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Geologic Literature of New Mexico Through 1944

by
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and
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THE STATE BUREAU OF MINES AND MINERAL RESOURCES

The State Bureau of Mines and Mineral Resources, designated as "a department of the New Mexico School of Mines and under the direction of its Board of Regents," was established by the New Mexico Legislature of 1927. Its chief functions are to compile and distribute information regarding mineral industries in the State, through field studies and collections, laboratory and library research, and the publication of the results of such investigations. A full list of the publications of the State Bureau of Mines and Mineral Resources is given on the last pages of this Bulletin.

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INTRODUCTION

GENERAL NOTE

In this bibliography are listed bulletins, articles, papers, and reports on the geology of New Mexico that have appeared from the earliest publications through 1944. The term "geology" has been interpreted broadly; the list includes papers on methods and data of mineral production, as well as articles on such subjects as meteorites and the antiquity of man, which are not strictly geological topics but are closely related to geology.

Part I, Bibliography, is a list of authors, arranged alphabetically. Each author's writings are placed under his name in chronological order and are numbered. Each title is given in full; explanatory notes added to the title by the compilers of this bibliography are enclosed in brackets. Following the title is the name of the publication, together with the series number, if any, enclosed in parentheses. The volume and number of the periodical come next; then the page or pages on which the paper appears; notes on illustrations, if any; and finally the date. Appropriate abbreviations are used, as indicated in the lists on pages 7-8.

Part II, Index, is an alphabetical list of subjects, which are arranged under seven major heads. These heads are subdivided according to the nature of the material indexed. One paper may be indexed under more than one head. In each case the name of the author and the serial number of his paper follow the appropriate heading. Using these data the reader can find the title and reference of the paper in the Bibliography, Part I. Further details regarding subdivision of the Index are given on page 113.

Part III, Maps, is a list of geologic and other maps of New Mexico. Explanatory remarks are given at the beginning of this section, page 139.

SOURCES OF INFORMATION

The papers listed in this bulletin through the year 1929 have in large part been taken from a previous bibliography, "Geologic Literature of New Mexico," by T. P. Wootton, issued in 1930 as Bulletin 5 of the State Bureau of Mines and Mineral Resources. Bulletins 746, 747, and 823 of the U. S. Geological Survey have also been used as sources for these papers. Entries from 1930 through 1941 have been taken largely from U. S. Geological Survey Bulletins 937 and 938. Although some minor omissions may have been made, the bibliography through 1941 is considered essentially complete.

The literature for 1942-1944 inclusive has been examined by the compilers of this bulletin in the library of the New Mexico School of Mines. While some periodicals in fields allied to geology, such as astronomy, were not available in this compilation, all important geological, mining, and petroleum journals were consulted. These journals are indicated by an asterisk (*) in the list of serials, pages 8-14. It is thought that the entries for 1942-1944, while not exhaustive, include all major contributions.

ACKNOWLEDGMENTS

The compilers extend their appreciation to W. M. Speare, Librarian in the New Mexico School of Mines, for his active assistance in this work. L. P. Entwistle of the American Smelting and Refining Company called to the compilers' attention several papers that might otherwise have been overlooked. Assistance was also given by the library staffs of the American Institute of Mining and Metallurgical Engineers, the University of New Mexico, and the U. S. Geological Survey.

HOW PUBLICATIONS MAY BE OBTAINED

Many publications of the various Governmental agencies may be obtained from the department or bureau of issue; there is a charge for some reports, but others will be furnished gratis. The stock of many bulletins has been exhausted. Whether or not a given publication of the U. S. Geological Survey is available, and its price, can be determined from a pamphlet entitled "Publications of the Geological Survey," issued in July 1942. This pamphlet may be obtained free of charge from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Many volumes or numbers of periodicals may be obtained from the issuing society or association. Books, indicated in the Bibliography by italic print, may be ordered from the publisher. Out-of-print periodicals and books may occasionally be found in the stock of dealers in second-hand books.

A number of New Mexico libraries are officially designated depositories for U. S. Geological Survey and various other government publications, and they may have on their shelves other publications listed in this bibliography. These can be consulted

in the libraries and some of them may be loaned under certain conditions. A list of these New Mexico libraries is as follows:

Albuquerque, University of New Mexico.
Las Vegas, New Mexico Highlands University.
Santa Fe, State Library.
Silver City, New Mexico State Teachers College.
Socorro, New Mexico School of Mines.
State College, New Mexico College of Agriculture and Mechanic Arts.

The State Bureau of Mines and Mineral Resources will be glad to supply current data regarding the availability of New Mexico geologic literature and to assist in obtaining original, typewritten and photostat copies.

A complete stock of published U. S. Geological Survey geologic and topographic maps of areas in New Mexico is kept on file at the State Bureau of Mines and Mineral Resources. These maps are for sale at the regular retail prices of the Survey.

ABBREVIATIONS USED

Acad. ---- Academy
Agr. ---- Agriculture
Am. ---- American
Anon. ---- Anonymous
Ann. ---- Annual
anthrop. ---- anthropological
app. ---- appendix
Archeol. ---- Archeological
art. ---- article
Assoc. ---- Association
Bd. ---- Band
Bienn. ---- Biennial
Bull. ---- Bulletin
Bur. ---- Bureau
Chem. ---- Chemical, chemistry
Cin. ---- Cincinnati
Circ. ---- Circular
Coll. ---- Collections
Cong. ---- Congress
Contr. ---- Contributions
Co. ---- County
Dept. ---- Department
Doc. ---- Document
Econ. ---- Economic
ed. ---- edition
Eng. ---- Engineering, engineers
Ex. ---- Executive
Exper. ---- Experiment
Expl. ---- Explorations
fasc. ---- fascicle
fig. ---- figure
Geog. ---- Geographic, geographical, geography
Geol. ---- Geologic, geological, geologie, geologische
Geophys. ---- Geophysical
H. ---- Heft
Hist. ---- History
H. Ex. Doc. House executive document
H. Res. ---- House resolution
illus. ---- illustrated, illustration
incl. ---- including
Indust. ---- Industrial
Info. ---- Information
Inst. ---- Institute, institution
Internat. ---- International
Inv. ---- Investigations
Jahrb. ---- Jahrbuch
Jour. ---- Journal
Kryst. ---- Krystallographie
Lab. ---- Laboratories
Mtg. ---- Meeting
Mem. ---- Memoirs, memoranda
Met. ---- Metallurgical, metallurgy
Min. Mineral, mineralogy, mineralogie, mineralogische, mining
Misc. ---- Miscellaneous
Mitt. ---- Mitteilungen
Mon. ---- Monograph
Mt. ---- Mountain
Mus. ---- Museum
Nat. ---- National, natural
Naturhist. ---- Naturhistorische
N. Mex. ---- New Mexico
no. ---- number
n. d. ---- no date of publication given
n. p. ---- no place of publication given
Paleont. ---- Paleontological, palaontologie

Petrog. ---------- Petrographische
Phila. ---------- Philadelphia
Philos. ---------- Philosophical
pl. ---------- plate
pp. ---------- pages
Prel. ---------- Preliminary
Preuss. ---------- Preussische
Proc. ---------- Proceedings
Prof. ---------- Professional
pt. ---------- part
Pub. ---------- Publication
q. v. ---------- which see
R. R. ---------- Railroad
Rept. ---------- Report
Res. ---------- Resources
R. ---------- Royal
St. ---------- Saint
Sci. ---------- Science, scientific
sec. ---------- section
Seismol. ---------- Seismological
S. Ex. Doc. ---------- Senate executive document
ser. ---------- series
Sess. ---------- Session
Sitzungsber. ---------- Sitzungsberichte
Sta. ---------- Station
Suppl. ---------- Supplement
Tech. ---------- Technical
Terr. ---------- Territory
topog. ---------- topographic
Trans. ---------- Transactions
U. S. ---------- United States
Univ. ---------- University
vol. ---------- volume
Wash. ---------- Washington
Zeitschr. ---------- Zeitschrift
Zool. ---------- Zoological, zoologie

SERIALS

[An asterisk (*) denotes serials examined for the years 1942, 1943, and 1944.]

Acad. Nat. Sci. Phila. Preprint; Proc.
Academy of Natural Sciences of Philadelphia, Preprint; Proceedings.

Acad. Sci. Paris, Comptes Rendus.
Academie des sciences, Paris, Comptes rendus.

Acad. Sci. St. Louis Trans.
Academy of Science of St. Louis, Transactions.

Am. Assoc. for the Advancement of Science Proc.
American Association for the Advancement of Science, Proceedings.

***Am. Assoc. Petroleum Geologists Bull.**
American Association of Petroleum Geologists, Bulletin. Tulsa, Oklahoma.

Am. Ceramic Soc. Jour.
American Ceramic Society, Journal. Columbus, Ohio.

Am. Forestry.
American Forestry. Place of publication not known.

Am. Geologist.
American Geologist. Formerly published at Minneapolis, Minn.; consolidated with Economic Geology, q. v., in 1905.

Am. Geophys. Union Trans.
American Geophysical Union, Transactions. Washington, D. C.

Am. Inst. Min. Eng. Bull.; Trans.
American Institute of Mining Engineers, Bulletin; Transactions. New York City. (Superseded in 1918 by publications of American Institute of Mining and Metallurgical Engineers, q. v.)

***Am. Inst. Min. Met. Eng. Bull.; Contr.; Preprint; Tech. Pub.; Trans.; Year Book.**
American Institute of Mining and Metallurgical Engineers, Bulletin; Contributions; Preprint; Technical Publication; Transactions; Year Book. New York City.

***Am. Jour. Sci.**
American Journal of Science. New Haven, Connecticut.

Am. Midland Naturalist.
American Midland Naturalist. Notre Dame, Indiana.

***Am. Mineralogist.**
American Mineralogist. Princeton University, Princeton, New Jersey.

Am. Mining Cong. Jour.; Proc.
American Mining Congress, Journal; Proceedings. Washington, D. C. See also International Mining Congress.

Am. Mus. Nat. Hist. Bull.; Jour.
American Museum of Natural History, Bulletin; Journal. New York City.
Am. Mus. Novitates.
American Museum Novitates. American Museum of Natural History. New York City.
Am. Naturalist.
American Naturalist. Salem, Massachusetts, and elsewhere.
Am. Philos. Soc. Proc.
American Philosophical Society, Proceedings. Philadelphia.
Am. Soc. Civil Eng. Proc.; Trans.
American Society of Civil Engineers, Proceedings; Transactions. New York City.
Annales des Mines.
Annales des mines. Paris.
Aquila.
Aquila. Budapest.
Ariz. Mining Jour.
Arizona Mining Journal. Later, The Mining Journal. Phoenix, Arizona.
Assoc. Am. Geographers Annals.
Association of American Geographers, Annals. Albany, New York.
Auk.
Auk. Lancaster, Pennsylvania.
Boston Soc. Nat. Hist. Proc.
Boston Society of Natural History, Proceedings. Boston.
Brooklyn Entomological Soc. Bull.
Brooklyn Entomological Society, Bulletin. Brooklyn, New York.
Bur. Am. Ethnology Bull.
Bureau of American Ethnology, Bulletin. Washington, D. C.
Calif. Univ. Dept. Geol. Sci. Bull.
California University, Department of Geological Sciences, Bulletin. San Francisco.
Canadian Naturalist.
Canadian Naturalist. Montreal.
Carnegie Inst. Wash. Pub.; Year Book.
Carnegie Institute of Washington, Publications; Year Book.
Carnegie Mus. Annals.
Carnegie Museum, Annals. Pittsburgh, Pennsylvania.
Chem. Industries.
Chemical Industries.
Chicago Univ. Walker Museum Contr.
University of Chicago, Walker Museum Contributions.
Chimie et Industrie.
Chimie et industrie.
Cin. Soc. Nat. Hist. Jour.
Cincinnati Society of Natural History, Journal. Cincinnati, Ohio.
Colo. Mus. Nat. Hist. Proc.
Colorado Museum of Natural History, Proceedings. Denver.
***[Colo.] School of Mines Quarterly.**
Colorado School of Mines, Quarterly. Golden, Colorado.
Colo. Sci. Soc. Bull.; Proc.
Colorado Scientific Society, Bulletin; Proceedings. Denver.
Colo. Univ. Studies.
Colorado University, Studies. Boulder, Colorado.
Condor.
Condor. Santa Clara, California.
Denison Univ. Sci. Lab. Bull.
Denison University, Scientific Laboratories, Bulletin. Granville, Ohio.
Ecology.
Ecology. Brooklyn, New York.

***Econ. Geology.**
Economic Geology. Urbana, Illinois.

Edinburgh New Philosophical Jour.
Edinburgh New Philosophical Journal. Edinburgh, Scotland.

El Paso Min. Jour.
El Paso Mining Journal. El Paso, Texas. No longer published.

***Eng. and Min. Jour.**
Engineering and Mining Journal. New York City.

Eng. Magazine.
Engineering Magazine. New York City.

Eng. News.
See Engineering News-Record.

Eng. News-Record.
Engineering News-Record. New York City.

Field Mus. Pub. Geol. Ser.
Field Museum, Publication, geological series. Chicago, Illinois.

Geographische Gesellschaft in München, Jahresbericht.
Geographische Gesellschaft in München, Jahresbericht.

Geog. Review.
Geographical Review. New York City.

Geog. Soc. Chicago Bull.
Geographic Society of Chicago, Bulletin.

***Geol. Soc. America Bull.**
Geological Society of America, Bulletin. Washington, D. C.

George Washington Univ. Bull.
George Washington University, Bulletin. Washington, D. C.

Indiana Acad. Sci. Proc.
Indiana Academy of Science, Proceedings. Indianapolis.

Indust. and Eng. Chem.
Industrial and Engineering Chemistry. Washington, D. C.

Internat. Cong. Applied Chem.
International Congress of Applied Chemistry. Washington, D. C.

Internat. Geol. Cong. Comptes Rendus; Guidebook.
International Geological Congress, Comptes rendus; Guidebook. Washington, D. C.

Internat. Mining Cong. Proc.
International Mining Congress Proceedings. Later, American Mining Congress.

Iowa Acad. Sci. Proc.
Iowa Academy of Sciences, Proceedings. Des Moines, Iowa.

Jour. Geography.
Journal of Geography. Chicago, Illinois.

***Jour. Geology.**
Journal of Geology. University of Chicago, Chicago, Illinois.

***Jour. Geomorphology.**
Journal of Geomorphology. New York City. (Suspended publication December, 1942, on account of the war.)

***Jour. Paleontology.**
Journal of Paleontology. Menasha, Wisconsin.

***Jour. Sedimentary Petrology.**
Journal of Sedimentary Petrology. Menasha, Wisconsin.

Jour. Zool. Paris.
Journal de Zoologie. Paris.

Kaiserlich-Konigliche Naturhist. Hofmuseum Annalen.
Kaiserlich-königliche Naturhistorische Hofmuseum, Annalen. Vienna.

Kansas Acad. Sci. Trans.
Kansas Academy of Science, Transactions. Topeka.

Kansas City Review of Science.
Kansas City Review of Science and Industry. Kansas City, Missouri.

Kansas Geol. Soc. Guidebook; Proc.
Kansas Geological Society, Guidebook; Proceedings. Wichita.
Kansas Univ. Sci. Bull.
Kansas University, Science Bulletin. Lawrence.
Kolloid-Zs.
Kolloid Zeitschrift. Dresden-Blasewitz, Germany.
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Los Angeles Museum, Publications. Los Angeles, California.
Mich. Acad. Sci. Rept.
Michigan Academy of Science, Report. Lansing.
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Mines and Methods. No longer published.
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Mines Magazine.
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Min. and Eng. World.
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Min. and Sci. Press.
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Mining Cong. Jour.
Mining Congress Journal. Washington, D. C.
***Mining Jour.**
Mining Journal. Phoenix, Arizona. Formerly Arizona Mining Journal.
Mining Magazine.
Mining Magazine (United States). No longer published.
Mining Science.
Mining Science. Apparently no longer published.
Mining World.
Mining World. No longer published.
Nat. Acad. Sci. Proc.
National Academy of Sciences, Proceedings. Washington, D. C.
Nat. Geog. Magazine.
National Geographic Magazine. Washington, D. C.
Nat. History.
Natural History, The Journal of the American Museum of Natural History. New York City.
Nat. Research Council.
Nat. Research Council. Washington, D. C.
Nat. Res. Commission.
National Resources Commission. Washington, D. C.
Nat. Res. Planning Board.
National Resources Planning Board. Washington, D. C.
Nature.
Nature. London, England.
Nautilus.
Nautilus. Boston, Massachusetts.

Neues Jahrb. für Min., Geol., und Palaont.
Neues Jahrbuch für Mineralogie, Geologie, und Palaontologie. Stuttgart, Germany.

New England Zool. Club Proc.
New England Zoological Club, Proceedings. Harvard College, Cambridge, Massachusetts.

N. Mex. Bur. Immigration.
New Mexico Bureau of Immigration. Santa Fe.

N. Mex. College Agr. and Mechanic Arts, Exper. Sta. Bull.
New Mexico College of Agriculture and Mechanic Arts, Experiment Station Bulletin. State College.

*__New Mexico Magazine.__
New Mexico Magazine. Santa Fe.

N. Mex. Mining Record.
New Mexico Mining Record. No longer published.

N. Mex. School of Mines, Min. Res. Survey Bull.
New Mexico School of Mines, Mineral Resources Survey Bulletin. Socorro.

*__N. Mex. School of Mines, State Bur. Mines and Min. Res. Bull.; Circ.__
New Mexico School of Mines, State Bureau of Mines and Mineral Resources, Bulletin; Circular. Socorro.

*__N. Mex. State Engineer, Bienn. Rept.__
New Mexico State Engineer, Biennial Report. Santa Fe.

N. Mex. State Tax Commission.
New Mexico State Tax Commission. Santa Fe.

*__N. Mex. Univ. Bull., Anthrop. Ser.; Chem. Ser.; Geol. Ser.__
New Mexico University, Bulletin, anthropological series; chemical series; geological series. Albuquerque.

New York Acad. Sci. Annals; Trans.
New York Academy of Sciences, Annals; Transactions. New York City.

*__Oil and Gas Jour.__
Oil and Gas Journal. Tulsa, Oklahoma.

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Pan-American Scientific Congress. Washington, D. C.

Philos. Soc. Wash. Bull.
Philosophical Society of Washington [D. C.], Bulletin.

Popular Astronomy.
Popular Astronomy. Northfield, Minnesota.

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Popular Science Monthly. New York City.

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Republic. Washington, D. C.

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Southern Calif. Acad. Sci. Bull.
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Southwestern Assoc. Petroleum Geologists Bull.
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Stone.
Stone. Chicago, Illinois.
Technology Quarterly.
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Texas Univ. Bull.; Min. Survey Bull.; Pub.
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The Explosives Engineer.
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Torreya.
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U. S. Bur. Soils Bull.; Circ.; Field Operations.
United States Bureau of Soils, Bulletin; Circular; Field Operations. Washington, D. C.

(U. S.)—Cong., —Sess., S. Ex. Doc.; H. Ex. Doc.
(United States) —Congress, —Session, Senate Executive Document No.—; House of Representatives Executive Document No.—.

U. S. Dept. Agr., Exper. Sta.
United States Department of Agriculture, Experiment Station. Washington, D. C.

U. S. Dept. Interior Press Mem.
United States Department of the Interior, Press Memoranda. Washington, D. C.

U. S. Geog. and Geol. Survey Rocky Mt. Region (Powell).
United States Geographical and Geological Surveys of the Rocky Mountain Region (in charge of J. W. Powell).

U. S. Geog. Survey West of the 100th Meridian (Wheeler).
United States Geographical Surveys West of the 100th Meridian (in charge of Lieut. George M. Wheeler).

U. S. Geol. and Geog. Survey Terr. (Hayden).
United States Geological and Geographical Surveys of the Territories (in charge of F. V. Hayden).

***U. S. Geol. Survey, Ann. Rept.; Bull.; Geol. Atlas; Min. Res.; Mon.; Prof. Paper; Topog. Atlas; Water-Supply Paper.**
United States Geological Survey, Annual Report; Bulletin; Geologic Atlas; Mineral Resources of the United States; Monograph; Professional Paper; Topographic Atlas; Water-Supply Paper. Washington, D. C.

U. S. Nat. Mus. Bull.; Proc.
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U. S. Pacific R. R. Expl.
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2. Origin, migration, and accumulation of petroleum in limestone reservoirs in the western United States and Canada: *Problems of Petroleum Geology*, pp. 347-363, Am. Assoc. Petroleum Geologists, 1934.
3. (and others). Standard Permian section of North America: Am. Assoc. Petroleum Geologists Bull., vol. 23, no. 11, pp. 1673-1681, November 1939.
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PART II. INDEX

INTRODUCTORY NOTE [1]

The geologic literature of New Mexico is listed by subject under seven major heads, as follows:

Mineralogy. Papers giving mineral analyses, descriptions, and localities.

Mining. Papers dealing with mines and mining districts, substances, both metallic and non-metallic, and general mining geology.

Paleontology. Papers describing or interpreting the fossil remains of animals, both invertebrate and vertebrate, the fossil remains of plants, and the remains of early man.

Petroleum. Descriptions of oil and gas fields; papers on petroleum geology and statistics.

Physical. Geologic descriptions of areas; papers on geology of dam and reservoir sites, erosion and sedimentation, structural geology, physiography, meteorites, and general physical geology.

Stratigraphy. Papers covering the description, history, correlation or geographic extent of formations and other stratigraphic units.

Underground water. Descriptions of underground-water resources of areas; papers on springs, underground solution, etc.

INDEX

[1] See "Introduction," page 5.

Mineralogy (continued).

Mineralogy (continued).

PART III. MAPS

INTRODUCTORY NOTE

Maps of New Mexico or of parts of the State are listed in this section. Maps published by private individuals or firms, and maps included as illustrations in reports, are not listed.

The maps are given under eight main heads, arranged alphabetically according to the type of map. Subdivisions on the basis of area covered are made under some of the main heads.

Base maps show the works of man (roads, towns, railroads, irrigation ditches, etc.); drainage; boundaries of counties, land grants, national forests, etc.; the township and range network; and other features depending on the scale and type of map. Base maps do not show geology or topography.

Correlation charts show, by means of vertical sections, the lateral change in character and thickness of sedimentary strata.

The **Geographic map,** in six colors, shows such features as land grants, Indian reservations, military reservations, reclamation projects, mountain ranges, drainage, and national monuments, parks and forests.

Geologic maps show, by means of colors, patterns, or symbols, the outcropping areas of various types and ages of rocks. Ordinarily these maps also show drainage, boundaries, and the works of man.

The **Oil and Gas map** shows oil and gas fields, known anticlines and domes, locations of dry holes, and pipe lines. This information is printed on a general base map.

The **Reconnaissance map,** printed in four colors, shows topographic features (by means of hachures), drainage, and benchmark elevations, all superimposed on a general base map.

Structure maps show, by means of contours drawn on one rock unit, the attitude of an area's sedimentary strata.

Topographic maps show, by means of contours, the shape and altitude of the land surface. Drainage and the works of man are also commonly shown.

MAPS

[Unless otherwise indicated, each map in the lists below is on one sheet.]

BASE MAPS

County maps. Issued as ozalid prints by the New Mexico State Highway Department, Santa Fe. In the following list, the county name is followed by the scale and the date.

Bernalillo. 1 in. to 1 mi.; 1939.
Catron. 1 in. to 2 mi.; 1938. (2 sheets.)
Chaves. 1 in. to 2 mi.; 1938. (2 sheets.)
Colfax. 1 in. to 2 mi.; 1938.
Curry. 1 in. to 2 mi.; 1937.

BASE MAPS (continued)

County maps (continued)

DeBaca. 1 in. to 2 mi.; 1938.
Dona Ana. 1 in. to 2 mi.; 1937.
Eddy. 1 in. to 2 mi.; 1938.
Grant. 1 in. to 2 mi.; 1938.
Guadalupe. 1 in. to 2 mi.; 1938.
Harding. 1 in. to 2 mi.; 1938.
Hidalgo. 1 in. to 2 mi.; 1937.
Lea. 1 in. to 2 mi.; 1938.
Lincoln. 1 in. to 2 mi.; 1938.
Luna. 1 in. to 2 mi.; 1937.
McKinley. 1 in. to 2 mi.; 1938.
Mora. 1 in. to 2 mi.; 1938.
Otero. 1 in. to 2 mi.; 1938.
Quay. 1 in. to 2 mi.; 1937.
Rio Arriba. 1 in. to 2 mi.; 1938. (2 sheets.)
Roosevelt. 1 in. to 2 mi.; 1937.
Sandoval. 1 in. to 2 mi.; 1938.
San Juan. 1 in. to 2 mi.; 1938. (2 sheets.)
San Miguel. 1 in. to 2 mi.; 1938.
Santa Fe. 1 in. to 1 mi.; 1938.
Sierra. 1 in. to 2 mi.; 1938.
Socorro. 1 in. to 2 mi.; 1937. (2 sheets.)
Taos. 1 in. to 2 mi.; 1938.
Torrance. 1 in. to 2 mi.; 1938.
Union. 1 in. to 2 mi.; 1938.
Valencia. 1 in. to 2 mi.; 1938.

National Forest maps. Issued by the Forest Service, U. S. Department of Agriculture, Washington, D. C. Listed below are the map names, followed by scale and date.

Carson. 1 in. to 4 mi.; 1941.
Cibola. 1 in. to 4 mi.; 1938.
    Manzano division. 1 in. to 4 mi.; 1938.
    Southern division. 1 in. to 4 mi.; 1934.
    Western division. 1 in. to 4 mi.; 1934.
Gila. 1 in. to 4 mi.; 1938.
Lincoln. 1 in. to 4 mi.; 1941.
    Sacramento division. 1 in. to 2 mi.; 1935.
Santa Fe. 1 in. to 4 mi.; 1941.

State maps.

State of New Mexico. Scale 1:500,000 (about 1 in. to 8 mi.); 1922. (2 sheets.) U. S. Geological Survey, Washington, D. C.

New Mexico. Scale 1:1,000,000 (about 1 in. to 16 mi.). State Bureau of Mines and Mineral Resources, Socorro.

CORRELATION CHARTS

Correlation of basal Permian and older rocks in southwestern Colorado, northwestern New Mexico, northeastern Arizona, and southeastern Utah, by N. W. Bass. 1944. Preliminary Chart 7, Oil and Gas Investigations. U. S. Geological Survey, Washington, D. C.

Stratigraphic distribution of the Pennsylvanian fusulinidae in a part of the Sierra Nacimiento of Sandoval and Rio Arriba counties, New Mexico, by Lloyd G. Henbest and others. 1944. Preliminary Chart 2, Oil and Gas Investigations. U. S. Geological Survey, Washington, D. C.

GEOGRAPHIC MAP

State of New Mexico. 1 in. to 12 mi.; 1936. General Land Office, Washington, D. C.

GEOLOGIC MAPS

Area maps.

Geologic map and stratigraphic sections of Permian and Pennsylvanian rocks of parts of San Miguel, Santa Fe, Sandoval, Bernalillo, Torrance, and Valencia counties, north central New Mexico, by C. B. Read and others. 1 in. to 3 mi.; 1944. Preliminary Map 21, Oil and Gas Investigations. U. S. Geological Survey, Washington, D. C.

Geologic map of Black Range tin district, New Mexico, by Carl Fries, Jr., and Arthur P. Butler. 1 in. to 1 mi.; 1940. U. S. Geological Survey, Washington, D. C.

Geologic maps, northern and western New Mexico. 1 in. to 4 mi. and 1 in. to 8 mi.; 1876-79. (8 sheets.) U. S. Geological Survey, Washington, D. C. [Wheeler Survey. For limiting meridians and parallels, see U. S. Geological Survey Bull. 222, p. 63, 1904.]

Maps showing thickness and general character of the Cretaceous deposits in the western interior of the United States, by John B. Reeside, Jr. 1 in. to 225 mi.; 1944. Preliminary Map 10, Oil and Gas Investigations. U. S. Geological Survey, Washington, D. C.

The upper Pecos River and Rio Galisteo region, New Mexico, by C. B. Read and D. A. Andrews. 1 in. to 1.5 mi.; 1944. Preliminary Map 8, Oil and Gas Investigations. U. S. Geological Survey, Washington, D. C.

State maps.

Geologic map of New Mexico, by N. H. Darton. Scale 1:500,000 (about 1 in. to 8 mi.); 1928. (2 sheets.) U. S. Geological Survey, Washington, D. C.

Geologic map of the State of New Mexico. 1 in. to 12 mi.; 1925. University of New Mexico, Albuquerque.

OIL AND GAS MAP

Oil and gas map of New Mexico, by Dean E. Winchester. Scale 1:1,000,000 (about 1 in. to 16 mi.); 1931. Revised by A. Andreas to July 15, 1936; by Robert L. Bates to June 30, 1942. State Bureau of Mines and Mineral Resources, Socorro.

RECONNAISSANCE MAP

A reconnaissance and elevation map of southeastern New Mexico, by Walter B. Lang. 1 in. to 4 mi.; 1943. U. S. Geological Survey, Washington, D. C.

STRUCTURE MAPS

Preliminary map showing geologic structure of Bueyeros carbon dioxide area, Harding County, New Mexico, by J. Charles Miller and M. Q. Dannetell. 1 in. to 1 mi.; contour interval 25 ft.; 1938. U. S. Geological Survey, Washington, D. C.

Preliminary map showing geologic structure of part of Rio Arriba County, New Mexico, by C. H. Dane and R. P. Bryson. 1 in. to 1 mi.; contour interval 100 ft.; 1938. U. S. Geological Survey, Washington, D. C.

TOPOGRAPHIC MAPS

Grazing Service maps.

The Grazing Service of the U. S. Department of the Interior has issued 77 maps covering all grazing districts within the State. Average size of these maps is 8 townships long by 4 townships wide; scale, 1 in. to 1 mi. Surface contours are shown on all but 12 of the maps; contour interval, 100 ft. Roughly the south and west halves of New Mexico have been covered. A key map showing extent and numbering of individual maps may be obtained from the Regional Grazier, Grazing Service Region 7, Albuquerque. The individual maps, however, are not furnished by the Grazing Service but may be ordered through any Albuquerque commercial blueprint concern.

TOPOGRAPHIC MAPS (continued)

Miscellaneous maps.

Topographic atlas sheets (hachure maps), entire State except southeastern and extreme eastern parts. 1 in. to 4 mi. and 1 in. to 8 mi.; 1876-79. (14 sheets.) U. S. Geological Survey, Washington, D. C. [Wheeler Survey. For limiting meridians and parallels, see U. S. Geological Survey Bull.. 222, p. 62, 1904.]

National Forest maps. Issued by the Forest Service, U. S. Department of Agriculture, Washington, D. C. Listed below are the map names, followed by scale, contour interval, and date.

Cibola, Sandia division. 1 in. to 1 mi.; 100 ft.; 1936.
Lincoln, Sacramento division. 1 in. to 1 mi.; 100 ft.; 1940.

Quadrangle maps. Issued by the U. S. Geological Survey, Washington, D. C. The map name, with the county or counties in which the quadrangle lies, is followed by the scale, the contour interval, and the date. Scales are given in ratio form; most of the maps have a scale of 1:62,500 (about 1 in. to 1 mi.), 1:125,000 (about 1 in. to 2 mi.), or 1:250,000 (about 1 in. to 4 mi.).

Aden; Dona Ana Co. 1:62,500; 25 ft.; 1943.
Afton; Dona Ana Co. 1:62,500; 25 ft.; 1943.
Alamo National Forest (now part of Lincoln National Forest); Otero Co. 1:250,000; 200 ft.; 1914.
Alum Mountain; Grant and Catron cos. 1:125,000; 100 ft.; 1913.
Animas Peak; Hidalgo Co. 1:62,500; 25 ft.; 1920.
Antelope Wells; Hidalgo Co. 1:62,500; 25 ft.; 1919.
Arabela; Lincoln Co. 1:62,500; 40 ft.; 1942.
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Bassett Lake; Eddy Co. 1:62,500; 25 ft.; 1943.
Bernal; Guadalupe, San Miguel, and Torrance cos. 1:125,000; 50 ft.; 1894.
Bernalillo; Bernalillo and Sandoval cos. 1:125,000; 50 ft.; 1893.
Big Hatchet Peak; Hidalgo Co. 1:62,500; 25 ft.; 1937.
Brilliant; Colfax Co. 1:62,500; 50 ft.; 1915.
Camel Mountain; Dona Ana and Luna cos. 1:62,500; 10 ft.; 1917.
Canutillo; Dona Ana Co., N. Mex., and El Paso Co., Texas. 1:62,500; 10 ft.; 1919.
Canyon de Chelly; San Juan Co., N. Mex., and Apache Co., Ariz. 1:250,000; 200 ft.; 1892.
Capitan; Lincoln Co. 1:62,500; 20 ft.; 1937.
Carlsbad; Eddy Co. 1:62,500; 10 ft.; 1943.
Carlsbad Caverns West; Eddy Co. 1:62,500; 50 ft.; 1943.
Carrizozo; Lincoln Co. 1:62,500; 20 ft.; 1943.
Chaco; San Juan Co. 1:250,000; 1892.
Chimney Rock; San Juan Co., N. Mex., and Montezuma Co., Colo. 1:62,500; 20 ft.; 1936.
Chiricahua; Hidalgo Co., N. Mex., and Cochise Co., Ariz. 1:125,000; 100 ft.; 1919.
Cienega Springs; Hidalgo Co. 1:62,500; 25 ft.; 1918.
Clayton Basin; Eddy and Lea cos. 1:62,500; 10 ft.; 1943.
Columbus; Luna Co. 1:62,500; 10 ft.; 1920.
Corazon; Guadalupe and San Miguel cos. 1:125,000; 50 ft.; 1894.
Corralitos Ranch; Dona Ana Co. 1:62,500; 25 ft.; 1943.
Cuba; Rio Arriba and Sandoval cos. 1:62,500; 50 ft.; 1943.
Deming; Luna Co. 1:125,000; 100 ft.; 1915.
Desert; Otero Co., N. Mex., and El Paso Co., Texas. 1:62,500; 25 ft.; 1943.
Dog Mountains; Hidalgo Co. 1:62,500; 20 ft.; 1918.
El Paso Gap; Otero Co. 1:62,500; 50 ft.; 1940.
For Bayard Special; Grand Co. 1:12,000 (about 1 in. to 0.2 mi.); 10 ft.; 1910.

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Fort Defiance; McKinley Co., N. Mex., and Apache Co., Ariz. 1:250,000; 200 ft.; 1892.
Gallina; Rio Arriba and Sandoval cos. 1:125,000; 100 ft.; 1909.
Hachita; Grant and Hidalgo cos. 1:62,500; 25 ft.; 1918.
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Hillsboro; Sierra and Grant cos. 1:62,500; 40 ft.; 1940.
Jemez [15-minute]; Sandoval Co. 1:62,500; 50 ft.; 1943.
Jemez [30-minute]; Sandoval Co. 1:125,000; 100 ft.; 1892.
Kirtland; San Juan Co. 1:125,000; 50 ft.; 1932.
Koehler; Colfax Co. 1:62,500; 50 ft.; 1917.
La Mesa; Dona Ana Co., N. Mex., and El Paso Co., Texas. 1:62,500; 25 ft.; 1943.
Lamy; Santa Fe and San Miguel cos. 1:125,000; 50 and 100 ft.; 1894.
Largo; Rio Arriba, Sandoval and San Juan cos. 1:250,000; 200 ft.; 1895.
Las Cruces [15-minute]; Dona Ana Co. 1:62,500; 25 ft.; 1943.
Las Cruces [30-minute]; Dona Ana Co. 1:125,000; 25 and 50 ft.; 1893.
Las Vegas; San Miguel and Mora cos. 1:125,000; 50 ft.; 1893.
La Ventana; Sandoval Co. 1:62,500; 50 ft.; 1943.
Lordsburg; Hidalgo Co. 1:62,500; 25 ft.; 1936.
Magdalena District; Socorro Co. 1:12,000 (about 1 in. to 0.2 mi.); 25 ft.; 1912.
Mogollon; Catron and Grant cos. 1:125,000; 100 ft.; 1912.
Morenci; Catron and Grant cos., N. Mex., and Greenlee Co., Ariz. 1:125,000; 100 ft.; 1915.
Mt. Riley; Dona Ana Co. 1:62,500; 10 ft.; 1929.
Mt. Taylor; McKinley, Sandoval, Valencia and Bernalillo cos. 1:250,000; 200 ft.; 1899.
Nash Draw; Eddy Co. 1:62,500; 10 ft.; 1943.
Newman; Otero and Dona Ana cos. 1:62,500; 20 ft.; 1943.
Noria; Dona Ana Co. 1:62,500; 10 ft.; 1931.
Oil City; Eddy Co. 1:62,500; 10 ft.; 1943.
Organ Peak; Dona Ana Co. 1:62,500; 25 and 50 ft.; 1943.
Orogrande; Otero Co. 1:62,500; 25 ft.; 1943.
Parker Lake; Dona Ana and Otero cos. 1:62,500; 25 ft.; 1943.
Pelona; Catron Co. 1:125,000; 100 ft.; 1918.
Pendejo Wash; Otero Co. 1:62,500; 25 ft.; 1943.
Perilla; Hidalgo Co., N. Mex., and Cochise Co., Ariz. 1:125,000; 100 ft.; 1919.
Playas; Hidalgo Co. 1:62,500; 25 ft.; 1919.
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St. John's; Catron and Valencia cos., N. Mex., and Apache Co., Ariz. 1:250,000; 200 ft.; 1892.
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San Ysidro; Sandoval Co. 1:62,500; 50 ft.; 1943.
Santa Clara; Sandoval and Santa Fe cos. 1:125,000; 100 ft.; 1892.

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Santa Rita; Grant Co. 1:24,000 (about 1 in. to 0.4 mi.); 20 ft.; 1937.
Santa Rita Special; Grant Co. 1:24,000 (about 1 in. to 0.4 mi.); 20 ft.; 1909.
Ship Rock; San Juan Co. 1:62,500; 20 ft.; 1937.
Silver City; Grant Co. 1:125,000; 100 ft.; 1909.
Socorro; Socorro Co. 1:62,500; 50 ft.; 1906.
Tucumcari; Harding, Quay, and San Miguel cos. 1:125,000; 50 ft.; 1930.
Tularosa; Otero, Lincoln and Socorro cos. 1:125,000; 50 ft.; 1916.
Tyrone District; Grant Co. 1:24,000 (about 1 in. to 0.4 mi.); 25 ft.; 1922.
Victorio; Luna, Grant and Hidalgo cos. 1:62,500; 25 ft.; 1918.
Walnut Wells; Hidalgo Co. 1:62,500; 25 ft.; 1918.
Watrous; San Miguel and Mora cos. 1:125,000; 50 ft.; 1894.
Wingate; McKinley and Valencia cos. 1:250,000; 200 ft.; 1892.

State map.

Topographic map of New Mexico. Scale 1:500,000 (about 1 in. to 8 mi.); contour interval 100 meters (328 ft.); 1925. (2 sheets.) U. S. Geological Survey, Washington, D. C.

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OIL AND GAS MAP

Oil and Gas Map of New Mexico; Dean E. Winchester, 1931; revised by Robert L. Bates to July, 1942. Scale, about 16 miles to 1 inch. (This map is included in Bulletin 18.) 1942	.75 (paper) 1.25 (cloth)

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