istry, entomology, vegetable physiology, tobacco, horticulture, and general affairs. The results of the investigations are submitted to thirty-eight experimental farms, created and carried on by the provinces with the help of a subsidy from the general government, and theories are here subjected to the test of practical application before general publication. Among the results already accomplished by this method are improvement in the quality and quantity of crops through more careful selection of seeds and better understanding of the varieties suited to the conditions in different localities; more efficient modes of destroying injurious insects; ability to minimize the injury from plant diseases, such as smut, mildew, pear cluster-cups, etc.; increased skill in the application of fertilizers, and the discovery of indigenous grasses suitable for meadows, all meadow grasses having formerly been imported.

The general government aids the local treasuries to maintain six local agricultural schools for the instruction of farmers' sons in the general principles of agriculture, surveying, veterinary science, and related subjects. The government also carries on an experimental tea farm, on which is a curing workshop; a laboratory for investigating the disease of cattle and poultry; a cattle-breeding pasture for improving the native breeds of cattle for meat and dairy purposes, and two horse-breeding pastures for promoting the introduction of better horses.

Efforts have been made to introduce sheep raising and swine raising, but with only partial success. It is claimed that the conditions of climate and food supply present no serious obstacle to the success of sheep farming, but the statistics of 1901 showed only 2,545 sheep in the country. Swine raising has succeeded better, but can not yet be spoken of as an established industry of much importance, the number of swine having remained in the vicinity of 200,000 for several years.

The principal agricultural products, named in the order of their acreage, are rice, rye, barley, wheat, beans, mulberries, sweet potatoes, millet, buckwheat, rape, red beans, Italian millet, tea, indigo leaves, potatoes, sorghum, tobacco leaves, cotton and hemp. The area devoted to rice cultivation constitutes a little more than two fifths of the total area of arable land. The greater part of the rice fields are in low-lying land, which can be easily flooded, but some upland rice is raised. Mulberry trees and tea plants are usually planted on land not suitable for more important crops, such as the slopes of hills, sandy dunes, and similar places. In the warmer parts of the Empire barley and rape are often raised as a second crop after rice has been harvested, but farther north the excess of moisture required for rice leaves the land too cold for another crop the same year.

Stock raising is still in its infancy in Japan, and is not likely to become an important industry, owing to the high price of land and the coarseness of the native grasses, most of which are not fit for food for cattle or horses. Oats and maize as foods for farm animals are practically unknown, and what passes for hay is a kind of straw, which is chopped fine before it is fed to horses. A little less than one sixth of the arable land consists of plains and pastures, and of this about two fifths belong to the state and the imperial household, the remainder being owned by private stock raisers, who raise stock principally for tillage and draft animals. The natives are not accustomed to the use of butter or milk, and do not usually like the taste of them, and their religious prejudices have hitherto prevented the general use of meat of any kind, although they now seem to be developing a taste for all these kinds of food.

Farmers do not engage in poultry raising to a sufficient extent to provide the eggs needed for home consumption, these being imported from China to the value of over $500,000 per year. Fruit raising, under the stimulus of government encouragement, has advanced considerably, but is not yet an important branch of farming in this country. Bee culture is engaged in to a limited extent, but the industry is still in a primitive condition.

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### *THE URBAN AND RURAL POPULATION OF GREAT BRITAIN.*

THE general report of the census of Great Britain of 1901 has recently been issued. In

commenting on this report the London *Times* says:

"Attention has been prominently directed, by the report of the Committee on Physical Deterioration, to what is there described as the 'urbanization' of the people; and hence few portions of the volume now issued will be of more general interest than those which set forth the extent to which this process is actually being carried on. We find, in the first place, that the population has decreased in the five English counties of Huntingdonshire, Nottinghamshire, Westmoreland, Oxfordshire and Herefordshire, and in the five Welsh counties of Montgomeryshire, Cardiganshire, Flintshire, Merionethshire and Brecknockshire; the decrease ranging from 7.04 per cent. in Huntingdonshire to 1.62 per cent. in Herefordshire; and from 5.08 per cent. in Montgomeryshire to 0.17 per cent. in Brecknockshire. In the remaining forty-five English and Welsh counties there was an increase of population, ranging from 45.11 per cent. in Middlesex to 0.003 per cent. in Cornwall; but the increase in Radnorshire, which was only apparent, and is said to have veiled a real decrease, was due to the presence in the county of a number of men who were temporarily engaged in the construction of waterworks for the Corporation of Birmingham. Particulars are given for 1,122 urban and for 664 rural districts, and it appears that the aggregate population of the former in 1901 was 25,058,355, and of the latter, constituting the remainder of the country, 7,469,488; so that the persons enumerated in urban were to those enumerated in rural districts as 335 to 100; the proportions in 1881 and in 1891, in the urban and rural districts as constituted at those periods, having been respectively 212 and 258 to 100. The increase in the proportion resident in urban districts is attributed partly to an actual growth of population within those districts as they existed in earlier census years and partly to the growth of the districts themselves through the absorption of areas which were previously rural. It was pointed out in 1891, and is still the case, that a considerable number of the urban districts, although technically urban, are distinctly rural in character, being in many cases small towns situated in the midst of agricultural areas on which they are dependent for their maintenance as business centers. At the recent census there were 215 urban districts with populations below 3,000, 211 with populations between 3,000 and 5,000, and 260 with populations between 5,000 and 10,000; and the report follows the example of its predecessor in stating the proportions between urban and rural dwellers from these three points of view. If we class with the rural districts all those urban districts with populations below 10,000, the aggregate population of the remaining urban areas numbered 21,959,998, the population of the same areas in 1891 having been 18,964,882, and the rate of increase in the decennium being 15.8 per cent. In the rural areas, with the added small urban districts, the population increased from 10,037,643 in 1891 to 10,567,845 in 1901, or an increase of 5.3 per cent. There are, nevertheless, many rural parts in which actual depopulation has occurred, and these are found in the rural and small urban districts of twenty-three counties; while, although there has been a small increase of population in rural areas in the aggregate, there has, nevertheless, been a very considerable drain on the natural growth of the population of these areas. A table is given showing that, in a rural population of nearly five and a half millions, the natural growth by excess of births over deaths was 565,253 in the ten years preceding the census of 1901, but that the actual increase of population was only 64,599, showing a loss by migration of 500,654, equal to 9.1 per cent. of the population of 1891."

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*THE CARNEGIE TRUST FOR THE UNIVERSITIES OF SCOTLAND.*

The Carnegie Trust for the universities of Scotland has made awards for the year 1904–5 of twenty-four scholarships, twelve fellowships and thirty-five special grants, the total value of which is somewhat more than $25,000. The fellows are as follows:

*Physical.*—(1) Dugald B. McQuistan, M.A., B.Sc., Glasgow.