
ADMINISTRATIVE REPORTS.



FIRST ANNUAL

Report of the State Geologist.

IOWA GEOLOGICAL SURVEY, }
DES MOINES, December 31, 1892. }

To Governor Horace Boies, and Members of the Geological Board:

GENTLEMEN:—In accordance with the provisions of Chapter 71, Laws of 1892, under which the Iowa Geological Survey was established, I have the honor to submit to you a report of the work done since the organization of the Survey.

At its meeting on the 22d of July, 1892, the Geological Board approved plans by which geologic investigations in the State could be commenced. Field work was undertaken immediately after the date mentioned, but two months or more elapsed before a suitable office and the necessary equipments for successful work could be provided. Owing to the lateness of the season when work could be begun with profit, it was deemed best to devote the short time, before winter would put an end to field work, to making preliminary reconnoissances for the purpose of settling certain general questions respecting the geological structure of the State. At the same time the general purpose of the Survey—the determination of the location and extent of geological deposits of economic

value—has been kept in view, and a large amount of valuable information has already been collected.

The State Geologist, Assistant State Geologist and Chemist were appointed by the Geological Board; and in carrying into effect the plan submitted by the State Geologist, that officer was authorized to appoint a number of subordinate local assistants. These assistants were named and their appointments approved by the Board at the first regular meeting. All who accepted appointment have been at work for the Survey so far as their duties would allow; and all, excepting two or three, to whom certain special work requiring continuous attention was assigned, have given their services gratuitously.

The State Geologist, in addition to attending to office work and correspondence incident to the organization of the Survey, has worked in Keokuk, Johnson, Buchanan, Webster, Woodbury, and Plymouth counties.

Dr. Charles R. Keyes, Assistant State Geologist, has devoted special attention to the counties lying within the Iowa coal field. A more detailed statement of this work will be found in his report.

Mr. S. W. Beyer has investigated the geological structure and economic deposits of the region having Story county as a center.

Mr. G. L. Houser has made important observations with reference to the building stones and lime-burning rocks in Cedar, Clinton, and Scott counties.

Prof. C. D. Jameson has instituted a series of tests of clays and materials for the manufacture of cements.

Work has been done by local assistants in the counties of Webster, Muscatine, Linn, Clinton, Delaware, Dubuque, and Allamakee.

The work of the Survey is now fairly begun. The

questions of greatest economic interest to the people of the State cannot all be fully settled at once. Time will be necessary in order to cover the entire ground. The results along each line will be made ready for publication as rapidly as circumstances permit, though only when the Survey is completed will the material resources be fully presented. It must also be borne in mind that the determination of the economic problems, which must ever be kept in view as the end sought after in this Survey, is an impossibility without the preliminary determination of questions relating to the genesis and order of succession of the geological strata. A few of the results reached are already complete enough to deserve publication, and they are submitted in the accompanying papers.

Respectfully,

SAMUEL CALVIN,
State Geologist.



REPORT OF DR. CHARLES R. KEYES.

IOWA GEOLOGICAL SURVEY,
DES MOINES, December 31, 1892. }

SIR:—I have the honor of presenting to you the following report of the operations conducted by me during a portion of the past year. As the Survey was not organized until late in July, work could not be commenced until the field season was already well advanced.

FIELD WORK.

The field investigations were:

(1) *Coal*.—This subject being one of the most important relating to the State, was one of the first requiring careful investigation. As a basis for later work a number of detailed cross-sections were made through different parts of the coal measure area. Among others, there was completed an accurate section some sixty-five miles in length, extending along the Raccoon and Des Moines rivers from the western part of Dallas county to the western line of Mahaska. The chief objects of these carefully made geological sections were to find out definitely the different structures represented in the coal measures, the relative position of the coal beds, their boundaries, and their relations to the overlying and underlying rocks. Detailed work of this kind was done in Webster, Boone, Polk, Dallas, Marshall, Warren, Marion, and Madison counties. In Boone and Marshall counties Mr. Beyer also carried on

investigations; and in Warren and Madison, Professor Tilton made careful examinations.

(2) *Clays, Soil, etc.*—Along with the special structure of the coal beds particular attention was paid to the distribution, properties, and manifold uses of the various clays; the relative value and accessibility of the different building stones; the occurrence and extent of the useful minerals; and the character of the different soils and their capabilities for agricultural purposes. All mineral substances liable to bring in immediate or future economic returns were noted.

(3) *Gypsum.*—Work was also begun in the gypsum region with special reference to ascertaining the exact structure and availability of the gypsum deposits within the State. In the mapping of the area, assistance was rendered by Mr. F. Hess, of Ft. Dodge.

(4) *General Observations.*—A number of preliminary trips or reconnoissances were also made in different parts of the State for the purpose of preparing the way for the construction of certain geological sections. Several special trips were also made. Among these may be mentioned one into southwestern Iowa, passing through Madison, Union, and Ringgold counties. Another was made northeastward through Jasper, Marshall, Tama, and Benton counties. And a third was taken into southeastern Iowa, through Mahaska, Wapello, Lee, Des Moines, and Henry counties. Along these lines particular attention was directed to the availability of the clays, building stones, and other mineral substances. The mineral waters and soils were also noted.

OFFICE WORK.

Aside from an unusual amount of routine work connected with the office, statistics and information were col-

lected concerning the coal industries. Circulars were prepared for giving and obtaining definite information in regard to the useful minerals, building stones, and clays of the State.

As special papers for the current Annual Report there were prepared:

(1) A summary of the present knowledge of the "Geological Formations of Iowa."

(2) "An Annotated Catalogue of Minerals" known to occur within the boundaries of the State.

(3) "A Bibliography of Iowa Geology" arranged in the form of a dictionary catalogue, with mention of all the leading papers of scientific and economic importance published to date.

A preliminary geological map of the State has been compiled from special notes belonging to members of the Survey, and from other sources. A number of drawings and other illustrations have also been made to accompany the Annual Report.

Respectfully,

CHARLES R. KEYES,

Assistant State Geologist.

TO PROF. SAMUEL CALVIN,
State Geologist.

