie, 445, 446, 447; Shannon and Trout, 482; Snider, 504, 505, 513; Taff, 539, 540, 542; Willis, 585; Willis, 619.
Economic geology: Hutchison, 343; Shannon and Trout, 482; Snider, 504, 505, 509, 513; Taff, 558.
Igneous rocks: Hutchison, 343.
Paleontology: Girty, 201.
Owasso, oil and gas development: Blatchley, 66; Trout and Shannon, 569.

Orark Mountain Region.
General geology: Broadhead, 87, 88, 90; Drake, 167; Purdie, 444; Siebenthal, 495; Snider, 509, 516; Taff, 555, 557; Wallis, 585; Willis, 619.
Economic geology: Bain, 32; Gould, 238; Gould et al., 253, 255, 256; Purdie, 444; Siebenthal, 495; Snider, 508, 509, 517; Taff, 555, 557.
Igneous rocks: Drake, 167; Siebenthal, 495; Snider, 517.
Paleontology: Drake, 167; Snider, 516, 517; Taff, 555, 557.
Pension, faulted structure near: Fath, 177.

Paleontology.—(Continued).
Plants: Hill, 320.
Vertebrates: Larkin, 369.
Panama coal: Taff, 551.
Parsons formation: Adams et al., 20, 21; Hutchison, 337; Schrader, 471; Severin, 478; Siebenthal, 495.
Pavements. See also Roads.
Asphalt: Hutchison, 343; Snider, 505, 510.
Cobblestone, stone block and wood block; Snider, 505.
Pawhuska limestone: Adams et al., 20; Buttram, 102; Carpenter, 103; Gould et al., 254; Hutchison, 337; Nelson, 406; Willis, 619.
Pawhuska quadrangle: Carpenter, 103.

Pawnee County.
Oil and gas conditions: Hutchison, 343; Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.
Water supply: Gould, 228.
Pawnee limestone: Adams et al., 20; Buttram, 102; Carpenter, 103; Gould et al., 254; Hutchison, 337; Nelson, 406; Willis, 619.

Payne County.
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.
Water supply: Gould, 228.
Payne sandstone: Willis, 619.

Pennsylvanian.

Stratigraphy.
General: Adams, 12; Beede, 56, 57; Gould, 228; Gould et al., 256; Hutchison, 343; Kirk, 365; Severin, 478; Shannon and Trout, 482; Snider, 504, 505, 513; Stevenson, 524; Willis, 619.
Arbuckle Mountains: Taff, 552.
East-central Oklahoma: Smith, 498; Snider, 515; Taff, 537; Taff and Adams, 562.
Pennsylvanian.—(Continued).

Glenn oil and gas pool: Smith, 499; Grandfield district: Munn, 401.
Muskogee quadrangle: Taff, 537.
North-central Oklahoma: Adams, 6; Beede, 59; Oehrn and Garrett, 419; Wood, 633.
North-eastern Oklahoma: Oehrn, 416; Siebenthal, 495; Snider, 517.
Tahlequah quadrangle: Taff, 555.
Tishomingo quadrangle: Taff, 545.
Wichita Mountains: Taff, 552.

Paleontology.

Vertebrates: Adams et al., 20; Beede, 46, 51, 53, 60, 61; Drake, 167; Girty, 196, 199, 203, 204.
Plants: Adams et al., 20; White, 612.

Permian.

Stratigraphy.

General: Adams, 6, 9, 12, 13, 16; Beede, 48, 56, 57, 58, 59; Cragin, 136; Gould, 214, 220, 221, 222, 228, 250; Gould et al., 256; Snider, 514; Willis, 619.
Arbuckle Mountains: Taff, 552.
Grandfield district: Munn, 401.
Undifferentiated: Gould, 228; Shannon and Trout, 482.
Wichita Mountains: Taff, 552.

Paleontology.

Vertebrates: Beede, 47, 48, 49, 52, 53, 54, 56; Gould, 214.
Vertebrates: Case, 104, 106, 108; Willisson, 624.

Petroleum.

General: Adams, 10; Blatchley, 66; Broadhead, 81; Buttram, 102; Gould, 221, 228, 236, 249; Gould et al., 253, 255; Hutchison, 343; Perry and Hutchison, 427; Severin, 478; Shannon, 481; Shannon and Trout, 482; Siebenthal, 495; Smith, 499; Snider, 513; Taff, 539; Taff and Reed, 563; Wood, 633.
Analyses. See under Analyses.

Classification: Smith, 498; Snider, 515.
List of: Shannon, 481.

Petrology.—(Continued).

Present condition: Blatchley, 66.
Phosphate: Reeds, 450.
Physiographic map: O. G. S., 422.
Physiographic types: Garnett, 190.
Fine oil and gas pool: Trout and Shannon, 569.
Pipe lines: Hutchison, 343; Shannon, 481; Shannon and Trout, 482; Snider, 513.
Pipe lines: Hutchison, 337, 343; Nelson, 406; Shannon and Trout, 482; Smith, 499; Snider, 505, 516, 517; Taff, 555, 557.

Paleontology: Snider, 516, 517.

Pittsburg County.

Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.

Paleontology: Snider, 516, 517.

Pottawatomie County.

Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.
Water supply: Gould, 228.

Pre-Cambrian.

General: Willis, 619.
Arbuckle Mountains: Gould et al., 256; Reeds, 450; Shannon and Trout, 482; Snider, 504, 509; Taff, 552; Taylor, 566.

Atoka quadrangle: Taff, 542.
Tishomingo quadrangle: Taff, 545.
Wichita Mountains: Taff, 552.

Paleontology: Taff, 542, 545.

Redbeds Region.

General geology: Adams, 6, 9, 12, 13, 16; Gould, 48, 55, 56, 57, 58, 59; Case, 105, 106, 107; Cragin, 136; Gould, 217, 220, 221, 224, 228; Hutchison, 337, 343; Munn, 401; Schwenenesen, 474, 475; Shannon and Trout, 482; Schwenenesen, 486, 487; Snider, 504, 505, 514; Taff, 552; White, 615; Willisson, 565, 619.

Economic geology: Buttram, 101; Fath, 175; Gould, 218, 219, 222, 225, 228, 235, 248, 250; Gould et al., 256; Howorth and Bennett, 276; Hutchison, 343; Munn, 401; Schwenenesen, 474, 475; Shannon and Trout, 482; Snider, 504, 505, 511, 514; Taff, 552; Tarr, 565; Wegemann, 603, 604, 605.

Paleontology: Adams et al., 20; Beede, 47, 48, 49, 52, 53, 54; Case, 104, 106, 108; Girty, 199; Gould, 214.
Red Bird oil and gas area: Trout and Shannon, 569.
Red Bluff sandstone: Gould, 221; Willisson, 619.
Red Fork oil and gas pool: Blatchley, 66; Hutchison, 343; Long, 374; Snider, 513; Trout and Shannon, 569.
Red Oak oil and gas development: Snider, 513.
Rogers County.—(Continued)

Road materials: Sioux, 300.
Structural materials: Gould et al., 256.

Roger Mills County.

Gypsum: Clark, 113; Gould, 222, 225; Gould et al., 253, 255, 256; Shannon, 481; Snider, 514.
Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.

Water supply: Gould, 228.

Salt. See also under names of Counties.

General: Gould et al., 253, 255; Shannon, 481; Snider, 514.
Salt Creek oil and gas prospects: Trout and Shannon, 569.
Salt Fork division: Gould, 220.
Salt Fork River: Gould, 228.
Salt plains. See Plains.
Salt plain member: Gould, 200; Snider, 514; Willis, 619.
Salt springs. See Springs.
Sand: Buttram, 100; Gould et al., 253, 255; Reeds, 450; Shannon, 481; Snider, 505; Taff, 541, 545; Taff and Reed, 563.
Sand lime brick: Shannon, 479.
Sandstone: Buttram, 102; Gould et al., 253, 255, 256; Ohern and Garrett, 419; Shannon, 481; Snider, 505, 509; Taff, 541, 542.

Sandstone Hills Region. (Northern section).

General geology: Adams, 10, 12; Beede, 56, 59; Buttram, 102; Gould et al., 254; Ohern, 416; Ohern and Garrett, 419; Purdieu, 444; Reeds, 448; Severin, 478; Shannon and Trout, 482; Sieben-thal, 495; Smith, 499; Snider, 504, 505, 513; Taff, 555, 557; Willis, 619; Wood, 632, 633.
Economic geology: Blatchley, 66; Buttram, 102; Gould, 232, 236, 249, 251; Gould et al., 253, 256; Shannon and Trout, 482; Sieben-thal, 493; Snider, 504, 505, 513; Smith, 499; Wood, 633.
Paleontology: Beede, 51, 56, 59, 60, 61.

Sandstone Hills Region. (Southern section).

General geology: Chance, 110, 111; Drake, 167; Gould et al., 254, 256; Hutchinson, 343; Severin, 478; Shannon and Trout, 482; Smith, 498; Snider, 504, 505, 513, 515; Taff, 534, 537, 541, 542, 543, 546-551, 557; Taff and Adams, 562; Willis, 585, 586, 619.
Economic geology: Chance, 110, 111; Drake, 167; Fath, 176, 177; Gould, 232, 237, 240, 243, 249, 251, 256; Hutchinson, 343; Shannon and Trout, 482; Snider, 504, 505, 513, 515; Taff, 534, 537, 541, 542, 543, 546-551, 553, 557, 559; Taff and Adams, 562; Taff and Shaler, 554; Wallis, 585, 586, 619.
Paleontology: Drake, 167; Girty, 196, 201, 203, 204; White, 612.

Sanborn syncline: Taff and Adams, 562.
Sapulpa district: Blatchley, 66; Severin, 478; Snider, 513.
Sapulpa group: Gould, 246; Hutchinson, 343; Ohern, 416; Snider, 504, 505, 513; Willis, 619.
Satin spar. See Gypsum.
Savanna anticline: Severin, 478; Snider, 515; Taff, 541; Taff and Adams, 562.
Savanna sandstone: Shannon and Trout, 482; Smith, 498; Snider, 504, 515; Taff, 541, 542, 543, 554; Taff and Adams, 562; Trout and Shannon, 569; Willis, 619.
Schuler-Henryetta oil and gas development. See Henryetta.
Second line of Gypsum Hills: Clark, 113; Gould, 222, 225; Gould et al., 256; Shannon, 481; Snider, 514.
Sedimentary rocks. See also under formation names.
General: Eeckes, 172; Gould, 221, 228; Hutchinson, 337, 343; Snider, 505; Taff, 542, 545, 552.
Selinite. See Gypsum.
Seminoles conglomerate: Shannon and Trout, 482; Taff, 541; Willis, 619.

Seminole County.

Oil and gas conditions: Hutchinson, 478; Snider, 513; Trout and Shannon, 569.

Road materials: Snider, 505.
Structural materials: Gould et al., 256.

Seminole formation: Shannon and Trout, 482; Snider, 504; Taff, 541; Willis, 619.

Sequoah County.

Oil and gas conditions: Snider, 513; Trout and Shannon, 569.
Road materials: Snider, 505.
Structural materials: Gould et al., 256.

Sioux: Buttram, 102; Gould et al., 253, 255; Ohern and Garrett, 419; Shannon, 481; Sieben-thal, 495; Snider, 504; Taff, 552.
Shallow field: Hutchinson, 434; Snider, 513.
Shamrock dome: Buttram, 102.
Sherron zones: Snider, 515; Taff and Adams, 562.
Sheet asphalt. See Asphalt.
Shiner Gypsum: Clark, 113; Gould, 222, 226; Hutchinson, 337, Willis, 619.
Silo sandstone: Larkin, 368; Nelson, 406; Shannon and Trout, 482; Snider, 513; Taff, 542, 545, 552, 553, 555, 558; Willis, 619.
Siloam syncline: Snider, 515.

Silurian.

Stratigraphy.

General: Snider, 505; Taff, 553; Willis, 619.
Arbuckle Mountains: Reeds, 450; Taff, 552.
Atoka quadrangle: Taff, 542.
Northeastern Oklahoma: Sieben-thal, 495; Snider, 509, 517.
Southeastern Oklahoma: Girty, 201.
Tahlequah quadrangle: Taff, 555.
Tishomingo quadrangle: Taff, 545.
Wichita Mountains: Taff, 552.

Paleontology.

Invertebrates: Girty, 196; Reeds, 451; Snider, 517; Taff, 552, 555.
Silver: Gould et al., 253, 255; Reeds, 450; Shannon, 481.
Simpson formation: Eckes, 172; Hutchison, 343; Nelson, 406; Shannon and Trout, 482; Snider, 504, 505; Taff, 542, 545, 552; Taff and Reed, 563; Trout, 568; Wallis, 585; Willis, 619.

Paleontology: Taff, 546; Trout, 568.

Skedee formation: Trout and Shannon, 569.

Skiatook formation: Hutchison, 337; Oehren, 416; Severin, 478; Snider, 504.

Smithsonite: Snider, 509.

Soils: Gould, 221, 229; Munn, 401; Purdoo, 444; Shannon, 481; Snider, 517; Taff, 542, 545, 555, 557.

Southwestern coal field: Taff, 543.

Spavinaw Creek, igneous rocks: Drake, 167; Gould, 221; Hutchison, 343; Snider, 517.

Sphalerite: Snider, 509.

Spirit leveling in Oklahoma: Marshall, 391.

Spiro gas development: Snider, 513; Trout and Shannon, 569.

Spiro syncline: Taff, 549.

Springfield structural plain: Taff, 555.

Springs: Gould, 228; Shannon, 481; Snider, 514.

Stanley shale: Hutchison, 343; Shannon and Trout, 482; Taff, 542, 558; Wallis, 585; Willis, 619.

Stanton limestone: Adams et al., 20; Oehren, 416; Snider, 505.

State map: O. G. S., 423.

St. Clair marble: Nelson, 406; Snider, 517; Taff, 553, 557.

**Stephens County.**

Asphalt: Hutchison, 343.

Gypsum: Snider, 514.

Oil and gas conditions: Snider, 513; Trout and Shannon, 569.

Road materials: Snider, 505.

Road materials: Snider, 505.

Structural: Gould et al., 256.

Stigler coal: Taff, 547, 554, 558.

Stigler, oil and gas development near: Trout and Shannon, 569.

**Stratigraphy.** (General) See under names of Physiographic Provinces.

McCann sandstone: Gould, 212.

North of parallel thirty-five degrees and thirty minutes: Hutchinson, 337.

Pennsylvanian rocks of northeastern Oklahoma: Oehren, 416.

Northern Oklahoma: Adams et al., 20.

Pawhuska quadrangle: Carpenter, 103.

Streams: Gould, 228; Shannon, 481.

Stringtown shale: Hutchison, 343; Shannon and Trout, 482; Taff, 542, 558; Wallis, 585.

Structural materials: See under names of Counties.

Stuart shale: Shannon and Trout, 482; Snider, 504; Taff, 541; Willis, 619.

Sugarloaf syncline: Smith, 498; Snider, 515; Taff, 562.

Sulphur springs: Gould, 228.

Sumner division: Cragin, 135; Gould, 228.

**Swanson County.**

Road materials: Snider, 505.

Structural materials: Gould et al., 256.

Sycamore limestone: Hutchison, 343; Nelson, 406; Shannon and Trout, 482; Snider, 505, 513; Taff, 545, 552; Wallis, 585; Willis, 619.

Sylvan shale: Eckel, 171; Eckes, 172; Hutchinson, 343; Nelson, 406; Shannon and Trout, 482; Snider, 504, 513; Taff, 542, 545, 552, 553; Taff and Reed, 563; Wallis, 585; Willis, 619.

**Paleontology:** Taff, 545.

Tahlequah quadrangle: Taff, 555.

Talala oil and gas pool: Trout and Shannon, 569.

Talihina chert: Girty, 201; Hutchinson, 343; Shannon and Trout, 482; Taff, 542, 558; Wallis, 585.

Taloga formation: Willis, 619.

Taneha oil and gas district: Trout and Shannon, 569.

Terrace sands: Taff, 545, 557.

**Tertiary.**

**Stratigraphy.**

**General:** Gould, 215, 221, 228, 245; Munn, 401; Sardeson, 464; Snider, 513, 514; Willis, 541, 619.

Atoka quadrangle: Taff, 542.

Coagulate quadrangle: Taff, 541.

**Texas County.**

Oil and gas conditions: Snider, 513; Trout and Shannon, 569.

Road materials: Snider, 505.

Structural materials: Gould et al., 256.

Thurman sandstone: Shannon and Trout, 482; Snider, 513; Taff, 541; Willis, 619.

Tiger Flats, oil and gas near: Trout and Shannon, 569.

**Tillman County.**

Oil and gas conditions: Snider, 513; Trout and Shannon, 569.

Road materials: Snider, 505.

Structural materials: Gould et al., 256.

Tishomingo anticline: Taff, 545, 552.

Tishomingo granite: Gould et al., 256; Hutchinson, 343; Reynolds, 450; Shannon and Trout, 482; Snider, 504; Taff, 542, 545, 552, 553; Taff and Reed, 563; Taylor, 566.

Tishomingo quadrangle: Taff, 545.

Towasee pool: Hutchinson, 343.

Trees and shrubs of Oklahoma: Shannon, 480.

Triangulation and spirit leveling: Fitch, 180.

Trinity sand: Buttram, 100; Hill, 301; Larkin, 368; Nelson, 406; Shannon and Trout, 482; Snider, 513; Taff, 542, 545; Taff and Reed, 563; Willis, 619.

**Paleontology: Hill, 507.**

Tripoli: Gould, 238; Gould et al., 253, 255; Shannon, 479, 481; Snider, 517.

**Tulsa County.**

Oil and gas conditions: Snider, 513; Trout and Shannon, 569.

Road materials: Snider, 505.

Structural materials: Gould et al., 256.

Tulsa district: Blatchley, 66; Severin, 478; Snider, 513.

Tulsa group: Gould et al., 254; Hutchinson, 343; Oehren, 416; Snider, 504, 505; Willis, 619.

Turley oil and gas field: Hutchinson, 343; Trout and Shannon, 569.

Tyner formation: Snider, 513, 517; Taff, 553, 557; Trout and Shannon, 569.

Uncas shale: Oehren and Garrett, 419; Shannon and Trout, 482; Snider, 513.

Underground water: Gould, 228, 244; Hill, 315; Long, 374; Siebert, 455.

Verdigris River, geologic section: Hawthorne and Platt, 281.

Vian anticline: Snider, 515.

Vian gas well: Snider, 513; Trout and Shannon, 569.

Vinita formation: Hutchinson, 337; Oehren, 416; Severin, 478; Snider, 504.

Viola limestone: Eckel, 171; Eckes, 172; Gould, 220, 228; Hutchinson, 343; Nelson, 406; Reynolds, 450; Shannon and Trout, 482; Snider, 505, 513; Taff, 542, 545, 552, 553; Taff and Reed, 563, Wallis, 585; Willis, 619.

**Paleontology:** Taff, 545.

Vitrified brick: See Brick.

Volcanic dust: Buttram, 101; Gould et al., 253, 255; Shannon, 481.

Analyses: See under Analyses.

Waggoner, development of oil and gas near: Trout and Shannon, 569.

**Waggoner County.**

Oil and gas conditions: Snider, 513; Trout and Shannon, 569.

Road materials: Snider, 505.

Structural materials: Gould et al., 256.

Wainwright, oil and gas near: Trout and Shannon, 569.
Wann formation: Oehren, 416.

Wann oil and gas pool: Snider, 513; Trout and Shannon, 569.

Wapanucka limestone: Gould et al., 256; Nelson, 406; Shannon and Trout, 482; Snider, 505, 513; Taff, 541, 542, 552; Wallis, 585, Willis, 619.


Washington County.

Oil and gas conditions: Snider, 513; Trout and Shannon, 569. Road materials: Snider, 505. Structural materials: Gould et al., 256.

Washita County.


Wetumka shale: Shannon and Trout, 482; Snider, 504, 513; Taff, 541; Willis, 619. Wetumka, volcanic dust north of: Buttram, 101. Wewoka formation: Girty, 204; Shannon and Trout, 482; Snider, 504, 513; Willis, 619.


Wichita Mountain Region.

General geology: Bain, 31; Comstock, 120; Gould, 221, 226, 228; Gould et al., 253, 255, 256; Hutchison, 343; Nelson, 406; Shannon and Trout, 482; Snider, 505, 513; Taff, 552; Taylor, 566; Vaughan, 581; Wallis, 585; Willis, 619. Economic geology: Bain, 36, 37, 38; DeBarr, 165; Gould, 226, 228; Gould et al., 256; Snider, 505, 509, 513; Taylor, 566. Igneous rocks: Taff, 552; Taylor, 566. Paleontology: Weller, 606. W. Burton-Stephler district. Segregated coal lands: Taff, 547. Willemenite: Snider, 509. Wilson formation: Buttram, 102; Nelson, 405; Oehren and Garrett, 419; Schrader and Haworth, 471; Shannon and Trout, 482; Siebenthal, 495; Snider, 513. Windmills for irrigation: Murphy, 402, 403, 404. Winding Stairs Mountain: Taff, 558; Wallis, 585. Winfield limestone: Adams et al., 20; Gould, 220; Oehren and Garrett, 419; Shannon and Trout, 482; Snider, 505, 513; Willis, 619.

Winslow formation: Nelson, 406; Purdue, 444; Snider, 504, 515, 517; Taff, 555, 557; Willis, 619. Winslow quadrangle: Purdue, 444. Witteville coal: Porter, 429; Shannon, 481; Taff, 543, 548, 554; Taff and Adams, 562. Woodford chert: Eckes, 172; Hutchison, 343; Nelson, 406; Snider, 513; Taff, 542, 545, 552; Taff and Reed, 563; Trout and Shannon, 569; Wallis, 585; Willis, 619. Paleontology: Girty, 102; Taff, 545.

Woods County.


Woodville, "wildcat" drilling near: Trout and Shannon, 569.

Woodward County.


Wreford limestone: Adams et al., 20; Gould et al., 254; Hutchison, 337; Nelson, 406; Oehren and Garrett, 419; Shannon and Trout, 482; Snider, 505, 513; Willis, 619. Wreford oil and gas pool: Trout and Shannon, 569. Road materials: Snider, 505. Structural materials: Gould et al., 256. Water supply: Gould, 228. Watershed formation: Gordon, 208; Gould, 222, 228; Hutchison, 337; Shannon and Trout, 482; Snider, 505, 514; Willis, 619.