

C O N T E N T S (PART II).

THE FARMING INDUSTRY.

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THE SELF-BINDER: One day, in the summer of 1858, a boy named John F. Appleby was binding grain after a reaper.

"How do you like the work, Jack?" asked the farmer.

"I don't like it," said Jack, "and what's more, I believe I can invent a machine to tie the bundles."

"Ho! Ho!" laughed the farmer, "You little fool, you can't invent anything." (Casson, Romance of the Reaper, 79)

Despite the discouraging reply, Appleby went to work trying to make a knotting machine, though he did not meet with much success. When the Civil War came he enlisted and forgot about the machine for a while, but after the war he again began experimenting. One of his machines was sold at auction for seventeen cents and then the purchaser presented it to the inventor with his compliments. Eventually, however, on February 18, 1879, with the financial aid of Dr. E. D. Bishop, who had seen one of his earlier machines in operation, he patented a twine binder to be used in connection with the reapers. "He did not of course originate the self-binder-but he put ^{it} together in the right way and pushed ahead to success through a wilderness of failure." By 1880, therefore, the modern automatic self-binding reaper was a fact. It embodied "the fundamental principles of McCormick and Hussey, the inclined elevator and platform shown by Marsh, and the automatic binding devices of Behl, Gorham and Appleby." (Byrn, 205)

"This machine under favorable conditions, with one driver, cuts twenty acres of wheat in a day, binds it, and carries the bound bundles into windrows, and with one shocker, performs the work of twenty men, and does it better, the saving in the waste of grain over hand labor being sufficient to pay for the time used in binding. It is said that the self-binding reaper has reduced the cost of harvesting to less than half a cent a bushel." (Ibid).

"Harvesting by machinery has actually become cheaper than the ancient method of harvesting by slaves. This surprising fact was first brought to the notice of Europeans during the Chicago World's Fair, when forty-seven foreign Commissioners were taken to the immense Dalrymple farm in North Dakota. Here they saw a wheat field very nearly 100 square miles in extent, with three hundred self-binders clicking out the music of the harvest. There were no serfs-no drudges-no barefoot women. And yet they were told that the labor-cost of reaping the wheat was less than ^acent a bushel." Again,

"Roughly speaking, the time needed to ^{handle} ~~bundle~~ an acre of wheat has been reduced from 61 hours to three, by the use of machinery. Hay now requires four hours, instead of 21; oats seven hours, instead of 66; and potatoes 38 hours, instead of 109." (Casson, 177-179)

The extent to which the farmers used the new and improved machinery can be seen from the statistics of the manufacture and sale of their self-binders, reapers, and mowers.

Growth in self-binding harvester, reaper and mower manufactures,

	1840	1850	1860	1870	1890
Machines made:	3	3000	20,000	30,000	60,000

"In 1885 over 100,000 self-binding harvesters and 150,000 reapers and mowers were made. In 1890 two manufacturing establishments in Chicago made more than 200,000 machines, half of which were self-binders and the other half reapers and mowers, and the two institutions alone employed in their various branches of manufacturing and selling 10,000 employees. In 1895 the output of the largest of these manufacturing establishments was 60,000 self-binding harvesters, fitted with bundle carriers and trucks, 61,000 mowers, 10,000 corn harvesters, and 5000 reapers, making 136,000 machines in all. In 1898 the output of this one factory for the year was 74,000 self-binding harvesters, 107,000 mowers, 90,000 corn harvesters, and 10,000 reapers amounting to 200,000 machines. This output, together with 75,000 horse-rakes, also made, averaged a complete machine for every forty seconds in the year working ten hours a day. [The company referred to is the Wm. Deering & Co.]

"The estimated annual production of all factories in this class of agricultural implements is 180,000 self-binding harvesters, 250,000 mowing machines, 180,000 corn harvesters, and 25,000 reapers." (Byrn, 05-206) (In 1900)

Of course not all of these machines were used here, for "there were exported in the year 1880 about 800 self-binding harvesters, 2000 reapers and 1000 mowers. In 1890 this was increased to 3000 self-binding harvesters, 4000 reapers and 2000 mowers. The total value of mowers and reapers exported in 1890 was \$2,092,638. The growth subsequent to 1890 is well illustrated by the exports for 1899, which for mowers and reapers was \$9,053,830, or more than four times what it was in 1890." (Ib.)

Besides the use of these new and better machines, with their capacity for so much greater output than was possible with hand labor, "there are numerous other factors that have operated to the benefit of the agriculturalist. Increased transportation facilities and lower freight ~~rates~~ ^{charges} have widened his market. The processes of canning, packing, preserving and refrigerating have produced a similar effect, and have also provided a means for the disposal of surplus perishable products that otherwise would be lost. The utilization of by-products as, for example, the conversion of cotton seed into oil, fertilizers and food for live stock, has become another source of profit.

"Great economic and social changes have resulted from this progress. There has been a great division of labor in agriculture. Makers of agricultural implements, of butter and cheese, cotton ginners, grist and wheat millers, are now classed

in the United States Census Report as Manufactures, but all their work was once done on the farm. The farmer is now more of a specialist and more dependent on other industries than formerly. He has changed from a producer for home consumption or a local market, to a producer for a world market. Unfortunately his knowledge of economic laws has lagged behind his progress in scientific agriculture. The farming class at times have experienced periods of great depression, largely on account of their inability to adjust their crops to changing conditions in the world's markets, and in such cases have been prone to seek a remedy in radical legislation. Periods of agricultural discontent at different times have been marked by the political activity of the 'Grangers' and of the 'Farmers' Alliance', and even by the formation of new political parties such as the Greenback Party in 1874 and the Populist or People's Party in 1892-whose strength lay mainly in the agricultural states." *

To these factors must be added the great amount of land which was available to the people through various acts of Congress. Thus the number of farms increased from 1,449,073 in 1850, to 5,739,675 in 1900. Moreover the acreage increased from 293,560,614 to 841,201,546 acres in the same period. The average size of the farms, however, underwent a decrease. In 1850 the average size of farms was 203 acres. In 1900 it was 146 acres. This is due largely to the breaking up of the large estates in the South after the Civil War. *

* (Encycl. Brit. Vol. I P. 416-417)