

1881 1,195,000,000 bushels of corn were worth \$760,000,000; in 1884 1,795,000,000 bushels were valued at \$641,000,000; a small crop was worth 63.6 cents per bushel, a larger one 35.7 cents. Nevertheless, there is disaster in a small crop. The failure is unequally distributed. The few advanced farmers grow nearly full crops and receive larger revenues than usual; the many unskilled and careless suffer disastrous reduction of yield and quality, and fail to make return for seed and labor. Given unscientific agriculture, with an unpropitious season, and the poor may grow poorer, while the scientific farmer in the same year may grow richer.

These contrasts in present production and profit of agriculture are sufficiently striking. But the present will soon be past. We are confronted with a future full of possibilities as of dangers and difficulties. Experiment, skill, science applied to industry, can only avert the latter. Fifteen years ago 47 per cent. of our people were employed in agriculture; five years ago, 44 per cent.; to-day perhaps 42 per cent. We find that all nations in which more than half of the laborers are in agriculture are comparatively poor, and their rural processes are primitive, their implements rude, their rate of production low. We find that in the highest development of agriculture, 20 per cent., or 25 at most, can furnish food for all. In this country, allowing for surplus production, 40 per cent. can readily meet the demand of home consumption, and 33 per cent. will probably do it in the not far distant future, leaving two-thirds to produce other forms of wealth. With increase of permanent wealth there will come demands for luxuries of living which will add to the profit of the farmer. As the facilities for production increase, one danger from an unscientific, primitive, routine agriculture is great excess in certain crops that have been cultivated from the earliest days with little labor. Already our wheat has encountered the lowest markets of a century in Great Britain. The present price of wheat in Liverpool is to-day lower than in the thirteenth to fifteenth centuries. I have known a crop of cotton to sell for \$40,000,000 less than the preceding crop 1,000,000 bales smaller.

What is needed, then? Evidently experiment in collecting new plants, in producing new varieties by scientific process, in cheapening the cost of cultivation to compete with foreign production by cheap labor. It will not do to say that, having learned how to compete with the world in certain products that are very cheap, we can never learn to compete in the matter of products that are dear. In our desire for speed, for large results by labor-saving machinery, we must not fall into routine, and decline investigation, inventive research and experimental effort. Thought in agriculture must be alert and practical in this era of mental activity.

Our agriculture is too much controlled by accident and caprice. Free prairie lands, improved reapers and railroad extension make a glut in wheat. The cotton gin, slavery and a strong foreign demand once made the South poor in buying supplies for man and beast engaged in growing cotton. Thus unequal development reduces

profits. While one-third of the wheat is exported, one-seventh of the consumption of barley is imported. We do not grow even the cereals required.

We boast of our exports of products of agriculture. We foolishly talk of feeding the nations of the world. We do not feed ourselves. In 1883 we paid \$240,000,000 for food and drink imported, and the freights, commissions and customs duties in addition; and our food exports, at prices on the farm and in the packing house, scarcely sufficed to pay the bill of costs of such imports. A large item of this was sugar. Thirty years ago half the sugar used in the United States was produced in Louisiana. Is it possible that European agriculture can be threatened with paralysis by American competition, and that this country cannot produce sugar on account of European competition? Less than a century ago it cost \$1 a pound to produce it there; now three cents. While we do not expect to manufacture it from sorghum at a cost of one cent per pound, or flood the markets of the world with our surplus of production in five years, it is fair to assume that the great maize-producing country of the world will ultimately obtain much of its sugar from sorghum. The cane regions of Louisiana, Florida and Texas, by the aid of some process which shall not allow a waste of 40 per cent. of unexpressed sugar, should aid materially in the home supply for the wants of consumption. In addition to the cane in the southern belt and to sorghum in the great central zone, there is a belt along the northern frontier suited to beet sugar, and there has been no test that throws a shadow of doubt of success on the experiment. The Maine experiment was a successful manufacture, except that the farmers would supply the beets only from garden patches in insufficient quantities for economic manufacture. They lacked land in proper condition, rotation, fertilization and high culture necessary to success; with all these requisites, experience in the cultivation of sugar beets would be essential to full success. In California a single factory produced two to three million pounds of sugar last year, and has made it at a profit for several consecutive years. If one can do it, so also can one thousand. The trouble with our farmers, with all their energy and dash, is a dislike for new methods, an adherence to routine, and impatience in waiting for results. They will exchange sheep for hogs, or *vice versa*, in a twinkling, as prices veer, but will not experiment for the ultimate success of new rural industries. As a rule, they cannot well afford to; it is the duty of the Government, the proper business of the Agricultural Department and of the agricultural colleges to do the necessary experimental work which shall usher in new and profitable enterprises in production, which shall relieve the crowded competition in cereals and cotton, give to the laborer a demand for his work, the producer a market for his varied products, and the country added wealth and foreign exchanges in its favor. But the prosperous farmer should cultivate a generous public spirit, as well as a laudable *esprit de corps*, and take some risk in intelligent experiment that promises beneficent results.

—J. R. Dodge, Statistician Department of Agriculture.