BULLETIN NO. 2.

A BIBLIOGRAPHY

OF THE

GEOLOGY OF MISSOURI

BY

F. A. SAMSON.

PUBLISHED BY
THE GEOLOGICAL SURVEY.

JEFFERSON CITY,
December, 1890.
GEOLOGICAL SURVEY
OF MISSOURI

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OF THE

GEOLOGY OF MISSOURI

BY

F. A. SAMPSON.

JEFFERSON CITY, MO.:
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1890.
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Ex officio President of the Board, Jefferson City.

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R. A. BLAIR...............................................................SEDALIA

STATE GEOLOGIST

ARTHUR WINSLOW......................................................JEFFERSON CITY

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PREFACE.

With a broad foundation of knowledge should we build our monuments; past experience is the best guide to future practice; progress demands in the product of to-day an increment to the product of yesterday. From these three points of view must we regard as valuable the work which is here presented. A bibliography directs specifically to many sources of information, it leads to a knowledge of the outcome of others' efforts, it prevents duplication of labors and guides operations into productive channels.

The amount of work and time necessary for the compilation of such a volume of reference often deters from its preparation; titles have to be gathered from time to time as opportunity presents itself, many libraries in many places have to be visited, old book stores must be frequented and many a dusty book pile from chest, from top shelf, from garret, from cellar, must be overhauled and studied. Hence the Survey is fortunate in having donated to it, through the generosity of Mr. Sampson, the manuscript for this publication. It is the product of work persistently, though intermittently, carried on during several years; and the scope of the references and the amount of the material presented all testify to the studious zeal which sustained this work.

Over eight hundred titles of publications containing matter relating directly to the subject of the Geology of Missouri, will seem an astounding number to many. They are, however, not all independent works, and they vary much in the extent of their reference to the subject and in the qualities of originality and intrinsic value. In some cases, the nature and the extent of the reference is indicated in an accompanying note, elsewhere it can be conjectured from the title, while the relative merit of each can be judged of through a consideration of the nature and source of the publication and of the character and standing of the author.
With reference to the origin, as well as to character, these publications may be classed as follows:

1. **Products of Original Investigation**
   a. With entire reference to Missouri.
   b. With partial reference to Missouri.

2. **Compilations from Publications of Original Investigation.**

3. **Incidental or Dependent Publications.**

1a. As products of original investigation with entire reference to Missouri, we would include, among the titles given, all of the reports of Missouri Geological Surveys, of the State Board of Internal Improvements, of the Bureau of Statistics and of the Smithsonian Institution; and we would further include a portion of the papers contained in the Annual Reports of the State University, in the reports of the State Board of Agriculture, in the United States Agricultural Reports, a portion of the papers of scientific societies and periodicals, and of the miscellaneous and mineral water publications, the total number under the heading being ........................................ 206 titles

1b. As products of original investigation, with only partial reference to Missouri, we would include all mentioned publications of the United States Geological Survey, a portion of the articles included among the reports of the United States Census, among the American State Papers, among the Miscellaneous Documents of Congress, among the United States Agricultural reports, among the reports of other State Surveys and among the papers of scientific societies and periodicals and miscellaneous publications, in all ........................................ 266 titles

2. Among compilations we would include the publications issued by the State Board of Immigration, a portion of the papers included in the reports of the State Board of Agriculture, in the Census reports, in the Miscellaneous Documents of Congress, and some of the papers published by scientific societies and in periodicals, a number of the miscellaneous publications and some of those relating to mineral waters, giving a total of ........................................ 162 titles

3. As incidental publications we would class Governors' addresses and messages, reports of Legislative committees and memorials to the Legislature, and also a portion of the papers contained in the Annual Reports of the State University, in the reports of the State Board of Agriculture, in the American State Papers, and among the Miscellaneous Documents of Congress, also the reviews and editorials among the publications of societies and periodicals, and a portion of the Miscellaneous titles. The total under this heading would thus be... 167 titles

Of publications of the State of Missouri there are 144 titles, of publications of the United States Government there are 65 titles, of publications of other State Surveys there are 13 titles, while of Miscellaneous publications there are 579 titles, more than twice as many as in all other classes together.

It would be interesting to enter into a more careful analysis of the contents of all these different publications, to separate the grain from the chaff, to distinguish between what is fundamental and what is out-
growth or superstructure. Many publications are products of others, some are repetitions, others with similar titles mark successive stages of knowledge; some are profound, rich in suggestion and of great educational value; others are superficial and barren. Neither the time available nor the means of access to these publications will, however, permit this, and such classification must be left to the individual. Preeminently as fundamental and educational, however, we must recognize the official and professional reports of State or National governments; the mass of information which these contain, presented officially and authoritatively, finds outlet and becomes disseminated through many channels. Some of the pamphlets, whose titles are given here, are but reproductions of portions of such reports popularized for special ends; others teem with extracts from or references to such official reports; while the daily or weekly issues of the Press, which are not catalogued here, distribute to the great mass of the people those results which can be turned to immediate use.

Beyond illustrating, however, the manner in which the results of such work become diffused, this list of publications is valuable historically as an index to the progress of knowledge concerning this special subject, and also as a measure of the interest and activity exhibited in the pursuit of such knowledge. The dates of the publications whose titles are given range from the year 1804 to the year 1890; during this interval they are distributed as follows:

Between the years 1801 and 1810 ........ 3 were published.

" " 1811 " 1820 ........ 7 " "
" " 1821 " 1830 ........ 27 " "
" " 1831 " 1840 ........ 33 " "
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" " 1851 " 1860 ........ 126 " "
" " 1861 " 1870 ........ 124 " "
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At the beginning of this century, according to this record, the subject of the geology of Missouri attracted little public notice. It then received meagre attention for a period of forty years, and it was not until after the year 1840 that the importance of the subject became appreciated and that active interest was developed. From that time on this interest has apparently been vigorous and continuous. The results of the future will prove the value of this publication in nourishing this growth by guiding such interest into the most productive lines of work.

ARTHUR WINSLOW,
State Geologist.

Jefferson City, Dec. 16, 1890.
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INTRODUCTION.

The following bibliography of the geology, palaeontology and mineralogy of the State of Missouri, commenced for the purpose of systematically adding to the author's library, has developed into a much larger number of titles than was at first thought to be possible, and still it is far from being complete. References to many books and papers not here included have been made, but the titles obtained have not been full enough for their insertion here.

The list of Missouri publications published since 1836 is nearly complete, almost all of the publications of the different departments of the State having been examined. Whatever may have been printed in the Journals of the first seven General Assemblies is not included, all efforts to see copies of any one of them having failed.

The transactions and journals of the scientific societies have all been examined, but, of a few, complete sets were not seen, and some papers have thus, probably, been omitted.

It will no doubt be noticed with surprise that so many Missouri fossils have been described in the publications of the Geological Surveys of other States, Illinois and Pennsylvania especially furnishing long lists. It has been the intention to give lists of all fossils for which the State of Missouri furnished the type specimens, the species being given in a note following the title of the paper in which the descriptions were contained. These lists give, in addition to the name of the species, the number of the page, plate and figure of the report in which they are described, and the geological formation and the locality in which each specimen was found. The name and formation are given as stated in the papers, and no effort is made to reduce the nomenclature to that which is at present recognized, or to correct mistakes.

For convenience of reference the titles are numbered. The first paragraph is a copy of the title, and any remarks in reference to the contents follow in a paragraph in smaller type.

In the arrangement of titles the alphabetical order has been adopted partly, and the chronological partly. The publications of the State Sur-
vey are given on the latter plan; so the Messages of the Governors of the State, and part of the other State documents. In other cases the papers from each different publication are arranged alphabetically, while the index combines all of the papers in one alphabetical list.

I am under obligations to the librarians or owners of the following libraries for access to them: Columbia College, New York City; Academy of Science, New York City; St. Louis Academy of Science; Kansas Academy of Science, Topeka; Cornell University, Ithaca, N. Y.; Public School, including the Shumard Library, St. Louis; Kansas State Historical Society, Topeka; School of Mines, Rolla, Mo.; Missouri State, Jefferson City; Geological Survey, Jefferson City; Lieut. A. W. Vogdes, Ft. Hamilton, New York; Dr. G. Hambach and Prof. W. B. Potter, Washington University, St. Louis; Prof. J. C. Branner, State Geologist, Little Rock, Ark.; and Mr. Arthur Winslow, State Geologist of Missouri. Much other assistance was also received from the gentlemen above named and from Prof. G. C. Broadhead, formerly State Geologist of Missouri, and from Prof. H. S. Williams, Cornell University.

Where there is no statement of the size of the book or paper, it will be understood to be octavo.

No effort has been made to give complete lists of different editions, nor to show what papers in serial publications were issued in pamphlet form as Authors' editions.

The Mineral springs of the State have been included in the list because all the pamphlets describing them have analyses of the mineral waters, and a part of them have accounts of the geology of the country in which the springs are situated.

The title of each work not seen by the compiler is marked by an asterisk.

Sedalia, Mo., August 24, 1890.

F. A. SAMPSON.
BIBLIOGRAPHY.

PART I.
Publications of the State of Missouri.

PUBLICATIONS OF MISSOURI GEOLOGICAL SURVEYS.
(Chronological.)

1


In Shumard's Report on Paleontology, the following species are described:

*Pentremites Sayi*, page 185, Pl. B, Fig. 1, a, b, c, d, from near the base of the Encrinital in various counties.

*P. Roomeri*, page 186, Pl. B, Fig. 2, a, b, c, d, from the Chemung at Providence, Boone county.

*P. curvatus*, page 187, Pl. B, Fig. 3, a, b, from the Archimedes limestone, St. Louis county.

*P. elongatus*, page 187, Pl. B, Fig. 4, from the Encrinital limestone, Pike county.

*Poteriocrinus Meehanus*, page 188, Pl. A, Fig. 7, a, b, probably from the Encrinital, Moniteau county.

*P. longidactylus*, page 188, Pl. B, Fig. 5, a, b, c, St. Louis limestone, St. Louis county.

*Actinocrinus concinnus*, page 189, Pl. A, Fig. 5, Encrinital limestone, Marion county.

*A. Missouriensis*, page 190, Pl. A, Fig. 4, a, b, c, Encrinital limestone, Marion county.

*A. rotundus*, Yandell and Shumard, page 191, Pl. A, Fig. 2, a, b, Encrinital limestone, Marion county.

*A. Christyi*, page 191, Pl. A, Fig. 3, Encrinital limestone, Marion and Boone counties.

*A. pyrifornis*, page 192, Pl. A, Fig. 6, a, b, Encrinital limestone, Marion county.

*A. parcus*, page 193, Pl. A, Fig. 9, St. Louis limestone, St. Louis.

*A. Verneullianus*, page 193, Pl. A, Fig. 1, a, b, Encrinital limestone, Rocheport and Marion county.

*A. Konineki*, page 194, Pl. A, Fig. 8, a, b, c, Encrinital limestone, Boone and Marion counties.
Glyptocrinus flmbriatus, page 194, Pl. A, Fig. 10, a, b, Cape Girardeau limestone, Cape Girardeau county.

Tentaculites incurvus, page 195, Pl. B, Fig. 6, a, b, from the same.

Cythere sublevis, page 195, Pl. B, Fig. 15, 1st Magnesian limestone, St. Louis and Ste. Genevieve counties.

Proetus Swallowi, page 196, Pl. B, Fig. 12, a, b, Chemung Group, Chouteau Springs, Cooper county, and in Moniteau county.

P. Missouriensis, page 196, Pl. B, Fig. 13, a, b, Lithographic limestone, Hannibal, Louisiana and Chouteau Springs.

Cyphaspis Girardinensis, page 197, Pl. B, Fig. 11, a, b, Upper Silurian (Cape Girardeau limestone), Cape Girardeau.

Encrinurus deltoides, page 198, Pl. B, Fig. 10, same as last.

Philippia Meranecensis, page 199, Pl. B, Fig. 9, Archimedes limestone, St. Louis county.

Dalmania tridentifera page 199, Pl. B, Fig. 8, a, b, c, Delthyris Shaly limestone, Perry and Cape Girardeau counties.

Calymene rugosa, page 200, Pl. B, Fig. 14, from the same localities.

Acidaspis Halli, page 200, Pl. B, Fig. 7, a, b, c, Cape Girardeau limestone, Cape Girardeau county.

Productus vesicostatus, page 201, Pl. C, Fig. 10, Upper Coal Measures, on Missouri river.

Chonetes parva, page 201, Coal Measures, Boone county.

C. ornata, page 202, Pl. C, Fig. 1, a, b, c, Chemung Group, Cooper and Moniteau counties, Louisiana and Hannibal.

Spirifer plano-convexa, page 202, Upper Coal Measures, on the Missouri river.

S. ? peculiaria, page 202, Pl. C, Fig. 7, a, b, Chemung, Chouteau Springs.

S. Kentuckyensis, page 203, Coal Measures, Missouri river, near Weston.

S. Marionensis, page 203, Pl. C, Fig. 8, a, b, c, d, Chemung, Chouteau Springs, etc.

yriia acutirostris, page 204, Pl. C, Fig. 3, a, b, c, Lithographic Limestone at Hannibal and Louisiana.

Rhynchosomella Missouriensis, page 204, Pl. C, Fig. 5, a, b, c, Chouteau Limestone, Cooper and Boone counties.

R. Cooperensis, page 204, Pl. C, Fig. 4, a, b, c, d, same as last.

R. Bonensis, page 205, Pl. C, Fig. 6, a, b, Encrinital limestone, Boone county.

Orthis Missouriensis, page 205, Pl. C, Fig. 9, a, b, Cape Girardeau limestone, Cape Girardeau.

Leptena mesacosta, page 205, Pl. C, Fig. 2, from same.

Avicula circulus, page 206, Pl. C, Fig. 14, a, b, Chouteau Limestone, Cooper and Moniteau counties.

A. Cooperensis, page 206, Pl. C, Fig. 15, from same.

Allorisma Hannibalensis, page 206, Pl. C, Fig. 19, Lithographic Limestone, Hannibal.

Pecten Missouriensis, page 207, Pl. C, Fig. 16, St. Louis Limestone, St. Louis county.

P. occidentalis, page 207, Pl. C, Fig. 18, Coal Measures, Clinton county.

Mytilina sub-quadrate, page 207, Pl. C, Fig. 17, Upper Coal Measures, Missouri river.

Chemulzia tenuilineata, page 207, Pl. C, Fig. 12, Chouteau Limestone, Cooper county.

Murchisonia melaninaformis, page 208, Pl. C, Fig. 13, 2nd Magnesian Limestone, Franklin county.
Goniatites planorbiformis, page 208, Pl. C, Fig. 11, a, b, Coal Measures, Missouri river.

Filicites gracilis, page 208, Pl. A, Fig. 11, Lithographic limestone, Pike and Marion counties.


A somewhat fuller report was made by Prof. Swallow, and was published by the Pacific Railroad Company in New York.*


8


9


10


11

Williams, C. P.—Report to the Board of Curators concerning the transfer of the Geological Survey to the School of Mines, and the work executed during the year. By Charles P. Williams, Ph. D., Director Missouri School of Mines and Acting State Geologist. 4 pp. <Missouri State University report for 1876, pp. 213-216.

12


GOVERNORS' INAUGURAL ADDRESSES.
(Chronological.)

14


The mineral resources of the State are noticed.

15


The Governor refers to the work of the Geological Survey, with favorable mention.

16


He notices the mineral resources and encourages their development.
GOVERNORS' MESSAGES.

(Chronological).

17


An appropriation is recommended for establishing a Geological Survey, and for the appointment of a competent and scientific man to direct it. He also gives an account of the survey of the line between Missouri and Iowa.

18


Notices the surveys of the Meramec, Salt, Osage and North Grand rivers; also the geological examination of the Osage river, the latter showing coal, lead and iron.

19


The subject of establishing a Geological Survey of the State is recommended to the attention of the Legislature.

20


He favors a geological survey, to be made in a thorough manner and on a liberal scale, but thinks that the General Government should contribute to its accomplishment, and recommends that the memorial of the last Legislature be again pressed upon the attention of Congress. He also strongly recommends the establishment of a School of Mines.

21


This recounts what had been done under the law of the preceding session establishing a Geological Survey, and recommends a further appropriation.

He states that the results of the work of the survey, as shown by its published reports, must convince everyone that the State is most amply compensated for the outlay.


The work of the survey is reviewed, and the statement made that the increased sales of lands by means of the publications of the State Geologist had added revenue more than the cost of the survey.


The work of the Geological Survey is reviewed and its continuance recommended.


He recommends an appropriation sufficient to allow the Board of Immigration to procure from the published and unpublished portions of the Geological Survey of the State, and other reliable sources, the compilation and publication of a concise and practical report on the Geology of the State.


He considers the resources of the State, and the ways of making them known to the people. He declares that there is no question as to the value of Swallow's geological reports.


The Governor expresses the opinion that the Legislature will be gratified with the work of the Geological Survey, and he gives an account of the work of State Geologist Hagar on pp. 14–15, or pp. 22–23 of the Senate Journal.
28


Advises the reduction of the number of the Board of Managers of the Mining, Metallurgical and Geological Bureau, so as to make it more efficient.

29


This notices the mineral development of the State and the work of the Geological Survey.

30


Announces that he had appointed James F. Brooks to take charge of the topographical survey of the sunk and overflowed lands of Southeast Missouri, which had been provided for by a previous Legislature, and that the engineer had expended the appropriation, but made no report.

31


He approves of the law establishing a State Mine Inspector, and urges a larger appropriation, so that the Mine Inspector can be kept in the field and keep pace with the rapidly increasing mining interests of the State.
REPORTS OF LEGISLATIVE COMMITTEES.

(Chronological.)

MISCELLANEOUS COMMITTEES.

32

The committee reports in favor of the State helping to build a railroad from Iron mountain to Iron Mountain City, on account of the benefit to the people from the development of the iron mines belonging to the Missouri Iron Mountain company.

33

34

The committee reports that the total quantity of land selected by the State for saline purposes was 47,258.65, of which there had been sold 32,071.88 acres.

35

This report is strongly in favor of establishing a Survey, and the committee, presented a bill for that purpose.

The committee directs attention to the vast mineral resources of the State offering inducements to manufacturers of every article of iron, steel, copper and lead; and also to the "china clay, feldspar, silex, mica, magnesia and cobalt."


The first refers to the memorial of the Bloomfield convention in 1847, and the second recites the advantages the road would be to the utilization of "the vast mines of iron ore and inexhaustible deposits of coal that abound in Missouri."


The Committee reports unanimously in favor of continuing the survey.

Geological Survey.—Account of expenditures of Bureau of Mines, etc. <Appendix to Journals, Regular Session, 26th General Assembly, 1871; p. 128 of documents accompanying Governor's message.

This account is from Oct. 1, 1870, to Dec. 1, 1870, under Hagar.

Reports of the Committees on Mines, Etc.


This is a report on the School of Mines at Rolla.


This is also a report on the School of Mines.


MEMORIALS TO THE LEGISLATURE.

(Chronological)

46


This urges an appropriation for improving the Osage river, and recites the results of a scientific survey of the river by Mr. Morell, engineer, in 1840, and the benefits to be obtained from the mineral and other resources of the part of the State traversed by the river.

The Society urges the Legislature to order a geological survey of the State, and among the special reasons for doing so is the reclamation of the country affected by the New Madrid earthquake of 1811, concerning which they say: "The effects of which are still to be seen in yawning chasms, where the solid earth was rent in twain, and in the vast lakes and marshes which cover the sunken surface of the land in many places through a region of country extending several hundred miles."


The Legislature was then considering a railroad route from Lexington to some point on the Mississippi. This report shows that Cape Girardeau was the only eligible terminus; that New Madrid was not a proper point because the banks of the river at that place were constantly caving in; that Ohio City, opposite the mouth of the Ohio river, could not be reached, it being thirty miles from the highlands, this distance being traversed by lakes and swamps, and these, with annual overflow from the rivers, precluding the building of a road on this route; Commerce was the first point from the mouth of the Mississippi river having a rock-bound shore. To reach it, however, the great swamp would have to be crossed at a point two miles from Cape Girardeau. The swamp here is at its narrowest, and is about three miles wide, presenting indications that this swamp was formerly the bed of the Mississippi river. When the river rises to a considerable height a part of its water flows through the swamp, covering it from bank to bank from three to fifteen feet. The advantages of Cape Girardeau by reason of its proximity to the mineral region of Washington, St. Francois and Madison counties are also noticed.


In addition to the memorial there is a report by the Chief Engineer, Thos. S. O'Sullivan, with estimates and grades of the different proposed routes.

The society asks that the State Geologist be directed to give special attention to the agricultural interests of the State, examine soils and fertilizers, etc.


This accompanies the transmission of a part of the First and Second Annual reports.


This states that the writer, on his own account, and in behalf of his associates, and the Stanton Copper Mining company, entered land in 1845 which he believed contained a valuable copper vein, and in 1848 he had explorations made. He found a very rich vein and erected copper smelting works; but on account of want of skill the first and second years were failures. The third year was more satisfactory, and in 1851 they erected a fourth furnace. They extended their shafts and drifts, and from 1853 to 1855 employed steam power. The vein under the engine house at its deepest level yielded ore of 60 per cent pure copper. In the north hill, where the main body was found, the vein changed to mundic, which was too poor in copper to pay for working, and the company suspended mining operations in 1855. The geological formation of the different mines in Missouri is described, and Congress is urged to donate one or more townships to Missouri for the purpose of sinking deep shafts, and thoroughly testing the extent of the minerals, the profits to be devoted by the State to the founding of a School of Miners.


This called the attention of the Legislature to the need of foreign capital to develop the mineral resources of the State.

Also report of Senator Muench, Chairman of the Select Committee to which the memorial was referred. <Senate Journal, same, pp. 69–71,
54

MEMORIAL.—A memorial to the President and Congress of the United States and to the Secretary of War, asking for a Fort or Garrison, to be established near the southwestern corner of the State. 3 pp. Appendix Senate Journal, Regular Session, 23d General Assembly. Jefferson City, 1865; pp. 600–602.

The reasons for the establishment of the garrison by the Government were the disturbed condition of the country, the existence of "the finest and largest salt springs in America," and the mineral resources of Southwest Missouri. The different mines and furnaces were noticed.

55


This was a request for a permit for the State Geologist of Kansas to use in his report to that State the information gained by him while Geologist of Missouri.

56


The memorial asks that the work of the Geological Survey be completed and the results published.

57


This was a protest against the transfer of the matter appertaining to the State Survey to the hands of any one except the late State Geologist.
REPORTS OF STATE BOARDS.
(Chronological)

REPORTS OF BOARDS OF INTERNAL IMPROVEMENTS & OF PUBLIC WORKS.

58

Report of a Geological Reconnoissance of that part of the State of Missouri adjacent to the Osage River, made to William H. Morell, Chief Engineer of the State, by order of the Board of Internal Improvement, by Henry King, M. D., Geologist, President of the Western Academy of Natural Sciences, etc., etc.; pp. 506–525. <Senate Journal, Appendix, 1st Session, 11th General Assembly, 1840; pp. 458–525.
The Journal gives the proceedings of the meetings from May 6, 1839, to Dec. 29, 1840, showing the appointment of William H. Morell as Chief Engineer of the State, of Commissioners for the Surveys of the North Grand, Salt, Osage and Meramec rivers and the railroad route from St. Louis to the Iron Mountain, and the appointment of Dr. H. King as Geologist of the Osage river survey.

59

The condition of the streams, swamps and morasses in Southeast Missouri at that time is described. The Commissioners found an “ocean of water” from the junction of Castor with Little river, about eight miles wide and extending towards Bloomfield, twenty or thirty miles, and averaging two and one-half feet deep, and this was so matted with “wild corn” that after trying for three days to work their way through in canoes they decided that it was impossible. Their survey was in the part of the State where the earthquake of 1811 was so disastrous.

The report of James S. Williams, Chief Engineer, has a detailed and interesting account of the topography of the Missouri section of the road.


The report of Thomas S. O'Sullivan, engineer and superintendent, on the surveys of the Pacific railroads, is on pages 165–170.


This has reports by Madison Miller, president, and J. B. Moulton, chief engineer.

REPORTS OF THE BOARD OF IMMIGRATION.

(Cronological.)


This was also issued as part of a State publication entitled "Reports Board of Immigration and Commissioner of Statistics, Missouri, 1867," and was prepared at the request of the State Board of Immigration.

65

Board of Immigration.—Missouri, its Progress and Resources, being a part of the Third Biennial report of the Board of Immigration. 11 pp. • Third Biennial Report of the Board of Immigration, Jefferson City, 1871. • Appendix 26th General Assembly, Regular Session, 1871.

66


67

Board of Immigration.—The Agricultural, Manufacturing, Commercial and Geographical Center of the Mississippi Valley, Missouri, the Imperial State, its Wealth and Resources. 1880. 72 pp. • First Biennial report of the State Board of Immigration, January, 1881. Jefferson City, 1881; pp. 21–92. This part of the report was also issued as a separate pamphlet of 48 pages.

REPORT OF COMMISSIONER OF STATISTICS.

68

REPORTS OF THE BUREAU OF LABOR STATISTICS.

(Chronological.)

69

70

In the first article the modes of payment by different coal, lead and iron companies in the State are given on pages 24-38. The second article has much of interest in regard to the methods of operating the various mines of the State; pp. 89-127.

71

72

The second title includes reports for 1883, the first having those which were omitted from the report of the previous year.

73

74

75
This contains Mines and Mining (Mine Inspectors' Reports for 1886), pp. 29–87.

76
This has the act of the Legislature of March 30, 1887, for the appointment of a State Mine Inspector instead of County Mine Inspectors, and of the action of the Bureau in the matter.

77

78

79

80

81
32 BULLETIN, MISSOURI GEOLOGICAL SURVEY.

82


This report is taken up nearly altogether with mining matters.

83


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ANNUAL REPORTS OF THE STATE UNIVERSITY.

(Alphabetical)

84


85


This report describes the minerals found in Phelps county, the committee reporting in favor of locating the school in that county.

86

Read, Daniel.—Address delivered upon the occasion of the formal opening of the School of Mines at Rolla, on the 23d of November, 1871. By Daniel Read, LL. D., President of the University. 12 pp <Report of 1872, pp. 121–132.

87


Maj. J. S. Rollins, as President of the Board of Curators, recommends that the Board be created a Board of Geological and Agricultural Survey, and of Agricultural and Economic Statistics.

88

Schweitzer, P.—Contributions from the Laboratory of the State University. Columbia Chalybeate Spring. The Water Supply of the
Town of Columbia, Boone County, etc., etc., by P. Schweitzer, Ph. D., Professor of Analytical and Applied Chemistry. 10 pp. <Report of 1874, pp. 160-169.

89


This contains reports "On the true Composition of Coal, and on the methods of arriving at it, with deductions and remarks on Coal in general, illustrated on a sample of coal from the Lower Coal series of Missouri," and on "The water supply of Columbia, Boone county, Missouri; being an exposition of the origin of the springs and subterranean Water-courses of the town and neighborhood, with some analyses of cistern water."

90


91


The report contains descriptions and analyses of the soils of Missouri on pages 94-105.

92


The report contains analyses of many Missouri iron ores.

93


94


The subjects treated are: "Commercial Leads of Missouri," "Zine Oxide, or White, Manufactured in Missouri," and "Chemical Study of the Ozark Blast Furnace."

GR—3
WILLIAMS, C. P.—Contributions from the Laboratory of the Missouri School of Mines and Metallurgy. (University of Missouri.) No. IV. 16 pp. <Report of 1876, pp. 197–212.

This contains the following titles: Composition of Missouri Leads; Copper Ores of Shannon County; Some Mineral Species associated with Hematite Ore at Buckland's bank, Phelps county; Metallurgical Products from Mine La Motte; Smithsonite from Dade county; Sweet Springs water, Saline county; Oxide of Zinc prepared from Missouri ores.


REPORTS OF THE BOARD OF AGRICULTURE.¹

(Alphabetical.)


¹The first report of the series was that for 1865. They have been published in German, as well as in English, and a part of them in some other languages.
101

102

103

104

105
About half a page is here devoted to a brief reference to the lead, zinc, coal, iron and other deposits of this section of the State.

106
The mineral advantages are especially considered.

107

108

Refers to existence of coal in the northwestern counties.


This has copy of the resolutions of the State Agricultural Society in 1854 in favor of a Geological Survey. p. 9.

Also, "The Importance of a Scientific Survey," pp. 129-132, in which is given the action of the State Board of Agriculture on the same subject at its meeting December 27, 1865.


This contains a paragraph referring to the existence of coal in the northeastern counties.


The mineral and other resources of the State are detailed.


The connection of Geology with the soils of Missouri is considered.


This copies the resolutions of the State Agricultural Association in 1865 in favor of a Geological Survey.


Analyses of soils are given and the effect of geological formations on soils considered.


Mr. Tice, as Secretary of the Board, here advocates that it should have under it a chemist, a geologist, a metallurgist, etc.


As issued in 1870 the pamphlet contains 67 pages.

COUNTY REPORTS MADE TO BOARD OF AGRICULTURE.

(Alphabetical.)

Among the county reports made to the State Board of Agriculture, and published in the Annual Reports, the following are worthy of note as containing interesting matter relating to the geology, mineralogy or mines.


This includes both the botany and the geology of the county.


"Joplyn" is reported as a mining town only a few months old, and as having two furnaces and from thirty to fifty paying shafts.

PART II.

UNITED STATES GEOLOGICAL SURVEYS.
(Alphabetical.)


This volume contains the following relating to Missouri:
Missouri coal, pp. 230, 280-282; Coke, pp. 401-402; Copper, p. 112; Iron, p. 14; Iron ores, pp. 97-98; Lead, pp. 147-148; Limestones, p. 541; Limonite, pp. 97-98; Manufactured fertilizers, p. 625; Mineral waters, p. 717; Ocher, p. 709; Zinc, p. 155; Other, pp. 18, 282, 98, 533.

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This volume contains the following:
Missouri barites, p. 525; Coal, pp. 11, 35-36; Copper, p. 210; Feldspar, p. 523; Fertilizers, p. 469; Iron, p. 182; Lead, p. 259; Manganese, pp. 346-348; Mineral waters, p. 538; Ocher, p. 528; Missouri zinc company, p. 273.

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This volume contains the following:
Missouri mineral localities, pp. 750-753; Iron, pp. 16 and 46-47; Lead, p. 110; Coal, p. 272; Copper, p. 69; Mineral waters, p. 684; Natural gas, p. 493.

This volume contains the following:
- Brick production, pp. 561, 565;
- Cement from natural rock, p. 551;
- Coal, pp. 171, 199, 200, 285-289;
- Iron, pp. 14, 23;
- Lime, pp. 555, 556;
- Limestone, p. 540;
- Mineral Springs, pp. 627, 630;
- Spelter, p. 92;
- Steel, p. 14;
- Structural material, p. 528.


An account of the Iron Ores of Missouri is given on pages 61-63.


HALL, J.—Letter from Prof. James Hall of New York, containing observations on the geology and palaeontology of the country traversed by the expedition, and notes upon some of the fossils collected on the route. <Exploration and Survey of the Valley of the Great Salt Lake of Utah, including a reconnaissance of a new route through the Rocky Mountains. By Howard Stansbury, Washington, 1853. Appendix E. 399-414.

It would seem from the letter that the specimens below named were collected on the Kansas side of the river, but the locality given in the descriptions would show them to be from the Missouri side of the river, and in one case the...
statement is expressly made that the locality was on the east side. All the species are from limestone of the Carboniferous period from the Missouri river 'near,' 'above' or 'below' Weston, which is in Platte county, Missouri.

*Spirifer triplicata*, page 410, Pl. IV, Fig. 5, a, b, c.

*Nucula arata*, page 413, Pl. II, Fig. 5, a, b.

*Pleurotomaria corunula*, page 413, Pl. II, Fig. 6, a, b, c, d.

*Productus* (sp. indet.) page 411, Pl. III, Fig. 4.

*Terebratula subtilita*, page 409, Pl. IV, Fig. 1, a, b, 2, a, b.

*Spirifer hemiplicata*, page 409, Pl. IV, Fig. 3, a, b.

The following are also figured and redescribed:

*S. octoplicata*? Sowerby (*Spirifer Kentuckyensis*, Shum.), page 409, Pl. IV, Fig. 4, a, b.

*Chonetes variolata*, DeKoninck, page 410, Pl. III, Fig. 1, a, b.

*Productus costatus* (?), Sowerby, page 411, Pl. III, Fig. 2.

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**Humphreys, A. A. and Abbot, H. L.**—Report upon the Physics and Hydraulics of the Mississippi river, etc. Reprinted with Additions. Washington, 1876. 4to. XXIII and 691 pp.

This is No. 13 of the Professional Papers of the Corps of Topographical Engineers of the U. S. Army. It contains the geology of the banks of the river.

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**Long, S. H.**—Account of an expedition from Pittsburg to the Rocky Mountains, performed in the years 1819 and 1820, under command of Major S. H. Long. Philadelphia. 1823. The Atlas accompanying it was issued in 1822.
152
This is Bulletin No. 7 of the U. S. Geological Survey.

153
Information is given in regard to the rocks of the Mississippi and Missouri rivers.

154
Owen, D. D.—Description of the Carboniferous Rocks of Iowa, including that of a Coal-field west of the Mississippi, lying partly in Iowa and partly in Missouri, the extent and limits now for the first time defined in this Report, and laid down on the large Geological Map accompanying it; with descriptions of minute, connected sections, passing in two directions through the heart of this Coal-field; one series along the Valley of the Missouri river; and the other series up the valley of the Des Moines. <Report of a Geological Survey of Wisconsin, Iowa and Minnesota; and incidentally of a Portion of Nebraska Territory. By David Dale Owen. Phil. 1852. 4to.
The above sub-title is Chap. III, pages 90-140.

155
Williams, A. Mineral Resources of the United States. Albert Williams, Chief of Division of Mining Statistics and Technology.
This, the first volume, for 1882, is by Albert Williams, Jr. It contains the following Missouri reports:
Coal of Missouri, pp. 60-61; Lead, p. 312; Nickel of Mine La Motte, p. 403; Missouri Copper, p. 230; Lead and Zinc region of Southwest Missouri, by F. A. Clerk, pp. 368-373; Ores, minerals and mineral substances of industrial importance, reported by John C. Smock; pp. 699-702.
BULLETIN, MISSOURI GEOLOGICAL SURVEY.

156


This volume has: Coal, pp. 51-52; Cobalt, pp. 545-546; Copper, p. 342; Iron ore, pp. 238-270; Lead, pp. 425-427; Lithographic stone, p. 935; Mineral waters, pp. 982-983; Salt, p. 843; Tin, p. 602; Tungsten, p. 574; Zinc, pp. 475-476.

THE UNITED STATES CENSUS REPORT FOR 1880. 4to. (Alphabetical.)

157


This gives a general geological section of the State and a description of the building stone of the different formations.

The above volume also contains a table showing the amount and kinds of rocks quarried in Missouri, at pp. 94-97.

158


Many maps, sections and sketches of Missouri mines are given.

159


160


This contains a map showing the geology of that part of the State where cotton is raised; also descriptions of it in the text.

Chapter x, pp. 94 to 102 relate to Missouri, and the author acknowledges indebtedness to Prof. Swallow for a description of the soils of Missouri, with their geological derivation.


The "Missouri Coal Field" is disposed of in a single short paragraph at page 616.


This contains much relating to the geology of the Missouri streams.


This has a map, sections and descriptions of the Missouri iron ores.

Pumpelly, R.—Directory of Mines and Metallurgical Establishments East of the 100th Meridian, and of the Mines of Bituminous Coal and Lignite in the Western States and Territories. <Vol. XV.

168

**Description of the Lead Mines in Upper Louisiana.** Communicated to Congress by Amos Stoddard, Captain, First Civil Commandant of Upper Louisiana, dated November 8, 1804. 2nd Session, 8th Congress. No. 103. <Vol. I, pp. 188-191.

This describes the number, extent, situation and names of the lead mines, and gives manner of working the mines and smelting the ore.

169


This is a report on the lead mines in the northern part of the territory, or what is now Missouri, by Edward Tiffin.

170


This document also has "Lead Mines and Salines. Report of Moses Austin, Esq., dated Mine a Burton, Washington county, Missouri Territory." <Same volume, page 238 and map.


171


This contains a report from George Bomford, Lieut.-Colonel of the Ordnance Department, in which the lead mines of Missouri are described.

This contains a list of the Salt Springs in Missouri on page 572; also Minerals in Missouri, with history, statistics and titles of the lead mines, on pp. 575–614. The latter includes the report of Moses Austin on the lead mines in Ste. Genevieve, Washington and St. Louis counties, on pp. 609–613.


This is an extended report by Lt.-Col. Bomford, on the manner of mining, kind of ores, situation and extent of mining country in Missouri, with an account of the topography of the country; also Abstract of Leases of Lead Mines in Missouri, by George Graham.

LEAD MINES AND SALT SPRINGS IN MISSOURI. Communicated to the Senate by the Chairman of the Committee on Public Lands, December 27, 1826. 2nd Session. 19th Congress. No. 507. <Vol. IV, pp. 590–591.

This contains lists of lands reserved from sale on account of salt springs.


This is a report by Lt.-Col. George Bomford on the mines of Missouri.


179


180


181


182


183


BARNEY, J.—Survey of route from St. Louis to Fulton, made in 1850 by the Bureau of Topographical Engineers, War Dept. By Joshua Barney, C. E.*


NORTHERN BOUNDARY OF MISSOURI. December 31, 1842. Referred to the Committee on the Territories. 27th Congress, 3d Session. Ho. of Reps., Doc. No. 38, 43 pp.


Also republication with slight revision in 1844 in Senate Doc. No. 407 of 28th Congress.*

This is one of the earliest publications proposing the geological classification of the Missouri rocks.
OWEN.—Report on Chippewa Land District.*
Contains numerous sections of Carboniferous limestone in Mississippi and Missouri Valleys.


This describes the cannel coal of Callaway county.

JOHNSON, W. R.—A Report to the Navy Department of the United States, on American Coals applicable to steam navigation and other purposes. By Walter R. Johnson. Washington. 1844. Senate. 28th Congress. 1st Session. 386.
Contains an analysis of coal from the Osage river, on page 539.

PIKE, Z. M.—Account of Expeditions to the Sources of the Mississippi and through the Western Parts of Louisiana, to the Sources of the Arkansaw, Kans, LaPlatte and Pierre Juan Rivers: Performed by order of the Government of the United States During the years 1805, 1806 and 1807. And Tour through the Interior Parts of New Spain, when Conducted through these Provinces, by order of the Captain-General, in the year 1807. By Major Z. M. Pike. Phila., 1810; 490 pp., 6 maps, 3 folded tables. Portrait.

PIKE, Z. M.—Exploratory Travels through the Western Territories of North America: Comprising a Voyage from St. Louis, on the Mississippi, to the Source of that river, and a Journey through the Interior of Louisiana, and North-eastern provinces of New Spain. Performed in the years 1805, 1806 and 1807, by Order of the Government of the United States. By Zebulon Montgomery Pike,

198


The following species are described:

Chonophyllum Sedaliense, page 157, Pl. 39, Fig. 3a.
Michilinia? placent?, page 157, Pl. 39, Figs. 1a, b, c, d.
M. expansa, page 158, Pl. 39, Figs. 2a, b.
Lithostrotion microstylum, page 159, Pl. 40, Fig. 7a, all from the Chouteau Limestone (Kinderhook division Subcarboniferous Series), Sedalia.
Naticopsis moniliforma, page 168, Pl. 42, Figs. 3a, b, c, Upper Coal Measures, Pleasant Hill.
Pleurotomaria Broadheadi, page 169, Pl. 42, Figs. 1a, b.
Conularia crustula, page 170, Pl. 42, Fig. 4a, both from the Coal Measures, Kansas City.

The following are noticed as found in Missouri:

Zaphrentis calcicola, W. & W. Chouteau limestone at Sedalia.
Rhynchonella Ottumwa, White, St. Louis limestone, various localities.

199


This tour was commenced at St. Louis in 1846.

200

SMITHSONIAN INSTITUTION, ANNUAL REPORTS.

201


Human foot-prints are noticed on pp. 357-359, and accounts of several such Missouri specimens are given.

SMITHSONIAN CONTRIBUTIONS TO KNOWLEDGE.

202


Mentions specimens from New Madrid and from Benton county.

UNITED STATES AGRICULTURAL REPORTS.

203


The geology and fertilizers of Missouri are given on pp. 560-562, and one of the maps includes the State.

204

PART III.
Publications of State Geological Surveys other than that of Missouri.

REPORTS OF THE ARKANSAS GEOLOGICAL SURVEY.


The lead bearing formations of Missouri are described on pp. 105-109.

REPORTS OF THE ILLINOIS GEOLOGICAL SURVEY.


The following Missouri localities are given:
Sphenopterium enormis, M. & W., page 146, Pl 14, Figs. 1a, 1b, Kinderhook group, Clarksville.
Rhynchohella Missouriensis, Shumard, page 153,'Pl. 14, Figs. 4a, 4b, Kinderhook group, Chouteau Springs, and numerous other localities.
Spirifer cooperensis, Swallow, page 155, Pl. 14, Figs. 5a, 5b, same as last.
Streparollus lens, Hall, page 159, Pl. 14, Figs. 7a, 7b, Chouteau limestone in Moniteau and adjoining counties.
Nautilus digonus, M. & W., page 163, Pl. 14, Figs. 9a, 9b, 9c, 9d, from the Kinderhook group at several places in Central Missouri.
Oligoporus Dane, M. & W., page 249, Pl. 17, Fig. 8, from the Keokuk at Fenton, St. Louis county.
Syntrielasma hemiplicata, Hall, page 323, Figs. 37, a and b, Upper Coal Measures, Northern Missouri.
Coscinium plumosum, Prout, page 414, Pl. 22, Figs. 3, 3a, lower beds of St. Louis group, Barretts Station, St. Louis county.
Cyclopom fungia, Prout, page 419, Pl. 22, Figs. 9, 9a, 9b, Keokuk group, St. Francisville.

Describes the following species:

*Striatopora Missouriensis*, page 369, Pl. 7, Fig. 4, from limestone of age of "Shaly limestone," of the New York Lower Helderberg division of the Upper Silurian, Bailey’s Landing, Perry county.

*Zygospira subconcava*, page 380, Pl. 7, Figs. 1a, b, c, d, from limestone of the age of the Delthyris shale of the N. Y. Lower Helderberg, Bailey’s Landing, Perry county.

*Platyceras subundatum*, page 387, Pl. 7, Figs. 13a, b, 14a, b, from limestone representing "Shaly limestone," same locality.

The following localities are also given:

*Comarocystites Shumardi, M. & W.*, page 292, Pl. 1, Figs. 1a, b.

*C. Shumardi var. obconicus, M. & W.*, page 294, Pl. 1, Figs. 2a, b, both from Trenton division of the Lower Silurian at Cape Girardeau.


*Orthis hybrida*, Sowerby? page 371, Pl. 7, Figs. 7a, b, c, d, same as last.

*O. subcarinata*, Hall, page 373, Pl. 7, Figs. 6a, b, c, d, same as last.

*Strophomena (Strophodonta) cavumbona*, Hall? page 374, Pl. 7, Figs. 10a, b, from Delthyris Shaly limestone, Bailey’s Landing.

*Merista levis*, Vanuxem? page 376, Pl. 7, Figs. 8a, b, c, same as last.

*Trematospira? imbricata*, Hall, page 381, Pl. 7, Figs. 2a, b, c, d, e, same as last.

*Cyrtina Dalmani*, Hall, page 383, Pl. 7, Figs. 3a, b, same as last.

*Spirifer perlamellosus*, Hall, page 384, Pl. 7, Figs. 9a, b, same as last.

*Platyceras spirale*, Hall, page 389, Pl. 7, Figs. 12a, b, c, Lower Helderberg, Bailey’s Landing.

*P. (Orthonychia) pyramidatum*, Hall? page 389, Pl. 7, Fig. 11, same as last.

*Acidaspis hamata*, Conrad, page 390, Pl. 7, Fig. 10, same as last.


Describes the following species:

*Cladodus spinosus*, page 22, Pl. I, Figs. 3, 3a.

*C. ferox*, page 26, Pl. I, Figs. 11, 11a.

*Ctenanthes tenacanthus? costatus*, page 120, Pl. XII, Fig. 2.

*C. gracillimus*, page 126, Pl. XIII, Fig. 3.

*Dactylodus princeps*, page 45, Pl. III, Figs. 6, 6a, 6b.

*Deiotos rhomboideus*, page 100, Pl. IX, Fig. 8.

*Homacanthus gibbosus*, page 113, Pl. XII, Fig. 1.

*H.? recusus*, page 115, Pl. XII, Fig. 6.

*Leptocanthus? occidentalis*, page 116, Pl. XII, Fig. 2.

*Orodus plicatus*, page 63, Pl. IV, Fig. 5, all from the St. Louis Limestone at St. Louis.
Helodus consolidatus, page 87, Pl. VI, Figs. 1, 1a, 2, 2a, from the Keokuk Limestone, St. Francisville.


The following species are described:
Cladodus ischypus, page 354, Pl. IV, Figs. 6, 6a.
C. elegans, page 354, Pl. IV, Fig. 9.
Polyrhizodus Littoni, page 357, Pl. IV, Figs. 10, 10a.
Sandalodus crassus, page 369, Pl. IV, Figs. 3, 3a, all from the St. Louis Limestone, St. Louis.
Deltodus Littoni, page 367, Pl. IV, Figs. 8, 8a, from Lower Carboniferous Limestone, Boone county.
Dalmanites tridentiferus, Shumard, page 391, Pl. 7, Fig. 16, Shaly Limestone, Bailey's Landing.
'Platyceras ? reversum, Hall, page 508, Pl. 15, Figs. 4a, b and annexed cut, Burlington group, at Boonville.
Productus magnus, M. & W., page 528, Pl. 20, Figs. 7 a, b, c, Keokuk of St. Genevieve county.


This describes:
Myalina St. Ludovici, Worthen, page 540, Pl. 22, Fig. 3, from the St. Louis Limestone at St. Louis.
It also has description and figure of
conularia Missouriensis, Swallow, page 541, Pl. 22, Fig. 5.


In Chapter III, on Sub-carboniferous Limestone, there are frequent references to the groups of this division in Missouri.


The following Missouri species are described:
Cladodus eccentricus, page 272, Pl. 4, Fig. 4.
C. englypheus, page 273, Pl. 14, Figs. 1–3.
Desmiodus tumidus, page 339, Pl. Xa, Figs. 7–9.
D. castelliferus, page 341, Pl. Xa, Figs. 10, 11.
Venustodus Leidy, page 350, Pl. IX, Figs. 1–4.
Harpacodus occidentalis, page 355, Pl. Xa, Fig. 2.
Chomatodus inerassatus, page 359, Pl. X, Fig. 18.
Lisgodus selluliformis, page 366, Pl. Xa, Fig. 16.
Tanaodus Prumantius, page 371, Pl. XI, Figs. 6-10.
T. sculptus, page 373, Pl. XI, Figs. 20-23.
Polyrhizodus amplus, page 387, Pl. XIII, Fig. 13.
Petalorhynchus pseudosagittatus, page 405, Pl. XII, Figs. 1-4.
P. distortus, page 406, Pl. XII, Figs. 7, 8.
Potodus quadratus, page 410, Pl. XIII, Figs. 6, 7.
Ctenacanthus pujiunculus, page 430, Pl. XXII, Fig. 9.
Asteroptychius St. Ludovici, page 437, Pl. XVI, Figs. 3, 4.
Geisacanthus stellatus, page 440, Pl. XXI, Fig. 10.
Drepanacanthus reversus, page 456, Pl. XIX, Figs. 5, 6.
Erismacanthus McCoyanus, page 461, Pl. XXII, Figs. 1-5.
Amacanthus gibbosus, page 464, Pl. XXII, Fig. 6.
Marracanthus rectus, page 466, Pl. XXII, Figs. 7-9.
Gampsacanthus typus, page 472, Pl. XXII, Fig. 12.
G. squamosus, page 473, Pl. XXII, Fig. 13.
Leccracanthus unguiculus, page 476, Pl. XXII, Figs. 10, 11.
Oracanthus consimilis, page 478, Pl. XXII, Fig. 15, all from the St. Louis Limestone at St. Louis.
Lambodus costatus, page 280, Pl. V, Fig. 3.
Desmiodus ligoniformis, page 342, Pl. Xa, Figs. 12-14.
D? flabellum, page 343, Pl. Xa, Fig. 15.
Lisgodus curtus, page 364, Pl. Xa, Figs. 20-22.
Polyrhizodus Williamsi, page 384, Pl. Xa, Fig. 23; Pl. XIII, Fig. 11.
Physonemus parvulus, page 453, Pl. XVIII, Figs. 11, 12.
Gampsacanthus? latus, page 474, Pl. XXII, Fig. 14, all from the Keokuk at Boonville.
Venustodus tenuicristatus, page 348, Pl. IX, Figs. 19-24, from the Keokuk at St. Francisville and Boonville.
Ctenacanthus Keokuk, page 427, Pl. XV, Figs. 8, a, b, c, d, e, from the Keokuk at Boonville and LeGrande.
C. excavatus, page 428, Pl. XV, Figs. 4, 5, from the Keokuk at LeGrande.
Batacanthus baculiformis, page 469, Pl. XXI, Figs. 4-8, from the Keokuk at LeGrande and St. Francisville.
Lambodus calceolus, page 281, Pl. V, Fig. 5, from the Keokuk at LeGrande.
Chomatodus parallelius, page 358, Pl. Xa, Figs. 3, 4, from the Warsaw beds at Boonville.


The following Missouri species are described:
Cochlidius Van Hornii, page 120, Pl. VII, Figs. 1-10.
C. obliquus, page 126, Pl. VII, Fig. 17.
Copodus Van Hornii, page 229, Pl. XX, Figs. 2, 3.
Deltodopsis St. Ludovici, page 161, Pl. XI, Figs. 2-6.
Deltodorus parvus, page 151, Pl. IX, Figs. 1-5.
Physonemus falcatus, page 252, Pl. XXIV, Fig. 6.

Pecilodus St. Ludovici, page 132, Pl. VIII, Figs. 8, 12.

Psammodus plenus, page 213, Pl. XVI, Figs. 1-4; Pl. XVII, Figs. 1-4.

Psephodus latus, page 72, Pl. II, Figs. 1, 3.


Xystrodus imitatus, page 180, Pl. VIII, Fig. 2, all from the St. Louis Limestone at St. Louis.

Deltodus cinctulus, page 146, Pl. IX, Figs. 6, 7, from the Warsaw beds at Barrett's Station.

Deltoptychius Wachsmuthi, page 93, Pl. V, Figs. 1-5, from the Keokuk at Boonville.

The following species are also figured:

Ctenacanthus gracillimus, N. & W.

Drepanacanthus reversus, St. J. & W.

Oracanthus vetustus, Leidy.

Sandalodus spatulatus.

Stenopterodus parvulus, N. & W. all from the St. Louis Limestone at St. Louis.

Orthopleurodis carbonarius, N. & W. Upper Coal Measures of Mo.

Sandalodus laceissimus, N. & W. Keokuk at Boonville.

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REPORTS OF THE IOWA GEOLOGICAL SURVEY.

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There are numerous references to the geology of Missouri in accounts of the Chemung Group, Burlington Limestone, St. Louis Limestone, Coal Measures, and in many other parts of the work.

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Describes the following species:

Athyris incrassatus, page 600, Pl. XII, Fig. 6, from the Burlington Limestone at Hannibal.

Archaeocidaris Wortheni, page 700, Pl. XXVI, Figs. 4a-g, from the St. Louis Limestone near St. Louis.

Forbesiocrinus Giddingsi, page 633, Pl. XVII, Figs. 2, 4, from the Keokuk Limestone ? at Boonville.

F. Shumardianus, page 671, Pl. XVII, Fig. 1, from the St. Louis Limestone at St. Louis.

Orthis Michelina var Burlingtonensis, page 506, Pl. XII, Figs. 4a, b, from the Burlington Limestone at Hannibal.

G R—5
O. Swallovi, page 597, Pl. XII, Figs. 5a, b, from the Burlington Limestone at numerous localities.

Pentremites bipyramidalis, page 607, Pl. XV, Fig. 2, from the Keokuk Limestone, State of Missouri.

Productus pyxidatus, page 498, Pl. III, Figs. 8a–e, from calcareous shale and limestone of the age of the Hamilton group at Louisiana.

P. Shumardianus, page 499, Pl. III, Fig. 9, and Pl. VII, Fig. 1, same formation as last at Clarksville.

P. ovasus, page 674, Pl. XXIV; Fig. 1, from the St. Louis Limestone at St. Louis.

Poteriocrinus Missouriensis, page 669, Pl. XVII, Figs. 7 a, b, from the St. Louis Limestone at St. Louis.

Platycrinus Sarus, page 673, Pl. XVII, Fig. 4, from the St. Louis Limestone near St. Louis.

Scaphiocrinus dactyliformis, page 670, Pl. XVII, Fig. 6, from the St. Louis Limestone, St. Louis.

Synbathocrinus Swallovi, page 672, Pl. XVII, Figs. 8, 9, from the same.

The following species are given as found in Missouri, a part of the figures being of Missouri specimens. All of the species are figured except the last:

Lithostrotion mamillare, E. & H.

Orthis Vanuxemi, Hall.

Productus marginicinctus, Prout.

P. costatus var.

Pleurotomaria sphæralata, Con.

Spirifer Marionensis, Shum.

S. cameratus, Morton.

Terebratula subtilita, Hall.

REPORTS OF THE OHIO GEOLOGICAL SURVEY.

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The following species, which have been described from Missouri, are compared with or made synonyms of other species in the Waverly group:

Allorisma Hannibalensis, Shum.

Avicula Cooperensis, Shum.

Grammysia Hannibalensis, Shum.

Spirifer (Crytia?) Hannibalensis, Swallow.

S. Osagensis, Swallow.

Spirigeria Hannibalensis, Swallow.

See also:

Productus ——— .

Spirifer (Trigonotreta) opimus, Hall.

The following Missouri species are described:

*Alethopteris ambiguа*, page 182, Pl. XXXI, Figs. 1-4, Clinton.
*Asterophyllites fasciculatus*, page 41, Pl. III, Figs. 1-4, Clinton.
*Callipteridium membranaceum*, page 172, Pl. XXVII, Fig. 4-8, Clinton.
*Conostichus Broadheadi*, page 15, Pl. B, Figs. 1-2, from shale near the base of the Coal Measures, Vernon county.
*C. prolifer*, page 16, Pl. B, Fig. 3, same locality.
*Cordaites dichotomus*, page 546, Pl. LXXXVI, Figs. 6, 6b, Clinton.
*Eremopteris Missouriensis*, page 295, Pl. LIII, Figs. 8, 8a, Clinton.
*Lepidodendron Brittsii*, page 368, Pl. LXIII, Figs. 1, 2, Clinton.
*L. lanceolatum*, page 369, Pl. LXIII, Figs. 3-5a, Clinton.
*L. cyclostigma*, page 394, Pl. LXIII, Fig. 5, Clinton.
*L. scutatum*, page 369, Pl. LXIII, Figs. 6-6c, Clinton.
*Lepidophloios sigillarioides*, page 425, Pl. LXVIII, Figs. 8, 8a, Clinton.
*Neuropteris Missouriensis*, page 104, Pl. VIII, Figs. 5, 6, Clinton.
*Odontopteris sphenopteroides*, page 139, Pl. XXI, Figs. 3, 4, Clinton.
*Pecopteris Clinsoni*, page 251, Pl. XLIII, Figs. 1-5b, Clinton.
*Rhacophyllum membranaceum*, page 312, Pl. LVIII, Figs. 1, 2, Clinton.
*R. spinosum*, page 320, Pl. LVIII, Figs. 4, 5, Clinton.
*R. hamulosum*, page 321, Pl. LVIII, Fig. 3, Clinton.
*Sordiodendro ophioglossoides*, page 329, Pl. XLVIII, Fig. 11, Clinton.
*Sphenopteris Brittsii*, page 277, Pl. LV, Figs. 2, 26, Clinton.

The following species are also noticed, mostly from Clinton, and many of them have Missouri specimens figured:

*Alethopteris Serlii*, Brgt.
*Callipteridium Sullivanti*, Lesqx.
*Cordaites communis*, Lesqx.
*C. diversifolius*, Lesqx.
*Dictyopteris obliquа*, Bunb'y.
*Lepidoxylon anomalum*, Lesqx.
*Megaphytum Goldbergii*, Weiss.
*Neuropteris angustifolia*, Brgt.
*N. Clarksonii*, Lesqx.
*N. cordata*, Brgt.
*N. dilatata*, Ll. & Hutt.
*N. Loschii*, Brgt.
*N. rariferis*, Bunb'y.
*Pecopteris dentata*, Brgt.
*P. erosa*, Gutb.
P. penniformis, Brgt.
Pseudopecopteris irregularis, St.
Rhacophyllum filiciforme (Gutb.), Schp.
R. hirsutum, Lesq.
R. fimbriatum, Lesq.
R. lacteac, Sternb.
Sphenophyllum filiculme, Lesq.
S. longifolium, Germ.
S. oblongifolium, Germ.
Sphenopteris Dubuissonis, Brgt.
S. Gavenhorstii, Brgt.
S. mixta, Schp.
S. (Hymen.) splendens, Lesq.
S. (Hymen.) tridactylites, Brgt.
Taonurus Colletti, Lesq.
PART IV.
Publications of Scientific Societies and Periodicals.

ALBANY INSTITUTE TRANSACTIONS.

218


The fossils described are from Spergen Hill and Bloomington, Indiana. The different beds of the Sub-carboniferous are stated, and localities in Missouri and other parts of the West are given. This paper, with additions by Prof. Whitfield, was republished in Bulletin No. 3 of the American Museum of Natural History, New York.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE PROCEEDINGS.

219


220

KING, H.—Some Remarks on the Geology of the State of Missouri. By Dr. H. King, of St. Louis. 18 pp. <5th Meeting, 1851, page 182.
221


222


There is a discussion of this paper in "Science," Sept. 7, 1883.

223


224


225


The paper refers to a map as accompanying it, but this was not found in the copies examined.

226


227

— Grape Culture in Missouri. 15 pp. 1 plate. <12th Meeting, 1858, page 268.

228

— Remarks on the Geological Map and Section of the Rocks of Missouri. Abstract. 1 page. <20th Meeting, 1871, page 262.

229


AMERICAN CHEMICAL SOCIETY TRANSACTIONS.


AMERICAN EXCHANGE AND REVIEW.


AMERICAN GEOLOGIST.


AMERICAN INSTITUTE OF MINING ENGINEERS TRANSACTIONS.


This was also published in the Engineering and Mining Journal.


This has account of the Specular iron ores of Missouri.


Wait, C. E.—Note on the New Chemical Laboratory of the Missouri School of Mines. By Professor Charles E. Wait, Rolla, Missouri. 5 pp., 3 Figs. <Vol. XV., page 21.

This was also issued as a pamphlet. Rolla, June, 1886, 14 pp., 16mo.


The ore noticed was from Hopewell, Washington County.

American Journal of Science and Arts.


260

ANONYMOUS.—Cobalt in Missouri. (Copied from New Harmony Gazette.) 1 page. <Vol. XII, page 378.

261
—Belcher’s Artesian Well in St. Louis. (From the St. Louis Republican.) 3 pp. <Vol. XV, Second Series, page 460. 1853.

262


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268

—On Barite Crystals from the Last Chance Mine, Morgan County, Missouri; and on Goethite from Adair County, Missouri. 2 pp. <Vol. XIII, Third Series, page 419. 1877.


DANA, J. D.—On Dr. Koch’s Evidence with regard to the Contemporaneity of Man and the Mastodon in Missouri. By James D. Dana. (Article and note.) 12 pp. and 1 page. <Vol. IX, Third Series, pages 335 and 398. 1875.

This was reprinted in Pop. Sci. Rev. Vol. XIV, pp. 278-290.


This has a cut of the Koch Mastodon from Missouri, now in the British Museum.

This notices the remains of a Palæotherium found "in the territory near St. Louis," but instead of having been found near St. Louis, it was found in the Northwest on the Upper Missouri.


Notice of "Observations upon the rocks of the Mississippi Valley which have been referred to the Chemung Group of New York, together with descriptions of new species of fossils from the same horizon at Burlington, Iowa: by C. A. White and R. P. Whitfield."  4 pp.  <Vol. XXXIII, Second Series, page 422.  1862.


This gives Benton county as one of the localities where this fossil has been found.


FLINT.—Earthquakes on the Mississippi; extracted from the travels of Mr. Flint. <Vol. XV, page 366.
293

294

295
HALL.—Remarks upon the Genus Archimedes or Fenistella from the Carboniferous Limestones of the Mississippi Valley. 2 pp. <Vol. XXIII, Second Series, page 203.

296

Notices the mastodon remains of the Koch collection, and gives his conclusion that the genus "Tetracaulodon," founded on them, was not good. His paper showing this had been published in his Medical and Physical Researches, page 257, and in Jameson's Edinburg Journal.

297

This describes
Orycterotherium Missourense, page 69, Pl. I, Figs. 1 to 18; Pl. II, Figs. 1 to 5; Pl. III, Figs. 1 to 9, from the Pomme de Terre, Benton county.

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299


This is an account of the Koch collection.


This is part of an article continued from page 187 of the same volume. The part here given notices the magnesian limestones of Missouri.


The rocks of Missouri are considered on page 207.


A description with plate is given of the Taney County meteorite.


Locke.—The lead regions of the Upper Mississippi, with remarks on the geology of the west. By Prof. — Locke. 3 pp. <Vol. XLII, pages 147-149. 1842.


The above is in an abstract of the Proceedings of the Fourth Session of the Association of American Geologists and Naturalists.


This describes Melonites multipora, page 225, Figs. 1, 2, 3.


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The author of this paper holds to the equivalency of the Chemung, Marshall, Ohio, Rockford, Burlington and Chouteau strata, and that they are all Carboniferous.

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AMERICAN MUSEUM OF NATURAL HISTORY BULLETIN.

326

The following species are given as found at Boonville, and are figured:

Pentremites conoideus, Hall.
Orthis dubia, Hall.
Athyris trinucleus, Hall.
Terebratula turgida, Hall.
AMERICAN MINERALOGICAL JOURNAL.

327

AMERICAN NATURALIST.

328

329

330

331

332

Gives an account of the statements of Dr. Koch in regard to finding flint implements with the mastodon remains in Missouri.

333

Notice of a paper read by Mr. G. C. Broadhead before the St. Louis Academy of Science in October, 1870, on "Notes on the Geology of Cole County, Missouri."

This describes the character of the formation as found in Iowa, Illinois and Missouri.


Prof. Swallow states that he has been using Missouri coal which was fully equal to the “Block coal” of Indiana.

AMERICAN PHILOSOPHICAL SOCIETY PROCEEDINGS.

342

343
HAYS.—Remarks of Dr. Hays on a collection of fossil bones, chiefly of the Mastodon, brought to the city by Mr. Albert Koch, of St. Louis. 2 pp. <Vol II, page 102.

344
—Remarks of Dr. Hays on three papers recently read to the Geological Society of London, relative to the Mastodontoid animals in the collection of Mr. Koch. 3 pp. <Vol. II, page 264.

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The following species are described:

*Cordaites communis,* page 320, no fig.
*C. diversifolius,* page 320, Pl. XLVIII, Figs. 3, 3a. (Second Geological Survey of Pennsylvania, Vols. I, II and III, page 535; Plate LXXVII, Figs. 3, 3a.)
*Lepidoxylon anomalous,* page 334, Pl. LIV, Fig. 5; Pl. LV, Figs. 1, 1a, all from the Lower Coal Measures at Clinton.

The descriptions refer to plates and figures, but these were not published with the article.

AMERICAN PHILOSOPHICAL SOCIETY TRANSACTIONS.


Also in Medical and Physical Researches, page 344. 1835. This title is a mistake. The specimens were from the Upper Missouri, and not the State of Missouri.

HORNER, W. E.—Remarks on the Dental System of the Mastodon, with an account of some Lower Jaws in Mr. Koch’s Collection, St. Louis, Missouri, where there is a solitary Tusk on the right side. By W. E. Horner, M. D., Professor of Anatomy in the University of Pennsylvania. 7 pp. <Vol. VIII, N. S., page 53.


This describes Ctenoptychius digitatus, page 90, Pl. V, Fig. 27, from the Carboniferous Limestone near St. Louis.

BOSTON SOCIETY OF NATURAL HISTORY PROCEEDINGS.

354

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356

This contains a notice of a hemipterious insect from Kansas City, the first discovered in rocks older than the Tertiaries.

357

The following Missouri species are described:

Ambocolia (Spirifer ?) minuta, page 26, from Hannibal.
Streptorhynchus lens, page 28, and
Gonetes geniculata, page 29, from Clarksville, all from beds equivalent to the Chemung.

358
WHITE, C. A. & WHITFIELD, R. P.—Observations upon the Rocks of the Mississippi Valley which have been referred to the Chemung Group of New York, together with Descriptions of New Species of Fossils from the same Horizon at Burlington, Iowa. By C. A. White and R. P. Whitfield. 18 pp. <Vol. VIII, page 289.

CAMBRIDGE MUSEUM OF COMPARATIVE ZOOLOGY BULLETIN.

359

The crystalline rocks of Missouri are noticed on page 482.

The title page indicates that this had previously been published in the Transactions of the Chicago Academy, but such was not the case, as will be seen by the next entry. The title page states the year of publication as 1859, but the author gives it in the subsequent paper as 1860.

The following species are described:
- Orthis Richmonda, page — from 12 ms. nw. of Richmond.
- O. Pratteni, page — from Charbonier.
- Productus Wilberanus, page 36 (Trans. 1865, page 26, Pl. I, Fig. 8), from Charbonier.
- Athyris differentis, page —, from Charbonier and Richmond.
- Edmondia concentrica, page 55 (Astartella concentrica, Trans. 1865, page 43, Pl. II, Fig. 21), from Charbonier.
- Myalina Swallovi, page 57 (Trans. 1865, page 41, Pl. II, Figs. 6a, b, from Charbonier and 12 ms. nw. of Richmond.
- Discina capuliforma, page 72 (D. capuliformis, Trans. 1865, page 23, Pl. II, Fig. 20), from 12 ms. nw. of Richmond, all from the Coal Measures.
- Actinocrinus tenuisculptus, page 15 (Trans. 1865, page 11, Pl. V, Fig. 1), from the Burlington at Columbia.
- Athyris ultrarvarica, page —, from the Keokuk at Ste. Genevieve.


See remarks under preceding number. Part of the species of that pamphlet are described again and figured as stated in the preceding number.

Hemipronites erassus, M. & H. is figured from the Coal Measures at Richmond, and Edmondia concentrica is changed to the genus Astartella.
CINCINNATI SOCIETY OF NATURAL HISTORY JOURNAL.

362


Describes the following species:
- *Platycrinus Bloomfieldensis*, page 257.
- *Codaster gratiosus*, page 257.
- *Strotoconus Bloomfieldensis*, page 258, Pl. XV, Figs. 6, 6a, all from the cherty beds of the Keokuk at New Bloomfield.

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This has additional description and figure of *Strotoconus Bloomfieldensis*, page 76, Pl. I, Fig. 6.

364


This describes:
- *Gaurocrinus splendens*, page 230, from the Trenton Group (?) at Cape Girardeau.

365


The following Missouri species are described:
- *Uloconus Brittsi*, page 7, Pl. I, Figs. 5, 6.
- *U. Kansasensis*, page 8, Pl. I, Figs. 7, 8, 9, 10.
- *Dolocrinus Missourensis*, page 14, Pl. II, Figs. 8, 12, 13.
- *Æsioconus magnificus*, page 15, Pl. II, Figs. 1, 2, 3, 4, 5.
- *Æ. Harii*, page 16, Pl. III, Fig. 1.
\textit{E. basiliscus}, page 53, Pl. IX, Figs. 4, 5, 6, all from the Upper Coal Measures at Kansas City.

\textit{Delocirinus hemisphericus}, Shumard, from Kansas City, is figured on Pl. II, Figs. 8, 9, 10.

The following new descriptions are given:

Family \textit{Eupachycrinidae}, page 3.


" \textit{Delocirinus}, page 9.

" \textit{Aesiocrinus}, page 14.

The above abstract is of the entire paper as published in pamphlet form.

The Journal at the date given contained only the first 25 pages and 4 plates.


\textit{Rhombopora crassa}, page 28, Pl. I, Figs. 2, 2a, 2b.

\textit{Fistulipora carbonaria}, page 45, Pl. III, Figs. 1, 1a, both from the Upper Coal Measures at Kansas City.

\textbf{Denison University, Bulletins of the Scientific Laboratories.}


Descriptions are given of several species of trilobites which were described from Missouri types, and the name \textit{Proetus Missouriensis}, Shum., is changed to \textit{Phillipsia Shumardi}, page 58, and page 69, Plate VII, Fig. 14.

\textbf{Geological Magazine.}


GEOL0GICAL SOCIETY OF PENNSYLVANIA TRANSACTIONS

370


Contains description of Bos Pallasi, De Kay, from New Madrid.

371


This gives a list of 49 species of fossils found in the “transition strata, including the mountain limestone of the English geologists.” The author gives some other names in addition to the numbered list, and states that there are many other fossils, but that he had not yet determined them.

HUNT'S MERCHANTS' MAGAZINE.

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KANSAS ACADEMY OF SCIENCE TRANSACTIONS.

377

This has notes on the geology of the adjoining parts of Missouri.

KANSAS CITY REVIEW OF SCIENCE AND INDUSTRY.

378

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380

Notices an oil-bearing sand at 1645 feet, at Big Shanty, south of Bradford, Missouri.

381

382


This contains an account of oil and bitumen in Western Missouri.


This notices the different Missouri meteorites.


Several of the Missouri fossils described by Dr. White in these Contributions were sent to him by Prof. Broadhead, who here adds some facts in regard to them and their geology.

An account is given of the Mastodons found near Sedalia by Mr. R. A. Blair.


This gives an account of the old geological and other maps of the State.


An account is given of the different chert-beds of Missouri.


The reports of the different explorers who traveled in Missouri are noticed.


This describes the formation in which the lead and zinc of Southwest Missouri are found.


Describes the section of the St. Louis Insane Asylum well.
SPENCER, J. W.—The Ancient Mississippi and its Tributaries. J. W. Spencer, Professor of Geology in the State University of Missouri. 7 pp. <Vol. VI, No. 11, pp.——.


LYCEUM OF NATURAL HISTORY OF NEW YORK ANNALS.


Describes the following:

Bos Pallaissii, page 280, Pl. C, from New Madrid.


THE MINING MAGAZINE OF WM. J. TENNEY, NEW YORK.

"MINING AND STATISTICAL MAGAZINE," Thomas McGrath; and "MINING MAGAZINE AND JOURNAL OF GEOLOGY," T. P. Blake.

The two latter magazines were successors to the first.

ANONYMOUS.—Manufacture of Iron at St. Louis. (Communication to St. Louis Republican.) <Feb. 1860, pp. 312-313.

The cost of production of iron at Iron Mountain and Pilot Knob is given.


— Reported Discovery of Gold Mines in Missouri. <Vol. I, Second Series, pp. 406-407. March, 1860. Notice of mines then reported found in Madison County, which, according to Koch, produced ore worth over $100,000 per ton.


WESTERN JOURNAL.—Iron and Zinc. Iron Mountain Region, Mo. 3 pp. (Copied from Western Journal.) <Vol. V. No. 1, July, 1855.

Extracted from the Geological Survey of Iowa, Vol. I. A few references to Missouri, but mostly Iowa and other northern places.

MINES, METALS AND ARTS, OF ST. LOUIS, J. E. WARE, EDITOR.

The following list of articles from the above publication has been furnished by Prof. Broadhead: (*)

1874.

May 7—Simpson’s Coal and Lead Mines. Editorial.
May 14—How is the interest in Missouri Iron property to be restored? Editorial.
do. P. H. Schneider’s Granite Quarries.
May 28—School of Mines.—Granby Mines. Editorial.
July 9—Developing Lead and Zinc. “Musquito.”
do Fire Brick. Edit.
July 30—Missouri Mines.
Aug. 20—Several items Missouri mines. Edit.
Aug. 27—Dade county Zinc. Edit.
Sept. 3—Old Mines Conception. D. Bauman.
Lincoln county coal Edit.
Nov. 5—S. E. Mo. Lead Mines. D. Bauman.
Dec. 12—S. W. and S. E. Mo. Mines.
do Missouri Ores and Mines. Edit.
Dec. 3—Missouri Mines.
Dec. 10—Missouri Mining Interests.—Mo. Geol. Survey. Edit.
Dec. 17—Jasper county Mining Items. Edit.
   do. Iron and Copper in Missouri. R. S. Elliott.

1875.

Jan 14—Dade county Mines.
Jan. 21—Central Missouri Lead Mines—Linn Creek Mines.
   do. Mining Regions, S. W. Mo. W. S. Guy.
March 25—Missouri Mining Items.
April 1—S. W. Mines and Furnaces—Iron Ores. Edit.
April 8—Iron interests and Lead. Edit.
April 27—Pettis and Pulaski counties mines. Correspondence. Mines and
   furnaces in Missouri. Edit.
May 6—Johnson county Iron Ore.
May 27—Mine La Motte. Mining Industries in Missouri.
June 3—Mines S. E. Mo. Edit.
June 24—Missouri Mines.
Aug. 10—Mines S. W. and S. E. Mo. Edit.
Sept. 16—Mo. Lead Mines—Discoveries of Lead in Missouri and Mine La
Sept. 23—Ste. Genevieve Copper Mines.—Missouri Lead Mines.
Oct. 21—S. W. Mo. mines.
Nov. 4—Grantby Mines.
Nov. 25—Missouri Gold. C. F. Williams and Edit.
Dec. 16—Desloge Mines, Southeast Missouri.

1876.

Jan. 6—Iron Mountain and Irondale furnaces. Missouri Gold Field.
March 2—Zinc production in Missouri. Lead in S. W. Missouri. Annual
   production of lead in Mo. E. A. Casswell and Ed.
April 13—Lead in Missouri. Ed. Dunscomb.
June 1—S. W. Mo. Mines.
June 22—Desloge Mines.
June 29—Dade county mines.
Sept. 7—Joplin and Grantby.
Oct. 19—S. E. Mo. mines.

1877.

Jan. 25—Lead discoveries at Grantby. Production of lead.
June 14—S. E. Mo. Mines.
July 12—Missouri mines.
Oct. 15—Missouri mines.
Dec. 20—Lead interest in Missouri.
1878.

Jan. 10—Production of mines.

Also the following papers by Prof. Broadhead:
Physical Geography Mississippi Valley. Feb., 1876.
Iron Ores Carboniferous Age. Feb. 25, 1875.
Geological Notes S. E. Mo. Reynolds Co. March, 1876.
Area and Topographic features S. W. coal field. 1874.
Meteoric Iron in Mo. Sept. 19, 1875.
Meteoric Iron, referring to Dr. Shumard’s notes. Oct. 14, 1875.
St. Joe Mines, S. E. Mo. Oct. 21, 1875.
Drift formation and Gold in Mo. Dec. 9, 1875.
Mines of Morgan and Benton Co. July 29, 1875.
Coal S. W. Mo. Dec. 20, 1877.
Bituminous shales. Feb. 15, 1877.

NEW YORK ACADEMY OF SCIENCE—ANNALS.


The Carboniferous formations of Missouri are noticed. Descriptions and notices of the following species from the State are given:
*Proetus Missouriensis*, Shumard, page 75, Pl. III, Fig. 1, from the Lithographic Limestone (Waverly series) at Hannibal, Louisiana and Chouteau Springs.
*Phillipsia major*, Shumard, page 85, Plate III, Fig. 14, from the Upper Coal Measures, Clinton County and Kansas City.
*P. Meramecensis*, Shumard, page 86, Pl. III, Fig. 15, from the Archimedes limestone (Chester series), Fenton, St. Louis county.

NEW YORK ACADEMY OF SCIENCE TRANSACTIONS.


This describes the following species:

Phillipsia Sampsoni, page 24, figure, from the Waverly Series (Chouteau Limestone).

Griffithides (?) Sedaliensis, page 24, from the Waverly Series (Chouteau Limestone), both at Sedalia.

NORTH AMERICAN REVIEW.


PHILADELPHIA ACADEMY NATURAL SCIENCE JOURNAL


The following Missouri species is described:

Oracanthus vetustus, page 1. Plate — from Missouri Territory, exact place no known.

The following are described:

Productus Rogersii, page 9, Pl. I, Fig. 3, a, b, c, Huntsville.
P. splendens, page 11, Pl. I, Fig. 5, a, b, c, d, 6 miles west of Richmond.
P. muricatus, page 14, Pl. I, Fig. 8, a, b, c, d, e, 6 ms. nw. of Richmond.
P. Portlockianus, page 15, Pl. I, Fig. 9, a, b, c, Charboniere.
P. Prattenianus, page 17, Pl. I, Fig. 10, a, b, c, d, 85 ms. nw. of St. Joseph.
P. Hildrethianus, page 18, Pl. I, Fig. 11, a, b, c, Charboniere, all from the Coal Measures.
P. elegans, page 13, Pl. I, Fig. 7, a, b, c, from the Mountain Limestone near Hat Island.
Missouri localities of various other species are also given.

436

—Notice of the genus Chonetes, as found in the Western States and Territories, with descriptions of eleven new species. 8 pp. 1 plate. <Vol. III, page 23, Second series. 1854.

Describes the following species:

Chonetes Flemingii, page 26, Pl. II, Fig. 5, a, b, c, d, e, from 10 ms. nw. of Richmond.
C. Verneuiliana, page 26, Pl. II, Fig. 6 a, b, c, and
C. mesoloba, page 27, Pl. II, Fig. 7, a, b, c, from the Coal Measures at Charboniere.
Missouri localities are also given of other species.

437

—Notice of Fossils from the Carboniferous Series of the Western States, belonging to the genera Spirifer, Bellerophon, Pleurotomaria, Macrocheilus, Natica and Loxonema, with descriptions of eight new characteristic species. 7 pp. 1 plate. <Vol. III, page 71, Second series. 1854.

This describes:

Spirifer spinosus, page 71, Pl. IX, Fig. 1, a, b, c, d, from the Mountain Limestone of Missouri opposite Hat Island.

438

PHILADELPHIA ACADEMY NATURAL SCIENCE PROCEEDINGS.

439

440

441

Gives analysis of earthy barite from St. Louis.

442
LEEDS.—Remarks concerning a great elevation of temperature in an adit level of a lead mine in Missouri, by Prof. Leeds. 2 pp. <1874. Part II, page 145.

443

Describes from Missouri:
Productus magnus, page 142, no fig. (Illinois Survey, Vol. III, page 528, Pl. 20, Figs. 7a, b, c), Keokuk Limestone, Ste. Genevieve county.

444
— Descriptions of New Species of Crinoidea, &c, from the Paleozoic rocks of Illinois and some of the adjoining States. 13 pp. <1865, No. 3, page 143.

Describes the following:
Comarocystites Shumardi, page 143, no fig. (Illinois Survey, Vol. III, page 292, Pl. I, Fig. 1a, b).
C. Shumardi var obconicus, page 144, no fig. (Illinois Survey, Vol. III, page 294, Pl. I, Figs. 2a, b), both from the Trenton Limestone at Cape Girardeau.

Describes the following:

*Evactinopora radiata*, page 165 (Illinois Survey, Vol. III, page 502, Fig. also Pl. 17, Figs. 2a, b), from the Subcarboniferous of Missouri.

446

— Contributions to the Palæontology of Illinois and other Western States. 29 pp. <1865, No. 5, page 245.

Describes the following:

*Nautilus (Cryptoceras) capax*, page 262, from the Coal Measures at Charboniere.

447

— Contributions to the Palæontology of Illinois and other Western States. 25 pp. <1866, Page 251.

Describes the following:

*Macrodon micronema*, page 261.

*Platyceps levigatum*, page 263.

*Naticopsis Littonana*, var *Genevievesis*, page 268.

*Trochita (?) carbonaria*, page 270, all from the Chester in Ste Genevieve Co. Missouri localities are also given of other species.

448

MEEK.—Observations on the Microscopic Shell Structure of *Spirifer cuspidatus*, Sowerby, and some similar American forms. 3 pp. <1865, No. 5, page 275.

Various forms from Missouri are considered.

449

MEEK, F. B.—Descriptions of New Species of Fossils from Ohio and Western States and Territories, by F. B. Meek. <1871, page 159.

Describes the following:

*Aviculopecten ? Williamsi*, page 178, from Chouteau Limestone at Chouteau Springs.

450

— Notice of a New Brachiopod from the Lead-bearing Rocks at Mine La Motte, Missouri. 3 pp. <1871, page 185.

Describes:

*Lingulella Lamborni*, page 185, Figs. 1–4.

Rominger, C.—Observations on Chætetes and some related Genera, in regard to their systematic Position; with an appended description of some New Species. By Dr. Carl Rominger. 11 pp. <1866. page 113.

Describes the following:
Callopora Missoui·iensis, page 117, locality and position not given.
Fistulipora trifolia, page 122.
F. compressa, page 123.
F. peculiaris, page 123, all from the Keokuk Limestone at LaGrange.


Describes the following:
Conopoterium effusum, page 111.
Zaphrentis Ida, page 111.
Spiriferina Clarksvillensis, page 119, all from Clarksville.
Spirigera Missoui·iensis, page 117, from Louisiana, all from the Lithographic Limestone.
Missouri localities are also given of various other species.

ST. LOUIS ACADEMY OF SCIENCE TRANSACTIONS.


Accounts of fossil remains from various parts of Missouri are given.
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465

Describes the following Missouri species:
- *Melonites crassus*, page 548, Pl. C., Fig. 1.
- *M. irregularis*, page 549, Pl. C., Fig. 2.
- *Oligoporus parvus*, page 550, Pl. C., Fig. 3.
- *Archeocidurus Newberryi*, page 551, Pl. D., Fig. 1, all from the St. Louis Lime­stone at St. Louis.
- *Pentremites Sampsoni*, page 551, Pl. D., Fig. 2, 2a, from the Chouteau Lime­stone of Pettis County.
- *Codonites campanulatus*, page 553, Pl. D., Figs. 8, 9, from the Burlington Lime­stone at Sedalia.


HOLMES.—Remarks by Mr. Holmes upon the Loess and Drift in connection with the Big Mound at St. Louis. 5 pp. <Vol. II, page 565.


Refers to the accounts by Dr. Koch of man and the mastodon in Benton and Gasconade counties.


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476


Describes from Missouri:
Fenestralia St. Ludovici, page 235, Pl. 15, Figs 1, 1a, from the Upper layers of the St. Louis Limestone at St. Louis.

477


Describes the following:
Fenestella hemitrypa, page 444, Pl. 17, Figs. 3, 3a, b, c, d.
Flustra spatulata, page 446, Pl. 17, Figs. 2, 2a, 2b, 2c.
F. tuberculata, page 447, Pl. 17, Figs. 3, 3a, b, c, d.
Fenestella Banyana, page 450, Pl. 18, Figs. 4, 4a, 4b. All from the Second Archimedes Limestone at Barrett Station, St. Louis County.

478


Describes the following:
Cosciniaum plumosum, page 572 (Illinois Survey, Vol. II, page 414, Pl. 22, Figs. 3, 3a, from the St. Louis Group, Barrett’s Station), from the Second Archimedes Limestone at Barrett’s Station.
Cyclopora fungia, page 577, (Illinois Survey, Vol. II, page 419, Pl. 22, Figs. 9, 9a, 9b), from the Keokuk Limestone at St. Francisville.

479

—Description of a new Species of Productus, from the Carboniferous Limestone of St. Louis. 3 pp., 1 pl. <Vol I, page 43. 1857.

Describes the following:
Productus marginicinctus, page 43, Pl. 2, Figs. 1-17, from the Upper Carboniferous in the suburbs of St. Louis.

The results of observations on the prairies at Hillsboro are given.


Missouri localities of several species are given, and the name of Poteriocrinus longidactylus, Shum. described in Swallow's 2nd Report, changed to P. Missouriensis.


This has a table of genera and species of Blastoida found in Missouri and other western and southern States.


Describes the following:
- *Straparollis valvatiformis*, page 105.
- *Murchisonia Ozarkensis*, page 106.
- *M. carinifera*, page 106.
- *Raphistoma subplana*, page 106.
- *Lituites complanata*, page 197, all from the 3d Magnesian Limestone of Ozark County.


Describes the following:
- *Goniatites politus*, Shum., page 199, from the Middle Coal Measures at Lexington.
- *G. minimus*, Shum., page 200, from the Middle Coal Measures at Dover Landing.
- *Naticopsis (Nerita) Pricei*, Shum., page 202, from the Upper Coal Measures of Boone County.
- *Murchisonia minima*, Swallow, page 203, from the Middle Coal Measures at Lexington.
- *Bellerophon Meekianus*, Swallow, page 205, from the Middle Coal Measures at Lexington, and the Lower Coal Measures of Howard County.
- *Cypricardia plicatula*, Swallow, page 205, from the Middle Coal Measures of Platte County, and Lower Coal Measures of Howard County.
- *Isocardia (?) curta*, Shum., page 206, Coal Measures at Charboniere.
- *Cardium (?) Lexingtonensis*, Swallow, page 206, from the Middle Coal Measures at Lexington.
- *Cardiomorphia Missouriensis*, Shum., page 207, from the Coal Measures at Charboniere and Lexington.
Leptodomus Topekaensis, Shum., page 208, from the Coal Measures below the mouth of the Kansas River.  
*Allorisma cuneata*, Swallow, page 210, from the Middle Coal Measures at Lexington.  
*A. lata*, Swallow, page 210, from the same.  
*Lingula carbonaria*, Shum., page 215, from the Coal Measures of Clark Co.  
*Orthis carbonaria*, Swallow, page 218, from the Middle Coal Measures at Lexington.  
*Orthisina Missouriensis*, Swallow, page 219, from the Upper Coal Measures at Dallas.  
*Rhynchonella (Camarophoria), Osagensis*, Swallow, page 219, from the Upper Coal Measures of Missouri.  
*Retzia punctilifera*, Shum., page 220, from the Upper Coal Measures of Audrain and Howard counties.  
*Discina Missouriensis*, Shum., page 221, from the Middle Coal Measures at Lexington and Charboniere.  
*Poteriocrinus rugosus*, Shum., page 223, from the Coal Measures, Bluffs of the Missouri River and Putnam county.  
*P. hemisphericus*, Shum., page 221, from the Coal Measures on Hinkston Creek, Boone county, and at Lexington.  
*Archeocidaris biangulatus*, Shum., page 224, from the Middle Coal Measures at Lexington.  
*Phillipsia Missouriensis*, Shum., page 225, from the same.  
*P. major*, Shum., page 226, from the Upper Coal Measures of Clinton county.  

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Describes the following:  
*Strophodonta navalis*, page 635.  
*S. cymbiformis*, page 635.  
*S. subcymbiformis*, page 636.  
*S. Kemperi*, page 636.  
*S. inflexa*, page 637.  
*S. altidorsata*, page 637.  
*S. Booeniensis*, page 638, all from the base of the Devonian, in Callaway County.  
*S. Callawayensis*, page 638.  
*S. quadrata*, page 639.  
*S. equicostata*, page 639, all from the Hamilton rocks of Callaway County.  
*Orthis Missouriensis*, page 639, from the Chemung rocks of Cooper and Marion Counties.  
*Productus Callawayensis*, page 640, from the Lower Devonian of Callaway County.  
*P. Cooperensis [sic]*, page 640, from the Chouteau Limestone of Cooper County.  
*P. magnicostatus*, page 641, from the Coal Measures of Johnson County.  
*Spirifer Anna*, page 641, Hamilton Rocks, Callaway County.
S. Osagensis, page 641, from the Chemung rocks of Pettis County.
S. Missouriensis, page 643.
S. Cooperensis, page 643, (Illinois Survey, Vol. II, page 155, Pl. 14, Figs. 5a, 5b), both from the Chouteau of Cooper County.
S. Vernoensis, page 644.
S. Taneyensis, page 645, both from the Chemung rocks of Taney County.
S. Meekii, page 645, from the Encrinital of Pettis and Saline Counties.
S. lineatoides, page 645, from the Encrinital of Missouri.
S. Littoni, page 646, from the St. Louis Limestone of St. Louis Co.
S. Boomensis, page 646, from the Lower Coal Measures of Randolph and Mon­roe counties.
S. (Cyrtia) Hannibalensis, page 647, from the Lithographic Limestone of Mar­ion county.
Cyrtia Missouriensis, page 647.
C. occidentalis, page 648.
Spirigerina minima, page 649.
S. Fultonensis, page 650, all the Hamilton Rocks of Callaway county.
S. Proutii, page 649, from the Chemung rocks of St. Louis Co.
S. Hannibalensis, page 649, from the same at Hannibal, Louisiana and Sulphur Springs, St. Louis Co.
S. Missouriensis, page 650, from the Coal Measures of Montgomery and Chariton counties.
S. Maconensis, page 651, from the same of the former county.
S. Charitonensis, page 651, from the Coal Measures of Montgomery and Chariton counties.
S. Jacksoni, page 651, from the Upper Coal Measures of Cass Co.
T. Hawnii, page 652, from the Coal Measures of Missouri.
Pentamerus Salinensis, page 652, from the Devonian at base of Chemung, Moni­teau Co.
Rhynchonella Warrenensis, page 653, from the Lower Devonian of Callaway Co.
R. ringeus, page 653, from the Encrinital Limestone of Callaway Co.
Retzia Osagensis, page 653, from the Chemung rocks of Cooper and Benton counties.
R. (?) Popenana, page 654, locality not stated.
Edmondia Marionensis, page 654.
Cardiomorpha (?) triangulata, page 655, both from the Chouteau Limestone of Cooper county.
Cardinia occidentalis, page 655, from the Chouteau Limestone of Cooper, Saline and Moniteau counties.
Solen (?) Missouriensis, page 655, from the? of Pike Co.
Allorisma ensiformis, page 656, from the Coal Measures of Clay Co.
Conularia Marionensis, page 656, from Hannibal and Marion Co.
C. triplicata, page 657, from Marion Co., both from the Upper Hamilton Shales.
C. Missouriensis, page 657, from the Carboniferous Limestone of Cooper Co.
Trochus Missouriensis, page 657, from the Coal Measures of Jackson Co.
Littorina Wheeleri, page 658, from the Coal Measures of Monroe Co.
Nautilus Lawsii, page 658, from the Hamilton rocks of Callaway Co.
N. Gilpini, page 658, from the Coal Measures of Wayne Co.
Goniatites Morganensis, page 659, from the Chemung of Missouri.
G. (?) Holmesii, page 659, from the same of Cooper Co.

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G. Osagensis, page 659, from the same of Cooper and Moniteau Cos.
Orthoceras Chemungense, page 660, from the Lithographic Limestone of Marion and Pike Cos.
O. Chemungense var. Chouteauense, page 660, from the Chouteau Limestone of Cooper Co.


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Describes the following:

*Penetrites Missouriensis*, page 81, from the Archimedes Limestone of Missouri.
*Orthis Clarkensis*, page 81, from the Keokuk Limestone of Missouri.

*O. Cooperensis*, page 82, from the Warsaw Limestone of Cooper Co. and Barrett's Station.

*Orthisina occidentalis*, page 82, from the Upper Coal Measures of Caldwell Co.
*Terebratula gracilis*, page 83, Upper Archimedes, St. Marys.

*T. parva*, page 83, from ? of Monroe and Cooper Cos.

*Rhynchonella arctirostrata*, page 84, and
*R. perrostellata*, page 85, both Archimedes Limestone, Cooper Co.

*Spirifer translatus*, page 85, Archimedes Limestone, St. Marys.

*S. Kelloggii*, page 86, Keokuk Limestone from ?.

*S. levigatus*, page 86, Keokuk of Missouri.

*S. latior*, page 86, Chouteau Limestone, Cooper Co.

*Spiriger Plattensis*, page 87, Upper Coal Measures, Nw. Mo.
*S. Singletonii*, page 87, Lower Coal Measures, Boone and Audrain Cos.
*S. reflexa*, page 88, 3rd Archimedes or Warsaw, Barrett's Station.

*S. Clintonensis*, page 89, 2nd Archimedes, Ste. Genevieve and Cooper Cos.

*S. Americana*, page 89, 2nd Archimedes, St. Marys.

*S. caput-serpentis*, page 90, Upper Coal Measures of Missouri.

*S. formosa*, page 91, Archimedes above Boonville.
*S. euonia*, page 91, Archimedes, Cooper Co.

*Productus Americanus*, page 91, Upper Coal Measures of Harrison Co.

*P. auriculatus*, page 91, locality and horizon not given.

*P. Fentonensis*, page 93 from ? of St. Louis Co.

*P. depressus*, page 93, Keokuk Limestone, Fenton, St. Louis Co.

*P. gradatus*, page 93, Keokuk Limestone, Lewis and St. Louis Cos.

*P. coreformis*, page 94, Archimedes Limestone, Cooper Co.

*Koninekina Americana*, page 94, 3rd Archimedes Limestone, Barrett’s Station, St. Louis Co.

*Allorisma antiqua*, page 95, Kaskalkia Limestone of Missouri.

*Cypricardia (?) Pikensis*, page 95, Coal Measures of Pike Co.

*C. (?) Wheeleri*, page 96, Upper Coal Measures, Caldwell Co.

*C. (?) Chouteauensis*, page 96, Chouteau Limestone, Cooper Co.

*C. (?) occidentalis*, page 96, from ?, Caldwell Co.

*Pecten Broadheadi*, page 97, Upper Coal Measures, Harrison Co.

*Pinna Missouriensis*, page 97, Ste. Genevieve Limestone of Missouri.
Avicula magna, page 98, Archimedes Limestone, Knox Co.
Conularia Osagensis, page 98, Archimedes Limestone near Boonville.

SWALLOW.—Some New Varieties of Spirifer lineatus, Martin; Spirifer cameratus, Morton; Spirifer Kentuckensis, Shumard; Spirifer Leidyi, Norwood and Pratten; Spirifer increbescens, Hall, and Spirifer Keokuk, Hall. 3 pp. <Vol. II, page 408. 1866.

Describes the following:
Spirifer lineatus, var striato-lineatus, page 408, from the Upper and Middle Coal Measures of Missouri.
S. Kentuckensis, var propatulus, page 409, Upper Coal Measures of Missouri.
S. Leidyi, var Chesterensis, page 409, Ste. Genevieve Limestone.
S. Leidyi, var Merimacensis, page 410, Archimedes, Barrett’s Station.
S. increbescens, var Americana, page 410, Kaskaskia Limestone in Missouri.
S. Keokuk, var Shelbyensis, page 410, Archimedes Limestone, Shelby Co.


Koch.—Remarks concerning Mastodon Remains and arrow head found in Missouri, and on Dr. Wislizenus’ paper, by Dr. Koch. 2 pp. <Vol. I, page 116.

SCHOOL OF MINES QUARTERLY.


SEDALIA NATURAL HISTORY SOCIETY BULLETIN.


The descriptions of Pentremites Sampsoni and Condites campanulatus from Pettis county, are copied from the Trans. St. Louis Acad. Sci.

UNITED STATES ASSOCIATION OF CHARCOAL IRON WORKERS' JOURNAL.


Contains descriptions of the iron mines and furnaces in the neighborhood of St. Louis.

WESTERN JOURNAL AND CIVILIAN.

(A magazine published in St. Louis from 1848 until 14 volumes and 3 numbers were issued.)

504


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This has an account of the minerals of North Missouri, with a section of seventy miles of the North Missouri coal field.

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This has a full account of the Joshua Barney survey, the report of which was published by the government at Washington.
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This is a memorial prepared by a committee of the Board of Directors of the railroad to solicit a subscription from the city to the railroad, and it details the mineral advantages to the city in opening up the country to be traversed by the railroad.

519

This describes the region affected by the earthquake of 1811–12.

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522


This is a report presented to the "Southwestern Convention," held at Memphis in 1845, signed by Firmin A. Rozier, Chairman.


This has an account of the discovery of copper and antimony in Cedar county, copied from the Missouri Democrat, and a notice of the Webster county lead mines, from the Springfield Patriot.


This relates principally to the mineral resources.


Tin in Missouri. <Vol. 1, No. 1, July, 1868, pp. 31-34.
PART V.

Miscellaneous Publications.

ALPHABETICAL LIST.

537

The mineral resources and kindred subjects are treated of on pp. 20-26.

538
ANONYMOUS.—A Hand-book of Northwest Missouri. Published by the Northwest Missouri Immigration Society. 1889. 144 pp., illustrations.

The minerals of the counties of the part of the State described are shown in the county descriptions.

539
—— [R. B.]—View of the Valley of the Mississippi, or the Emigrant's and Traveler's Guide to the West. * * * * Second Edition, Philadelphia: Published by H. S. Tanner. 1834. 12°, 372 pp.

Missouri and its Minerals are given on pp. 235-250.

The two plates give views of Iron Mountain and Pilot Knob.


The geology of the region about the mine in Franklin county is given.


The above is a communication signed B.

— Southern Missouri, its Resources and Elements of Wealth, being a general description of the soil, face of the country, productions, improvements, &c., together with a copy of the Graduation Act, and an Essay of Prof. G. C. Swallow, State Geologist of Missouri, on the Culture of the Grape, by Leffingwell, Clark & Co. Plates. 16 pp. 1859.

— Sectional maps showing the location of One Million Acres Choice Agricultural and Mineral Lands on the line of the South Pacific Railroad in the State of Missouri, with statistics of the counties and towns, and description of the lands, price per acre, etc. * * * St. Louis. Land Department South Pacific Railroad Company, 1868, 12°, 40 pp. Map and many plats.

— Proceedings of a Convention of Delegates for the Promotion of Internal Improvements within the State of Missouri, held at the city of St. Louis, on the twentieth day of April, 1836. St. Louis: Printed by Charles Keemle. 1836. 30 pp.

The development of the mineral resources of the State was one reason urged for the State's assisting in the building of railroads.

This was issued by the Newton County Immigration Society.

The Mineral Wealth of Southwest Missouri. The Lead and Zinc Mines of Granby, Minersville, Joplin, Grove Creek, Stevens Mines, Thurman, Conwell, Conley, and others. Published by Lloyd & Bauman, Joplin, Mo. 1874. 64 pp.

There is an accompanying Map of the Lead Region of Southwest Missouri, by Lloyd & Bauman.

A Sectional Map Book of the Atlantic and Pacific Railroad lands. * * * St. Louis, Mo. 31 pp. Maps. 1874. (?) This gives an account of the mineral lands in the part of the State near the railroad.


Carthage and Jasper County. What and where they are. * * Carthage, Missouri, 1887. 58 pp. Map and many illustrations. This was issued by Carthage Board of Trade. It has an account of the Mining Interests, Lead, Zinc and Coal, pp. 38–43.


Pleasanton, Kansas, its Coal Fields, Resources and Advantages. Herald Job Office, Pleasanton, Kas. 32 pp. 12 figs. This was published by the Pleasanton Commercial Club, and has an account of the Rich Hill mining region.

The coal mines and other mineral resources of the county are described on pp. 3-5 and 25.

— The Good Luck Mining and Smelting Co., of Aurora, Missouri. Prospectus, 4 pp. 16mo. [1890.]

This gives various facts in relation to the lead and zinc mines of Aurora.

ARNOLD, A.—Morgan County, Missouri. Pen Pictures of its unsurpassed advantages of soil, climate, timber, water power and rich mineral resources, schools, society, etc. [By A. Arnold.] Versailles, Mo. 1887. 20 pp.

ATWATER, C.—Remarks made on a Tour to Prairie Du Chin; thence to Washington City, in 1829. By Caleb Atwater, Late Commissioner employed by the United States to negotiate with the Indians of the Upper Mississippi for the purchase of Mineral Country; and author of Western Antiquities. Columbus, O. Published by Isaac N. Whiting. 1831. 12°. 296 pp.

An account of his travels in Missouri is given at pages 40-56.


There are items on many pages relating to the geology and mineralogy of Missouri.

BELTRAMI, J. C.—A Pilgrimage in Europe and America, leading to the Discovery of the Source of the Mississippi and Bloody River; with a Description of the whole source of the former, and of the Ohio. By J. C. Beltrami, Esq. Formerly Judge of a Royal Court in the ex-Kingdom of Italy. In two volumes. London. Printed for Hunt and Clark, York street, Covent Garden. 1828.

Letter XIII, pp. 100-125 of the second volume, was written from St. Louis, and about Missouri.
BLISS, N. W.—East-South Missouri. The counties immediately adjoin­ning and contiguous to the great river and the city of St. Louis. Their resources—advantages—soils—climate—products—mineral deposits—water powers, etc. By N. W. Bliss. Published by Union Mining and Smelting Company, Old Mines, Washington County, Mo., and Washington Land and Mining Company, Kingston Furnace, Washington County, Mo. St. Louis address: C. S. Greeley, President U. M. & S. Co. and W. L. & M. Co., 620 N. Second Street, St. Louis, Mo. Issued under the authority and with the indorsement of the Missouri Immigration Society. (St. Louis. 1882.)

560
Board of Immigration¹.—Hand-Book of Missouri, embracing exhib­its of the agricultural, etc., etc.—Published by the Missouri Immigration Society, issued by the Missouri State Board of Immigration. St. Louis: Times Printing House, Fifth and Chestnut Streets. 1881. 278 pp.

This is also found with a title page which does not show that it was origi­nally issued by the State Board.

561

An account of the soil and face of the country is given on pp. 103-110, and of the Lead Mines of Ste. Genevieve on pp. 146-155.

562

The author lived at Ste. Genevieve, and he starts on his travels from there, and returns by way of New Madrid.

¹This title belongs properly with the reports of the Missouri State Board of Immigration; but it was obtained too late for insertion in its proper place.
Bradbury, J.—Travels in the Interior of America, in the years 1809, 1810 and 1811: including a description of Upper Louisiana, together with the States of Ohio, Kentucky, Indiana and Tennessee, with the Illinois and Western Territories, and containing remarks and observations useful to persons emigrating to those countries. By John Bradbury, F. L. S. London, * * * * * Liverpool, * * * * * 1817.

An account of the New Madrid earthquake is given on pp. 199-207, and the minerals of the State are also noticed.


Pages 200-270 are on the geology of the region, including Missouri.


I am informed by Prof. Broadhead that he wrote the part of the article above mentioned.

Brockett.—Our Western Empire; or the New West Beyond the Mississippi. Illustrations and maps. Phil. 1882. 1312 pp.

Chapter XII, pp. 927-955, has an account of Missouri, including its geology.


This describes the coal beds along the line of the road.

Buskett, J. L.—A Short Description of the Lost Hill and Evans Lead Mines in Franklin County, Mo. (By J. L. Buskett, 614 Pine Street. 1873 or later.) 12°. 8 pp.
MISCELLANEOUS PUBLICATIONS.

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573

DADDOW, S. H. & BAUMAN, B.—Coal, Iron and Oil; or, the Practica. American Miner. * * * * By Samuel Harriss Daddow and Benj. Bauman. Pottsville, Pa. 1866.

There is an account of the iron mines of Missouri on pages 550-552.

574


This contains many references to the geology of Missouri.

575

DAVIS, W. B. & DURRIE, D. S.—Physical Geography of Missouri. 16 pp. <An illustrated History of Missouri, comprising its early record, and civil, political, and military history from the first exploration to the present time, etc. By Walter Beckford Davis and Daniel S. Durrie, A. M. St. Louis: A. J. Hall & Co. 1876. Chapter XXIV, pages 228-245.

This has an account of the geology and minerals of the state, and a portrait of Prof. G. C. Swallow.
576
FARMER, J.—Map of the Most Important part of the Lead Regions near the Mississippi river. John Farmer. 1836.

577

Chapters XVI to XXIII, pages 62-88, are about Missouri, including the results of trips to the iron and lead mines.

578
FLINT.—History and Geography of the Valley of the Mississippi. 2nd Edition. Cincinnati. 1832.

579
FORSHEY, C. G.—Delta of the Mississippi river. By Col. C. G. Forshey of Louisiana. (*)

The author was of the opinion that the proper delta of the Mississippi extended to within a few miles of Cape Girardeau.

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582

The following are described; there are no figures:
Crania Rowleyi, page 3.
Cornulites carbonarius, page 8.
Spirobus Kinderhookensis, page 9, all from the Kinderhook division of the Sub-Carboniferous, Pike county.
Bellerophon textiliformis, page 6.
Discites Toddanus, page 7, both from the Upper Coal Measures, Kansas City.

The following are described:

*Ptychostylus heterocostalis*, page 5.

*Lepetopsis Parrishi*, page 7, both from the Upper Coal Measures at Kansas City.

*Ptychostylus subtumidus*, page 6, from the Kinderhook Shales, Pike County.


There are also reports of the minerals of each county that is described in the pamphlet.


The Magnesian Limestones of Missouri are considered in this paper.

Harlan, R.—Medical and Physical Researches by Richard Harlan, M. D. Phil. 1835.

Contains description of *Bos Pallassii*, DeKay, from New Madrid, on page 253.

Haworth, E.—A Contribution to the Archæan Geology of Missouri. An inaugural dissertation presented to the Board of University Studies of the Johns Hopkins University, with an application for the degree of Doctor of Philosophy, by Erasmus Haworth, M. S. Minneapolis, Minn. The University Press, State University. 1888. 40 pp.

This was also published in Johns Hopkins University Circulars, Vol. VIII, No. 65, and in the American Geologist.
588

HAYWARD, W. W.—Moniteau County, Missouri, its Geographic Features, Agricultural and Mineral Resources, etc., etc. Published by W. W. Hayward & Co., California, Missouri, July, 1875. 12mo, 32 pp.

An account is given of the mines of coal, zinc, lead, barytes, etc., pp. 11-16.

589


590

HOGAN, J.—Thoughts about the City of St. Louis, her Commerce and Manufactures, Railroads, &c. First Published in the Missouri Republican, St. Louis, Mo.; Republican Steam Press Print, 1854. 80 pp. 15 full-page and 1 folded plate.

These “Thoughts” are signed J. H., and were written by John Hogan. Nos. XXI, XXII and XXIII, pages 40–47, treat of the iron, lead, copper, coal and other minerals of the State.

591


This contains a geological report on the locality by Dr. H. King.

592

— Report on an examination of the estate belonging to the St. Louis and Birmingham Iron Mining Company. By order of the Board. St. Louis. Printed at the St. Louis Times Book and Job Office. 1852. 18 pp.

This contains a geological report by Dr. H. King.

593


This contains geological reports by Dr. H. King and J. D. Whitney, and analyses of ore by Charles T. Jackson.

This has descriptions and illustrations of Iron Mountain and Pilot Knob.


This has a map and section showing elevations along the different routes surveyed, with descriptions of these routes and of the country through which they run.

Koch.—Fossil Remains. 8 pp. 1 Pl. No title page. No name.

This gives an account of the discovery of antediluvian remains made in May, 1831, on the premises of Capt. Palmer, 22 miles south of St. Louis, in Jefferson county; also a description of other large bones disinterred in 1838 in Gasconade county. The pamphlet is evidently by Dr. Koch, and was probably published before 1841. The copy examined is in the St. Louis Public School library, and was formerly in that of Dr. Shumard.

Koch, A.—Description of the Missourium or Missouri Leviathan, together with its supposed habits; Indian traditions concerning the location from whence it was exhumed; also, comparisons of the Whale, Crocodile and Missourium with the Leviathan as described in the 41st Chapter of the Book of Job; by Albert Koch. St. Louis. 1841. 16 pp.

— Description of the Missourium theristocaulodon (Koch), or Missouri Leviathan (Leviathan Missouriensis), together with its supposed habits, and Indian Traditions concerning the location from whence it was exhumed; also, comparisons of the Whale, Crocodile and Missourium with the Leviathan, as described in the 41st Chapter of the Book of Job. By Albert Koch. Fourth Edition. London: E. Fisher, 33, Cannon Street, City, 1842. 23 pp. 1 Pl.
Koch, A.—Description of the Missourium Theristocaulodon (Koch), or Missouri Leviathan (Leviathan Missourium), together with its supposed habits and Indian traditions; also, Comparisons of the Whale, Crocodile and Missourium with the Leviathan, as described in the 41st Chapter of the Book of Job; by Albert Koch. Fifth Edition enlarged. Dublin. 1843. 28 pp. (*)


Lithographie print of the Missourium, issued at Dresden. (*)

Description of the Hydrargos Sillimanii: (Koch), a gigantic fossil reptile, or Sea Serpent: lately discovered by the author, in the state of Alabama, March, 1845. Together with some geological observations made on different formations of the rocks, during a Geological tour through the Eastern, Western and Southern parts of the United States, in the years 1844–1845. By Doctor Albert C. Koch, Corresponding member of the Societies of Halle, and of Dresden, &c. The Bones of this Monstrous Serpent measure 114 feet in length, and weigh seven thousand five hundred pounds. New York, 1845. 16 pp. 1 Pl.

The author's journey extended into Missouri, and he gave some accounts of the geology and of the fossils found.


His travels and observations in Missouri are given in Vol. I, pp. 115–163.
MISCELLANEOUS PUBLICATIONS. 125

604

Lawrence, B.—A Concise Description of the Geological Formations and Mineral Localities of the Western States; designed as a Key to the Geological Map of the Same. By Byrem Lawrence. 16 mo. 44 pp. Boston. 1843.

The iron and lead of Missouri are referred to on pages 26-28.

605


In the second volume, pages 172-182, there is an account of the earthquake region about New Madrid.

606

— Principles of Geology, or the Modern Changes of the Earth and its inhabitants considered as Illustrative of Geology. By Sir Chas. Lyell, Bart., M. A., F. R. S. Tenth and entirely revised edition. London. 1868.

In Vol. II, pp. 106-110, of the above edition, there is an account of the New Madrid earthquake region. Pages not noted in other editions.

607


The account of the geological formations and localities of Missouri was written by Prof. G. C. Broadhead, and is given on pages 154-158.

A revised and enlarged edition containing 370 pages, edited by James R. Macfarlane, was issued in 1890.

608


An account of the Missouri coal region is given on pages 469-477.

The geology of Missouri is to some extent included in this report. There are other editions of the work besides the one here given.


The geology of Missouri is described on pages 33, 41, 45, 58, 59, 61 and 66-77.


This has sections, diagrams and map. Folded Diagram No. 1, illustrating the General Geology of the Tract. Scale 1: 60,000. One inch to 5,000 feet. Two folded diagrams of sections.


This is Article III, pages 754-780 of the International Review, November-December, 1874.

Nuttall, M.—A journal of travels into the Arkansas Territory during the year 1819. By M. Nuttall (?), 1821.*


The Missouri mastodon, discovered by Dr. Koch, and now in the British Museum, is figured on page 298, and is described on pages 290-298.

PATTEN, J. H.—The Natural Resources of the United States. By J. Harris Patten, M. A. New York. 1881. 16°.


This contains references to the mineral springs of Missouri on pages 164-170.


There is a map mentioned as accompanying this, but it is not found in the copy in my library.

Parker, N. H.—The Missouri Hand-Book, embracing a full description of the State of Missouri; her Agricultural, Mineralogical and Geological character; her Water Courses, Timber Lands, Soil and Climate; * * * * * Location of Valuable Mines and Mineral Lands. * * * By Nathan H. Parker. * * * Saint Louis. P. M. Pinckard, Nos. 78 and 80 Pine Street. 1865. 12°, 162 pp. Map of the State.

— Missouri as it is in 1867: an Illustrated Historical Gazetteer of Missouri, embracing the Geography, History, Resources and Prospects, the Mineralogical, etc., etc. By Nathan H. Parker. Phil. 1867. 458 pp.

PARKER, S.—Journal of an Exploring Tour beyond the Rocky Mountains, under the direction of the A. B. C. F. M., performed in the years 1835, 36 and 37; containing a Description of the Geography, Geology, Climate and Productions, and the number, manners and customs of the natives. With a map of Oregon Territory. By Rev. Samuel Parker, A. M. Ithaca, N. Y. Published by the author. 1838.

His journey through Missouri is described on pages 20-34, but this part of the work contains very little geology.

The fifth edition was published at Auburn in 1846.


This contains a Geological map showing the mineral region contiguous to the Iron Mountain Railroad and its proposed extension, surveyed by J. V. Phillips. Constructed and drawn by J. T. Fiala. St. Louis Mo. 1859. Scale 2 inches to 6 miles. The vertical section is through Iron Mountain and Pilot Knob from Greenville to Bailey's, 100 miles.

Accounts of the Copper, Iron, Lead and Zinc of Missouri are given.


This describes the coal field along the line of the road.


ROBINSON.—A Catalogue of American Minerals, with their localities: including all which are known to exist in the United States and British Provinces, &c. Boston. 1825.

This has 10 pages relating to Missouri minerals and localities.
632
The specimen figured is a fine one from St. Louis.

633
The geological and mineral account of the county is given on page 9.

634
Notices the hornstones of Southwest Missouri.

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637
— Scenes and Adventures in the Semi-Alpine Region of the Ozark Mountains of Missouri and Arkansas which were first traversed by De Soto, in 1541. Philadelphia, Lippincott, Grambo & Co. 1853. 256 pp.
638

Schoolcraft, H. R.—Journal of a Tour into the Interior of Missouri Arkansaw, and from Potosi, or Mine a Burton, in Missouri Territory, in a Southwest Direction, toward the Rocky Mountains: Performed in the years 1818 and 1819. London. 1821. 102. pp. Map.

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This has report on mines in Franklin County by Thomas Sopwith, Esq., Memb. Inst. C. E., and also report by J. B. Champion.


The zinc deposits of DeSoto, Missouri, are noticed.

Swallow, G. C.—The Pacific Railroad Company offers at public sale * * * Farming, Timbered and Mineral lands. * * * St. Louis Mo. 1859. 57 pp.

The pamphlet has extensive reports by Prof. Swallow on the minerals of the counties traversed by the road.

— The Hannibal & St. Joseph Railroad Company have received by grant from Congress 600,000 acres of the choicest Farming and Wood lands, etc., etc. Hannibal, Mo., Hannibal & St. Joseph Railroad office. 1860. 12°, 60 pp. Maps and illustrations.

This has an account of the geology and soils of Northern Missouri, by Prof. Swallow.

Swallow, G. C.—Prospectus of the Northumberland Lead Mining and Smelting Company. Location of Mines: near St. Clair, Franklin County, Mo. Main office of Company: St. Clair, Missouri. 4to. 16 pp., folded section and folded map of Franklin County, with the mines of the Company. [1880.]

This has a report on the mine by G. C. Swallow, made in Oct. 1865, when he was State Geologist; also various other reports.

--- Report of G. C. Swallow to Directors of Carlton & Randolph R. R. 1859. 10 pp. 2 maps. (*)

--- Letter of G. C. Swallow to W. M. McPherson, Pres. of the Pacific R. R., on Lands and Minerals of S. W. Mo. 8 pp. n. d., but prior to 1860. (*).


This has a Geological map of Missouri.

657


658

Taylor.—Statistics of Coal. The Geographical and Geological Distribution of Mineral Combustibles or Fossil Coal, etc. Phil. 1848. There is an account of the coals of Missouri on pages 169–171. The second edition, with additions by S. S. Haldeman, was issued in Philadelphia in 1855, and has a map with an account of the coals of Missouri on pages 484–487.

659


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662


This has accounts of the Iron Mountain on pages 145 and 267, and of the lead region on p 237 et seq.

663


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664

WALKER, C. B.—The Mississippi Valley, and Prehistoric events: giving an account of the original formation and early condition of the great valley; of its vegetable and animal life, of its first inhabitants, the mound builders, its mineral treasures and agricultural developments. All from authentic sources. By C. B. Walker. R. T. Root, Publisher, Burlington, Iowa. 1879. 539 pp.

There are several chapters on the geology and minerals of the valley.

665


There are also accounts of minerals, etc., in several counties of the State.

666

WHITNEY, J. D.—The Metallic Wealth of the United States, described and compared with that of other countries. By J. D. Whitney. Phil. 1854.

Accounts of the Missouri Copper ores, pp. 310-312; Lead, pp 417-421; and Iron, pp. 478-481.

667


These lectures were also published in the Agricultural Reports of Missouri.

668

WILSON, L. A.—Wilson’s History and Directory for Southeast Missouri and Southern Illinois. * * * * * * Compiled and Published by L. A. Wilson, Cape Girardeau, Mo. 1875-76.

This has a catalogue of the lead mines of that part of the State that were worked in 1818, as well as statistics of later date.

669

Worthen, A. H.—Catalogue of American Paleozoic Fossils, the collection of Prof. A. H. Worthen, deceased, Late State Geologist of Illinois. Collected and purchased by him during fifty years of active life. Embracing 5,071 fine specimens, of which 752 are Types, and of these 240 are Crinoids, etc., etc. Warsaw, Illinois. 1889.

The catalogue contains 81 species of Missouri specimens, and of these 73 types.

Wright, F.—The Ice Age in North America and its Bearings upon the Antiquity of man. By Frederick Wright. New York. 1889.

There are accounts of the glaciated area in Missouri on pp. 144, 213, 367 and on other pages.

Mineral Springs Publications.

These publications all contain analyses of the mineral waters.


This has an account of the coal, lead and other minerals of the county, taken from an article by Col. L. D. Burch, of Chicago, editor of the American Sheep Breeder.


The pamphlet is by Prof. P. Schweitzer of the State University. The analyses are by him, and also the account of the geology of Cedar County.


The analysis is by Prof. W. Wishon of the School of Mines at Rolla.
675

Excelsior.—Excelsior Springs. A Description of the Marvels of a Pleasant Valley. * * * Issued by the Passenger Department of the Wabash Railroad. St. Louis, Mo. 1889. 22 pp. 8 ills. Small map.

676


677


The analysis is by Dr. C. M. Riley of St. Louis.

678

Sweet.—Sweet Springs, Saline County, Mo. St. Louis. 1882. 12 mo. 32 pp. 7 ills. Map.

This was issued by the Missouri Pacific Railroad. The analyses are by Dr. Charles P. Williams, Director of the Missouri School of Mines.

679


The analyses are the same as in the proceeding. The edition of 1887 contains 36 pp.

680


Under the head of Summer Resorts, pp. 35-53, the following mineral springs are described, analyses of the waters of most of them being given: Windsor Springs, near St. Louis; McAllister Springs, Saline county; Aurora Springs, Morgan county; Sweet Springs, Saline county; Blue Lick Springs, Saline county; Pertle Springs, Warrensburg, and El Dorado Springs, Cedar county.
COUNTY HISTORIES.

681


Quite interesting and full histories and descriptions of the mines in the counties named are given in the second article. It is said to have been written by a Mr. Wheatley, who since died at Ft. Smith, Ark. The first article is also found in other volumes issued by the Goodspeed Publishing Co.

County histories issued by the same publishing company are: "History of Laclede, Camden, Dallas, Webster, &c. Counties. 1889." "History of Cole, Moniteau, &c. Counties. 1888." "History of Franklin, &c. Counties. 1888."

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The same article is contained in other county histories issued by the same company, as "History of Callaway County. 1884." "History of Caldwell and Livingston Counties. 1886." "History of Howard and Cooper Counties. 1883."


The geology of the counties is given as follows:
Cole, p. 204; Moniteau, p. 311; Morgan, pp. 394-401; Benton, pp. 453-459; Miller, pp. 527-528; Maries, pp. 581-586; Osage, 629-630.

— History of Laclede, Camden, etc., Counties. The Goodspeed Publishing Co. 1889.

The geology of the counties is given as follows:
Laclede, pp. 13-18; Pulaski, pp. 57-100; Webster, pp. 166-170; Camden, pp. 279-284; Wright, pp. 355-359; Texas, pp. 426-429; Dallas, pp. 493-498; Dent, pp. 564-566; Phelps, pp. 622-627.

— History of Franklin, Jefferson, etc., Counties. The Goodspeed publishing Co. 1888.

The geology and mineralogy of the counties are given as follows:


BROADHEAD, G. C.—Geology of Bates County. <History of Bates County. (*)

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694


COUNTY ATLASES. FOLIO.

695


This gives large views of the St. Joe Lead Mines, the Desloge Lead Co. Mines, both at Bonne Terre, and the Syenite Granite Quarries at Syenite.

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APPENDIX.

The following titles were not obtained in time to be inserted in their proper order.

AGE OF STEEL, St. Louis.

(A partial list.)

698

EDITORIAL.—(Table showing the production of pig iron in Missouri from 1872 to 1884.) <Vol. LVII, No. 9, Feb. 28, 1885.

699


Shows receipts and shipments of lead and zinc at St. Louis, and over what roads received.

700


701


An account of the St. Joe Lead Mine at Bonne Terre.

DE BOW'S REVIEW.

(A partial list.)

702

EDITORIAL.—Great Cities of the West—St. Louis. <Vol. XVI, O. S., April, 1854, pp. 397-410.

Notices the mineral regions within reach of St. Louis.


ENGINEERING AND MINING JOURNAL.

The first two volumes of this journal were published in 1866, and there have been two volumes each year since, so that the year of any volume can readily be found when not given. The titles from the first seven volumes, and a few of those from the succeeding volumes, up to the twenty-seventh, were copied at the office of publication in New York, and were not seen by the compiler.

ANONYMOUS.—Missouri's Rank as a Mining State. <Vol. 1, p. 42. 1866.


An account of a trip to Potosi, with a description of the geology of the lead fields.


—Caves in the Ozark Mountains. Explorations by a party from St. Louis—a voyage up a subterranean river—a forest of stalactites. (Copied from the St. Louis Republican.) <Vol. X, p. 152.

—The New Cornwall in Missouri. (Copied from United States Railroad and Mining Register.) <Vol X, pp. 298-299.
ANONYMOUS.—The Tin Mines of Missouri. (Communication signed "Missouri.") <Vol. XIII, p. 56.

— Zinc in Missouri. (Copied from St. Louis Railway Gazette.) <Vol. XVIII, pp. 37-38.

— The Zinc Mines in Dade County, Mo. (From Mines, Metals and Arts.) <Vol. XVIII, p. 371.

— Southwest Missouri lead interest—a proposed lead combination. (Correspondence signed B.) <Vol. XXV, p. 73.

— Missouri lead smelters. (Correspondence signed B.) <Vol. XXV, p. 91.

— Missouri Minerals. (Correspondence signed B.) <Vol. XXV, pp. 276-277.


— Silver in Missouri. (Special correspondence.) <Vol. XXV, pp. 310-311.

This is an account of the Einstein Silver Mines in Madison County.

— Missouri Mining News. (Special correspondence.) <Vol. XXV, pp. 311-312.

This also has an account of the Einstein Silver Mines.

— The lead interests of the Mississippi Valley. (Special correspondence.) <Vol. XXV, p. 55.

— Lead Phantom. (Special correspondence.) <Vol. XXVI, pp. 57, 93.

Has an estimate of the bulks of lead and zinc in mines and dumps.

Missouri steel to the Mahoning Valley; or, "Coals to Newcastle." (Special Correspondence, signed "Veritas.") <Vol. XL, (1885), p. 94.

The mineral resources of Joplin, Mo. <Vol. XLIX, (1890), p. 286. The history, geology and production of the Joplin mines are given.


APPENDIX.

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732
ELLIOTT, R. S.—Iron in Missouri. Extract from address of R. S. Elliott before the members of the Legislature. Copied from Bulletin of the American Iron and Steel Association. <Vol. X, p. 120.

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740

The Huronian hematites of Lake Superior and Missouri are described.

This is a criticism of some points in the paper of Prof. Munroe in the preceding volume.


Mining and Mineral items.

Vol. I—
Coal in Missouri, p. 54.
Carroll County oil well, p. 21.
Other items, pp. 186, 210, 292, 309, 363.

Vol. II—
Pilot Knob and Iron Mountain, p. 294.
Coal in Missouri, pp. 257, 280, 343.
Iron, pp. 310, 341.
Other items, pp. 68, 82, 117, 213.

Vol. III—
Lead, pp 28, 89.
Iron, pp. 109, 227.

Vol. IV—
Missouri tin discovered by Dr. Koch, pp. 69, 101, 106, 120, 138, 265.
Tin ore in Southeast Mo., p. 37.
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Vol. VI—
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Copper fields in Missouri, p. 307.
Other items, pp. 117, 228-9, 356, 403.

Vol. VII—
Lead in Missouri, p. 232.
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Missouri tin mines, p. 25.
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Coal measures of the Southwest, p. 405.

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Mining and Mineral items.

Zinc and iron, p. 389.

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Missouri iron mines, p. 5.
Iron and lead, p. 133.
Review of mining interests, p. 212.
Zinc and spelter product in 1869, p. 343.
Mining in Southeastern Mo., p. 357.
Missouri iron, p. 391.
American lead mines, p. 105.
Other items, pp. 37, 53, 69, 100, 101, 280.

Vol. XI—
Iron industry in Missouri, p. 360.
Missouri school of mines, p. 3.
Notice of Hagar's Report, p. 121.

Vol. XII—
Missouri Zinc Manufacture, Editorial, p. 25.
Missouri tin mines, Editorial, p. 228.
Missouri iron ores, p. 151.
Remarkable lead deposit, pp. 235–236.

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Nickel at Mine LaMotte, pp. 98–99.

Vol. XV—
Lead Miners and Smelters’ Ass’n, p. 282.

Vol. XVI—
Missouri iron ores, p. 187.

Vol. XVIII—
Another Iron Mountain in Mo., p. 19.
Granby Lead mines, p. 19.
Notice of Southwest Missouri Mines, p. 166.
Notice of Broadhead’s Reports, p. 405.
Schmidt’s report on iron ores, p. 324.

Vol. XXI—
Missouri zinc and lead, p. 182.
Washington county zinc mines, p. 541.
Production zinc ores in 1875, p. 179.

Vol. XXII—
Granby lead mines, pp. 61 and 77.
Webb lead mines, p. 141.
Lead product in 1876, p. 333.

Vol. XXIII—
Swan Creek lead mines, p. 242.
Webb City lead mines, p. 261.
Zinc and lead, p. 302.
Missouri lead mines, p. 300.

Vol. XXIV—
Deep boring at St. Louis, p. 113.

Vol. XXV—
Missouri lead and zinc, pp. 277–278.
Joplin white lead works, p. 394.
Mining and Mineral items.

Vol. XXVI—
Coal mine at Knob Noster, p. 9.
Gas well at Kansas City, p. 9.

Vol. XXVIII—
The Silver mines of Southeastern Missouri, p. 8.
The Silver mine at Silver Mountain, Missouri, p. 149.
The Silver Mountain Mining Company mine, p. 204.
The Missouri Zinc mines, p. 475-6.
Operations at the Western zinc mines, p. 69.

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Lead and zinc mining, p. 56.

Vol. XXXIV—
Newton County Mining and Smelting Company, p. 35.
Joplin Union Mining Lead and Zinc Co., p. 74.
Lead and zinc, Southwest Missouri, p. 191.
Missouri lead, p. 352.

Vol. XXXV—
Discovery of oil at Rich Hill, p. 385.

Vol. XXXVI—
Sunnyside mine, p. 8.
Oil at Rich Hill, p. 104.
Lead mine near Jerico, p. 203.

Vol. XXXVIII—
Granby lead mines, p. 94.
Joplin lead mines, p. 110.
Granby Mining and Smelting Company, p. 199.

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Lone Elm works, Joplin, Mo., p. 180.
Notices of lead companies, p. 377.
Production of iron ore in Missouri in 1883, 1884, p. 419.

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"Tiff" and iron mining in Missouri, p. 83.
Iron ore shipments at St. Louis, p. 422.

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Bonne Terre lead companies, p. 27.
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Iron Mountain Iron shipments, p. 379.

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Desloge Lead Mining Company, p. 48.
Lead mine in Camden county, p. 83.
Lead mining in Newton county, p. 227.
Joplin Zinc and Lead, p. 317.
Peake Mining Company, Joplin, p. 353.
Short Creek mines, Jasper county, p. 371.
Petroleum near Richmond, Mo., p. 369.
Silver Mountain and Home Silver companies, p. 192.
Mining in Benton county, p. 425.
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Oil at Kansas City and Zinc at Carthage, p. 191.
Coal in Lafayette and Oil in Vernon counties, p. 245.
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Boring for gas at Sedalia, p. 443.

Vol. XLIV—
Higginsville coal for coke, p. 65.
Boring for gas at St. Charles, p. 155.
Coal struck at Butler, p. 246.
Coal struck at Urich, Henry County, p. 402.
Coal prospecting in Carroll, p. 438.
Gas struck at Independence, p. 438.

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Norwich Mining Company, Jasper Co., p. 59.
Coal mine explosion at Rich Hill, p. 257.
Artesian well at Lebanon, p. 311.
Pilot Knob Iron Mine, p. 387.

Vol. XLVI—
Morgan County coal, p. 30.
Iron Mountain Company, p. 71.
The Burch Lead and Zinc Mining Co. p. 378.
Bates and Jasper county mines, p. 157.

Vol. XLVII—
Rich Hill Coal Company, dividend, p. 97.
Carthage Lead and Zinc Company, p. 284.
Center Creek Mining Company, p. 307.
Jasper and Newton Counties Mining Companies, p. 331.
Joplin Zinc mines sale, p. 373.
Coal, Lead and Zinc Companies, p. 375.
The Minnequa Zinc Mining Company, p. 441.
Graphite in Clinton county, p. 485.

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Jasper County Lead and Zinc Mines, pp. 13, 123, 529, 572-573.

Vol. XLIX—
Jasper County Lead and Zinc Mines, pp. 33, 67, 91, 92, 116, 143, 183,
207, 233, 257, 318-319, 367, 430, 478-479, 544-545, 571, 595, 618, 687,
713 and 740.
Newton County Mines, p. 143.
The Lehigh District and Bates County, p. 183.
Mine-a-Joe, St. Francois Co., p. 233.
Bulletin No. 1, Geology Survey of Missouri, p. 558.
Gentry county coal, p. 622.

Vol. L—
Newton county lead, p. 344.


The lead deposits of Missouri, both in the southeast and in the southwest, are given as typical examples of the occurrence of mineral in gash veins.


The iron ores of Missouri are considered to be Huronian, and of the same age as those of Lake Superior.


Includes a letter from F. A. Genth to U. S. Railroad and Mining Register of Philadelphia.
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— On a geological map of the United States. (Read before the American Institute of Mining Engineers.) <Vol. XVI, pp. 322-324.

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This is a criticism in part on the theory of gash-veins of Prof. Newberry, as found in the Mississippi Valley.

763

The Institute of Mining Engineers held its meeting in St. Louis, and the members visited the St. Joe Lead Mines, Pilot Knob Iron Mines and Crystal City Glass works, and this is an account of these places.


Notices the tin ores in Missouri.


This is an account of the lead and zinc region as given in a pamphlet giving statistics of production for 1887. (No. 669 of this Bibliography.)


This is in regard to the Rich Hill coal mine explosion.


The Iron Mountain and Pilot Knob districts are described, and the ore stated to be of the Huronian period.

(This paper was read before the American Institute of Mining Engineers.)


Under the heading "Pomological Geology," he considers the adaptability of the soil of the Missouri river counties to fruit raising. The Report contains, also, a report of Prof. G. C. Swallow on the adaptation of the soil of the district to the growth of fruits, pp. 15-17. This part of the report was criticised in the Report of the Committee on Vice- Presidents' Reports, on pp. 66-67, and is followed by an additional article on "Horticultural Society and Soils," by Prof. Swallow, pp. 68-71.


SESSION LAWS OF MISSOURI.


THE VALLEY FARMER—St. Louis.

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THE WESTERN.

This magazine was published in St. Louis from 1875 to 1881 or later. The second and third volumes regularly contained the proceedings of the St. Louis Academy of Science.

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Nipher, F. E.—(Account of a fossil from Pike county, by the Secretary, F. E. Nipher.) <Vol. II, p. 181.


MISCELLANEOUS.


General Description—Topography * * * * Economic Geology, * * * * [of Livingston County]. <History of Caldwell and Livingston Counties, pp. 673-680, 884-5, 961-2, 1042-3.


The geology of the lead and zinc region of Southwest Missouri and the formation and kinds of minerals are given.
APPENDIX.

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DeBow, J. D. B.—The Industrial Resources, etc., of the Southern and Western States: embracing a view of their commerce. * * * * In three volumes. By J. D. B. DeBow, Professor of Political Economy, etc., in the University of Louisiana. Published at the office of DeBow's Review, New Orleans, 1853.

Vol. II has the Mineral Resources of Missouri, including detailed accounts of the different minerals, pp. 53-67. The account includes a summary by Lewis Feuchtwanger, pp. 66-67.

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—Excelsior Springs, Mo. (25 miles from Kansas City, Mo.) A brief history of their discovery and a description of the famous medicinal waters. Analyses, medical opinions, testimonials from the afflicted who have been cured, etc., etc. Published by the Excelsior Springs Company, Excelsior Springs, Mo. H. C. Fish, General Manager. 16°. 32 pp., ills.

Analyses are given by Prof. W. P. Mason, of Rensselaer Polytechnic Institute, of Regent and Siloam Springs waters.

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Contains chapters on Fire-clay, pp. 49-54; operations of the American Plate Glass Company at Crystal City, pp. 107-109; Iron and Steel, pp. 113-124; Lead, White Lead and Oil, pp. 125-129; Granite, pp. 143-150; Coal, pp. 177-182.
PARKER, N. H.—Missouri as it is in 1867: an Illustrated Historical Gazetteer of Missouri, embracing the Geography, History, Resources and Prospects; the Mineralogical and Agricultural Wealth and Advantages; the Population, Business Statistics, Public Institutions, etc., of each county in the State. * * * An original article on Geology, Mineralogy, Soils, etc., by Prof. G. C. Swallow. Also special articles on Climate, Grape Culture, Hemp and Tobacco. By Nathan H. Parker. Philadelphia. J. B. Lippincott & Co. 1867.


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57—For 24th read Adjourned Session, 23d Gen. Ass'y, 1866.

102—For 1885 read 1883.

114—To "Eighteenth Report" add 1884.

155—For F. A. Clerk read F. L. Clerc.

241—For Vol. XVI read Vol. XVII.

245—The date given is of the meeting. The publication was 1889.

310—For Vol. XLII read XLIII.

326—The date of publication was 1882.

357—Add date 1862.

362—Add date 1890.

363—Add date 1882.

364—Add date 1883.

365—For magnificent, in line next to the last on page 82, read magnificus.

367—The date of publication was 1887.

403—For F. A. Clerc read F. L. Clerk [F. L. Clerc].

462—In the blank after Vol. read IV.

490—In the third line from bottom of page 104, read P. Copoerensis.

573—For "Bauman" read "Bannan."

661—For Hugh O. Thompson read Hugh M. Thompson.

The first fifty volumes of the American Journal of Science are referred to simply by the number of the volume. Later volumes give the series, as well as the volume. The first fifty volumes are sometimes referred to as First Series. The second fifty were published as the Second Series. The succeeding volumes are the Third Series.