





ISAAC NEWTON.
(Commissioner of Agriculture, 1862-1867.)



HORACE CAPRON.
(Commissioner of Agriculture, 1867-1871.)



JEREMIAH M. RUSK.
(Secretary of Agriculture, 1889-1893.)



FREDERICK WATTS.
(Commissioner of Agriculture, 1871-1877.)



GEORGE B. LORING.
(Commissioner of Agriculture, 1881-1885.)

HEADS (DECEASED) OF THE DEPARTMENT OF AGRICULTURE.

U 30 YEARBOOK A

OF THE

UNITED STATES

DEPARTMENT OF AGRICULTURE.

1899.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.

1900.

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[CHAPTER 23, Stat. at L., 1895.]

AN ACT providing for the public printing and binding and distribution of public documents.
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Section 73, paragraph 2:

The Annual Report of the Secretary of Agriculture shall hereafter be submitted and printed in two parts, as follows: Part One, which shall contain purely business and executive matter which it is necessary for the Secretary to submit to the President and Congress; Part Two, which shall contain such reports from the different Bureaus and Divisions, and such papers prepared by their special agents, accompanied by suitable illustrations, as shall, in the opinion of the Secretary, be specially suited to interest and instruct the farmers of the country, and to include a general report of the operations of the Department for their information. There shall be printed of Part One, one thousand copies for the Senate, two thousand copies for the House, and three thousand copies for the Department of Agriculture; and of Part Two, one hundred and ten thousand copies for the use of the Senate, three hundred and sixty thousand copies for the use of the House of Representatives, and thirty thousand copies for the use of the Department of Agriculture, the illustrations for the same to be executed under the supervision of the Public Printer, in accordance with directions of the Joint Committee on Printing, said illustrations to be subject to the approval of the Secretary of Agriculture: and the title of each of the said parts shall be such as to show that such part is complete in itself.



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P R E F A C E .

In the Annual Report of the Secretary of Agriculture for 1898 there occurred the following reference to the Yearbook for 1899:

* * * For 1899 I am considering the propriety of making a special effort to prepare a publication which shall contain a résumé of the achievements in the United States in every branch of science as related to agriculture during the nineteenth century, for distribution at the Paris Exposition.

The plan thus suggested was not lost sight of, and in the circular letter instructing the chiefs of Bureaus, Divisions, and Offices as to the matter to be supplied the Secretary expressed his earnest desire that the idea presented in his Annual Report for 1898, quoted above, should be carried out as far as possible in the preparation of the papers for the present volume. He said:

I desire that the Yearbook for 1899, the distribution of which will occur during the last year of this century, shall present to the reader a picture of the development of agriculture in the United States during the nineteenth century and of its condition at the present time, and show in a special manner the effect upon agricultural industry of the application of science in its several branches to the service of agriculture. Every Bureau and Division in the Department charged with scientific work should therefore contribute one or two articles reviewing the progress made in the application to agriculture of the particular science with which it is concerned.

In the execution of this design it has been necessary to somewhat limit the number of papers, owing to the space desired for the proper treatment of the various subjects. In addition to the Annual Report of the Secretary, which, in accordance with the law providing for the publication of the Yearbook, has the first place in the volume, there are but twenty-six papers. A glance at the list of titles on page 5 will show that in the main the plan laid down by the Secretary has been carried out. A wide latitude, however, has been allowed to each writer in the presentation of his subject, as each one was dealing with what has been practically his life work. The result is, it is believed, to present for the first time within the covers of a single volume a fairly comprehensive review of the progress and development of a century in almost every branch of scientific inquiry having a direct practical bearing upon agriculture.

It is gratifying to record in this connection that Congress has made provision for an extra distribution of this number of the Yearbook