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1902; NEW YORK STATE MUSEUM,  
BULLETIN 56: DESCRIPTION OF THE  
STATE GEOLOGIC MAP OF 1901**

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**FREDERICK J. H. MERRILL**

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*Guy Dawson* *May 20, 1903,*  
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BULLETIN 273

NOVEMBER 1902

# New York State Museum

FREDERICK J. H. MERRILL Director

Bulletin 56

GEOLOGY 5

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DESCRIPTION OF THE  
**STATE GEOLOGIC MAP OF 1901**

BY  
 FREDERICK J. H. MERRILL Ph.D.

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# New York State Museum

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Bulletin 56

GEOLOGY 5

DESCRIPTION OF THE

GEOLOGIC MAP OF 1901

PREFACE

IN THE COMPLIMENTS OF

FREDERICK J. H. MERRILL

DIRECTOR AND STATE GEOLOGIST

UNIVERSITY OF THE STATE OF NEW YORK,  
NEW YORK STATE MUSEUM  
ALBANY

The purpose of this bulletin is to give a certain amount of information which could not be expressed on the geologic map of 1901, namely the detailed credit for the material used in its compilation.

With this it has seemed worth while to give some items of general information about the history of geologic work in New York. The matter relating to the early Natural History Survey is in part based on an article by the late Dr James Hall in a publication entitled *Public Service in the State of New York*, which has been copiously quoted because of its convenient form, though the facts given are on record elsewhere.

In compiling a second edition of the geologic map of the State of New York, on the scale of 5 miles to the inch, the writer has found the task exceedingly complex. While the geology of New York has been carefully studied by many competent observers the lack of accurate maps has rendered much of the field work unavailable for graphic reproduction because many accurate observations could not be located. It also appears that in the earlier work the geologists have not understood the most practical methods of locating their observations, the practice seemingly having been to locate outcrops with reference to drainage rather than with reference to roads.

From the earliest times roads have been surveyed and their principal turns and angles have been located with sufficient accuracy to make them available for reference from one map to another. On the other hand, as the streams have rarely been surveyed and their meanderings have been represented in a conventional and conjectural manner, outcrops or boundaries referred to them are usually unavailable for plotting on an accurate base.

In offering the present map and its accompanying bulletin to the public, the author does not expect that he has been able to avoid errors and he earnestly asks the cooperation of all who are interested in the geologic map of New York to aid him in making it as accurate as possible by supplying corrections for a revised edition.

FREDERICK J. H. MERRILL

*Albany N. Y. July 1902*

The geologic map of New York, edition of 1901, is sold in atlas form for \$3. Mounted on rollers \$5.



## INTRODUCTION

The geologic map of New York is a graphic expression of the general results of the geologic study of the rocks of the state. This study began as early as 1820 and has been carried on continuously, not only under state auspices, but by private and federal enterprise, and many valuable contributions have been made by geologists not in the state service.

A very complete bibliography of articles on New York geology will be found in bulletins of the United States Geological Survey, nos. 127, 130, 135, 146, 149, 156, 162 and 172.

## HISTORY OF THE NEW YORK GEOLOGIC SURVEYS

In 1820 and 1821 Prof. Eaton, with the assistance of Drs T. Romeyn and Lewis C. Beck, under the patronage of Hon. Stephen Van Rensselaer, conducted an agricultural and geological survey of Rensselaer and Albany counties. These surveys, of which reports were published, were intended to serve the interests of agriculture, and were spoken of in the *American Journal of Science* as being the most extensive and systematic efforts of the kind made up to that period. In 1822, also under the patronage of Stephen Van Rensselaer, Mr Eaton undertook a geological and agricultural survey of the district adjoining the Erie canal. The report on this work was published in 1824, in a volume of 163 pages, with a geologic profile extending from the Atlantic to Lake Erie, and a "profile of rocks crossing part of Massachusetts" (from Boston harbor to Plainfield), by the Rev. Edward Hitchcock, who also furnished a description of the rocks and minerals crossed by this profile.

Much had already been done, therefore, to prepare the way, and the public mind was fully awake to the interests and importance of a geological survey, when the Albany Institute, in 1834, memorialized the Legislature for some action in that direction. In 1835 a similar petition was presented by the New York Lyceum of Natural History.

These memorials were referred to a committee of the Legislature of 1835, which recommended a resolution by which the secre-

tary of state was "requested to report to the Legislature at its next session, the most expedient method of obtaining a complete geological survey of the state, which shall furnish a scientific and perfect account of its rocks, soils and minerals, and of their localities; a list of all its mineralogical, botanical and zoological productions, and provide for procuring and preserving specimens of the same; together with an estimate of the expenses which may attend the prosecution of the design, and of the cost of publication of an edition of 3000 copies of the report, drawings and a geological map of the results."

In pursuance of the request contained in this resolution, the secretary of state, Hon. John A. Dix, presented a report<sup>1</sup> at the session of the Legislature in 1836, which contained much valuable information with reference to what had already been done toward developing the mineral resources of the state, giving a summary of our knowledge of the subject at that time, and discussing several questions of great interest; for example, the salt and salt-bearing formations, our mineral springs and the probabilities of finding coal within the limits of the state. He also gave a statement of what had been done in other states, and of work in a similar direction elsewhere in progress or in contemplation.

Under their distinctive heads, he discussed the botany and zoology of the state, and gave reasons why each should receive due attention.

The report concluded with the recommendation of a plan for the geological survey by a subdivision of the state into four districts, a plan which, with some modifications, was carried out in the final organization. This plan contemplated the employment of two geologists for each district, which was subsequently modified by the appointment of one geologist with an assistant, for each district. One mineralogist was appointed for the entire state, and also one botanist and one zoologist.

As shown by the accompanying maps, the first district con-

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<sup>1</sup> Report of the secretary of state in relation to a geological survey of the state, dated Jan. 6, 1836. Assembly doc. no. 9, 1836.

sisted of the counties of Suffolk, Queens, Kings, Richmond, New York, Westchester, Rockland, Putnam, Dutchess, Orange, Sullivan, Delaware, Ulster, Greene, Columbia, Rensselaer, Albany, Schoharie, Schenectady, Saratoga and Washington, containing an area of 12,263 square miles.

The second district consisted of the counties of Warren, Essex, Franklin, Clinton, Hamilton, Jefferson and St Lawrence, making 10,817 square miles.

The third district comprised the counties of Fulton, Montgomery, Herkimer, Oneida, Lewis, Oswego, Madison, Onondaga, Cayuga, Wayne, Ontario, Monroe, Orleans, Genesee and Livingston, making, as reorganized, 11,468 square miles.

The fourth district consisted of the counties of Otsego, Chenango, Broome, Tioga, Chemung, Cortland, Tompkins, Seneca, Yates, Steuben, Allegany, Cattaraugus, Chautauqua, Erie and Niagara, embracing an area of 11,594 square miles.

The third and fourth districts were afterward reorganized, making all the counties to the west of Cayuga lake, and a line drawn north and south from its two extremities, the fourth district, which contained 11,060 square miles.

During the session of 1836 the Legislature passed "an act to provide for a geological survey of the state," authorizing and directing the governor to "employ a suitable number of competent persons, whose duty it shall be, under his direction, to make an accurate and complete geological survey of this state, which shall be accompanied with proper maps and diagrams, and furnish a full and scientific description of its rocks, soils and minerals, and of its botanical and zoological productions, together with specimens of the same; which maps, diagrams and specimens shall be deposited in the State Library; and similar specimens shall be deposited in such of the literary institutions of this state as the secretary of state shall direct."

This act further provided for an annual appropriation for defraying the expenses, and required the persons employed to make an annual report to the Legislature on or before the first