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A HISTORY OF THE
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OF NATURAL HISTORY

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A HISTORY
OF THE
Illinois State
Museum of Natural History

BY
A. R. Crook

JUNE, 1907

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MUSEUM OF NATURAL HISTORY.

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HISTORY OF THE ILLINOIS STATE MUSEUM OF NATURAL HISTORY.

(A paper presented at the Pittsburgh Meeting of the American Association of Museums.)

PREFACE.

The work of bringing the following material together has not been done in the spirit of idle inquiry into things of small moment but for the purpose of learning of events which have had valuable results.

There is a dearth of records concerning the Museum. For long periods of years no catalogues were made. The catalogues that were begun within the last thirty years have not been made complete. But few curator's reports have ever been published.

The facts presented have been found in the "State Laws," "Geological Survey Reports," in two "Curator's Reports," in letters and from conversation with people acquainted with the institution.

If the history of a dozen or more like institutions in the country were written there would doubtless be presented facts which would be of valuable service to those institutions and render them more capable of efficiently carrying out the purpose of their foundation.

A. R. CROOK.

June 12, 1907.

J. G. NORWOOD

HISTORY OF THE ILLINOIS STATE MUSEUM OF NATURAL HISTORY.

The existence of the Illinois State Museum of Natural History, may be said to begin with the enactment of a law in February, 1851, establishing a State Geological Survey. The 4th section of the law reads:

"It shall be the duty of said geologist to procure and preserve a full and entire suit of the different specimens found in the State and cause them to be delivered to the Secretary of State, who shall cause them to be properly arranged in a cabinet, and deposited in some apartment in, or convenient to, the capitol. Said suit shall be sufficiently large to furnish specimens to all institutions of learning within the State, empowered to confer degrees in the arts and sciences." *

Thus the history of the Museum covers a period of fifty-six years. At first it was conducted as a part of the geological survey, but for the last thirty years as an independent institution, although by the law of 1877, which established the Museum upon a separate basis, it was provided that the curator "perform the Acts which are or may be required by law of the State Geologist."†

Geology was the science that led to the establishment of the Museum and that caused its vigorous growth. The other sciences such as zoology, botany and archaeology have been secondary, chronologically and materially. But in later years their importance has increased.

The first man to be chosen as State Geologist, was a doctor of medicine, J. G. Norwood,‡ a native of Indiana, who was thought by the committee to meet the requirements of the law to the effect that the appointee be a "geologist of known integrity and practical skill."

Dr. Norwood had been assistant geologist under D. D. Owen, on a geological survey of Iowa, Wisconsin and Minnesota, and had just written a report which was his most extensive work either before or after that time. It covered 205 quarto pages, was illustrated with drawings and plates, and gave a description of the geology of a portion

* The clause providing for the delivery of the specimens to the Secretary of State, "who shall cause them to be properly arranged in a cabinet," seems never to have been carried out inasmuch as the first two State Geologists took charge of the materials and later curators were appointed.

† Laws of Illinois, 1877, section 5, p. 15.

‡ Dr. Norwood's son, Prof. C. J. Norwood, is at present State Geologist of Kentucky.

of Minnesota and of the western shores of Lake Superior. Previous to that time he had published a geological report on Chippewa Falls, Wisconsin (54 pages), and a description of an Echinoderm (3 pages).

In '55 he published three articles (34 pp.) on fossils and in '57 an "Abstract of Report on Illinois Coal," with geological map of Illinois. (106 pp.)

For full list see below.*

Norwood began his work July 29, 1851, and in the fall of the year employed two young men as assistants. One of them, Anthony Varner, died shortly after; but the other, A. H. Worthen, was connected with the work for many years, and at his death was one of the most widely known geologists in the State.

Norwood considered it to be of prime importance to assemble materials with which to work, and for this end began to form a museum. He says, "a rich and extensive collection of minerals and organic remains was made during that season (1851) and the ensuing winter was devoted to arranging them."†

Collecting was continued so vigorously in '52 that in '53, Norwood says (*ibid* p. 12): "The collection of rocks, minerals and organic remains made for the State is large and valuable. For the magnificent collection of fossils made during the survey, it is particularly indebted to Mr. Worthen, whose industry and zeal cannot be too highly praised."

In confirmation of his opinion that as far as carboniferous fossils are concerned the collection is 'unequalled in this country,' Norwood presents a letter† from D. D. Owen,§ dated New Harmony, Indiana, Jan. 19, 1853, in which Owen says:

"Respecting the collections made on the Illinois Survey, which I have inspected, I have to state that I consider it the finest collection ever made in the same length of time, on any survey that has come within my notice.
* * * The collection is both rich in minerals and fossils; some of rare beauty and perfection * * * ."

* 1846. J. G. Norwood and D. D. Owen. Description of Echinoderm from St. Louis.

Am. Jour. Science (2) Vol. II, p. 225-8.

1847—and Owen, D. D. Researches among the Protozoic and Carboniferous rocks of Central Kentucky, etc.

Abstract Am. Jour. Science, 2d series, Vol. 5, pp. 268-269.

1848—and Owen, D. D. (Devonian fossils near the falls of the Ohio.)

Boston Soc. Nat. Hist. Proc. Vol. 2, p. 116.

Norwood, J. G. Report of a Geological Reconnaissance of Chippewa, Wisconsin; pp. 73-129, 30th Cong., 1st Sess., Senate Ex. Doc. No. 57, Washington.

1852. Geology of Minnesota and Shores of Lake Superior; Geological Survey of Wisconsin, Iowa and Minnesota, by D. D. Owen, pp. 213-418, plates, Philadelphia.

1855. J. G. Norwood and H. Pratten. Notice of Products in Western States.

Jour. Acad. Nat. Sci., Philadelphia. (2) Vol. III, pp. 5-22.

Notice of Chonetes.

Journal Acad. Nat. Sci., Philadelphia, Vol. I, p. 23-32.

Notice of Fossils from Carboniferous.

Jour. Acad. Nat. Sci., Philadelphia, Vol. III, pp. 71-77.

1857. Abstract of a report on Illinois coal, 93 pages, 5 plates, map, Chicago, Illinois Geol. Survey.

1860. Discovery of Permian Rocks at LaSalle, Ill.

St. Louis Acad. Sci. Trans., Vol. I, pp. 115-116.

1866. Norwood, J. G. Report on Rosiclare lead mines Geo. Sur. Ill., Vol. I, pp. 366-372, plates, Chicago.

1874. Abstract of notes on Madison county. Geo. Sur. Missouri, report 1873-74, Vol. I, pp. 371-379. Jefferson City.

† Norwood, "Report of Progress of the State Geological Survey," 1853, p. 6.

‡ *Ibid*.

§ D. D. Owen, the well known author of many geological papers; geologist on Indiana survey, 1837-45; on survey of Wis., Minn. and Iowa, 1848; State Geologist Ark., 1857.

The collection at this time was in New Harmony. The inappropriateness of such a location was soon realized and consequently in December, 1854, the specimens and all museum materials were packed in boxes to be sent by boat down the Wabash 40 miles to the Ohio, 120 miles down the Ohio to the Mississippi, 140 miles up the Mississippi to St. Louis, from thence by rail 100 miles to Springfield. But cold weather filled the rivers with ice and the museum did not reach Springfield till the following April, (1855). Even then it was given a cool reception since no place could be found for housing it. Finally it was stored in the Supreme Court room in the building which at that time served as State House. In a few months, in order to make room for the approaching session of the Court it was moved to the Senate Chamber where it was made accessible during the winter of '55 and '56. During the summer it was moved to the new arsenal building where new cases and drawers were provided.

But unfortunately the building was not heated and not only did the workers suffer but their reagents and ink froze and consequently during two or three months the work was given up entirely.

Such were the obstacles encountered by Dr. Norwood—the necessity of moving the museum three times, finally alighting in a place unfit for work; the newness of the field, there having been practically no geological work done previously in the State; and finally the handicap of small appropriations—from \$3,500 to \$5,500 per annum only being allowed for all expenses including salaries of geologist and two assistants, traveling and office expenses and publications. In the face of such obstacles even if the worker were energetic and competent there would be danger of criticism from people ignorant of the difficulties under which the work was done. After six years' work, there being some dissatisfaction with the results shown by the survey* a committee of nine legislators was appointed to investigate the work and reported† that Dr. Norwood deserved "great credit for the faithful attention which had been bestowed upon this branch of his duty" (the museum).

In reply to a request from the committee for his opinion of the museum, the State Geologist of Missouri, G. C. Swallow, wrote:‡

"The collection is very large and contains a great variety of minerals and fossils. * * * When properly arranged and set up in a suitable room, it cannot fail to be a source of pride and gratification to every citizen of Illinois * * *"

In spite of these commendations the Governor's message above quoted reads: "From the unsatisfactory progress made, however, and from the fact that nothing in relation to the survey had ever been published or even presented for publication (with the exception of a pamphlet of a hundred pages, the publication of which was obtained by the State officers after much effort and within the last eighteen months) it was deemed essential to reorganize the corps. This was done last spring (March 22, '58) and A. H. Worthen was placed at its head."

In behalf of Dr. Norwood it might be noted, however, that even his talented successor did not bring out his first report until 1866—that is

* See Governor Bissell's "Governor's Message," Journal of the Senate, 1859.

† Report of the Committee on the Geological Survey, Feb. 10, '57, p. 4.

‡ Ibid, p. 12.

after eight years in the office, having Norwood's seven year's collections to build upon and an especial appropriation of \$21,000 for printing, etc., as well as his own fourteen years' experience. This does not detract from the credit of Worthen but implies that Norwood was expected to make bricks without straw. Creditable work of that kind requires both time and money.

There is something of the irony of fate in other features of the change. The originators of the survey could not sufficiently emphasize the importance of having a survey which should be as they termed it, "practical." The geologist was to be a man of "practical skill," his reports were to be "purely economical," "strictly of an economical character," etc. As it happened Norwood wrote more often on palaeontology than upon anything else and Worthen's work was more than half palaeontological in quality and three-quarters so in scientific importance. The same is true of other curators. This was natural because at that time palaeontology offered the most attractive field for original work and it would have required a very high legislative fence to keep the workers out.

During the early years of Worthen's incumbency the museum remained in the arsenal. It was then moved to a room in the Masonic Hall. Concerning this Worthen says:* "These specimens, now comprising the largest and most valuable State cabinet in the west, are kept in a rented room * * * Permit me * * * to call your attention to the importance of securing a suitable fire-proof building for the reception and display of the specimens."

In spite of this suggestion the museum remained in that room and a fire did partly destroy the building. How much damage was done to the specimens it has not been possible for the writer to ascertain. But in 1875 Worthen writes:† "The large collection of geological specimens accumulated by the Survey, remains in the condition it was left by the fire in the Masonic Hall building, where it was formerly kept, no proper place having as yet been provided for its reception * * * ."

From 1863 to 1870 Worthen in carrying out the provision of the law of 1851‡ requiring the distribution of typical collections of **duplicates** among educational institutions of the State, sent specimens to Prairie City Academy, Rockford Female Seminary, Monmouth College, Normal, Lombard, Wesleyan and Northwestern Universities. Letters to these institutions inquiring about the collections yielded information to the writer from Northwestern University only. The collection sent there, entered upon the record books of that institution September 8-15, 1871, by Prof. Oliver Marcy in characteristically accurate manner, consisted of 348 fossils and 52 rocks. If like materials were sent to all seven institutions the number would be 2800 specimens. Worthen found the work too large a drain upon his time.§

By the adoption of a new State Constitution in 1872 the appropria-

* Geo. Sur. of Ill., Vol. I, 1866, p. VII.

† Geol. Survey of Ill., Vol. VI, p. IV.

‡ Section 4.

§ Vol. I, p. XII.

The most substantial assistance was rendered by the State Laboratory of Natural History, then at Normal. Prof. Forbes sent to the museum its chief zoological materials—alcoholic specimens of fishes and reptiles, artistic casts of Illinois fishes, mounted birds and mammals—a buffalo, deer, bear and smaller mammals.

In the early eighties* the curator selected "a complete series of carboniferous fossils for the State Museum of Natural History out of the great mass of material brought together in the progress of the geological survey of the State * * * ." And as the years passed the orderliness and value of the collections were increased by diligent work.

This improvement, however, availed but little, since in the last years of Prof. Worthen's life, against his protests and during his absence from Springfield, the museum was moved by ordinary laborers who had no more idea of the value of museum materials than Geronimo had of Shakespeare, and who threw things into inextricable confusion. (About 1887).

Of this move Dr. Josua Lindahl who was Prof. Worthen's successor writes:

" * * * You may, however, get some idea of its chaotic condition, when I tell you that the entire collections in the museum rooms had been moved in the last year of Professor Worthen's life, against his protests and in his absence from Springfield, from out of the upper floors down to the main floor of the Capitol by order of some higher authority who engaged a furniture moving concern to remove the whole museum, without the supervision of anybody who had the least idea of how scientific material should be handled. Only in exceptional cases were the labels fixed to the specimens, and none of these had any numbers written or painted on them. Labels and specimens were therefore shoveled into the drawers and showcases at haphazard, and by no means always so that the labels belonged to any specimens in the same drawer. In the basement the condition was, if possible, still worse. There was no closed room assigned to the storage of the vast amount of valuable material accumulated in the course of about 35 years, but it was piled up in an open portion of the basement, and workmen of various kinds had been using the pile as a dump for rubbish under which I would never have expected such a treasury of valuable material as was finally uncovered there and removed to a separate room with door and lock, which I secured after much arguing. The assistant told me that Professor Worthen felt so grieved over the wreck of collections in the museum rooms, that he could never attempt to remedy the havoc. His health was already broken, and after his death, some months later, I found the collections in such a condition as indicated. I devoted years of assiduous work to save what could be saved."

While curator, Worthen published no reports on the condition of the museum. The two bulletins which he brought out, Bulletin No. 1 (1882) and Bulletin No. 2 (1884) were descriptions of fossils. They were valuable contributions to the palæontology of Illinois. And he was able to publish Volume VII of the Geological Survey Report

* Bull. No. 2, Ill. State Mus. Nat. Hist., p. 3.

(1883). For full list of papers see below.* He was a field geologist rather than a museum man in the modern sense of the word and it was fortunate for his reputation that such was the case. The partial destruction of a museum could not diminish his fame. Up to the time of his death more than two hundred thousand dollars had been spent for all purposes of the survey since its beginning. A very small portion of that had been applied for strictly museum purposes and yet the results in that direction were gratifying.

Prof. Worthen died May 6, 1888.

An account of his life and work is given by Bliss and White in the last report of the first survey† and it may be sufficient here to mention a few facts only. He was born Oct. 18, 1813 at Bradford, Vermont; and received his education in the public schools and academy at that place. At twenty years of age he married and moved to Cumminsville, Ohio, now a suburb of Cincinnati, where for two years he taught school. Then in 1836 he became a merchant in Warsaw, Illinois. But his avocation was the study of geology and as the years passed his interest grew with the increasing size of his collections till finally science became his vocation as we have seen.

Beginning by assembling the goods for which Warsaw is famous and using them as a basis of exchange, and by industrious collecting he brought together one of the best cabinets of its kind owned by any

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- * 1857. On the occurrence of fish remains in the Carboniferous limestones of Illinois.
 Am. Assoc. Adv. Sci. Proc., Vol. 10, part 2, pp. 189-192.
 1858. Geology of the Des Moines Valley (and the southeastern counties).
 Geol. Surv. Iowa, Report by Hall and Whitney, Vol. 1, part 1, p. 147-258.
 1860. Remarks on the discovery of a terrestrial flora in the mountain limestones of Illinois.
 Am. Assoc. Adv. Sci., Proc., Vol. 13, pp. 312-318.
 1860. Review of some points in B. F. Shumard's report on the geology of Ste. Genevieve county, Mo.
 St. Louis Acad. Sci. Trans., Vol. 1, pp. 696-698.
 1862. Remarks on the age of the so-called "Leclaire limestone" and "Onondaga salt group" of the Iowa report.
 Am. Jour. Sci., 2d series, Vol. 33, pp. 46-48.
 1866. Stratigraphical geology, tertiary deposits, and coal measures. (Sub-carboniferous limestone series, Devonian and Silurian series.)
 Geol. Surv. Illinois, Vol. 1, pp. 40-152, plate 5, Chicago.
 Republished in Economical Geol. Ill., Vol. 1, pp. 31-117, Springfield, 1882.
 Abstracts Neuss Jahrbuch, 1868, pp. 138-145; Am. Jour. Sci., 2d series, Vol. 43, pp. 110-111, 258, 1867.
 1866. Geology of Randolph (St. Clair, Madison and Hancock counties.)
 Geol. Surv. Illinois, Vol. 1, pp. 278-349, Chicago, 1866.
 Republished in Economical Geology of Illinois, Vol. 1, pp. 210-290, Springfield, 1882.
 1866. Physical features, general principles, and surface geology.
 Geol. Surv. Illinois, Vol. 1, pp. 1-39, Chicago. Republished in Economical Geology of Illinois, Vol. 1, pp. 1-30, Springfield, 1882.
 1866. Remarks on the occurrence of fossil fishes in the Illinois strata.
 Geol. Surv. Illinois, Vol. 2, palæontology, pp. 11-16, Chicago.
 Abstract Am. Jour. Sci., 2d series, Vol. 43, p. 396, 1867.
 1866. And Englemann, Henry, Hardin county.
 Geol. Surv. Illinois, Vol. 1, pp. 350-366, 372-375, map, Chicago.
 Republished in Economical Geology of Illinois, Vol. 1, pp. 291-319, Springfield, 1882.
 1868. Coal measures and lower carboniferous limestones.
 Geol. Surv. Illinois, Vol. 3, pp. 1-19, Chicago.
 Abstract Am. Nat., Vol. 3, p. 44, 1870.
 1868. Coal measures of Illinois.
 Read to Am. Assoc. Adv. Sci., 1867.
 Abstracts Am. Nat., Vol. 1, pp. 619-620, 1868.
 Canadian Nat., new series, Vol. 3, p. 295, 1868.
 1868. Jersey (Greene and Scott counties).
 Geol. Surv. Illinois, Vol. 3, pp. 104-144, plates, Chicago, 1868.
 Reprinted in Economical Geology of Illinois, Vol. 2, pp. 24-71, Springfield, 1882.
 1868. And Englemann, Henry—Alexander (Union, Jackson and Perry) counties.
 Geol. Surv. Illinois, Vol. 3, pp. 20-103, plate, Chicago.

private person in the west. He was connected with the museum longer than any of the other curators have been and brought to it its most unique specimens not by purchase, but by his own indefatigable labor.

The excellence of his scientific work was recognized by fellow workers at home and abroad. He was a gentleman of the highest type, both in his private and public life.

E. O. Ulrich,† who was intimately acquainted with him, says concerning his character: "Its salient features were: great love for scientific truth and justice; simplicity, unbounded affability, unswerving integrity coupled with an unpretentious yet strong desire to accomplish a useful career. His generosity and charity scarce knew bounds, while in his public and private life his frank and sympathetic nature and unassuming yet dignified demeanor won the esteem of all with whom he came in contact."

Shortly after Prof. Worthen's death a very fitting appointment was made in that of Prof. Josua Lindahl, Ph. D., to the curatorship on June 9, 1888. The appointee, the son of an eminent Swedish minister, born January 1, 1844, at Kongsbacka, is a graduate of the University of Lund where he pursued post graduate studies and taught for seven years. Before coming to this county he was assistant in the Royal Museum of Natural History at Stockholm. He was a member of a

Republished in *Economical Geology of Illinois*, Vol. 1, pp. 291-319, Springfield, 1882.

- Geol. Surv. Illinois, Vol. 4, geology and palæontology, pp. 345-346, Chicago.
 1870. Calhoun (Pike, Adams, Brown, Schuyler and Fulton) counties.
 Geol. Surv. Illinois, Vol. 4, geology and palæontology, pp. 1-110, Chicago, 1870.
 Reprinted in *Economical Geology of Illinois*, pp. 237-360, Springfield, 1882.
 1870. Remarks on the relative age of the Niagara and the so-called Lower Helderberg groups.
 Am. Assoc. Adv. Sci., Proc., Vol. 19, pp. 172-175.
 1871. (Synchronism of coal beds of Illinois with those of Kentucky.)
 Am. Nat., Vol. 5, p. 558, 1871.
 1873. (Peoria, McDonough, Monroe, Macoupin and Sangamon counties.)
 Geol. Surv. Illinois, Vol. 5, geology and palæontology, pp. 235-319.
 Reprinted in *Economical Geology of Illinois*, Vol. 3, pp. 246-337, Springfield, 1882.
 1875. Coal measures.
 Geol. Surv. of Illinois, Vol. 6, pp. 1-8, Boston, 1875.
 1875. Clark (Crawford, Jasper, Lawrence, Richmond, Wabash, Edwards, White, Clay, Cumberland, Coles, Douglas, Williamson and Franklin) counties.
 Geol. Surv. Illinois, vol. 6, pp. 9-127, Boston.
 Reprinted in *Economical Geology of Illinois*, vol. 3, pp. 337-467, Springfield, 1882.
 1875. Geological map of Illinois, in two large sheets, Boston.
 1879. Illinois (geological formations.)
 Macfarlane's Am. Geol. R. R. Guide, pp. 129-138.
 1882. The coal field of Illinois.
Economical Geology of Illinois, vol. 1, pp. 163-177, Springfield, 1882.
 1883. *Economical geology*.
 Geol. Surv. Illinois, vol. 7, pp. 1-38, 1883.
 1883. Notes on LaSalle county.
 Geol. Surv. Illinois, vol. 7, pp. 39-51.
 1886. The Quaternary deposits of Illinois.
 Am. Assoc. Adv. Sci. Proc., vol. 34, pp. 214.
 Abstracts Am. Jour. Sci., 3d series, vol. 30, pp. 315-316, 1885; Science, vol. 6, p. 221, 1886.
 1890. Illinois.
 Macfarlane's Geol. Rwy. Guide, 2d edition, pp. 209-221.
 1890. Approximate geological map of the State of Illinois reduced from the map published in 1875, with vol. 6, Geological Survey of Illinois.
 Geol. Surv. Illinois, geology and palæontology, vol. 8, plate at end, Springfield.
 Black and white map, scale 32 miles to the inch.
 1890. Drift deposits of Illinois.
 Geol. Surv. Illinois, geology and palæontology, Vol. 8, pp. 1-24, Springfield, 1890.
 Abstract Geol. Mag. 3d decade, vol. 8, p. 322, 1891.
 1890. *Economical Geology*.
 Geol. Surv. Illinois, geol. and palæontology, Vol. 8, pp. 25-67, Springfield.
 + Appendix of Vol. VIII, Geol. Survey of Ill., p. 3-37.
 † Geol. Survey of Ills., vol. 8, 1890, p. 15.

JOSUA LINDAHL.

number of scientific expeditions—dredging expeditions in the Mediterranean and in the Atlantic—and zoölogist on an expedition sent to Greenland by the Swedish government. As Secretary of the Royal Swedish Commission at an international Geographical Congress he visited Paris and later, during the Centennial, Philadelphia, and was attracted by the country. He was knighted by King Oscar of Sweden for services in his native country. For the ten years immediately preceding his connection with this museum, he had been Professor of Natural Science at Augustana College where he had built up a fine Natural History Museum.

As an ofttime contributor to Swedish and American magazines, he is well known and also for his translation into Swedish of Brehm's celebrated **three** **volumed** "*Illustriertes Thierleben*."

His active interest in science is further indicated as was Prof. Worthen's, by membership in numerous scientific societies. Until quite recently he has been Director of the Cincinnati Society of Natural History.

In 1889 the State Historical Library was made a separate institution. Elegant quarters have been assigned to it and it has been enabled to reach a size and importance greatly to be commended.

For partial list of Lindahl's papers see below:*

No better man has been connected with the Museum than Lindahl. His first work upon assuming the curatorship was to put the museum in order. This proved to be an enormous task since the materials had never before been in such confusion and fortunately at no subsequent time has such disorder reigned.

While engaged in this work he found time to edit Volume VIII of the Geological Survey Report, which Worthen had prepared for publication but was prevented from completing on account of his death.

Preparations for the World's Columbian Exposition were being made throughout the State and Lindahl was instructed to collect and place on exhibition in the Illinois State Building, materials that would properly represent the geology of the State. He began with vigor to bring together illustrations of the stratigraphy, the palæontology and economic geology of the State and with the aid of several able assistants, Profs. J. A. Udden, W. F. Nicholson, etc., soon had a very creditable exhibition. Unfortunately because of a change of the political party in power in the State, he was removed while in the midst of his work.

Lindahl, with the true spirit of the curator, at all times showed himself to be a care taker and preserver of the materials and interests of the Museum. If his spirit had always prevailed the State Museum would at this time be much richer in materials than it is.

* 1886. List of the geological formations of Spitzbergen.

Am. Nat., vol. 20, pp. 451-452.

1888. Dr. N. O. Holst's studies in glacial geology.

Am. Nat., vol. 22, pp. 589-598, 705-713.

1889. Report of the State of Illinois Historical Library and Natural History Museum, Springfield.

1891. Description of a skull of *Megalonyx leidy*, n. sp., Springfield, Ill. Read before the American Philosophical Society, January 2, 1891.

1893. Geological Report.

Report Illinois Board World's Fair Commissioners.

His successor, William F. F. Gurley, was appointed in July, 1893. Mr. Gurley was born in Oswego, New York, June 5, 1854. His parents came to Danville, Ill., in '65, and since that time he has considered that place his home. He was a student at Cornell University, and later became a prospector in Colorado, and for five years was city engineer at Danville.

He early acquired a taste for geology and began to make a palæontological collection and library.

As to his tastes and his work while connected with the museum, Mr. Gurley says:

"From the moment I first became interested in the subject of geology, I set to work accumulating a palæontological collection and library and it was my ambition to place myself in a position financially where I could 'settle down' and devote myself entirely to this subject.

When a child of six years, I was rendered totally blind through sickness and, after a period of several months partly recovered my sight. I never fully recovered and during my entire life have been subjected to much inconvenience from this source.

For the most part my palæontological work was done in collaboration with Samuel A. Miller of Cincinnati, Ohio, and may be found in the various 'bulletins' issued when I was curator.

During the last year I was curator, my eyes failed materially to such an extent that it became impossible for me to read common newspaper 'print' without the aid of a magnifying glass which was extremely tedious and very unsatisfactory. In due course of time I became convinced that the failure of my sight was permanent and I was forced to lay aside all ambitions of a scientific nature—it being impossible for me to attempt anything of a 'technical' sort."

Mr. Gurley is a charter member of the Geological Society of America and a fellow of a number of scientific societies at home and abroad. At present he is curator of palæontology in the University of Chicago.

The bulletins referred to in his letter are Bulletins 3-12 of the Museum of Natural History. They deal with the same line of work that claimed the chief attention of Norwood and Worthen and show that in spite of the demand for "purely practical" work made by the Legislature, work chiefly of scientific nature was produced.

For list of bulletins see below.*

Mr. Gurley published no Museum reports.

During his incumbency, much against his wishes, the museum made its customary move, this time from the first to the third floor of the State House.

It may have been from the point of view of the protection of the specimens wise and desirable to donate to the University of Illinois the materials brought together by Curator Lindahl for the World's Fair. But from the point of view of the museum it was detrimental. The transfer from the first to the third floor was a step backward, as

* Bulletins of Illinois State Museum of Natural History, by S. A. Miller and Wm. F. E. Gurley:

1893.	Bulletin No. 3.	New species of Invertebrates from the Palæozoic.
1894.	Bulletin No. 4.	New species of Upper Devonian and Niagara Crinoids.
1894.	Bulletin No. 5.	New genera—Species of Echinodermata.
1895.	Bulletin No. 6.	New species of Palæozoic Echinodermata.
1895.	Bulletin No. 7.	New Species of Palæozoic Fossils.
1896.	Bulletin No. 8.	New Species Fossils from the Palæozoic.
1896.	Bulletin No. 9.	New Species of Crinoids.
1896.	Bulletin No. 10.	New Species of Echinodermata and New Crustacean.
1896.	Bulletin No. 11.	New Species of Palæozoic Invertebrates.
1897.	Bulletin No. 12.	New Species of Crinoids, Cephalopods and other Palæozoic Fossils.

WM. F. E. GURLEY.

the new quarters were more contracted and were partly used as committee rooms by the Legislature.

The next curator was Mr. C. H. Crantz, who was appointed in 1897 owing to a change in State politics. He is a native of Sweden and at the time of his appointment was in business in Chicago.

In 1903 he published a report of the museum.

The move which came in his incumbency saw the transfer of the collections from the State House to the arsenal. A few more square feet of space were gained, but at the expense of dignity and beauty in the surroundings. The curator was able to bring all the zoölogical specimens under glass. But the only arrangement possible is that allowed where every square inch of space must be utilized. Of his term Mr. Crantz writes:

"When I began my term as curator the Museum was located on the third floor of the State Capitol, in one large and two small rooms, poorly lighted and very cramped for space. These rooms, as well as the office room had all been used by the Legislature as caucus and committee rooms, and during the sessions I had to give up my office, desk room excepted, and one of the small rooms. The collection had shortly before been moved upstairs from large and well lighted rooms on the first floor, much against the wishes of the then curator, Mr. Gurley.

The result of the smaller space allotted caused a terrible crowding of the exhibits, on which it was almost impossible to improve, and absolutely prevented any expanding.

The duties of the curator up to the recent establishment of the new Geological Survey included those of the former State Geologist, in so far as possible to perform them, without any appropriation for maintenance of field work. The correspondence of the office was principally on questions relating to the geology of the State and the occurrence of coal, oil, natural gas and clays—the attending to which took considerable time.

The care and arranging of the exhibits kept myself and assistant busy. The collections of birds and mammals, and of insects needed constant looking after to prevent damages.

A number of old, poorly mounted specimens were weeded out and replaced by new and properly mounted ones. Many species new to the collections were acquired and placed on exhibit.

A collection of birds eggs and nests was started with a small nucleus of old specimens, and has grown to a very good one and representative of most Illinois species—including several rare ones.

The fossils and minerals were repeatedly gone over and cleaned. New labels have been written for every specimen on exhibit—a no mean task in itself. As said above, our quarters in the Capitol were so crowded that when the new Arsenal was erected and it was decided to move the museum there, we flattered ourselves that we would now get much better space, but were disappointed in this, and only a few hundred square feet of additional floor space was available for the museum—with no space for a workroom.

Under many difficulties the removal was made, taking fully six months to complete the packing of the exhibits, taking down and rebuilding and altering the cases, and arranging the exhibits.

The small space prevented much improvement in the arrangements, but the room is better lighted and the exhibits more accessible than formerly—although to do full justice to the needs of the museum at least double the space should be allowed.

In my efforts to maintain and improve on the usefulness of the museum I always had the most hearty good will and coöperation of the Board of Trustees and office staff."

In 1905 a new geological survey was organized under excellent provisions and leadership. Already it has produced valuable results. The only formal relation between it and the museum is the clause* which reads as follows:

"All materials collected, after having served the purposes of the bureau, shall be distributed by the director to the educational institutions of the State in such manner as the commissioners may determine to be of the greatest advantage to the educational interests of the State, or, if deemed advisable the whole or part of such material may be placed on permanent exhibition in the State Museum of Natural History at Springfield, or in the museums of the University of Illinois. * * * "The whole or part of such material may be placed on permanent exhibition in the State Museum of Natural History at Springfield * * * ."

The present curator was appointed Sept. 15, 1906.

Miss Fanny Fisher, who has been connected with the museum since 1881, with the exception of three years (1893-1896), has been acquainted with all the curators except Dr. Norwood. Concerning them and their work she writes:

"My first acquaintance with Prof. A. H. Worthen, that able scientist and grand old man, began upon my entering the Museum as assistant. Briefly, I will touch upon his personal characteristics. He was a man of the strictest integrity, one who had risen through dauntless energy, conquering by his indomitable will and personal exertions all those difficulties, so numerous in the early pioneer days. His one great precept towards mankind was to 'do unto others as you would have others do unto you.' And this precept he followed strictly, as far as my own observations went.

"As a scientist he had won for himself an enviable reputation as a geologist and palaeontologist. The State of Illinois has a collection in its Museum which will stand for generations a dumb proof of his zeal and interest in his work. The disinterested or thoughtless would scarcely appreciate the many years of labor, the difficulties conquered and left far behind, this collection stands for.

Of his eight volumes of the Geological Survey of Illinois, the last one, Volume VIII, was ready for the printer when his death occurred. It was printed under the direction of his successor, Dr. Josua Lindahl.

Dr. Lindahl was and is a man of many scientific attainments and a linguist of considerable ability. He had many ambitions for the Museum and the work connected with his office where which he was unable to carry out because of lack of funds, and also lack of scientific interest from those in power. However Dr. Lindahl prepared from the Museum collections a magnificent display for the World's Columbian Exposition at Chicago. At this exposition this display won a medal and a diploma. Meantime the State administration became Democratic, and Dr. Lindahl was removed from office in June of that year and Wm. F. E. Gurley was appointed in his place. I, too, lost my position early in the fall of that same year, and hence know nothing concerning the Museum during the ensuing three years in which the Democrats were in power.

At the end of this time, the Republicans again won a victory at the polls, and just after the inauguration of John R. Tanner, I was re-appointed to my old position as assistant curator of this museum.

Dr. C. H. Crantz was appointed curator. From this time no scientific work was done here. The same old story of lack of funds necessitated giving up all efforts towards progress scientifically. In lieu of this, the policy of the Museum has been purely a practical one. Keeping everything in good order,† the specimens clean and plainly labeled and attending to a numerous correspondence such as a department of this kind would have, required considerable time to accomplish. From a practical standpoint Mr. Crantz has made an ideal curator, and attended strictly to his duties at all times. I would add

* Laws of Illinois, 1905, p. 31, section 8.

† B. F. Shepler has been helper and janitor since 1901—Ed.

C. H. CRANTZ.

that he is a remarkable linguist and, at various times proved of great service to many of the State officers in translating numerous foreign communications of importance.

Practically, the Museum has been of almost inestimable value to thousands of school children, (who have come here to study, accompanied by their teachers), as well as to many thousand visitors, many of them excursionists from distant points in the State, all of whom made this place their Mecca. And therefore, practically, it has served a great purpose. Scientifically, it could become a great institution, for the material is here, and the *will* to broaden, but alas! the financial wherewith is absolutely wanting. For, build castles as one may, the most important factor in the march of progress, (when progress means scientific research)—is plain, every-day money. Without money, one's castles must fall and stifled ambitions must, perforce, lie buried for a time."

CONCLUSION.

In reviewing the history of the museum a number of facts come prominently to view.

First, men of scientific instincts and activity have had the work of the museum in charge. They have added to scientific knowledge generally and have built up the museum in particular.

Second, as a result of their abundant labors much valuable material has been brought together.

Third, the museum does not begin to contain the collections that it should contain. It has suffered by fire. It has been moved nine times without having reached a location in any degree suitable, either as far as space, light, dignity or beauty are concerned. Money that should have been spent for materials has been used in moving.

Two of the curators, Worthen and Gurley, were ardent collectors before coming to their office and during their incumbency continued collecting for themselves. At the time of their leaving the curatorship they were criticized because of the size and value of their private collections.

It was urged that their energies as collectors should have been turned wholly toward building up the State Museum, and that if such had been the case the museum would have been much richer. On the other hand, it was said that the State was an unjust employer, failing for two years to pay one curator, and turning off the other without just cause, and that the State neither properly prized nor cared for the valuable materials which were brought together as the result of painstaking and arduous labor.

However, by some arrangement those materials should have been saved for the State, and the most appropriate place for them is the State Museum. There should be a law, whether written or unwritten, that no curator should collect for himself. It might work hardship for the curator, but it would be for the proper advantage of the institution which he served.

The museum has had a long and eventful history. It has filled a place of usefulness, but the opportunity which lies before it is far greater than that which is past.

To use the opportunity and meet the obligations which are upon it will require the interest and help of all those who are in any degree responsible for its conduct.

To advance in utility and perfection it needs the hearty sympathy and support of the legislative committees which provide its finances. It needs the coopération and careful thought of its trustees. When these are granted, the museum staff, by skilful and diligent application, may be able to produce a museum ever more nearly approximating an institution which should fittingly represent the great and prosperous State of Illinois.

The museum should preserve the vanishing types of animals and plants of the State. It should represent the history of the State as far as Nature is concerned. It should be a place of entertainment of the highest class.

Throughout the United States the value of museums as places of entertainment and education is being more appreciated. It is coming to be realized that museums supplement schools and libraries. They often appeal first to people who are not influenced by other sources. They are places of amusement of the highest type, and the public deserve amusement. They are a means of education, inasmuch as they show the world in which we live as it is, and have a sane and whole some influence on the public.

The museum field is a great and valuable field. As the State preserves her natural history treasures for the schools, she can at the same time afford every one, learned and humble, rich and poor, such a view of their environment as will enrich their intellectual equipment.

That the number of friends of the museum among legislators and executives may increase is a consummation devoutly to be wished.

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APPENDIX

REPORT

ON THE

Illinois State Museum of Natural History

AT

Springfield, Illinois

A. R. CROOK, Ph. D., Curator.

JANUARY, 1907

SPRINGFIELD, ILL.:
PHILLIPS BROS., STATE PRINTERS,
1907.

Museum of Natural History.

STATE OF ILLINOIS,

SPRINGFIELD.

BOARD OF TRUSTEES.

CHAS. S. DENEEN, *Governor.*

JAMES A. ROSE, *Secretary of State.*

FRANCIS G. BLAIR, *Supt. of Pub. Instruction.*

A. R. CROOK, *Curator.*

MISS FANNIE FISHER, *Ass't Curator.*

GENERAL VIEW OF THE MUSEUM.

INSECT CASES AND RELIEF MAP.

REPORT OF THE CURATOR.

To the Honorable Governor Charles S. Deneen, and Board of Trustees:

GENTLEMEN—I beg herewith to present a statement of the condition and needs of the museum, to call attention to some points in other institutions of like character, and to outline work which seems to promise usefulness.

The museum contains a large amount of valuable material and represents the work of five curators and their assistants for a period of more than fifty years. It is a valuable heritage.

At present it is not possible to state the money value of the collections, since a large part of the materials are inaccessible and it has not appeared to be advisable to undertake the task of inventory, since it would be impossible to do so with any completeness. However, the specimens now on exhibition in the museum are worth many thousands of dollars. Among them are materials that could not be purchased and for that reason their value could not be stated.

The writer is pleased to report that upon his assumption of the duties of the office September 15, 1906, he found that the specimens were in a clean, well kept condition, provided with written labels, and contained in cases which are good for protection and preservation.

The different departments of natural history are about equally well represented. A cursory view shows that good judgment has been used in the acquisition and display of materials, so that the animal and mineral kingdom are about equally represented. The botanical specimens are not on exhibition, though the museum contains a Herbarium which represents a great amount of labor.

There are two cases exhibiting about four thousand shells; one case of fish containing specimens in alcohol, stuffed specimens, skeletons, and well made casts, together about one hundred and fifty examples; good corals and sponges; three cases of birds, containing about a thousand well stuffed specimens representing especially the birds of Illinois; a good collection of birds' eggs; one case containing about eighty mammals, stuffed specimens and skeletons; a fair collection of minerals and rocks; and a very perfect collection of invertebrate fossils. Archaeology is represented by samples of pottery, arrow heads, axes, and sample chipped instruments.

LACK OF SPACE MOST PRESSING NEED.

The space at the disposal of the museum is so small that a large part of the minerals, rocks and shells, have not been moved to the

arsenal. Five hundred and seventy (570) drawers each containing possibly one hundred specimens, that is probably fifty thousand specimens, are in the basement of the State house exposed to misuse by chance visitors or workmen who have little idea of their value.

This is the worst feature in the present condition of the museum, namely, that a part of the museum is not only wholly inaccessible, but in danger of dissipation.

Another feature is that the material in the one museum room (60 by 50 ft.) is so crowded as to permit neither of scientific nor artistic arrangement. Most of the cases are only two feet apart, leaving aisles so narrow that visitors can with difficulty pass between them, and lack space enough for even properly seeing the specimens. In the mammal case are eighty-seven specimens, while two of the largest animals would be enough to occupy the case, that is, there are forty times too many specimens in the case. In one of the fossil cases are three hundred and forty specimens. Half of that number are sufficient to fill the case. Four of the cases which are high enough in themselves have others placed on them so that the specimens on the upper shelves cannot be seen. All of these difficulties are unavoidable because of lack of room.

THE WORK ROOM.

There should be some room where determination, mounting and preparation and the general work incident to a museum could be performed. There is absolutely at present no space for such work.

THE LIBRARY.

Some rude cases have been pieced together and in them have been placed the books which last winter were crowded together on the floor and covered with canvas in the vain hope of protecting them from water leaking through the ceiling. These books constitute the working library of the department. Some of them cannot be found elsewhere in this part of the country and are rare and valuable. Where they now are they are in danger of being completely ruined and should at the earliest moment be removed to a place of safety and accessibility and provided with good cases. It appears that none of the pamphlets which have accrued to the library have been bound. Out of the six thousand pamphlets possibly something more than half are of such useful and valuable nature that they should be provided with simple binding at least, such as would protect them and make them accessible. The library contains about two thousand bound volumes. The most pressing need is in the line of books of reference. Successful work can be carried on in the institution only with the aid of some good literature on the subjects handled.

The library has never been catalogued.

OTHER MUSEUMS.

Among the two hundred and forty-three American museums with which I have some acquaintance are all gradations from those of

very humble surroundings to those of the greatest excellence. Their number and equipment argue strongly for the need and value of such institutions. They are for the most part maintained and conducted by states, societies, universities or individuals. When a wise and successful business man gives a million dollars to a cause or institution that cause or institution must represent something worth while. All over the United States, public spirited citizens have been endowing museums inasmuch as they have appreciated the great value of such institutions for the entertainment and enlightenment of the people.

More than twenty states have museums, some small and unimportant, others well conducted and valuable. For example, New York has more than one million specimens in its museum at Albany; Pennsylvania has just established a handsome new museum; Ohio with already fifteen thousand square feet of museum space is to have a new building in the near future; Alabama, North Carolina and Virginia have museums "unsurpassed in the south."

According to size, population and wealth, Illinois should have a museum much better and larger than that which it at present has. Ranking third in wealth, third in population and third in mineral production, it should not rank tenth in its museum.

THE KIND OF MUSEUM DESIRABLE.

The State has left the log house period in architecture and has reached the time of well-built houses, and so the museum should not be of the old fashioned type characteristic of a time when collections were more or less of the nature of heaps of odds and ends stored in a garret, dust covered, unidentified, unclassified and undescribed. It should be rather an exponent of the modern museum method which was defined by Dr. Goode, one of the greatest of museum workers in this country, when he said, "A museum should be a good collection of labels well illustrated by specimens."

NATURE OF THE WORK.

A museum should be:

First, a store house.

Second, a work shop.

Third, an institution for entertainment and education.

Fourth, an institution for the dissemination of knowledge.

FIRST A STOREHOUSE.

The State Museum should be the treasury of valuable natural history objects of the State. Plant and animal life are changing. Species are becoming scarce or disappearing. Some animals that were common are no longer to be found in the State, but specimens could yet be obtained in neighboring States, and be preserved here to show what animal life at one time was. The same is true of the plant life. No collection is more valuable or interesting than would be a complete exhibit of the trees of the State. From time to time handsome minerals

are found and they should not be allowed to be lost to the State. Few people are aware that only two states in the United States surpass Illinois in mineral productions and that in the production of one mineral, this State leads all others. Of this mineral, which is produced in such great quantities and which often occurs in crystal groups of great beauty, there are no adequate representatives in the museum.

Besides being a fine store house of the typical and valuable natural history objects of the State it should contain objects to round out and complete the story told of our own natural history objects. For example, when illustrating our chief source of mineral wealth it is desirable to show, not only peat and soft coal, but anthracite, graphite and diamond as well. Though we have no ocean on our borders it is desirable to show sea forms, shells, corals, sponges, sea fish, etc. Though we have no volcanos, volcanic products are interesting and useful in a study of the geology of our own State. Though tropical vegetation is not typical of the State today, tropical woods should be shown for commercial and historical reasons. Our coal deposits were formed under tropical conditions. Though the buffalo and deer are no longer found in the State, they at one time roamed our prairie, and even the ancient relatives of the elephant and rhinoceros frequented the swamp lands of this region.

SECOND, A WORK SHOP.

A museum is a comparatively useless institution without a work shop in which the materials assembled can be put in the best condition for preservation and exhibition. Minerals and rocks are to be tested and trimmed. Fossils are to be worked out of their containing rock, woods are to be sawed and polished. Animal life is to be treated and mounted. Materials and rooms for labelling are necessary. Such a work shop makes it possible for the museum to act in the capacity of,

THIRD, AN EDUCATIONAL INSTITUTION.

It is not enough that the museum be full of material. Just as desirable is it that the materials be so exhibited as to attract the attention most readily, to be understood most easily, and to give the greatest pleasure. The descriptions should be such as to be intelligible not only to the man with scientific training, but to the beginner and the general public as well. When any subject is illustrated it should form a continued story and not appear as a disjointed series of facts. Classification and arrangement should be made in the most scientific and artistic manner.

FOURTH, AN INSTITUTION FOR THE DISSEMINATION OF KNOWLEDGE.

By publication, public lectures, and the distribution of materials the museum can greatly widen its circle of influence. Probably at the present time there is less demand for publication than there is for reaching the people of the State in a more concrete and practical manner, namely, by bringing them in contact with museum material. Acting in accordance with this plan, every high school in the State has been asked if it would appreciate the reception of a small typical col-

lection of the minerals and rocks of the State, and if it would agree to protect the same and give it good exhibition and good use. Several hundred replies have been received from boards of education and high school principals, stating how valuable and greatly appreciated such a collection would be. Probably five hundred such collections, each containing fifty specimens, should be prepared. The cost of preparation of twenty-five thousand such specimens will probably not exceed ten cents a specimen, that is, two thousand five hundred dollars for the whole. A dealer would charge ten thousand dollars for the whole. Such collections will be helping the work of education throughout the State in a practical manner.

The office of the museum is a bureau of information to which come questions of all sorts on natural history subjects. If the curator is unable to answer them he is able to direct the inquirer to some source of information on the subject. Such an office can be influential in promoting the welfare of the people. The center of government should in a way be a center of information, inasmuch as it is accessible to people who otherwise would not know where else to turn.

To many people even in its present condition the museum is the most attractive and interesting thing in Springfield. This should be much more the case, and if the museum lives up to its opportunities it will attract the people for hundreds of miles around, since there is nothing of its kind in this part of the State.

Excursions to Springfield are made by public schools, by various societies and individuals, to see the handsome State house, one of the finest buildings in the whole State. They visit the General Assembly while it is in session to gain more concrete knowledge in the workings of our government. They come to see the museum, where they may obtain an idea of the rocks out of which the whole State is made, of the minerals which furnish us our mineral wealth, of the remains of the ancient inhabitants as shown in the archaeological exhibits, and of the animals and plants of the State. It is possible for us to give them such entertainment and instruction as they would otherwise be without for the rest of their lives. This information makes them more reasonable, saner and less superstitious, more able to adapt themselves to their environment and aids them in the conquest of nature.

The State is spending millions in caring for the physically and intellectually sick among her people. Why not deal as well with healthy people? Why not treat them as generously in the matter of museums as does Great Britain, as Austria and as France? It cannot be because our need of education is not as great nor can it be because we are unable to have as fine institutions. It is simply because the matter has not received sufficient attention by those competent to handle the situation.

Two things are needed to produce a good museum, a competent staff and financial backing. The present staff is eager to work, the curator has studied the chief museums of England, France and Germany, and last summer he visited a number of the leading museums of Europe and this country for the purpose of seeing the best in arrangement, exhibition and administration of museums. If those whose privilege

it is to finance this institution, provide generously, there is no reason why we cannot have a museum commensurate with the needs, wealth and importance of the State. And we earnestly petition that the cause may receive such financial support that by diligent and careful work and judicious expenditure of generous funds we may be able to build up one of the most useful museums in the United States.

A. R. CROOK.

January, 1907.