

Revolution

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Wagon Works of Chicago became an International Harvester property. The Company's line of farm implements became complete with the acquisition in 1918 of steel and chilled plows through the purchase of companies which operated the present Canton Works at Canton, Illinois, and a plant at Chattanooga, Tennessee, and the addition of a line of seeding machines manufactured at Richmond, Indiana.

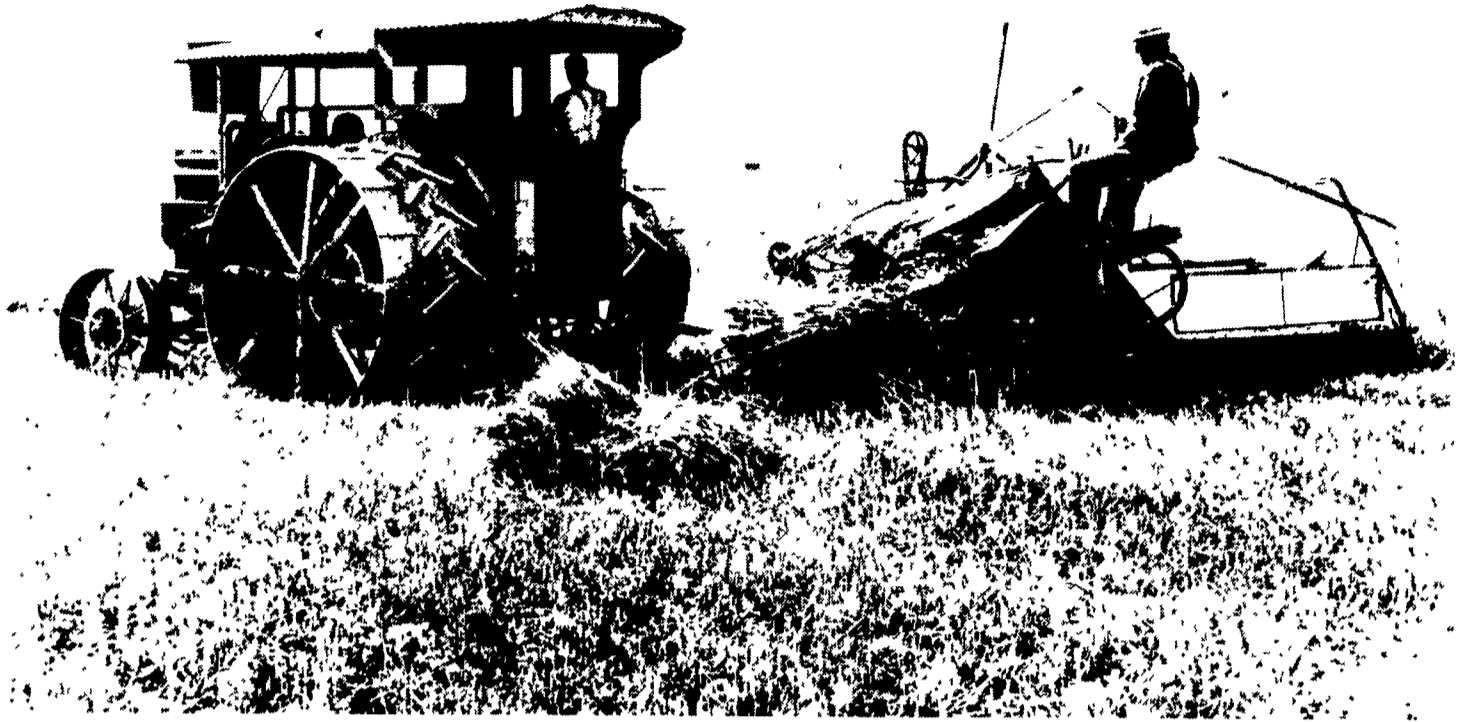
During these years, the International Harvester Company had been rapidly developing and putting into production new lines at its original plants. By 1912, corn binders, ensilage cutters, seeding machinery, harrows, and manure spreaders had been added to the catalog of implements offered to International Harvester dealers. The pioneer light harvester-thresher was introduced in 1914; the stationary thresher, four years later.

The Growth Of Power Farming

The key to all progress in agriculture is power. As long as there was only human energy, supplemented by the limited use of animal power, to perform the multiple operations required by farming, progress was necessarily slow. When Cyrus Hall, McCormick perfected the reaper, he brought to the farmer a broader application of animal power by demonstrating its practical use in the harvest. From that point, farming methods leaped forward to the greatest period of development the world had ever witnessed.

The development of agricultural machinery was inhibited as long as animals were the only available source of power. By the end of the nineteenth century, most implements had reached their maximum capacity for use with work animals, yet they were capable of further improvement and economies. Designers were forced to gear their machines to the speed of the horse and make their draft no heavier than an ordinary team could pull. The grain binder, for example, had by 1900 been perfected to the point where only additional power could increase its efficiency. With animals as the motive power, no higher speed could be attained, nor could the machine be made heavy enough to increase the width of its cut. Some kind of power more efficient than that which animals were able to provide was clearly indicated if industry was to continue its service to the farmer by giving him machines that would allow him to get the most out of his land with the least effort.

It was only natural that after the invention of the steam engine there should be experimentation with the use of this mighty new source of power on the farm. The first, and what was to be the only really practical wide-spread application of the steam engine, was in threshing, during which power was transmitted by a belt to the threshing machine. Throughout the last century, many attempts were made to apply the steam tractor to plowing, the farmer's most difficult job. There was no question but that the steam engine was a lift in pulling a plow, but its use was extremely limited. Because of its prohibitive cost, its size, and general unwieldiness, it could be employed profitably only on the immense acreages of the West. Farmers of quarter and half sections never seriously considered the steam tractor. The real importance of the steam-driven tractor lay in the fact that it was a step in the right direction. Its existence gave rise to the first efforts to design and manufacture a tractor that would employ the internal combustion engine

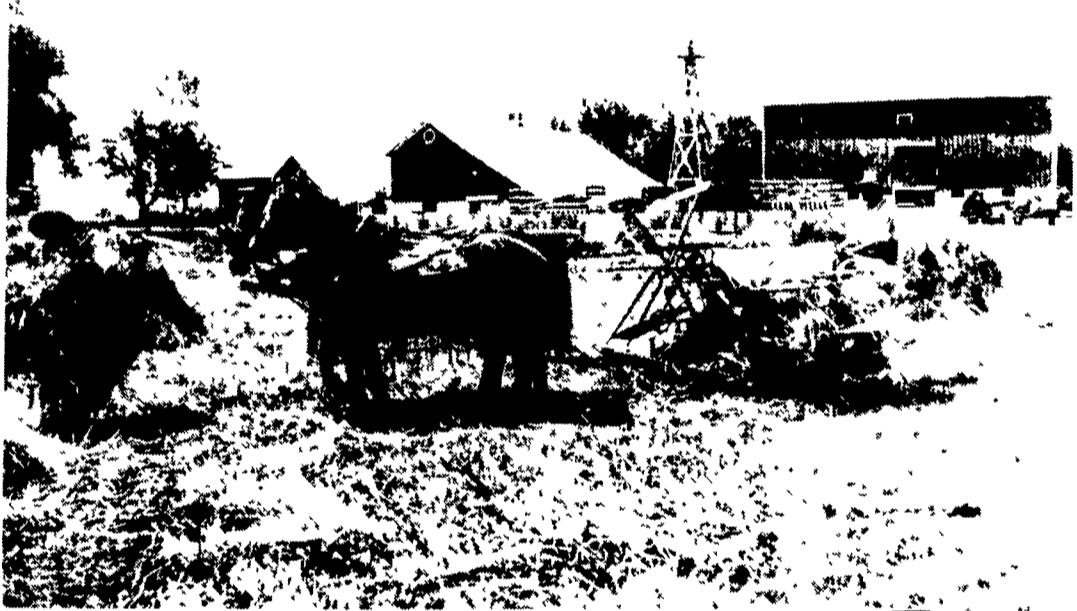


beginning to be seriously considered development about 1900. As the internal combustion tractor emerged from its experimental stages, the steam tractor was doomed, although it continued to be used in threshing for many years. The farmer was only too glad to substitute the new tractor for an engine suitable only for heavy duty and requiring much more expert care and attention than he was capable of giving.

Even before the introduction of the Farmall tractor, the International Harvester Company pioneered in the development of the power take-off, which, when it appeared in 1913, finally eliminated the necessity for the ground drive wheel. This feature permitted direct transmission of power from the tractor to the drawn machine, minimizing the loss of power and opening the way to the design of lighter, more compact implements. By 1934, the power take-off had been built into nearly every tractor on the market.

A further improvement was the introduction of pneumatic-tired tractors in 1933. Although they increased the original cost of the tractor, rubber tires had many advantages, the most important of which was the lessened costs. Rubber tires for the first time admitted the tractor to the paved highway, an invaluable aid in moving equipment from one field to another on farms crossed by important roads. Their cushioning action added greatly to the life of the tractor and the comfort of the driver. Since their adoption, manufacturers have been able to build high speeds into tractors and design heavier, more versatile equipment.

The success of the Farmall design induced manufacturers to give more attention to the needs of the small farmer. THE International Harvester Company led the way in this direction with its introduction in 1933 of the Farmall 12, the first of the one-plow tractors. This was followed in 1939 by Farmall A and B, even smaller and less expensive machines. The Farmall Cub was finalized for production in 1945—ready to serve all the purposes of the nation's smallest farms. These small tractors brought with them, as collateral developments, equipment also adapted to the farm of limited acreage. This equipment could be mounted on the tractor or used with the power take-off in the same manner as the larger machines.



Beginning with Deering's Appleby binder of 1880, the automatic grain binder dominated the harvesting industry for fifty years. After 1930, grain binders and stationary threshers gradually gave way to the combined harvester-thresher. International Harvester Company dominated the grain binder business for some fifty years, finally closing out production in 1956. Of particular note is humane treatment which was given beasts of burden back at the turn of the century. In this photograph the horses are wearing hula skirts, which are actually 'fly-chasers.' The motion of the animals put the strips in motion which in turn kept the flies from lighting.

Experimental work on the first International Harvester tractor began in 1905 at the former Rock Falls Works under the supervision of Mr. Johnson. This was a cumbersome three-wheeled machine with a single wide wheel in front. The following year, the Company put its first tractor on the market. These were built under an arrangement with the Ohio Manufacturing Company of Sandusky, Ohio, which supplied the truck and transmission on which an International engine made at Milwaukee Works was mounted.

Just as the Civil War hastened the final unequivocal acceptance of the reaper, World War I gave a tremendous impetus to the use of tractors of the farm. Confronted by an unprecedented demand of for food, both in this country and in Europe, and war's inevitable drainage of manpower from normal pursuits, farmers turned to tractors in increasing numbers as the only solution to their problems. Here they found the answer to both labor and power shortages.

In spite of considerable loss of farm animals to the Army, there was a marked increase in farm production. Moreover, the fact that

tractors did not use up feed as did farm animals allowed that much more grain to be channeled to a hungry world. During the war years, tractor production at International Harvester more than doubled. This clear demonstration of the efficiency of tractor power on the farm started a decline in the use of animal power that has been steady ever since.

International Harvester engineers had been working for many years on a tractor, which, unlike the standard four-wheeled machine, could be used effectively for cultivating row crops. The first such attempt was a motor cultivator, produced experimentally in 1915. Because of its high manufacturing cost and limited utility, this machine has dropped from production in 1919 in favor of concentrated experimentation on all all-purpose tractor. Up to this time, it had been felt in many quarters that two tractors would be necessary to the efficient operation of a farm without animal power: a conventional four-wheeled model for all duties except cultivating and a motor cultivator of some type.

The Farmall model was the first successful attempt at building a

genuine all-purpose tractor. Its advent in 1922 revolutionized the tractor industry. During that year, 20 of the experimental Farmall tractors were sent to the field for testing and careful observation by International Harvester experts; in 1923, 26 more were sent out for trial after further field-tested refinements had been made. The following year regular production on a limited schedule was begun at Tractor Works.

Producing For Victory

World War II focused attention on International Harvester's mass production plants as vital sources of war material. In earlier wars the Company's principal war effort had centered in the production of farm equipment needed to replace hand labor. In the early years of World War II, by government order, the manufacture of farm equipment was drastically reduced; however, large quantities of farm equipment parts were made to keep existing machines in operation. Many of International Harvester's factories were converted to the production of military trucks and tractors, aircraft torpedoes, guns,

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