# FIRST, SECOND AND THIRD ANNUAL REPORTS OF THE UNITED STATES GEOLOGICAL SURVEY OF THE TERRITORIES, FOR THE YEARS 1867, 1868, AND 1869, UNDER THE DEPARTMENT OF THE INTERIOR

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# F. V. HAYDEN

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WASHINGTON: GOVERNMENT PRINTING OFFICE. 1873.

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#### PREFATORY NOTE.

The popular demand for a complete series of the Annual Reports of the United States Geological Survey of the Territories under my charge has been so great that the Secretary of the Interior has ordered the printing of a second edition of the first, second, and third annual reports in one volume. The survey in its present form commenced in the spring of 1867, with a small appropriation of \$5,000 made by Congress for the examination of Nebraska ; in 1868 it was continued in the Territory of Wyoming with a similar sum of \$5,000 ; in 1869 it was extended to Colorado and New Mexico, with an increased appropriation of \$10,000. During the years 1867 and 1868 the survey was conducted under the General Land-Office, and the first and second annual reports were included in the reports of the Commissioner. Early in 1869 the survey was placed by Congress under the Secretary of the Interior, and the third annual report was published as an independent volume. These reports are now entirely out of print.

Although they were written in the field and forwarded to Washington in detached portions, and, in the case of the first and second reports, printed without the supervision of the writer, I have thought it best to make no alterations or additions in the present reprint, but to let the reports continue to mark the steps of progress of the survey from year to year.

In the spring of 1870 I presented before the Committee on Appropriations of the House of Representatives a plan for the geological and geographical exploration of the Territories of the United States. This plan looked forward to the gradual preparation of a series of geographical and geological maps on a uniform scale, embracing each of the Territories in accordance with the boundary-lines. In this way these maps would become of great practical as well as scientific value to each of the Territories examined. In accordance with this plan, maps of Kansas, Nebraska, Dakota, Montana, Idaho, Utah, Wyoming, Colorado, and New Mexico are in an advanced state of preparation. As soon as the details of the geology are more fully worked out, these maps will be issued.

F. V. HAYDEN, United States Geologist.

WASHINGTON, May, 1873.

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### UNITED STATES GEOLOGICAL SURVEY

OF THE TERRITORIES,

EMBRACING NEBRASKA.

BY

F. V. HAYDEN, U. S. Geologist.

CONDUCTED UNDER THE AUTHORITY OF THE COMMISSIONER OF THE GENERAL LAND-OFFICE.

1867.