

REPORT OF THE SECRETARY OF AGRICULTURE FOR 1899.

Secretary Wilson begins his annual report with a "Summary," in which he briefly refers to one or two salient features in connection with each bureau, division, and office of the department, as follows:

Weather Bureau—The extension of the weather bureau service around the Caribbean Sea has been abundantly successful in noting the first indications of cyclones, forecasting their movements, and giving timely warning to our navy, to merchant vessels at sea, and to producers and others interested on land.

Division of Chemistry—This division is becoming a necessity to every department of the government in the making of chemical analyses. Foods are investigated, preservatives of all kinds examined, sugar beets analyzed, etc. An interesting inquiry has been made into the change which takes place in the composition of grains grown repeatedly on the same soil.

Division of Entomology—Since Doctor Howard has shown owners of Smyrna fig trees on the Pacific coast how to get the fruit fertilized, there is good reason to believe that in a few years we shall obtain our fine figs from that locality. Investigation by this division shows that house flies and mosquitoes may be greatly reduced by removing the propagating conditions.

Division of Botany—The department is gathering information regarding the life history of the plants that supply commerce with India rubber and gutta-percha, and should congress be pleased to give direction, it will seek the plant zones in our island possessions where these commodities may be produced. The United States now pays \$30,000,000 annually for rubber. We import between four and five million dollars' worth of Egyptian cotton annually. Experimentation indicates strongly that, on suitable soil properly cultivated, this article can be grown here.

Biological Survey—Plants and animals thrive and produce best where they are most at home. The biological survey is endeavoring to find the most congenial conditions for our plants and animals.

Division of Vegetable Physiology and Pathology—The hybridizing of grains is being conducted by the division of vegetable physiology and pathology, with a view to securing varieties (rust-resisting, drought-resisting, and cold-resisting) better suited to our varied soils and climates. Hybridization will also be applied in the immediate future to cotton, and efforts are now being made to get a hardier orange tree by the same process. The diseases of plants in the several states, including a serious fungous disease affecting sea-island cotton, and the diseases of fruit trees are also being studied.

Division of Pomology—This division continues to experiment in many locali-

ties throughout the country with fruit-bearing trees, plants and vines. For example, 119 varieties of the finer table grapes of Europe have been grafted on Phylloxera-resistant American stocks and sent to North Carolina and Florida. Special work is being done on the Pacific coast to get more definite data regarding the adaptability of varieties to that locality.

Division of Forestry—The division of forestry is introducing practical and paying forestry on a large scale among lumbermen, and extensive experimentation in tree-planting is being conducted, with coöperation on the part of those interested in woodcraft in the several states.

Division of Soils—The irrigation farmer of the West is being helped by the mapping and extended investigation of alkali soils and by the reclamation of injured or abandoned land, many acres of which have become sterile through the injudicious use of water.

Division of Agrostology—Cropping reduces the organic material in the soil. Long-continued cropping renders the soil unproductive. Grasses and legumes are the best agencies for restoring this organic matter. The division of agrostology is experimenting with home and foreign grasses and legumes in all sections of our country, to build up worn-out soils in some cases and to introduce useful varieties in others.

Office of Experiment Stations—Co-operation between the department and the experiment stations becomes closer every year. Assistance from the states is increasing, and the farmers of the several states are appreciating their station work more and more. Experimentation in Alaska has begun with congressional aid. This work should be extended to Hawaii, Porto Rico and the Philippine Islands, so that they may be enabled to supply the United States with tropical products, our importations of which amount to over two hundred million dollars annually.

Office of Public Road Inquiries—There is great interest at the present time in the public highways of the country. Extensive experimentation is being conducted by the department in coöperation with local authorities in building sample roads from the materials found in different localities, and in the laying of steel track.

Division of Publications—During the year 603 publications were issued and over 7,000,000 copies distributed among the people. Of the Farmers' Bulletins, 2,437,000 copies were printed and distributed, which did not meet the full demand.

Section of Foreign Markets—Shows rapid growth of American commerce in all parts of the world. We continue to sell raw material to foreign countries, from which they manufacture high-selling articles. Trade regulations are

prohibitory against American meats in some European countries where importations of cheap grains from which meats are made are encouraged. The American farmer can not afford to export nitrogenous grains or mill feeds for this purpose.

Bureau of Animal Industry—The work of this bureau increases rapidly. Meat inspection was conducted last year at 138 abattoirs in 41 cities. The ante-mortem inspections were 53,223,176, while the number in 1892 was 3,809,459. The third year of experimentation with hog cholera shows that from 75 to 80 per cent of hogs injected with serum are saved. Encouraging results have come from the introduction of dairy products into foreign markets. The department sends shipments abroad for the purpose of ascertaining the facts regarding such products; these facts are published, and commerce naturally follows.

Division of Statistics—Fifty thousand crop reporters keep the division of statistics informed regarding the condition of our staple crops, and every effort is being made to promptly give the people the facts as they are found.

Gardens and Grounds—The grounds of the department and its extensive greenhouses serve a useful purpose, more than 100,000 plants and bulbs, all of economic value, having been distributed during the year by the superintendent. This official is now prepared to supply tea plants for experimentation in the Gulf States.

Seed Distribution—The department in the distribution of seeds is aiming to conform to the original spirit of the law by the importation and distribution of what is rare and valuable.

The secretary then reviews in some detail the work of the several bureaus, divisions, and offices of the department. He lays stress on the great services rendered by the weather bureau to commerce and agriculture, and by the bureau of animal industry to the stock growers of the country. He makes a strong plea for the wide extension of the forestry work, for which he urges greatly increased appropriations. He dwells at some length on the losses due to the injudicious use of water in alkali lands of the irrigated regions, and pleads for a special appropriation of \$10,000 for the investigation of the subject.

Much work has also been undertaken on behalf of tobacco, looking to as wide a substitution as possible of home grown for imported product, by improving the quality of the former. Interesting investigations as to the causes affecting flavor and aroma are being carried on.

He congratulates the country on the increasing coöperation between the department and the state experiment stations in many lines of important work, and strongly urges special appropriations to enable the secretary of agriculture to establish agricultural