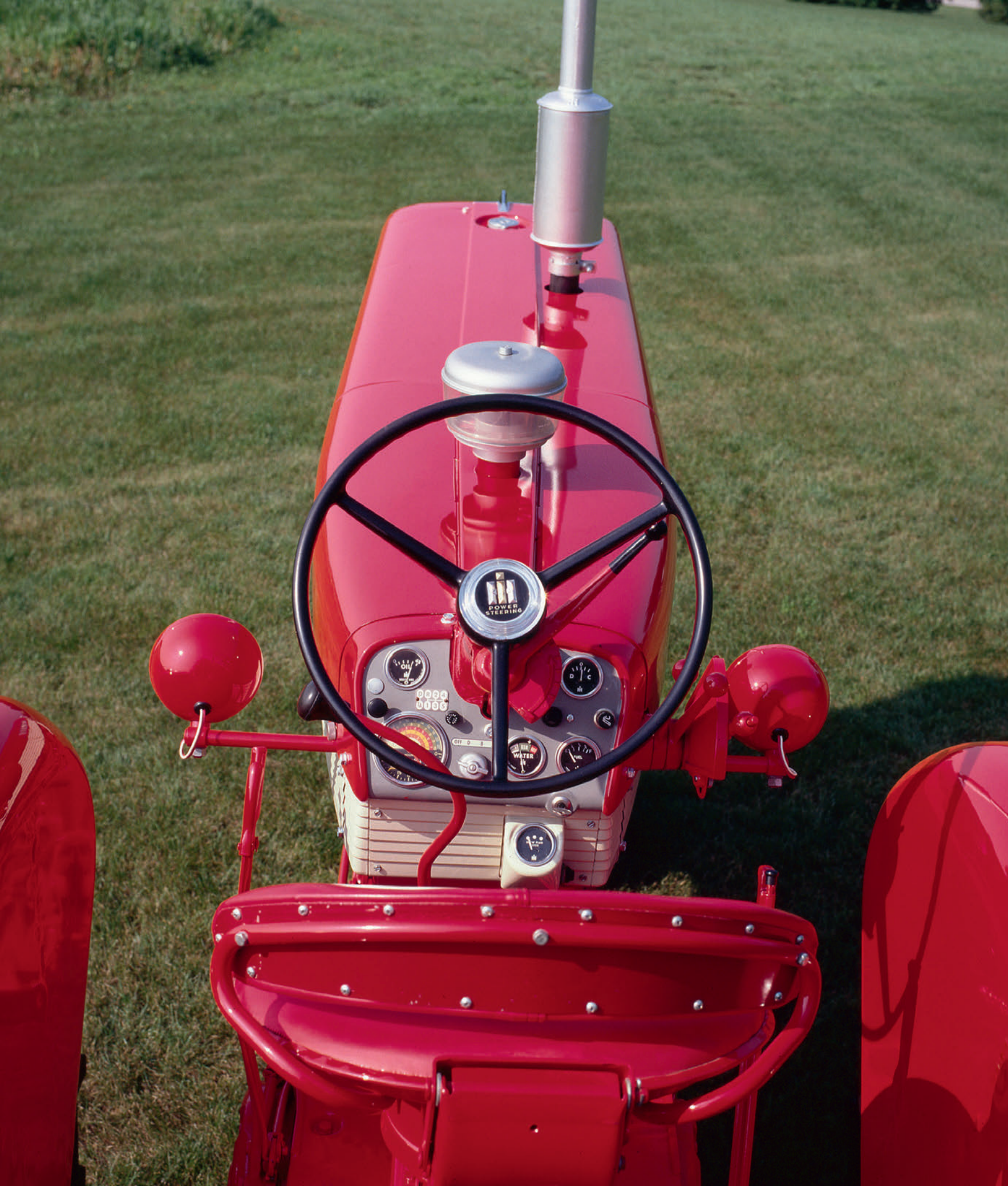


THE COMPLETE BOOK OF
FARMALL
TRACTORS

== EVERY MODEL 1923-1973 ==



ROBERT N. PRIPPS





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EVERY MODEL
1923-1973

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INTRODUCTION

A Short History of the Tractor to 1924



To the farmer, the invention of the tractor was almost as important as the invention of the reaper. It was Cyrus Hall McCormick's reaper, introduced in 1831, that initiated the power farming era, when mechanisms became a substitute for physical strength and an individual could accomplish more in a day than several men could have previously. The tractor, however, did not suddenly burst on scene as the reaper did. As they used to say about things that took time to develop, the tractor was "slow-a-bornin'."

The story of the tractor properly begins with the development of steam power. Although Scottish inventor James Watt is credited with the eighteenth-century inventions that improved the steam engine, it was almost a hundred years later, in 1849, that A. M. Archambault & Company of Philadelphia made the first farm steam engine. When newspaper man Horace Greeley saw that engine at work he wrote, "The time must be at

(opposite)

The amount of human and animal labor that went into producing a loaf of bread before the turn of the century is mind-boggling. First, the soil had to be tilled by hand, or with an animal-powered plow. Next, the seed was sown by hand. Farmers harvested the wheat with a sickle or scythe and then threshed it with a flail, or by leading sharp-footed animals over it as it lay on the "threshing floor." The wheat then had to be winnowed by hand to separate the wheat from the chaff. When Cyrus Hall McCormick invented the McCormick reaper in 1831, all of this changed. The 1857 McCormick Patent Reaping and Mowing Machine shown here, manufactured from 1852 through 1865, cut harvesting times from one day per acre to one hour per acre. *Photo courtesy of Washington Historical Society*

Waterloo Boy advertisement from a 1917 *Farm Implements* magazine.

hand when every thrifty farmer will have such an engine of his own, and chopping straw, turning grindstone, cutting wood, churning, threshing, etc., will cease to be a manual and become a mechanical operation."

The first steam engines were stationary or portable, but the wheels were not powered. Later, manufacturers developed the traction engine, a machine with powered wheels that drivers could steer from a cab or platform. The steam traction engine was essential in driving the threshing machine. In the western states and on the vast Canadian prairies, giant steamers also pulled plow gangs so large that they boggle the mind even today. But the steam traction engine proved to be too unwieldy, costly,

and cumbersome for most farmers. A more practical farm tractor was unavailable until German inventor Nicholas Otto patented the Otto internal combustion engine in 1876. The Otto engine featured the classic four-stroke principle still in use today. When Otto's patents expired in 1890, companies all over the world jumped into the engine business. Before long, there were more than 100 brands of stationary Otto-type engines on the market.

Gasoline tractors made their debut in the 1890s. For the most part, they were steam traction engines chassis fitted with gasoline engines. Most notable of these hybrids was the 1892 Froelich, created when John Froelich of Froelich, Iowa, mounted a Van Duzen engine on a Robinson chassis. His machine, rigged with a reversing gear, clutch, and steering mechanism, was the first gasoline tractor that could propel itself both forwards and backwards, allowing farmers to tow a threshing machine along roads. When operators reached the field, they could engage a flat belt to power the thresher. Unfortunately, John Froelich seemed to be the only one capable



— WILLIAM DEERING —

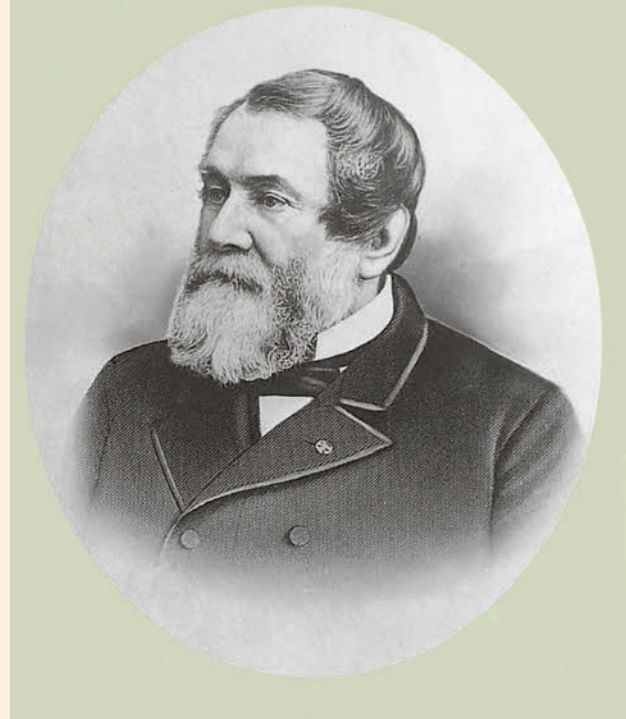
William Deering was one who capitalized when McCormick delayed patenting his new harvesting system developments. By the time he was forty years old, Deering had made a substantial fortune in dry goods in the East. Deering traveled to Chicago in 1870 to investigate a land investment and happened to call on an acquaintance, Elijah Gammon. Elijah had invested in the newly invented and promising Marsh Harvester and offered Deering the opportunity to get in on it, too. Deering did, and in two years his investment had doubled. Deering then moved to Chicago and became active in the farm implement business.

— CYRUS HALL MCCORMICK —

Cyrus Hall McCormick was born to Robert and Mary Ann McCormick on February 15, 1809. The McCormicks were fairly wealthy Virginia farmers with more than 500 acres of land. Robert was a man of mechanical ingenuity. He had tinkered with a mechanical reaper for many years without much success. When son Cyrus was old enough, he most likely joined his father in reaper experiments. When Cyrus grew up, he began doing these experiments on his own, in an effort to lighten the labor-intensive job of grain harvesting on the McCormick farm. In July 1831, Cyrus McCormick demonstrated a successful grain-reaping machine. Two men and one horse could harvest about one acre per hour. The accepted rate for a man with a cradle scythe was an acre per day.

Besides selling a few reapers to neighbors, C. H. McCormick was interested in running his own farm and in refining other farm inventions that he and his father had developed. Meanwhile, Obed Hussey patented a reaping machine in 1833.

Cyrus then secured his own patent and battled Hussey in the courts and on the fields until Hussey's untimely death in a railroad accident in 1860. Unfortunately for both, their patents ran out at the same time that mechanical reaping really caught on. Other farm implement companies brought out reapers of their own and then began competing for the rights to new inventions, such as the self-raking reaper, the binding reaper, and the twine knoter.



Cyrus Hall McCormick

Like John Deere and J. I. Case, McCormick soon recognized that the market was in the Midwest, so he moved his production enterprise, the McCormick Harvesting Machine Company, to Chicago, Illinois, in 1847. The business was incorporated in 1879.

Cyrus Hall McCormick died in 1884, but his widow and his son, Cyrus Jr., obtained controlling interest in the corporation.

of operating the Froelich tractor effectively. Nevertheless, the Froelich was the forerunner of the Waterloo Boy line, which John Deere eventually acquired.

Two young engineers named Charles Hart and Charles Parr created the next gasoline tractor of note. The enterprising pair started making and selling stationary engines as a way to fund their engineering studies at the University of Wisconsin. They later opened a tractor factory in Charles City, Iowa, and in 1901, they built their first tractor. After thoroughly testing it, Hart and Parr sold it to a farmer in 1902. They improved upon the design and sold fifteen of the new variety the following year. (Amazingly, half of these first Hart-Parrs were still in use seventeen years later.) At the time, Hart and Parr's



Two Minnesota farmers pause for a photograph alongside their 1912 Mogul. Photo courtesy of Minnesota Historical Society

factory was the only business in America devoted exclusively to tractor manufacturing. It was, in fact, a Hart-Parr employee that coined the word "tractor," which was short for "traction engines."

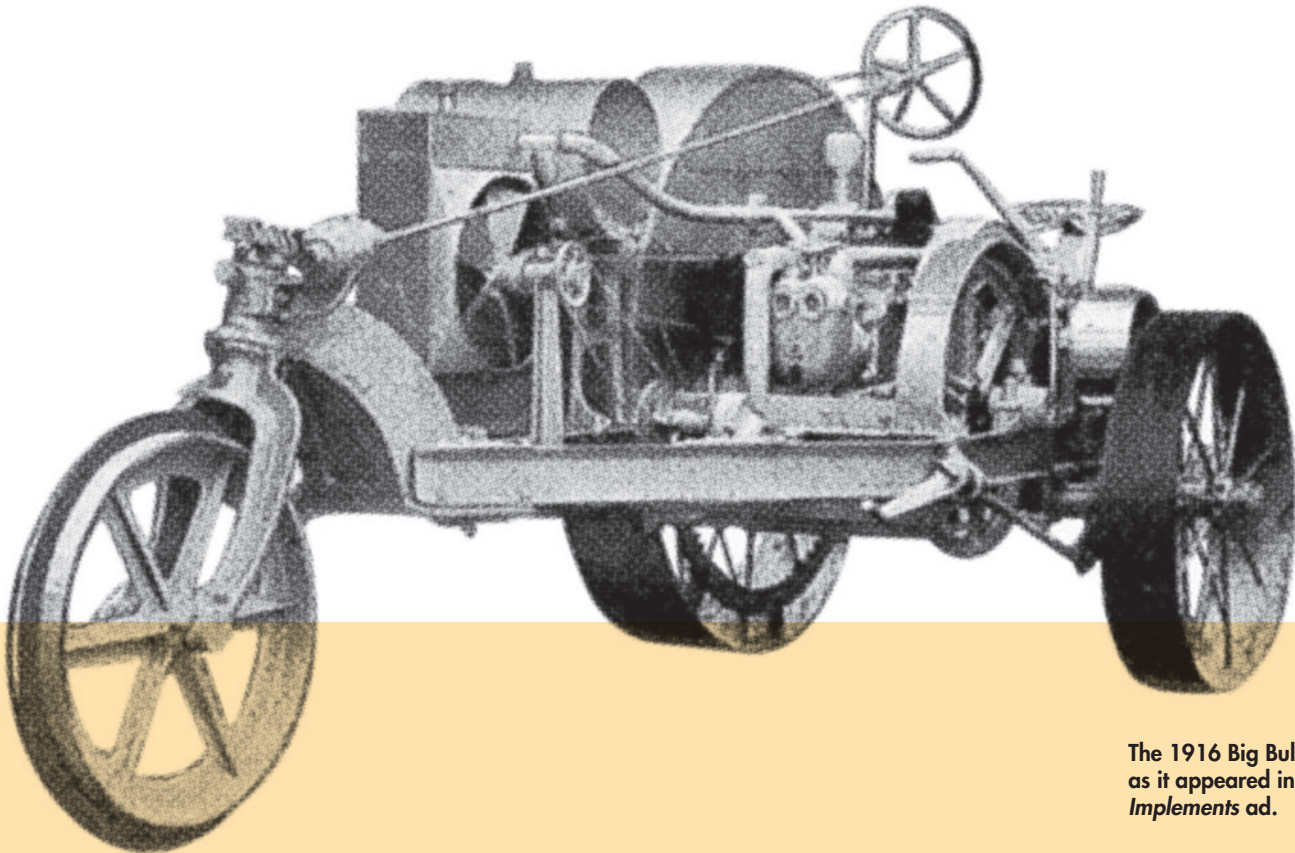
At the beginning of the twentieth century, Canada was the leading tractor market. Preparing the country's wide-open spaces for farming was a daunting task. In fact, beginning in 1908 and continuing for several years, Canadians hosted great plowing contests near Winnipeg as a way of enlisting others to help clear the land. Huge machines with as much as 50 horsepower made quick work of opening the vast western prairies. While the development of these behemoths certainly advanced the industry, the average farmer in the United States did not need machines of this magnitude.

By 1910, International Harvester climbed ahead of Hart-Parr as the leading producer of these big tractors. In 1912, IH, Rumely, and Hart-Parr produced almost 10,000 tractors, many of which fell into the 20,000-lb. class. With the partial crop failures and economic downturn of 1914, the land boom in western Canada collapsed, dragging the market for these huge tractors down with it. Industry leaders soon realized that if they

were to have a future in the tractor industry, they would have to service and produce smaller machines.

In 1913, Bull Tractor Company of Minneapolis produced the first tractor for the small farmer. This remarkably different kind of a tractor was driven by a single "bull" wheel, making an expensive differential unnecessary. An unpowered "idler" wheel, located on a crank axle so that the tractor could run level with the bull wheel in the plow furrow, provided balance. The Bull had a two-cylinder, horizontally opposed engine of 12 horsepower. Instead of a transmission gearbox, a cone clutch connected the engine to the bull wheel. The little tractor only weighed 3,000 lb. and sold for the unbelievably low price of \$395. The price alone enticed many an American farmer to buy a Bull, although it wasn't long before owners were complaining that the new tractor was disappointing them at every turn. Nevertheless, for several years, the Bull even outsold International Harvester's line of much larger tractors.

The sales success of the Bull (followed quickly by an improved "Big Bull") prompted other manufacturers to get in line with the smaller but sounder tractors. IH introduced



The 1916 Big Bull tractor, as it appeared in a *Farm Implements* ad.

their Titan 10-20 and Mogul 8-16 machines. Case and Allis-Chalmers joined the field. Hart-Parr offered its one-wheel-drive Little Devil with a two-cycle engine. Huge tractors were still much in vogue, however, with Twin City offering a 90-horsepower machine with 84-inch drive wheels.

When the United States entered World War I in 1917, demand for tractors escalated as farm lads joined the military, leaving tractors to make up for the lost labor. Tractor production doubled from the previous year with almost 63,000 being built, some 15,000 of which were exported to Allied countries. International Harvester led the way in production, followed by Case, Avery, and Moline.

With around 200 companies making tractors, production doubled again in 1918. This was the same year that auto magnate Henry Ford entered the field with his Fordson. Cyrus McCormick III, who was the head of International Harvester at that time, writes about Ford's affect on the small tractor business in his 1931 book *The*

Century of the Reaper:

The harvester war of the Eighteen-Nineties was cruel, disastrous to the weaker combatants, and yet it was inspiring in the way its testing brought out the finer qualities of men. But in the first twenty International years, competition had perhaps become routine. Henry Ford's presence in the implement province and the new type of competition he soon introduced returned the industry for a time to the atmosphere of battle. War hurts, but its searing occasionally furnishes an urge to continued growth.

In 1918, when he sold his first tractors in the United States and Canada, Ford distributed them through government agencies as a war measure. To have convinced worried statesmen and the public that the tractor was a new device twelve years after many tractor builders had attained large production, was a supreme feat of salesmanship. To win the news columns of the metropolitan press for a discussion of how the magic name of Ford had, at a stroke, provided an answer to a supposedly unrecognized demand for farm power, was magnificent advertising. Whatever Ford did was deemed to be for the real benefit of the public; and wherever he led,

NEW DAY ON THE FARM

FARMALL is a registered trademark. ONLY International Harvester builds FARMALL Tractors.

FARMALL CUB IS HERE
with Matched Cub Equipment!

Faster, easier work... all-purpose capacity and economy. That's what the new Farmall Cub tractor brings to the small farms and truck gardens of America!

The Farmall Cub has a full line of matched, specially-designed implements... with such features as the Universal Mounting Frame and Master Control.

There are four types of power in the Farmall Cub: power to push forward-mounted implements or pull those attached to the drawbar... to operate machines through the power take-off or belted up to the pulley.

Four types of plows
Harrow every planting need
Cultivators for every crop
Mower cuts 4 1/2 ft. swath

Put the Farmall Cub to work and say goodbye to the slow, tiresome work you walked through before. The Cub's riding comfort, ease of handling and finger-tip controls really bring a "new day" to the small farm.

...AND LOOK AT THE PRICE!
\$545
F.o.b. factory. Farmall Cub shown equipped as shown above, slightly higher. Attachments and implements extra.

INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue Chicago 1, Illinois

See the Farmall Cub at your International Dealer's

INTERNATIONAL HARVESTER

— INTERNATIONAL HARVESTER COMPANY —

Competition in the farming industry was fierce, but none of the competitors were making much money. Talk of amalgamation of McCormick's and Deering's firms had begun even before Cyrus Sr. died in 1884. In the fall of 1890, McCormick, Deering, and eighteen other lesser competitors attempted to consolidate under the banner of the American Harvester Company. When the smaller companies established their own unrealistically high valuation in order to get a bigger piece of the whole, bankers saw through the scheme and refused to loan working capital to the new corporation. McCormick and Deering knew they would be foolish to support the weaker constituents, and they too balked. With that, the American Harvester Company foundered.

A severe recession in 1896 and 1897 prompted the two harvesting dynasties to again think seriously about joining forces. George Perkins, a partner in the financial firm of J. P. Morgan, pushed the merger efforts, which included acquiring three smaller firms. Perkins proposed a ten-year trust that would hold all the stock of International Harvester, with Perkins, McCormick, and Charles Deering (William's son) as trustees. So, on July 28, 1902, International Harvester was born. Perkins picked the name to reflect what he saw to be a

global enterprise. Harvester had an 85 percent share of U.S. sales of harvesting machines. Besides the basic manufacturing facilities, Harvester had iron foundries, twine factories, sawmills and timberlands, hemp farms, coal and iron mines, and its own railroad.

Perkins rode herd on the "millionaire officers" and appointed a professional general manager to run day-to-day operations. The first was a capable man named Clarence Funk. After ten years, however, the McCormicks borrowed \$5 million from J. D. Rockefeller and gained control of the corporation. Their first move was to replace Funk with a GM of their own choosing, one Alexander Legge. It was Legge's vision and fortitude that would give birth to the Farmall tractor.

International Harvester, also known as "Harvester" or simply "IH," went on to become the largest, most successful truck, tractor, and agricultural implement company in the world. Some of the very best multipurpose tractors came from IH under the trade name Farmall. But it was seldom smooth sailing for the Chicago-based International Harvester. Competition, economic depression, labor problems, drought in the farm belt, and difficulties obtaining working capital plagued Harvester and the rest.

consumers followed. It is therefore not surprising that his tractor business increased by leaps and bounds.

During 1918 there were 133,000 tractors made in the United States. Ford had already usurped Harvester's leadership, International was second, and Case third. The expected drop in the wartime demand did not eventuate, and production mounted rapidly to the astonishing total of 203,000 machines in 1920. By this time Ford was far in the lead and was making several times as many as Harvester. For the next year or two, three-quarters of all tractors made were Fordsons. During the period of depression, sales fell off to a quarter, inventories of materials, and unsold tractors were huge and high-priced, and the prospects were gloomy. Then, early in 1922, Henry Ford cut the price of tractors.

That February morning is another of the many business hours I treasure in my memory. I had taken Mr. Legge, the Company's beloved and hard-boiled general manager, on a visit to the new motor-truck installation at Springfield Works. As we were arguing some



1919 International 8-16

The 8-16, forerunner of the famous Farmall, proved there was a market for a powerful, light-weight tractor. Built between 1917 and 1922, the 8-16 was sometimes called the International Junior or the Mogul Junior. The design was based on the Model G International truck, featuring the same engine (with the radiator behind), downward-sloping hood, and a three-speed transmission. The 8-16's overhead-valve engine with a bore and stroke of 4x5 inches produced 16 belt horsepower and 8 horsepower on the drawbar at 1,000 rpm.



problem which then seemed important, the telephone rang—Chicago wished to speak to Mr. Legge. We could, of course, hear only his side of the conversation. There was much talk from the other end, and then an explosion from Alex: "What? What's that? How much? Two hundred and thirty dollars? Well I'll be . . . What'll we do about it. Do? Why, damn it all—meet him, of course! We're going to stay in the tractor business. Yes, cut two hundred and thirty dollars. Both models—yes, both. And say, listen, make it good! We'll throw in a plow as well!"

By the time of this phone conversation, Ford's production rate was filling his lots with unsold tractors. He had to move them! And, rather than lose its place in a business it had pioneered, Harvester rose to meet Ford's challenge by also selling at less than cost. The winner, of course, was the farmer. With the Fordson selling for as low as \$395,

The 1915 Titan 10-20, as it appeared in a 1967 International Harvester calendar.





The International 8-16 in use, circa 1918.

power farming was now within the reach of all but the smallest farmer. Harvester countered with their trusty Titan 10-20 and their newer International 8-16 (based loosely on an International motor truck). But even with Legge's \$230 price cut, the IH tractors still cost as much as the Fordson.

Following tactics learned in the Great Harvester Wars of the 1890s, when a Harvester salesman learned of a pending Fordson sale, he challenged the farmer and the Fordson dealer to a competition. Each tractor would pull a two-bottom plow with 14-inch bottoms through whatever conditions the farmer chose. If the International tractor outperformed the Fordson, the farmer could change his mind about the purchase and decide to buy the IH tractor instead. Although the IH cost almost twice as much as the Fordson, the deal included a free plow. In many conditions, the lightweight Fordson would demonstrate a marked lack of traction. In other conditions, the Fordson's performance was not all

that bad, and the IH tractors ended up looking somewhat dated and obsolete next to the carlike Fordson.

Competition with the Fordson, however, prompted International Harvester to rapidly adopt automotive production methods and standardize its parts. It also instigated the further development of the power take-off (PTO) and the application of industry standards for things like spline sizes and belt speeds. The PTO gave the tractor more versatility around the farm. The idea of an all-purpose tractor wasn't entirely new. The introduction of the Moline Universal in 1917 is a case in point. But the giant step in power farming occurred when International Harvester introduced the McCormick-Deering Farmall in 1924.

— THE GREAT HARVESTER WAR —

In his book *The Century of the Reaper*, Cyrus McCormick III recounts a commercial fight that took place in the late 1880s near Pomeroy, Iowa. The tale comes from the report of the McCormick general agent.

"Our dealer telegraphed me that Champion had pulled into the same field where he had sold an eight-foot McCormick binder and were trying to break up the sale.

"When I got there, the farmer was having trouble with our machine, and the Champion boys were giving him plenty of poison about it and me. I got the machine fixed so that it worked properly. But Champion had made the farmer some kind of a special price; also, they had notified every purchaser of a McCormick binder in the neighborhood to come and see this binder fail, with a view of getting them to cancel their orders.

"A big crowd of machine men had come to the hotel that night and the Deering fellows said they would come in too and show us both up.

"I got up at three o'clock in the morning and

drove out to the farm and woke the farmer up. He put on his pants and came out to the barn where I gave him such a sales talk that he was absolutely convinced the McCormick was the best machine.

"In the morning there were at least 150 farmers there. The Deering outfit was the first to start. They had a new machine all decorated with flats and four big gray horses. But when the first bundle of tangled barley came through it choked and they were done.

"The farmer, driving our binder, was having no trouble, but I caught a Champion man trying to put a handful of straw in our elevator chains to foul them. I grabbed him by the neck and he fell down in the stubble. Then the whole Champion crew started after me, but somebody got between us. They started to abuse the farmer, a big powerful man, and he struck the Champion dealer. The farmer's old father stopped the fight, but the whole competition broke up into a row. Finally, Champion left in disgrace without having driven us from the field."



1927 Farmall Regular.
Ralph W. Sanders/Motorbooks Archive