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STATE OF ILLINOIS
WILLIAM G. STRATTON, *Governor*
DEPARTMENT OF REGISTRATION AND EDUCATION
VERA M. BINKS, *Director*



UNPUBLISHED REPORTS ON OPEN FILE

II. INDUSTRIAL MINERALS

by

Margaret B. Brophy

DIVISION OF THE
ILLINOIS STATE GEOLOGICAL SURVEY
JOHN C. FRYE, *Chief* URBANA

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FOREWORD

The Illinois State Geological Survey has accumulated through the years many unpublished technical reports and maps. Although most major research projects are designed for eventual publication of results, some brief reports on specialized subjects, local areas, or problems of limited interest have been prepared for specific purposes and were not intended for publication. Other more extensive reports were not published when they were timely because of insufficient printing funds. These various unpublished reports and maps contain a wealth of information on the geology and mineral resources of Illinois, and it has been the policy of the Geological Survey to make them available to persons who visit the Survey. As the number of such items in the files has increased, it has become difficult for representatives of industry and other interested persons to learn what reports are available. This circular listing unpublished industrial minerals reports is the second of a series, the first of which, Circular 201, dealt with mineral fuels papers. Lists of unpublished reports on groundwater geology and geophysics, stratigraphy and areal geology, and engineering geology are in preparation.

Because there is only one copy of most of the listed items, they cannot be lent, but must be consulted in the Survey's Mineral Resource Records Division. The reports are open for public inspection, and the information is available for use by anyone; if data from them are included in written documents, the source must be cited.

John C. Frye

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ABSTRACT

Fifty-seven unpublished reports dealing with industrial minerals are listed with brief annotations. They are on open file at the Illinois State Geological Survey and are available for examination but not for loan.

The following list includes manuscripts grouped under two headings - Resources Reports and Areal Reports - and arranged chronologically within each group. We have endeavored to limit this list to those manuscripts that would be of greatest interest to the public. Manuscripts with a limited area of interest are not listed but are available for reference. Approximately 140,000 well logs also are open to the public in the Mineral Resource Records Division.

RESOURCES REPORTS

- CRS-1 Silica refractory material in southern Illinois, by C. R. Schroyer, 1918. (8 p., 5 pls.)
Briefly describes mine workings, production, physical properties, and geological relations of ganister and silica in Alexander and Union counties. 5 sample analyses.
- FFK-5 Geology, distribution, and occurrence of the potash shales of Union County, by F. F. Krey, 1920. (22 p.)
Character of the shales and associated rocks. Localities of possible commercial importance. Tables give analyses of 18 samples. Partly publ. in Univ. Ill. Agr. Expt. Sta. Bull. 232, 1921.
- CWP-2 Siliceous deposits of Union and Alexander counties, by C. W. Parmelee and C. R. Schroyer, 1918-20. (63 p., 1 pl.)
Use of silica, ganister, and novaculite in pottery, manufacture of refractories, and road material.
- JEL-28 Ocher deposits in vicinity of Olive Branch, Alexander County, by J. E. Lamar, 1924. (2 p.)
Briefly describes two deposits in secs. 23 and 24, T. 15 S., R. 3 W.
- BBC-1 Mineral resources of the Quincy area, by B. B. Cox, 1926. (15 p.)
Brief description of occurrence and use of limestone, dolomite, clay, shale, molding sand, sand and gravel, coal, and groundwater. Tables of outcrops of coals listing location, thickness, overburden, etc.

- JEL-6 Description of Cretaceous and Tertiary sediments exposed along Illinois Central Railroad cut-off, north of Metropolis, Massac County, by J. E. Lamar, 1926. (3 p., 8 pls.)
Describes sand and clay formations exposed when railroad cut was made. Gives sieve tests of sands.
- CED-1 Report on three quarries at Naperville, DuPage County, by C. E. Dutton, 1928. (5 p., 1 pl.)
Describes abandoned quarries.
- JEL-38 Heavy minerals in the Chester sandstones in Hardin and adjacent counties, by J. E. Lamar, 1928. (10 p., 1 pl.)
Heavy-mineral percentages based on grain counts of samples.
- JEL-60 Cement resources of southwestern Illinois, by J. E. Lamar and H. A. Sellin, 1930. (48 p., 15 pls.)
Properties of raw materials, character and distribution of rocks in southwestern Illinois mainly along the Mississippi River, description of resources, sample analyses, geologic maps, and 38 p. field notes by H. A. Sellin.
- CWP-6 Use of tripoli from southern Illinois in manufacture of pottery, by C. W. Parmelee, 1930. (100 p., 27 pls.)
Procedure and results of tests on physical characteristics of raw materials and finished products. Summarized in Report of Investigations 24.
- MKH-1 Geophysical investigations in Illinois, by M. K. Hubbert, 1931. (10 p., 11 pls.)
Discusses applicability of geophysical methods of prospecting for fluorspar, petroleum-bearing structures, lead and zinc, and water-bearing gravels of glacial drift in Illinois. Results of electrical conductivity studies of above with Megger ground tester.
- JEL-100 Mineral resources along the inland waterways of Illinois, by J. E. Lamar, H. B. Willman, and W. H. Voskuil, 1933. (123 p., 6 pls.)
Brief text to accompany maps showing industry locations and areal distribution of clay and shale, limestone and dolomite, sand and gravel, and minor industrial minerals.
- CFF-2 Production of rock wool as a problem in glass technology, by C. W. Fryling, 1934. (17 p.)
Preliminary investigation of properties of samples of four component glass. Given at a conference on glass problems, Dept. of Ceramic Engineering, U. of Ill.
- JEL-71 Results of experiments on the staining of Illinois limestone, by J. E. Lamar and E. Espinshade, 1934. (17 p.) C. W. A. Project 2782.
Preliminary report reviews literature and briefly describes colorings obtained from various chemicals and dyes.

- JEL-72 Memorandum: examination of samples of southern Illinois igneous rocks for diamonds, by J. E. Lamar, 1934. (2 p.)
Method and results. No diamonds. Large-scale investigation necessary for complete evaluation.
- JEL-73 Mineral resources of the Oregon quadrangle, by J. E. Lamar and H. B. Willman, 1934. (33 p., 2 pls.)
Resources consist principally of dolomite, magnesian limestone, silica sand, sand and gravel, and clay. Results of physical tests and chemical analyses of dolomite samples, chemical analyses of sandstone samples, and screen tests on sand from the sandstones.
- CWP-8 Study of use of fluorspar in pottery bodies, by C. W. Parmelee, 1934. (77 p., 2 pls.)
Effects of fluorspar on properties of ceramic bodies; possible further uses of fluorspar in this field. Results of experiments to determine conditions governing successful use of fluorspar in ceramic bodies.
- JEL-106 Mineral resources of Illinois waterway, by J. E. Lamar, H. B. Willman, and T. B. Root, 1935. (700 p.)
Discusses sand and gravel, limestone, clay, and coal resources.
- RMG-1 Agricultural limestone resources of Jasper, Jefferson, Peoria, and Richland counties, by R. M. Grogan, 1939. (42 p.)
Considers average thickness of limestone, thickness and character of overburden, percent calcium carbonate equivalent, and specific locations from which samples were taken and tested.
- JP-10 Elimination of pyrite from clay by air separation, by R. J. Piersol, 1939. (72 p., 23 pls.)
Experimental verification of theory of air separation as applied to Illinois clays for use in pottery, sanitary ware, terracotta, etc. Results of tests shown in tables, graphs, and photographs.
- BW-5 Sand east of Morris, Grundy County, by H. B. Willman, 1939. (25 p., 3 pls.)
Detailed information on character of the sand as shown by studies of exposed sections and by laboratory analysis. Discussion of possible commercial uses.
- SS-3 Temperature of formation of some bedded Illinois fluorite crystals, by R. S. Shrode, 1941. (30 p., 20 pls.)
Discusses use of inclusions as geologic thermometers and previous work on problem. Gives method, apparatus, results of investigations, photographs, and diagrams of individual crystals. Master's thesis.
- W-9A Investigations of zinc and lead resources of northwestern Illinois: preliminary report on structure of Black Jack area, Jo Daviess County, by H. B. Willman and R. R. Reynolds, 1943. (22 p., 4 pls.)

Evaluates use of surface geology in locating areas structurally favorable for occurrence of zinc and lead ores. Structure map

- JMW-12K Illinois fluorspar investigations: Lake Glendale prospect, by F. E. Tippie, 1944. (3 p., 1 pl.)
Briefly describes surface geology as shown by test pits, outcrops, and diamond drilling.
- JEL-105 Chicago area clays, by J. E. Lamar, 1945. (139 p.)
Distribution, composition, and character.
- RMG-4 Geology of Hudson quarry and vicinity, near Galena, Jo Daviess County, by R. M. Grogan and Paul Herbert, 1947. (5 p., 1 pl.)
Appraises possibilities of continuation of zinc-lead mineral zone exposed in quarry. Geologic map of area.
- JEL-108 Limestone resources of Sangamon County, compiled by J. E. Lamar, 1947. (8 p.)
Brief summary, list of outcrops, and list of borings showing 3 feet or more of limestone at a depth of less than 50 feet.
- LEW-41 White limestones underground in Illinois, by L. E. Workman, 1947. (7 p., 1 pl.)
Text describes studies and promising areas for further investigation, which are shown on accompanying map. Appendix gives data on cuttings studies from 33 wells.
- JEL-107 Memorandum on prospecting for gravel deposits, by J. E. Lamar, 1948. (9 p., 3 pls.)
Describes methods and procedures of prospecting.
- JSD-1 Electrical-potential investigations in the zinc-lead district of northwestern Illinois, by J. S. Dobrovolsky, 1949. (22 p., 50 pls.)
Preliminary report and basic data from geophysical exploration for ore bodies. Testing procedure and results. Equipotential contour maps for numerous test holes.
- RSS-1 Quarry possibilities in eastern Johnson, western Pope, and northern Massac counties, by R. S. Shrode, 1949. (42 p., 12 pls.)
Study of Chester limestone formations for potential quarry sites considering location, availability, extent, and composition of beds. Detailed descriptions of possible quarry sites, grouped by stratigraphic units. 22 p. field notes.
- RSS-2 Investigations of the Marigold oolite in Randolph County, by R. S. Shrode, 1949. (10 p., 2 pls.)
Commercial possibilities and general character of the oolite. Descriptions of sections in outcrops and quarries. 9 p. field notes.
- JSD-2 Progress report on compilation and analysis of geophysical investigations in the zinc-lead district of northwestern Illinois, by J. S. Dobrovolsky, 1950. (5 p., 22 pls.)
Analysis of data and further work on JSD-1.

- RMG-7 Results of tests on hand auger samples from southern Illinois fluor-spar district, by R. M. Grogan, R. S. Shrode, and R. C. Campbell, 1950. (12 p., 27 p. tables, 10 pls.)
Method uses zirconium-alizarin test to determine presence of CaF_2 in samples taken from mantle rock. Charts show results of tests and location of borings.
- JEL-98 High-purity limestone resources of Illinois, by J. E. Lamar, 1950. (11 p., 2 pls.)
Memorandum on resources of high-calcium limestones, grouped by geographic district. Table of analyses of samples from each district.
- RSS-4 Preliminary investigation of commercial possibilities of heavy minerals in Illinois sands, by R. S. Shrode and J. E. Lamar, 1952. (12 p., 1 pl.)
Quantitative data on amounts of heavy minerals in Illinois sands, their character, and probable commercial importance. Method and results of study on nineteen samples.
- RSS-5 Memorandum on the Platteville-Galena formation near Lowell, Illinois, as a cement rock and agricultural limestone, by R. S. Shrode, 1953. (10 p., 1 pl.)
Outcrop descriptions and results of tests on samples with ver-senate reagent.
- TRD-1 The nature of organic materials in limestones, by J. R. Dyni; comments by J. E. Lamar, 1953-54. (35 p., 3 pls.)
Progress report on method and results of differential thermal analysis tests.
- Structure contour maps of the northwestern Illinois zinc-lead district, 1954. (29 maps.)
The maps are on a scale of 500 feet to the inch, with a five-foot contour interval, and show geologic structure and outcrop and drilling datum points upon which the contouring is based.

AREAL REPORTS

- ES-8 Geology of the Sumner and Vincennes quadrangles, by T. E. Savage, 1911-12(?) (151 p., 8 pls.)
Physiography, structure, geologic history, and stratigraphy. Briefly describes resources of oil, coal, clay used for common grades of building brick and drain tile, sandstone for possible use as building stone, and sand and gravel for plaster and concrete. Accompanying maps show outcrops, water wells, oil well data, structure, and generalized columnar section.
- ES-10 Geology of the Hardinville and Birds quadrangles, by T. E. Savage, R. S. Blatchley, and J. L. Rich, 1916(?) (131 p., 10 pls.)
Physiography, structure, geologic history, and stratigraphy. Economic resources include coal, oil, clay used locally for brick

and tile, sandstone for common masonry, and sand for plaster and mortar. Accompanying maps show outcrops, water wells, surficial deposits, and oil well data.

- TES-11 Geology and mineral resources of the Hardinville, Birds, Sumner, and Vincennes quadrangles, by T. E. Savage, 1916(?) (140 p.)
Combines material in TES-8 and TES-10.
- TES-3 Geology and economic resources of the Jonesboro quadrangle, by T. E. Savage, 1920. (187 p., 11 pls.)
Topography, geologic history, stratigraphy, and economic resources including limestone, potash shale, chert gravel, high-grade clay, ganister, and silica or tripoli. Accompanying outcrop maps and geologic map.
- JMW-1 Geology and mineral resources of the Campbell Hill quadrangle, by J. M. Weller, 1920. (71 p.)
Physiography, stratigraphy, structure, and geologic history. Economic resources include coal, oil, sandstone used locally for building foundations, and limestone possibly available for rough building stone, road metal, and agricultural limestone. Accompanying maps show surficial geology, relief, structure, oil and gas fields, and areal geology. See Report of Investigations 59 for preliminary geologic map.
- CMB-1 Geology of the Dongola quadrangle, by C. M. Boos, 1921. (53 p.)
Stratigraphy, structure, and brief coverage of economic resources, mainly limestone. Master's thesis.
- PM-2 Geology and mineral resources of the Barrington quadrangle, by Paul MacClintock, 1921. (102 p., 44 pls.)
Topography, stratigraphy, and Pleistocene history. Economic resources include sand and gravel for building, ballast, and road metal, and molding sand and clay with possibilities for only small scale development. Accompanying maps show glacial geology, relief, bedrock surface, and cross sections.
- FFK-2 Dongola quadrangle report, by F. F. Krey, 1922. (96 p.)
Physiography, stratigraphy, structure, geologic history, and mineral resources. The latter include stone of possible use as building stone, limestone for road material and agstone, alluvial clay for brick and drain tile, small amounts of gravel, and shale of possible use as fertilizer. Accompanying structure map. See Report of Investigations 60 for areal geologic maps.
- GHC-6 Geology and mineral resources of the West Frankfort and Galatia quadrangles, by G. H. Cady, 1923. (217 p., 10 pls.)
Physiography, geologic history, structure, and stratigraphy. Economic resources are chiefly coal, clay for possible use in common brick, and agricultural limestone. Accompanying maps show coal structure, glacial deposits, coal mines, and geologic sections.

- ACB-2 Geology and mineral resources of the Oregon quadrangle, by A. C. Bevan, 1925. (384 p., 46 pls.)
 Physiography, stratigraphy, structure, and geologic history. Mineral resources include sand and gravel of glacial origin used locally for road materials and construction work, and limestone used for construction work, building stone, road metal, and fertilizer. Accompanying map shows outcrops.
- DJF-3 Geology and mineral resources of the Wilmington quadrangle, by D. J. Fisher, 1927(?) (183 p.)
 Topography, stratigraphy, structure, and geologic history. Economic resources include coal; limestone and dolomite used for concrete aggregate, ballast, and fertilizer; clay and shale of possible use for tile and common brick; molding sand; and extensive deposits of gravel. Accompanying map shows outcrops and surficial geology.
- WVS-1 Geology and mineral resources of the Beardstown quadrangle, by W. V. Searight, 1925-27. (341 p., 51 pls.)
 Physiography, structure, bedrock topography, geologic history, and stratigraphy. Coal stripping possibilities and oil and gas possibilities. Other resources available are clay for common brick, drain tile, and flue lining; limestone for agstone, concrete aggregate, riprap, and building stone; and sand and gravel. Map shows Pleistocene outcrops and structure. Numerous photographs.
- BW-2 Geology and mineral resources of the Rushville quadrangle, by Bradford Willard, 1927. (123 p., 7 pls.)
 Physiography, structure, geologic history, and stratigraphy. Summary of economic resources, including coal, limestone, and sand and gravel of possible use as road metal.
- ES-2 Geology and mineral resources of the Vermont quadrangle, by T. E. Savage, 1922(?), revised 1928. (157 p., 17 pls., 58 p. well logs.)
 Physiography, structure, geologic history, and stratigraphy. Economic resources consist of clay and shale for common burned clay products, sand and gravel for general farm construction purposes, coal, sandstone, and limestone. Accompanying outcrop and structure map.
- ML-252 Geology and mineral resources of the Barrington, Elgin, and Geneva quadrangles, by M. M. Leighton, W. E. Powers, Paul MacClintock, L. E. Workman, and J. P. Gries, 1931. (256 p., 58 pls., 129 p. appendix.)
 Physiography, geologic history, and character and distribution of subsurface and exposed formations, particularly of Pleistocene age. Mineral resources include gravel and sand, limestone, molding sand, and clay. Brief descriptions of operating and abandoned pits and quarries. Appendix contains well logs and analyses of mineral content of water from two wells. Accompanying maps

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show bedrock surface, glacial geology, relief and drainage, sand and gravel pits, and dolomite quarries.

- HBW-4 General geology and mineral resources of the Illinois deep waterway from Chicago to Peoria, by H. B. Willman, 1931. (257 p.)
Stratigraphy, outcrop descriptions, uses and distribution of limestone and dolomite, clays and shales, sand and gravel, silica sand, peat and muck, and travertine. Ph.D. thesis.
- PM-3 Geology and mineral resources of the Buda quadrangle, by Paul MacClintock, 1931, revised 1934-35. (192 p., 62 pls.)
Topography, geologic history, detailed Pennsylvanian and Pleistocene stratigraphy and outcrop sections. Economic resources include coal, sand and gravel for concrete and road material, clay and shale for tile, and molding sand. Records of coal tests and other borings, glacial map, outcrop map, and preliminary areal geologic map.
- RSP-2 Geology and mineral resources of the Galesburg quadrangle, by R. S. Poor, 1927, revised 1935. (Some data on the Monmouth quadrangle.) (165 p., 4 pls.)
Physiography, structure, geologic history, and stratigraphy. Economic resources include coal, and clay and shale for structural clay products. Accompanying maps show structure, drift thickness, outcrop notes, and columnar sections.
- WEP-5 Grays Lake and Waukegan quadrangles, by W. E. Powers and B. R. Millington, 1932-40. (Partial manuscript.)
Field notes, field maps, outlines, photographs, logs, and other material emphasizing glacial deposits and glacial history. Includes notes on gravel pits, results of acid solubility tests, and sieve analyses of tills.



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