

INDIANA.

DEPARTMENT

OF

Geology and Natural History

(ELEVENTH ANNUAL REPORT.)

JOHN COLLETT,

State Geologist.

1881.

INDIANAPOLIS:

WM. B. BURFORD, STATE PRINTER.

1882.

STATE OF INDIANA,
OFFICE OF THE STATE GEOLOGIST,
INDIANAPOLIS, MARCH 10, 1882.

HON. ALBERT G. PORTER,
Governor of Indiana:

Herewith I have the honor to submit to your Excellency the eleventh annual report of the State Geologist, being for the year 1881; it comprises the labors of that officer and assistants in the field, study, and cabinet, with detail surveys of the Counties of Shelby, Fountain, Delaware and Bartholomew, a statement of facts as to building stone, coal and clays, with full paleontological descriptions, etc., of the Niagara fossils of the Waldron beds, and other characteristic corals and fossils of the State, illustrated by fifty-five plates, maps, etc.

With high esteem, I remain your obedient servant,

JOHN COLLETT,
State Geologist.

STATE OF INDIANA,
GOVERNOR'S OFFICE.

Filed with the Governor, March 10, 1882. Examined and transmitted to the Secretary of State, to be preserved in his office and published, according to law, under the direction of the Commissioners of Public Printing.

F. H. BLACKLEDGE,
Private Secretary.

Filed in my office March 10, 1882,

E. R. HAWN,
Secretary of State.

3551

1881

(RECAP)

93597 Original from
PRINCETON UNIVERSITY

LAW ESTABLISHING THE DEPARTMENT.

AN ACT to provide for the establishing of a Department of Geology and Natural History in this State.

[APPROVED APRIL 14, 1881.]

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana,* That a Department of Geology and Natural History is hereby established for the purpose of continuing the geological and scientific survey of this State, of discovering and developing its natural resources, and disseminating information in regard to its agricultural, mining and manufacturing advantages.

SEC. 2. That the Governor shall appoint a competent and suitable person, who shall be skillful in geology and natural science, as State Geologist, and who shall be the chief of said department; and said chief shall have power and be authorized to call to his assistance such help as he may deem necessary, but in no case to exceed the amount of expenditure authorized by the General Assembly. Said State Geologist, when commissioned by the Governor, shall take an oath of office as other officers, and shall serve for a term of four years; but said State Geologist may be removed by the Governor for cause, and a successor appointed in his stead, and the Governor shall fill any vacancy which may occur from any cause. The compensation of said State Geologist shall be eighteen hundred dollars per year, which shall be paid as other salaries are required by law to be paid.

SEC. 3. It shall be the duty of said State Geologist to continue the geological survey of the State, by counties or districts, and to complete and revise the same as may be practicable. He shall give special attention to the discovery of minerals,

stones, or other natural substances useful in agriculture, manufacture or the mechanical arts; he shall be curator of the geological cabinet, museum, apparatus and library, and shall, from time to time, as may be practicable, add specimens to the cabinet of minerals, organic remains and other objects of natural history peculiar to this State and other States and countries.

SEC. 4. The offices of the geological department shall be in such rooms as may be assigned for this purpose, and he shall keep such office and the State museum open during the usual business hours of other offices of State, when not engaged in field or other work requiring his absence therefrom.

SEC. 5. The State Geologist shall make to the Governor an annual report of his labors and discoveries, and of all useful information he may have obtained in such service, including such descriptions and figures in geology, paleontology and archæology as may promote science and aid in the diffusion of knowledge; and five thousand copies of such report shall be printed and published in like manner as other official reports.

SEC. 6. An appropriation of five thousand dollars annually shall be, and is hereby, made for the next succeeding two years, which shall include the salaries of the State Geologist and his paid assistant, and if any part thereof shall remain unexpended, it shall remain a part of the general fund of the State, to be used as other general funds of the State are used.

SEC. 7. All acts and parts of acts inconsistent herewith are hereby repealed.

SEC. 8. Whereas, an emergency is hereby declared to exist for the immediate taking effect of this act, it shall, therefore, take effect and be in force from and after its passage.

ORGANIZATION AND WORK.

Pursuant to the foregoing act of the Legislature, on the 26th day of April, 1881, John Collett was commissioned State Geologist, qualifying on the 28th of April.

Immediate measures were taken to begin active work. The property, library, chemical laboratory etc., properly belonging to the Bureau of Statistics, was turned over to its chief.

Additional cases were procured through funds appropriated for geological purposes, in the hands of the State Board of Agriculture, and Mr. George K. Greene was engaged to arrange the fossils and specimens in their proper cases.

This duty has been discharged with care and laborious effort. The specimens are determined, prepared and labeled, offering an instructive book of natural science to the amateur, student or teacher.

The cabinet, when first received from my predecessor, by actual enumeration, consisted of 8,912 specimens, mostly undressed fossils, generally without labels.

At present it embraces, well arranged, properly classified and labeled:

Former collection, specimens.....	8,912
Collected, etc., 1880.....	11,647
Total 1880.....	20,559
Collected by State Geologist and assistants in 1881.....	5,500
Purchased, Crinoids.....	375
Purchased, fossil corals, shells, etc.....	9,750
Purchased, beetles, about.....	1,700
Purchased, land and fresh water shells.....	5,800
Donated, fossils.....	520
Donated, Indian stone relics.....	140
Donated, miscellaneous.....	80
Grand total 1881.....	44,424

There is now on exhibition a pretty full set of germs,* minerals* and crystalline rocks,* implements of the "Mound Builder," or "Stone Age;"* fishes and reptiles of Northern Indiana; land and fresh water shells, and beetles; fossils of the coal measures and lower carboniferous periods. In fossils of the Lower Silurian, Upper Silurian and Devonian ages, the collection is a nearly complete exhibit of the specimens peculiar to the State, and may not be readily excelled.

Most of the specimens are carefully labeled, the collection thus affording the student or teacher a wide view of the Indiana pages of the book of nature.

It is gratifying to know that the great facilities thus placed within the free reach of our people, for education in important branches of science, are fairly appreciated. From five to fifty persons, from different parts of the State, have visited the rooms daily during the past year, expressing, in warm and complimentary terms, their gratification.

Specimens of coals, clays, building stones, etc., the products of the State, are on exhibition, and in many instances have been the means of causing the sale of such minerals and materials, within and without the State, in aggregates amounting to hundreds of thousands of dollars, thus demonstrating the value of scientific exhibits as to economic results.

The interest manifested in the museum by citizens and strangers who visit it is constantly increasing. In order to fully meet expectations and to do justice to the natural resources of the State, it is thought that the museum and cabinet should be largely increased; that a complete show of stones, clays, minerals, woods, and other products, as well as specimens in natural history, should be accessible to citizen and visitor, student and teacher, with a competent, permanent, director, expert in matters pertaining to his department, capable of imparting freely such advice or information as would tend to show forth the advantages, natural or acquired, of Indiana.

Additions to the museum should be continued until the resources of the State are represented in such manner as to be readily studied in these public rooms. The array is already

*Deposited by citizens for exhibition.

large, representing in collections, donations, and by purchase, the labor of more than sixty years, and may thus be fairly estimated at nearly as many thousand dollars in value. Although the actual cost has been small or insignificant, it may be safely assumed that equal additional purchases will require much larger expenditures.

Any action of the Legislature looking to the maintenance of such a department, and increased collections of specimens, would most unquestionably meet the approval of our people, and be of great benefit not only to individuals, but to the State at large.

Ryland T. Brown, a pioneer in scientific researches, and formerly State Geologist, made a detailed survey of Fountain county with the vigor and energy so characteristic of the man. His habits of close observation, and long experience, have enriched his report with facts and valuable suggestions.

Moses N. Elrod makes the survey of Bartholomew county. His former labors in geological work may be seen in his report on Orange county in previous years.

A. J. Phinney's report on Delaware county, exhibits the geological features of that county, especial attention being given to surface geology.*

By the act of the Legislature the Professor of Chemistry at Purdue University was made State Chemist, and all chemical questions were by law referred to him and the Professor in Chemistry at Bloomington University, the Legislature deciding that the laboratories at those institutions, kept up with public funds, were sufficient, relieving this department of analytic duty.

John N. Hurty, analytic chemist of Indianapolis, has continued as special chemist to the State Geologist, and has discharged his duty with precision and faithful care.

Prof. James Hall, State Geologist of New York, with the generous spirit characteristic of such princely leaders in science, granted the privilege of republishing his figures of "Waldron Fossils" of Indiana (32 plates), which were given in the Twenty-eighth Report of the Regents of the New York University, but so rare and inaccessible to our teachers and students that but few copies are known to be owned by our citizens. He has revised the descriptions and supplemented his former labors, by adding

*Assistants are wholly responsible for facts, etc, in their respective reports.

four plates (lithographed), with descriptions of new fossils of the same locality, making the reports on these beds fully up to the latest developments of the day. The high scientific, world-wide reputation of Professor Hall, his life-long labors as a pioneer in geology, investigator and educator, enriched by the widest experience, makes his work of the highest value to Indiana.

Dr. Charles A. White, Paleontologist to Government Surveys at Washington, has generously continued his review of characteristic fossils of the different geological formations of the State with figures of new fossils, illustrated in seven plates. To this he has added a review and description of a part of the Van Cleve figures, kindly furnished by Dr. Julius S. Taylor, of Kankakee, Ill.

Dr. White's experience as a teacher, and in field work, makes his introductory remarks of special interest and value, and it is believed will be highly appreciated.

The plates number from one to fifty-five, comprising several hundred figures, and, as far as they go, well illustrate the paleontology of the State, and will, it is trusted, prove "an addition to knowledge among men." It is the first considerable attempt at illustration of paleozoic life by Indiana. Heretofore our students who desired to know the geology of their *own State* were compelled to purchase the geological reports of other States; but few young or old men had spare funds to make this costly investment. The experiment now made in this report is to test the question for the future. If students and teachers wish such reports continued, or improved, they must call on their legislators to so provide. If they do not so call, they may and should cease. The preparation of the paleontological work has been at a minimum expense; much less than can be depended upon for the future. Such work may and should be conducted at a fairly remunerative outlay for labor and skill, and the Legislature should be induced to appropriate the necessary means.

The State Geologist has had general direction of the work, arranging for the assistance of experts in the field and in the cabinet, and in addition to many local examinations has made a detailed survey of Shelby county, herein given.

He has almost daily had consultations with persons interested as to facts in agriculture, quarry industries, coal mines, and the use of these materials; drainage, water supply, etc. The correspondence of the office, under his sole care, has amounted during the past year to 1,020 letters, many of which were for information as to costly and important enterprises, requiring thoughtful care.

Thanks are returned to the officers of railways and transportation companies for favors to the State Geologist and his assistants on field work; to citizens for hospitality, information, guidance, and hearty co-operation; to scientists of the State, of the United States, of the whole earth, for contributions to the State Museum and Library, especially the several departmental surveys at Washington. A continuance of these favors from every citizen of Indiana is respectfully solicited.