CHAPTER 7

The Johnston Farm: 130 Years and Five Generations of American Cornbelt Farming

Between the end of the Civil War, when John's son William bought 80 acres in Wesley township, Will Co., 50 miles southwest of Chicago, and the beginning of the 21st Century, the mid-western corn crop yield for has gone from 30 bushels of corn per acre to 150, and the human effort has gone from one person per 100 acres to one person per 1000 acres. This chapter chronicles the interplay of John Johnston's and Mary Campbell's descendents and their families, with the technology and society changes that resulted in this phenomenal increase in productivity.

Like the rest of this book, this chapter is focused on the Johnston family. Even more than the rest of this book, this chapter is based on memories and photographs of the people involved, in an attempt to provide a sense of place and time - to explore the daily lives of the people associated with William Johnston's original farm. The people followed most closely are those that I knew personally and had access to while developing this material: Walter I. Johnston (William's youngest son and my grandfather); Walter's children and their families: Lester (my father) and his brother Francis (the two of whom are primarily responsible for my interest in farming, in spite my completely urban life), Francis' wife Ina; Walter's daughter Margaret and her husband Lester Schroeder; and Vance Jones, Francis' long time associate.The children of Walter's children are my contemporaries: Willard Johnston and his wife Jackie, Douglas and his wife Nola (Francis' sons); Jane Schroeder and her husband Daryl Smith, and Joy Schroeder and her husband Lee Jacobs. In the next generation, I have focused on Allan Johnston (Willard's son, and William's great-great grandson), as my prototype for the fifth generation Johnston farmer at the beginning of the 21st Century.

WEJ showing an early interest in farming (or at least in tractors) - on the Harold Charter farm in Concord, Calif., November, 1946.

7.1 Forward

Ideally, all of the pictures in this chapter would show the Johnston farm, and many of them do. However, pictures prior to about 1930 are fairly scarce, and I have supplemented Johnston pictures with several other sources. Hazel Grimes, the younger sister of Laura (Grimes) Johnston (Walter's wife), left behind a photo album that chronicled her family's farm life in Glidden, Iowa between about 1900 and 1930. Her father, C. E. Grimes, moved from Rockville Township, Kankakee Co., Ill. to Glidden about 1900. This move, like other moves to the west in that time, was probably a mechanism of financial betterment: Land was cheaper in the west. C. E. Grimes' son, Bernard (Laura and Hazel's older brother) moved further West 10 years later - to Idaho - for the same reason.

The Grimes farm was similar in many ways to the Johnston farm, and I have used a number of those pictures to illustrate similar aspects of the turn-of-the-century Johnston farm. I have also included a few pictures from unrelated sources when they show scenes that one or more of the Johnstons remember as being similar to the Johnston farm in the early 20th century.

When photographs had original captions (as many of Hazel's did) I have retained those captions, and they are quoted. The more recent explanations of the photos are in parentheses below the caption.

> ***{note}*** *Do we have any more information on exactly why and when C. E. Grimes move from Rockville to Glidden?*

When I use the terms "Johnston farm," "the farm," "the home place," etc., I am referring to the original William I. Johnston farm and its immediate environs (now the site of Willard and Jackie Johnston's new home). People referred to by their given names (e.g. "Lester") are Johnston's and the descendents of William I. "LWJ" is Lester W. Johnston, "ALJ" is Ann (Redmon) Johnston, "WEJ" is William E. Johnston, "FLJ" is Francis L. Johnston.

7.2 The Farming of William and His Sons (1867-1915)

7.2.1 William I. Johnston

"In the schools of his native country William Johnston acquired his education, remaining a resident of Scotland until fifteen years of age, when in 1853 he crossed the Atlantic on a sailing vessel to New York City. He there proceeded up the Hudson to Albany and by rail to Joliet, where he arrived in the month of August. He continued a resident of the city until August 5, 1862, when in response to the call of his adopted country he enlisted in Company G of the One Hundredth Illinois Volunteer Infantry. He was wounded at Louisville, Kentucky, being shot in the hand, and was again wounded at Franklin, Tennessee, November 30, 1864, in the right leg, after which he was in the hospital up to the time of his discharge on the 20th of June, 1865, at which time he held the rank of first sergeant of Company G of the one Hundredth Regiment. He returned home on crutches and it was some time before he had fully recovered from his injuries sustained in battle."

Figure 7.1.1 William and His Family, ca. 1890.
George Lester, Martha Elizabeth, Charles William, Jennie A., Ernest Sevelon, John Arthur, Mary Almira,
Anna Mable, Martha (Hazelton) (Mother), Edith Isabelle, William I. Johnston (Father), Walter Irving

Figure 7.1.2 William's farm home.
(From a photo, ca. 1910, showing just the original part of the home.)

LWJ: Grandpa Johnston never completely recovered from that leg wound (it was actually in his hip). I can remember it being said that he would walk to town rather than ride on a wagon because the hard bouncing seat pained him.

."In March, 1867, he bought eighty acres of land in Wesley township, where he now lives, and to this he added from time to time as his financial resources have increased until he owned three hundred and twenty acres of finely improved land. In 1906, however, he deeded one-half to his son John. In 1902 he retired from active farming and has since spent his remaining days in the enjoyment of the comfort and ease which has been secured to him through untiring activity and well directed effort in former years." ([WCH] - ca. 1910)

. .

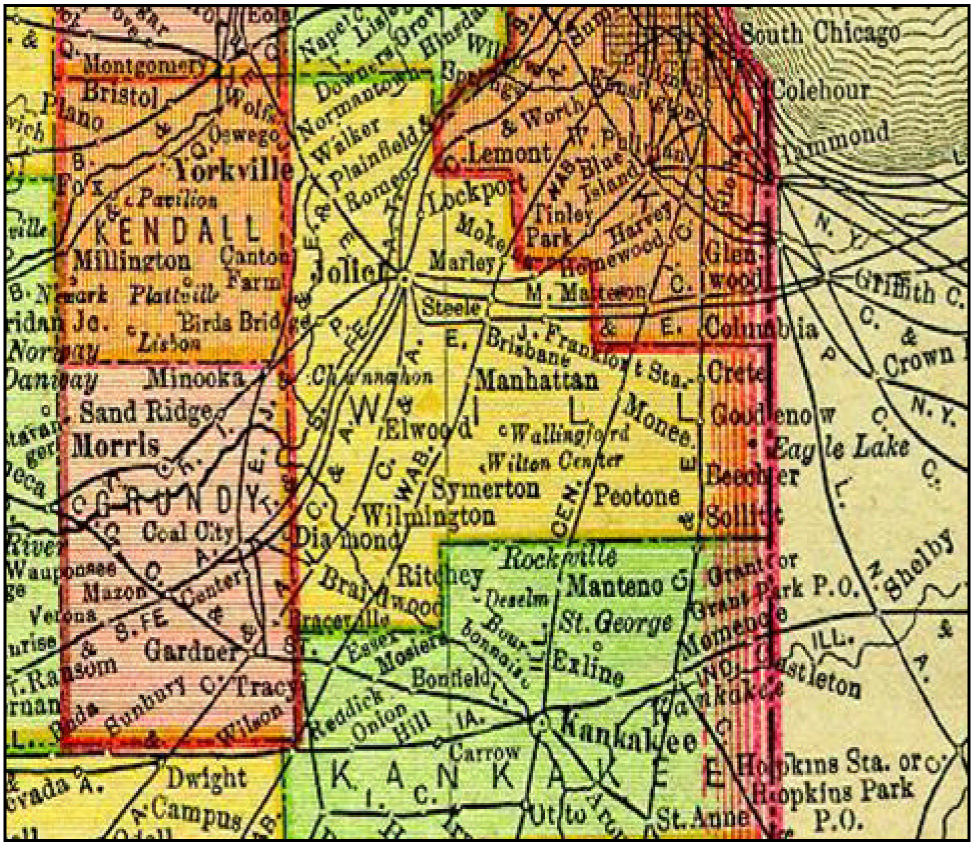


Figure 7.2
The general vicinity of the Johnston farm (ca. 1895)
[IL1895])

approx. fifteen mile

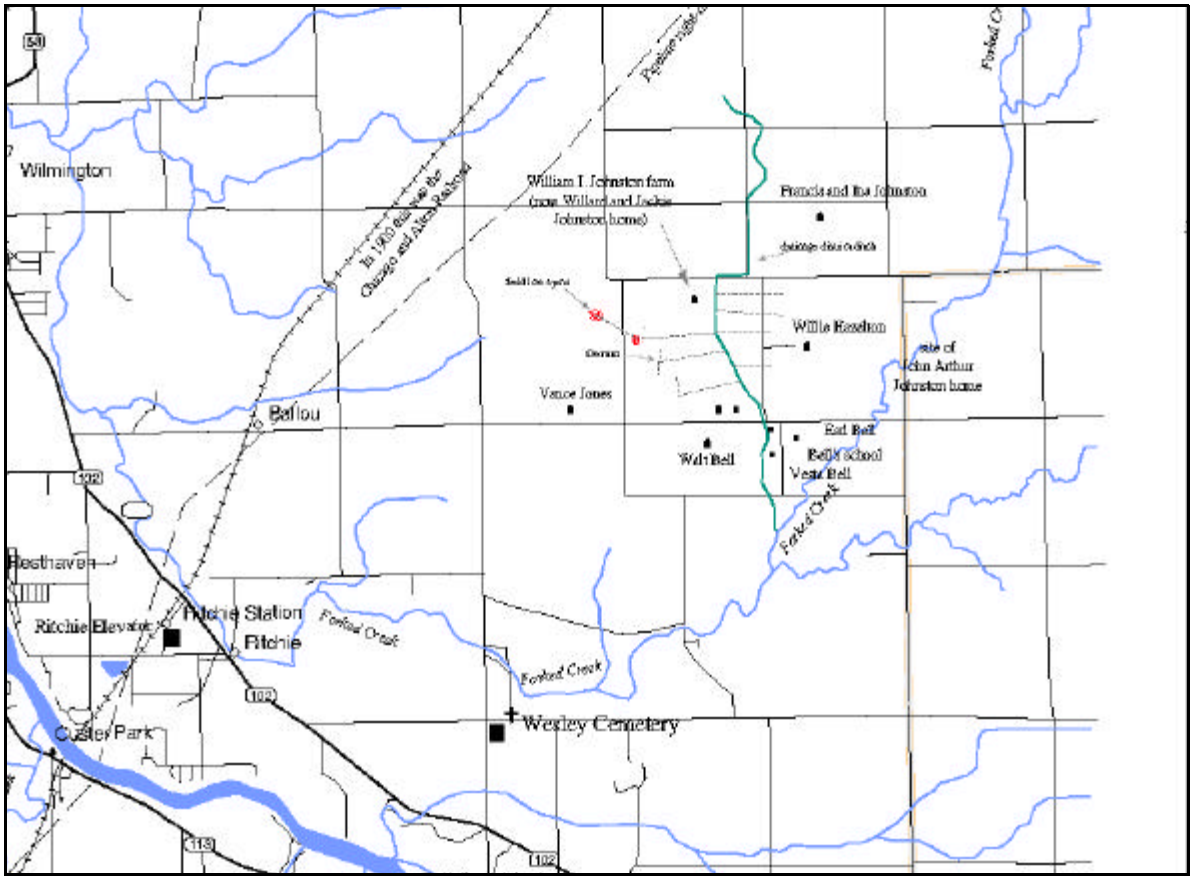


Figure 7.3 **The immediate vicinity of the Johnston farm (ca. 1998).**

approx. one mile

7.2.2 The Farm: 80 Acres of Wetlands

The land in Wesley township had to be tiled and drained to make good farm land. This involved building a series of sizable drainage ditches out from the larger creeks, and then laying a pattern of drain tiles in the fields.

The drainage was organized by districts ....

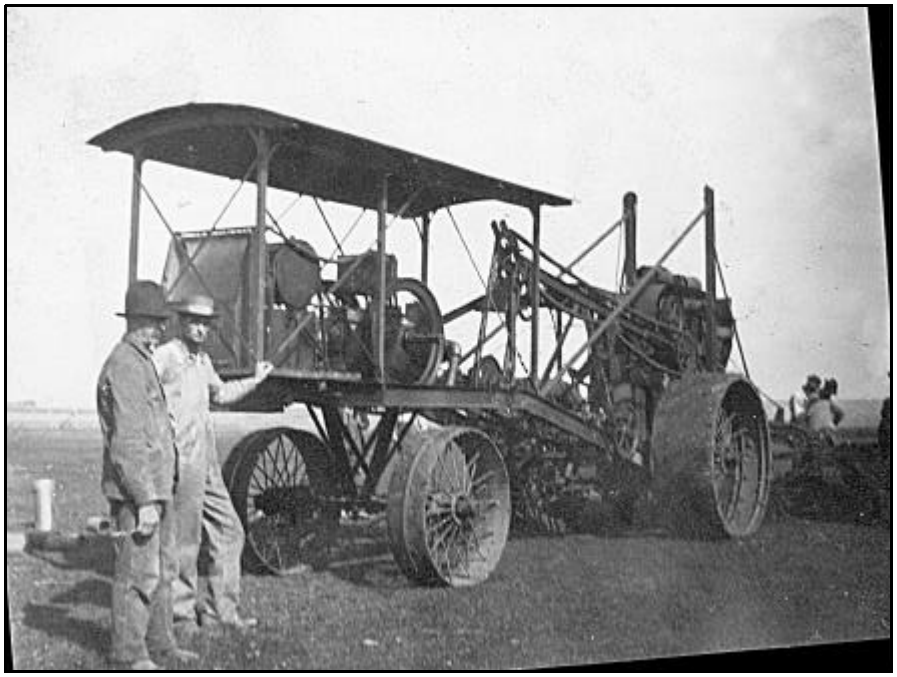


Figure 7.4 **"Ditch digger" ([HGP])**
(C. E. Grimes - at the Glidden farm, ca. 1905.)

LWJ: I remember a machine something like this, and especially I remember the truck. I got to ride on the truck. It was one of the old ones with no cab, and the steering wheel directly over the front axel.

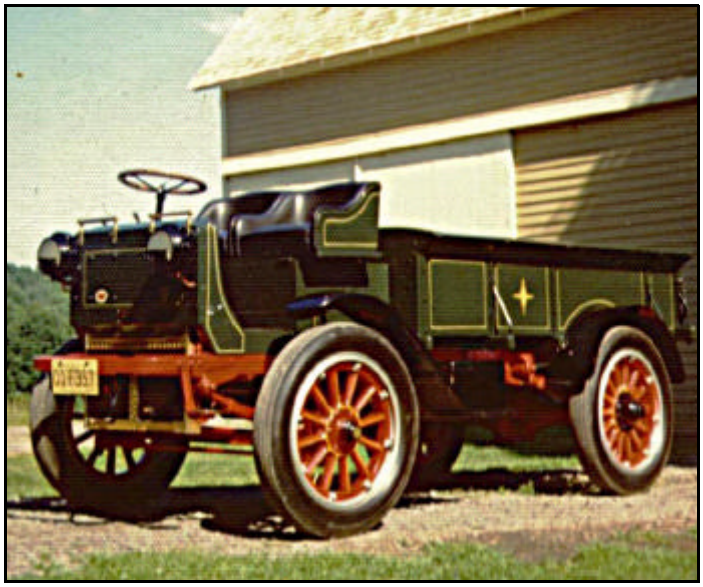


Figure 7.5 **Autocar truck (restored).**
Similar to the one LWJ remembers delivering tile to the drainage ditch.)

Figure 7.6 **Wetlands work. (5-18-1938)**

Walter (left), Lester, and Willie Hazelton (right).

All of the fields around Wilmington have to be drained using buried tile. Willie Hazelton dug this trench (either for new tile or to repair old). The only tools used were spade, shovel, and a rounded tiling shovel for shaping the bottom of the trench. The tiles are baked clay, and they are just laid end-to-end. The water seeps in through the cracks between the sections.

{note} *what pattern? how deep? where? to what creeks?*

{note} *Are any tile plans / maps available?*

{note} *What do we know about how ggf William did all of this?*

Some of the laterals ran out from the drain ditch, but some were parallel, and some were laid to drain specific low spots in the fields (Figure 7.7). When the fields dry out in the spring you can see the tile paths as parts of the filed that dry out first.

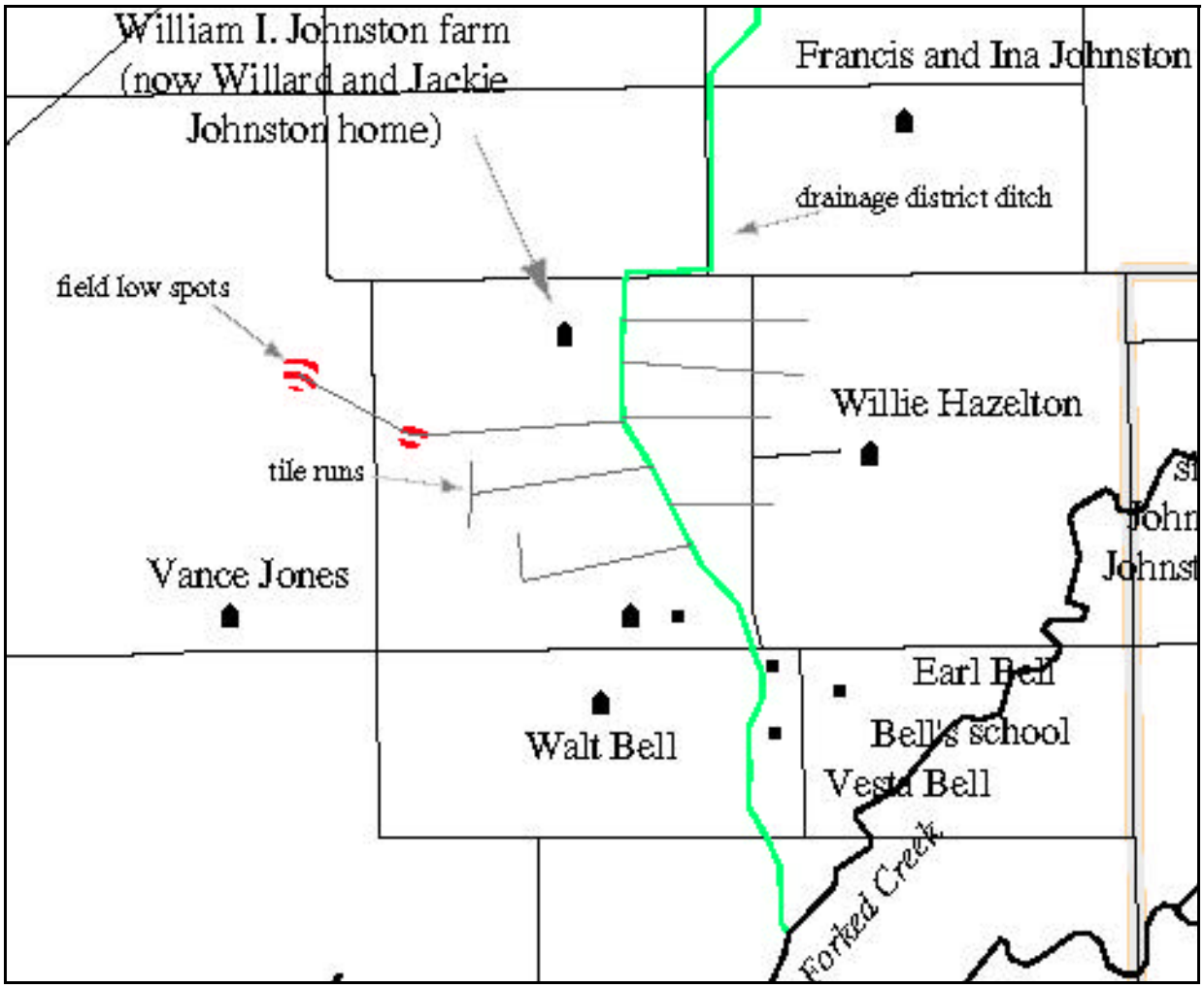


Figure 7.7 **The waterways near the Johnston farm**

7.2.3 Farming With Horses

A typical crop mix ..

Farming 160 acres in the late 19th century was a one-two man operation, except at harvest time.

> ***{note}*** *One "man" or one family like ggf William's with three or four teenaged boys to help?*

A hired hand would work spring and summer, for planting, cultivating, and harvest. During harvest, neighbors and temporary help would shock the grain and help with thrashing.

Figure 7.8 **"Hay stacking"**
Farm Life. Augustana College, Rock Island, Illinois.

Figure 7.9 **"Man with plow"**
Farm Life. Augustana College, Rock Island, Illinois.

7.2.3.1 The Plow Horse

Draft animals made farming as we know it possible. The Walter Johnston farm would typically have eight draft horses, and a plow team that pulled a two-bottom, moldboard plow, was made up of six horses. Most of the horses were purchased at farm sales or horse barns for $150-$300 (1995 = $2200-$4500 [HCV]), a few were raised on the home farm.

Figure 7.10 **Walter I. Johnston, ca. 1900.** ([HGP])

Figure 7.11 **Walter I. Johnston and his plow horses, ca. 1910.**

WEJ: Grandpa Johnston was not a small man, these horses are big!

LWJ: I like this picture - my dad was very good with horses - and this picture is from an era before I remember him. Compare this to Figure 7.66 on page 352 - 50 years later.

A significant fraction - as high as 50% - of the farm output went to feeding the draft animals, which consumed hay and oats. The remainder of the crop was sold for cash.

LWJ: A day of plowing with six or eight horses involved getting up at 4:30am. It was a several hour job to care for the horses - currying and feeding them, then you had to shovel the manure out and change the straw bedding. Walter pulled a two bottom plow with six horses, and it was an hour's job just to put all of the harnesses on. The horses were the prime movers, but they took a lot of care and a lot of feed to keep them going.

I used to help with the currying. We would use curry combs, and comb the horses from head to stern to get the dirt out. That was one thing that the horses liked - they loved to have you curry them. If you saw the planks on the sides of the stalls, after years you would find them all battered up. What we did was when the curry comb got a wad of wool and dirt in it, you would slam it against the wall to get that off. Then you would go back to the horses to get the next load.

When this was all done, then you had to eat your own breakfast, and if you got into the field by 7:00am you were doing pretty good.

The horses would plow for a couple of hours, then they had to rest. My dad would sit at the end of the field for 15-10 minutes. They stopped at noon for the horses to have their "lunch" - so too speak. They ate quite a bit of feed. They would get water in the morning, at noon, and in the evening, when they were on harness.

After a long day's work on a hot day, I can remember there was one old horse in particular that would come up to the water tank, and she would shove her whole head into the water. She just loved to do that.

***{note}** Where was the windmill and what did it look like?*

The plow team would get in about 5:30 in the afternoon - it would depend on the weather conditions. If it was hot, you would have to give your horses more rest, and the day was shorter.

Plowing in those days was a time consuming job. Dad plowed with a two bottom plow - 2, 14″ plows - so you plowed a strip 28″ wide, and you would be a couple of weeks just plowing one field.

Figure 7.12
A six horse plow team.
(From [JD1].)

***{note}** Is this how Walter harnessed his horses?*

The moldboard plow came into existence somewhere around 1830. John Deere - who was a blacksmith over toward Moline - got a crazy idea about how to improve the plow (plows were cast iron before this). He took a circular steel saw and shaped it and tinkered, and he got one shaped that would turn the dirt so that would slide off instead of piling up on the blade (self scouring). He was a

blacksmith with a lot of ingenuity, and you have to give him credit. He started the John Deere company, and for many years it was a family enterprise. Eventually it went public.[1]

Figure 7.13.1 "Before the sale."

Figure 7.13.2 "Dad"

(C. E. Grimes)

Figure 7.13.3 "Dick"

Figure 7.13 Horses on the C. E. Grimes farm, Glidden, Iowa, ca. 1900.

(These photos are from Hazel Grimes' album. [HGP].)

1. John Deere: February 7, 1804 (Rutland Vermont) - May 17, 1886 (Moline, Illinois). John Deere became a blacksmith by apprenticeship and worked in towns throughout Vermont. Deere moved to Illinois in 1837 and set up a blacksmith shop in Grand Detour.

The wood and cast-iron plows in use at the time were not suited for the rich top soil of the American prairies. Farmers had to stop and scrape the plow clean every few feet. Deere fashioned a plow using the polished steel of a sawmill blade which cut the soil cleanly. Deere's steel plow sold well, he moved his business to Moline in 1847. The business thrived and was incorporated as Deere & Company in 1868. With its world headquarters in Moline, Illinois (USA) Deere & Company is today the biggest American manufacturer of farm equipment.

http://www-users.itlabs.umn.edu/~east0029/deere/jd_hist.html

7.2.3.2 Harvest

Walter picked his corn by hand until the mid-1920s [??], and well beyond that at the ends of the field in order to avoid loss where the combine turned around.

LWJ: When picking by hand, a horse-drawn wagon would move down the field in rows that were already picked The picker would operate two rows over two rows and picked from both rows. He threw the ears into the wagon. When the wagon took the next row, the guy piking moved over two rows instead of one.

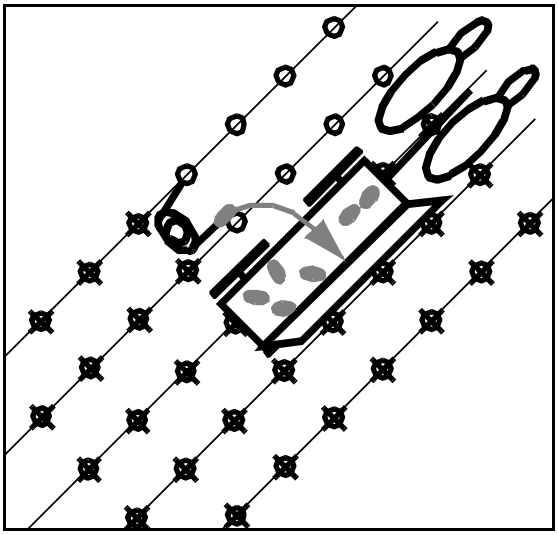


Figure 7.14 Picking and husking corn by hand.

A right-handed man would use a husking hook (knife) fastened to a piece of leather that was worn on the right hand. He would grab an ear of corn with his left hand and pull the knife down the ear slicing the husk open. With his right hand he would twist the ear out of the husk and throw it into the wagon. Most of the husk stayed on the stalk.(You wanted to keep the husks out of the wagon, because they reduced the crib capacity when the corn was unloaded.)

There were two kinds of husking knives. A palm hook like my dad used was a leather mitten and you strapped them onto your right hand. There was also one that had a thumb hook.

The wagon had a high side - a "bang board" - opposite the picker so that the ear of corn could be thrown high and not fly over the wagon. If you look carefully at the wagon in Figure 7.15 you can see the bang board on the right hand side of the wagon.

As a kid I have ridden in the wagon while my dad was over on the side picking.

***{note}** who drove the wagon?*

I have never done a lot of hand picking, but I have done some. When we got into machine picking

***{note}** date?*

we used to open the field up by picking the end rows. We did this so that when the tractor turned around at the end of the rows that you would not knock down unpicked corn and waste it.

{note} *Why is this not a problem now? Because the picking head is out in front rather than being towed behind a tractor?*

A top notch man could pick a hundred bushels a day, and my dad was know as a hundred bushel-a-day man. That was a reputation for being a very hard worker. You have to contrast this hundred bushels with the same operation today. A few years ago when I visited Francis, I pulled in about dark and Willard and Douglas had just finished picking 15,000 bushel of corn that day with two modern combines.

Figure 7.15 **Picking and husking corn by hand.**
(This is an archive picture [Aug], but shows just how Walter picked his corn.)

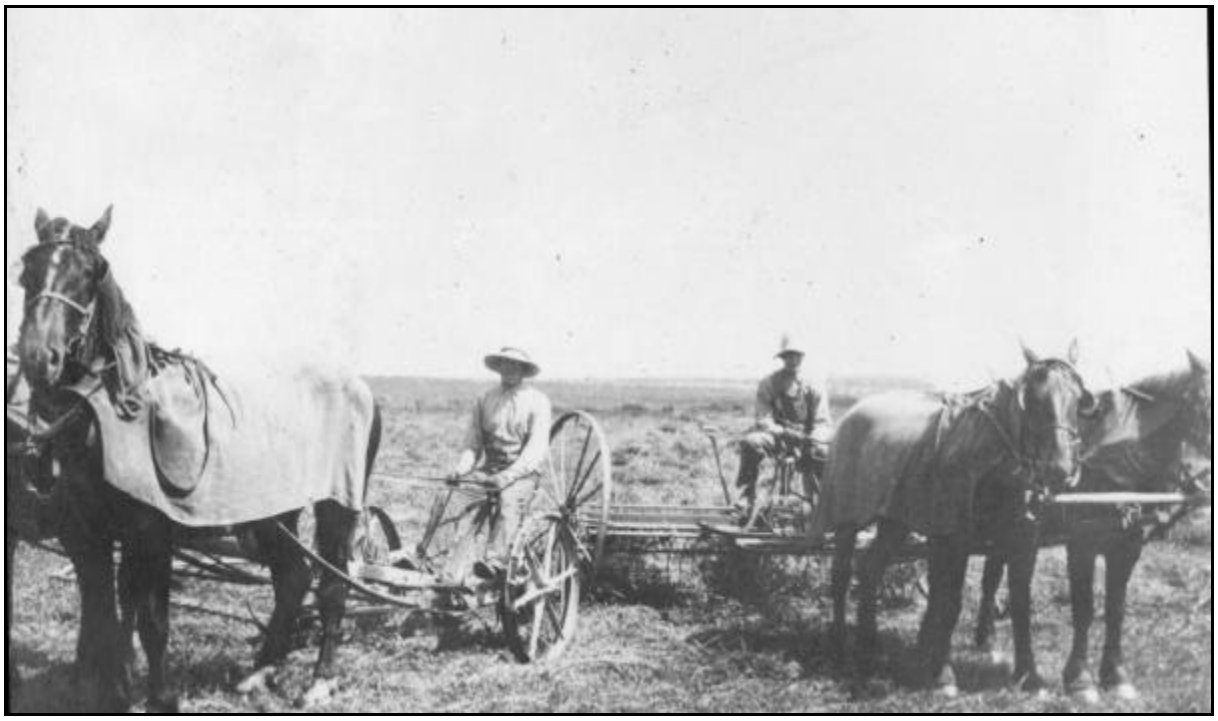


Figure 7.16 **"Making hay while the sun shines."**
C. E. Grimes farm, ca. 1900. [HGP]

{note} *What are these implements? A mower on the left and a windrower on the right?*

Figure 7.17 **"Joe Day's smiling face."**
C. E. Grimes farm, ca. 1900. [HGP]

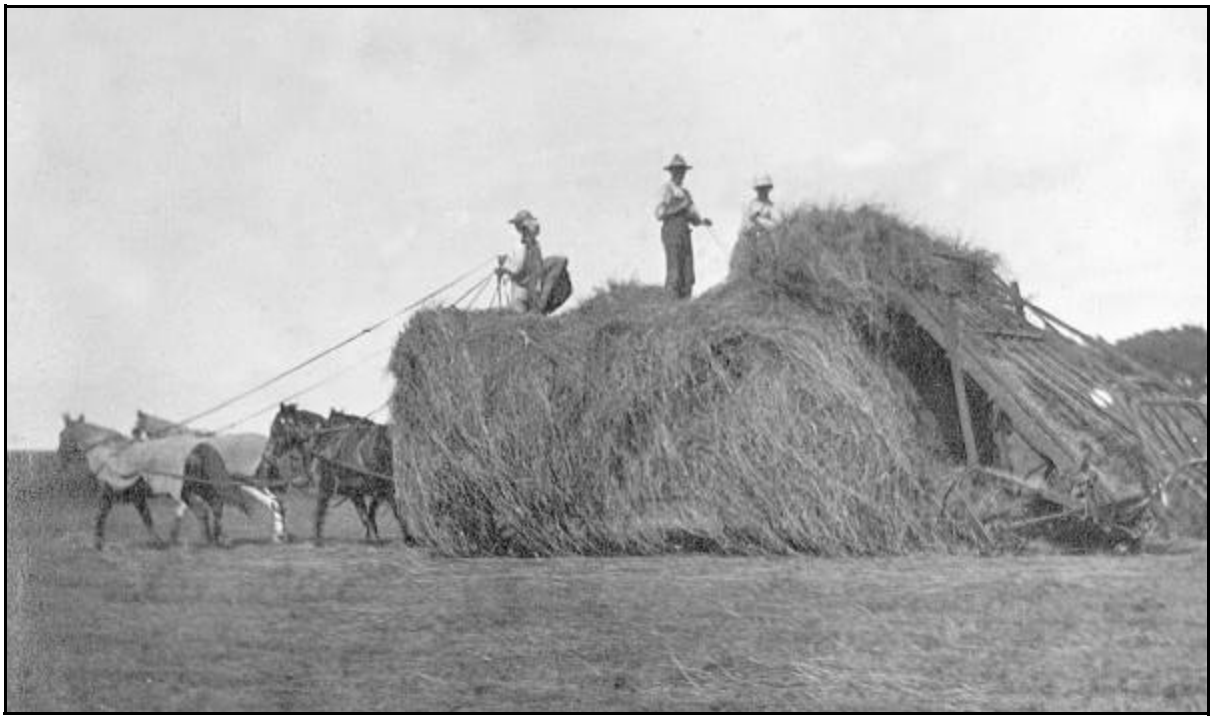


Figure 7.18 **"Haying."**
C. E. Grimes farm, ca. 1900. [HGP]

Figure 7.19 **"To market."**
C. E. Grimes farm, ca. 1900.
[HGP]

7.2.3.3 Very Early Mechanized Farming

Figure 7.20 **"Threshing at M.D. Hauberg's (1894?)"**
Farm Life. Augustana College, Rock Island, Illinois.

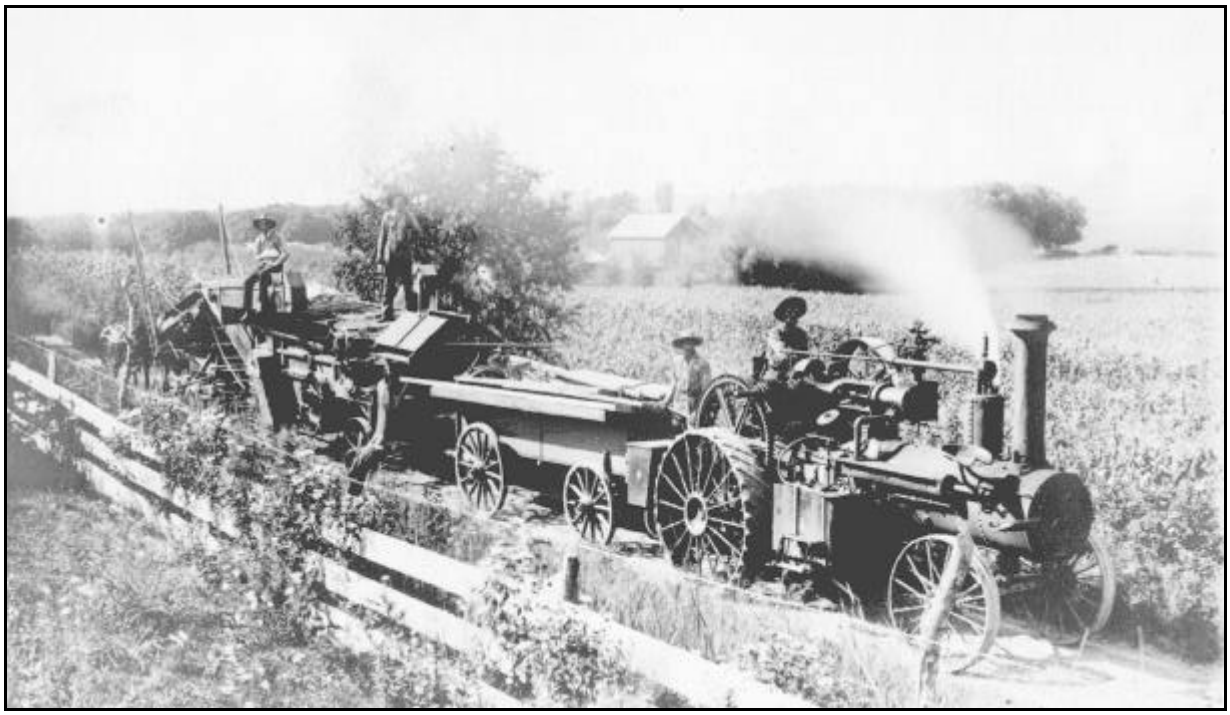


Figure 7.21 **"Early farm tractor (steam engine)"**
Farm Life. Augustana College, Rock Island, Illinois.

LWJ: What I think this is (behind the wagon) - and I have never seen one - is an early threshing machine. You can see the straw exit on the right side and the windrow gatherer at the back.

{note} *Francis may be able to tell you more about this. -LWJ*

7.3 The Farming of William's Sons and Grandsons (1915-1940)

William divided his 320 acre farm between his sons John and Walter in about 1910. John and Walter were good friends and John's farm house was on the SE corner of the 80 acres adjacent to the Johnston farm. John, however, was not successful as a farm businessman and lost his farm in 1920. Walter farmed for 50 years before he retired, and he and his sons, and their families and associates, built Walter's 180 acres into a loosely organized "extended family" enterprise encompassing of the order of 3,000 acres.

7.3.1 Early Mechanized Farming - 1919-1930

Walter's first experience with tractors was a Rumely OilPull that he purchased in 1919.

LWJ: He bought the thing from Whitmore-Cassingham hardware store downtown [Wilmington], and the main street - Water Street - was gravel in those days. He drove it up the hill heading out of Wilmington to the country - to the farm.

I was "parked" at Grandpa's at the time [William I. was retired, and lived in the Octagon house in Wilmington - see Fig. xx]. I guess you could say the I was in custodianship while he went to buy the tractor.

Figure 7.22 **"Main street."**
(Glidden, Iowa, ca. 1910. Probably not unlike Wilmington at that time, though Glidden was probably somewhat bigger.) [HGP]

The OilPull ran on carburated kerosene. You started it on gasoline, and when it warmed up, you switched it to kerosene.

LWJ: I remember that the gasoline tank was a little tank mounted on one fender (Figure 7.26). It was used for starting purposes only. Kerosene, however, was a very low octane fuel, and it would detonate like heck, except that it used water injection.

That engine was so far ahead of other engines at that time it was unbelievable. Piston engines even in WWII aircraft, during JATO - jet assisted takeoff, where you had to get all of the power you could out of an engine to get off of the ground with a heavy load or a short runway - they used water injection too. The first aircraft cylinder that I ran on the old CDoE (??) engine in the test Lab at Chevron Research used water injection. It was a means of controlling detonation. It cooled the charge down to keep your mixture from igniting before it was supposed to. For the Rumely that was a problem, because at home we had hard water. So you fed

lime water into the combustion system and you had problems with limestone building up in the wong places.

{note} *What was CDoE?*

The engine was started on gasoline, but even so the tractor hard to start. To start the engine you had to put a lever into notches in the big exposed fly wheel on the side, and then "rock" the flywheel back and forth to get a piston positioned just before top-dead-center, and then giving a big pull to compress the cylinder gas and fire the spark plug. The flywheel notches were designed so that if the engine started, the lever released as the flywheel came around (Figure 7.23).

{note} *what did Walter pay for this tractor?*

{note} *What did kerosene cost in 1919, how much did the tractor use in a day.*

The advantage that the Rumely had over horses was more ground covered. He pulled a four bottom plow with that thing, and could cover about 1.5 acres/day (??). Six horses could only pull a two bottom plow. These tractors were used by Walter primarily for plowing, but they were also used to power threshing machines - see Figure 7.20 and Figure 7.41.

He only kept that tractor about two years. Quite frankly, from an operational and engineering point of view, it was beyond him. It was hard for him to get it started. After about two years he sold the Rumely to John Marshall, and went completely back to horses.

{note} *John Marshall - who and where?*

Walter did not buy another tractor until the Waterloo Boy came along. It was simpler than the Rumely, but not as advanced in many ways.

Some years later dad got a letter from his brother-in-law - Aunt Edith's husband, Ivan Woodward - in Canada, wanting to know if he could get him some parts for his Rumely that he still used to run his thrashing machine. Many of the big Rumely's were used in wheat country primarily to run threshing machines rather than to plow.

Rumely was over in LaPorte, Ind. They eventually dropped that big old two-cylinder engine and brought out a modern engine. In fact they made a tractor with a six-cylinder engine. I suspect it was a Continental or Waukesha engine - and that was quite a sensation - to have a truck engine in a farm tractor. But financially they begin to disappear from the scene. In fact they were bought by Allis Chalmers [in 1931].

Figure 7.23

The Rumely OilPull - Walter Johnston's first tractor.

Image above from [Rum2], on the right from David Johnston at the Mount Pleasant, Iowa, antique tractor show. The one of the right is similar to Walter's OilPull. The wheel cleats have been removed for road travel.

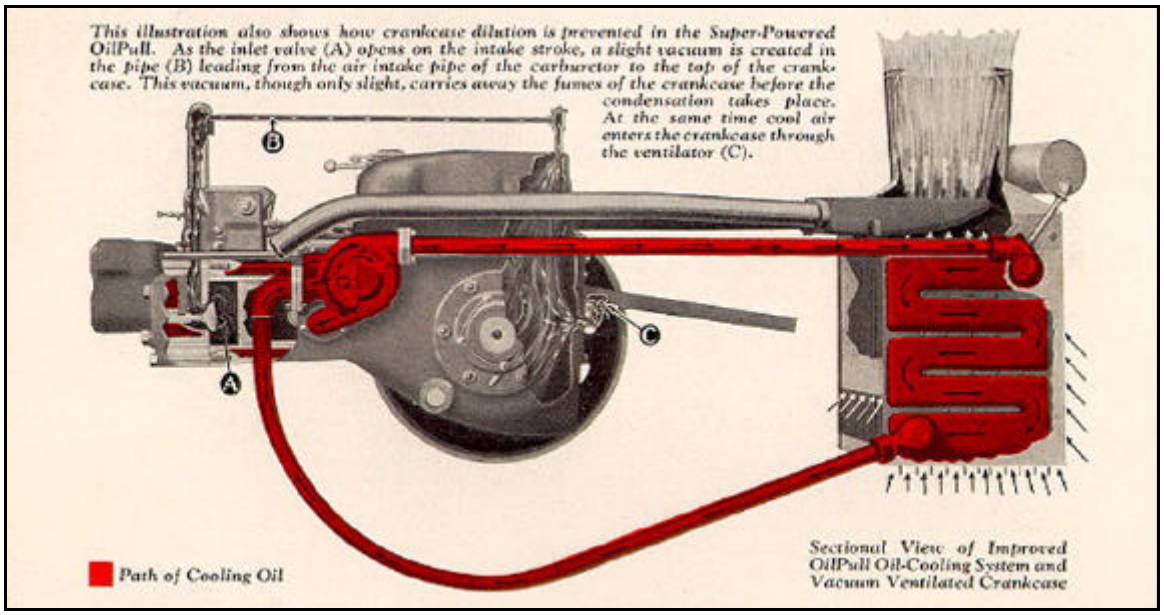


Figure 7.25 **The Rumely OilPull cooling system. [Rum2]**

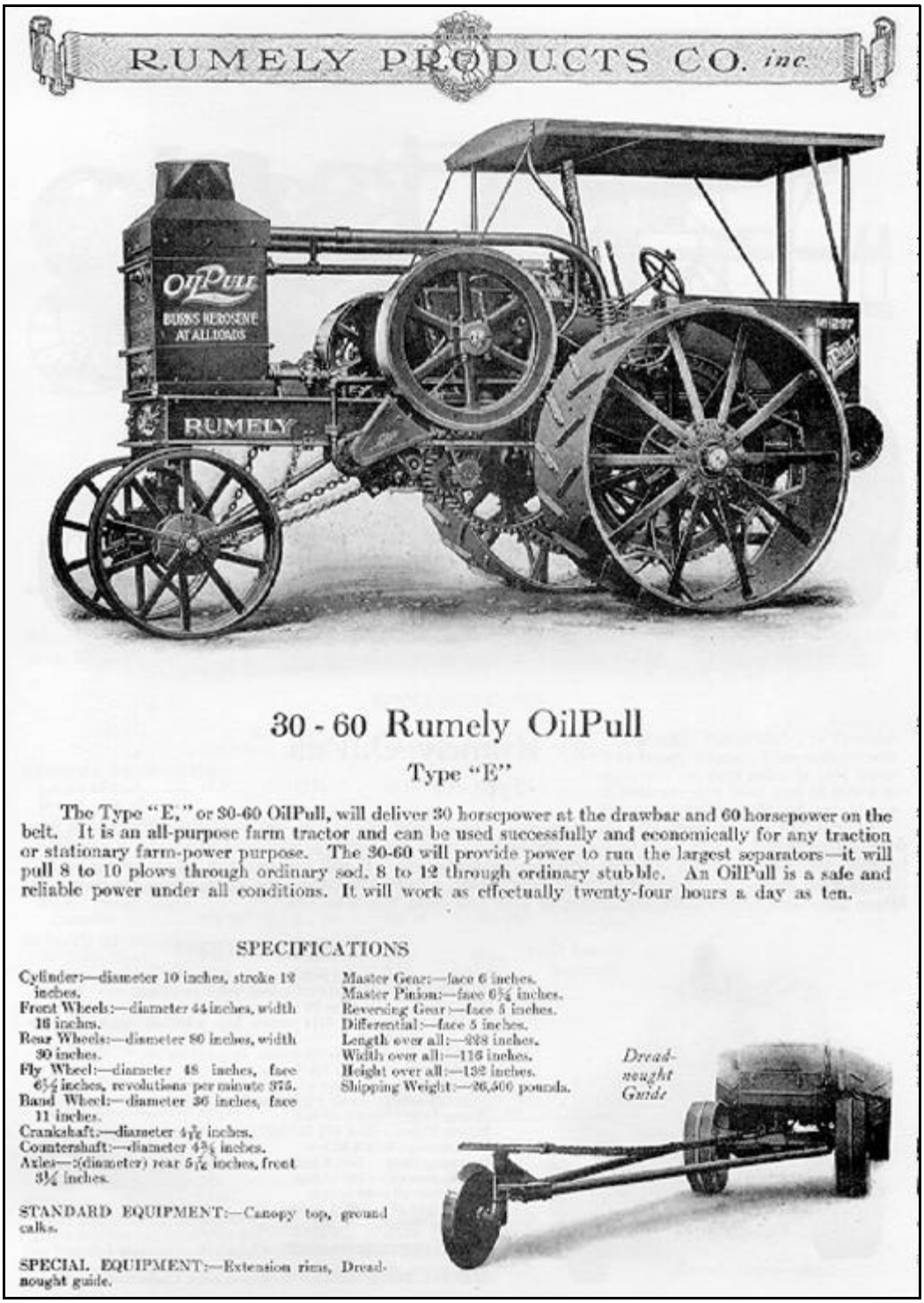


Figure 7.24 **The Rumely OilPull - Walter Johnston's first tractor.**

LWJ: The Rumely was the first tractor that my dad bought. The thing up in front was nothing more than a radiator, and the exhaust pipe was a venturi. Exhausting upwards it pulled air in from the bottom through the radiator fins (Figure 7.25). The coolant was oil instead of water - these things ran hotter than all-get-out. There were more of these things used in belt operation (e.g. running threshing machines) than any other make of tractor in that age, but they were also used for plowing. [Rum1]

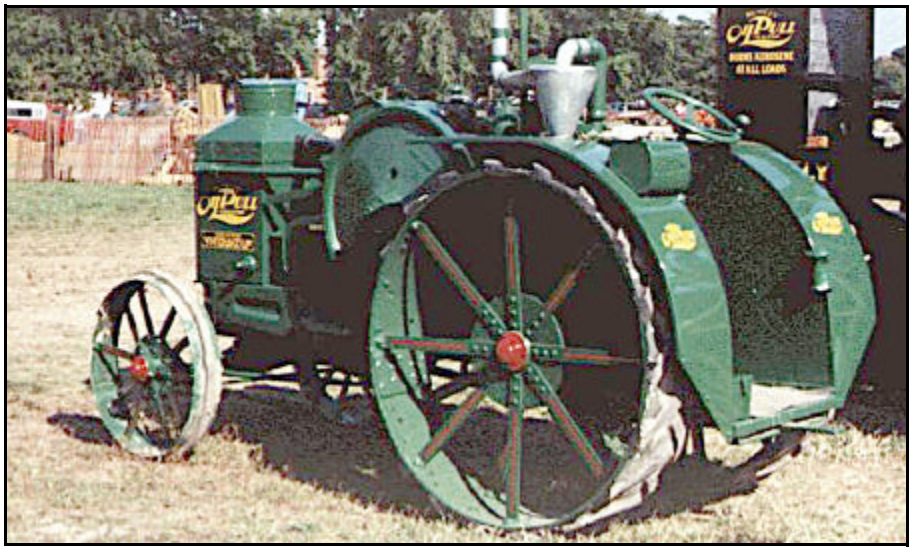


Figure 7.26
A small Rumely OilPull. [Rum2]
Note the small gas tank on the fender. Gasoline was used for starting the engine.

Walter bought a Waterloo Boy[1] in the late 1920s. This tractor was used by Walter primarily for plowing, but they were also used to power threshing machines.

> ***{note}*** *He used horses to pull wagons, etc.? Cultivating? Planting?*
>
> ***{note}*** *Did Walter thresh wheat or oats? Shell corn? A separator is the same thing as a thresher?*
>
> *LWJ: The thing that tickles me about this picture is that back here where the driver stands is the valve mechanism sticking right out in the open. Every few hours you would have to grab an oil can and squirt these full of oil. And here was the magneto, and it had a level over here to shift the drawbar back and forth.*
>
> ***{note}*** *Which picture?*
>
> ***{note}*** *Why shift the drawbar?*
>
> *The radiator was sideways and the engine cross ways. The wheels were gear drive. (See Figure 7.27.)*

1. In 1845, two covered wagons stopped on the east bank of the Cedar River (Iowa) at a place known as Prairie Rapids Crossing. In these two wagons were the founders of present day Waterloo, George and Mary Hanna along with their family. In the summer of 1846, the Virdens and the Mullans arrived, becoming the Hanna's first neighbors. In 1851, the town was awarded a post office and a permanent title, but the name needed to be changed. Charles Mullan, who managed to secure seven signatures on a petition to get the post office, thought that the name Prairie Rapids Crossing was too cumbersome for mailing addresses. As a result, the name of the settlement was changed to Waterloo.

The Waterloo Gasoline Engine Company built a factory here in 1910 for the production of tractors, including the "Waterloo Boy," introduced in 1914. Four years later the firm was purchased by Deere & Company.

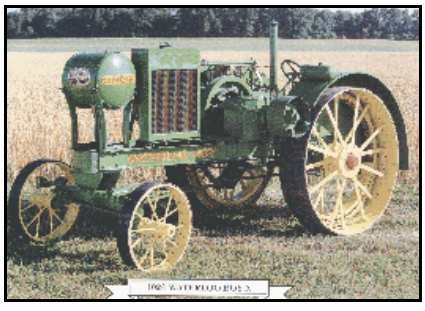
The Waterloo Gasoline Engine Company grew out of John Froelich's 1892 invention of the first gasoline engine-powered tractor that would move backward and forward. The success of that idea led him to organize a company and open a factory. The original plant was located in Waterloo at 3rd and Cedar Street.

Froelich's company built stationary gasoline engines while experimenting with tractors. His first tractor was built in 1896; only one was sold. That same year the firm made and sold six two-cylinder automobiles.

In 1914, the Waterloo Gasoline Engine Company sold 118 tractors. Four years later, Deere & Company purchased the plant. The "Waterloo Boy" was produced until 1923, when Deere introduced its "Model D," one of the most popular tractors ever built.

Deere & Company now owns the area bordered by Westfield, the Cedar River, Commercial and Conger. What was once the main tractor works is now one of four Deere units operating in the county. Other Deere units are the Engine Works at 3801 Ridgeway Avenue in Waterloo, the Product Engineering Center at 6725 Deere Road in Cedar Falls and the Tractor Works at 3500 East Donald Street in Waterloo. (http://www.cedarnet.org/tour)

John Deere bought the Waterloo Gasoline Engine Co. in 1918 and put itself in the tractor business. Experimentation on the Waterloo Boy began in 1912; the first model sold in 1914. The Model N was built from 1917 to 1924 and had two forward speeds. A Waterloo Boy was the first tested in the Nebraska testing program in 1920 (12 horsepower on the drawbar, 25 on the belt.) It was known for its dependability and economy. The tractor to the right is owned by Jim Russell of Oblong, Illinois. (http://www.1webplaza.com/tractors/95jan.htm)



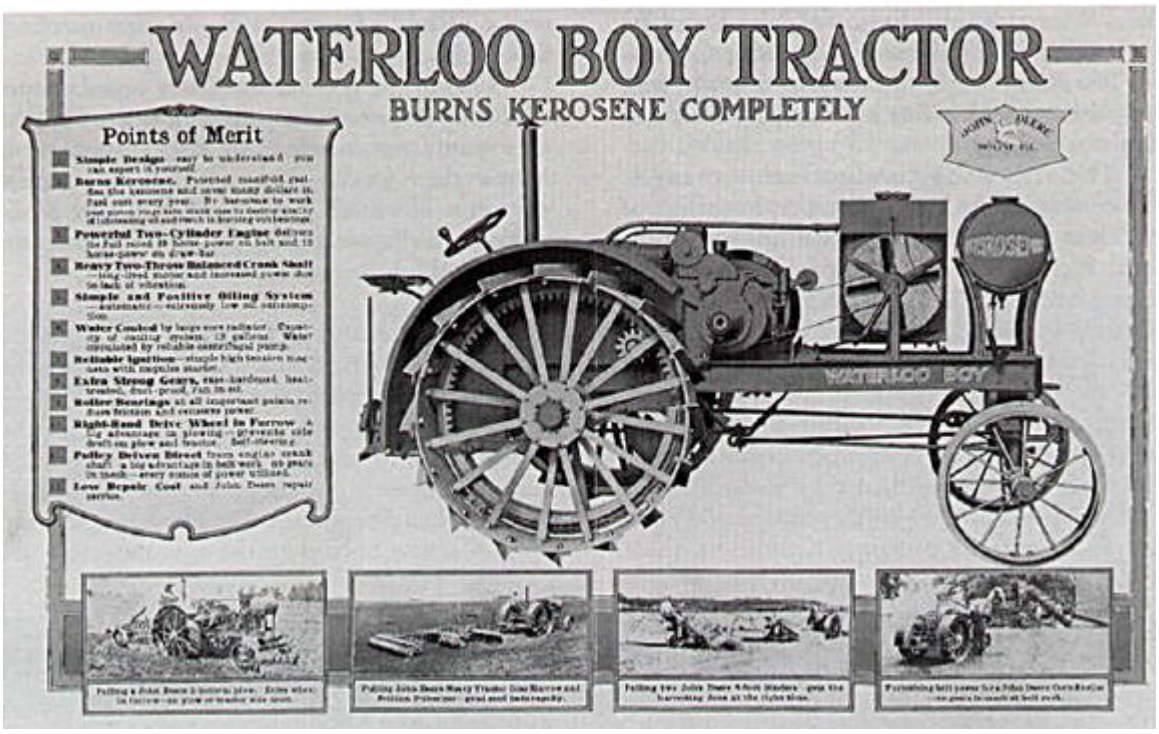


Figure 7.27 **The John Deere Waterloo Boy - Walter Johnston's second tractor.**

LWJ: I don't remember that my dad ever did any road grading, but he may have pulled a drag up and down the road. His biggest use of the Waterloo Boy was for plowing.

(Both the original ad at the top and tractor and road grader picture are from [MW].)

LWJ: I was in high school - probably the later part - when dad bought the first Allis Chalmers, so he must have bought the Waterloo in the late 20s. He did not keep the Waterloo too long, and his next tractor - about 1929 - was an Allis model E, which did quite a lot of work.

Table 1: Waterloo Boy ([JD2])

Model:	L, LA	R	N
Years Produced:	1913-1914	1914-1919	1917-1924
First Serial Number:	1000	1026	10020
Last Serial Number:	1253	10336	31412
Total Built:	29	9,310	21,392
Price, New:	n/a	$850 (1917) (about $10,000, at 1995 rates.)	$1,050 (1921) (about $9000, at 1995 rates.)
Engine: Bore & Stroke:	5.5"x7.00"	6.5"x7.00"	6.5"x7.00"
Displacement (cubic inches)	333	465	465
Max. rpm:	750	750	750
Horsepower Drawbar:	7	12	15
PTO/belt:	15	25	25
Steel Wheels, Standard - Front:	28x6	28x6	28x6
Rear:	52x10	52x10	52x12
Length (inches):	142	142	132
Height to Radiator (inches):	63	63	63
Weight (pounds):	3,000	6,200	6,183
Transmission: Speeds Forward:	1	1	2

Figure 7.28 **The John Deere Waterloo Boy, Model N (restored). [JD2]**

7.3.2 Mechanized Farming in the 1930s

Walter's third tractor was an Allis Chalmers, Model E 20-35 (20 drawbar horsepower, 35 belt horsepower) that he purchased in 1928 or 29. This tractor had a conventional 4 cylinder gasoline engine that started with a front crank (see Figure 7.33). It was much easier to start that the old

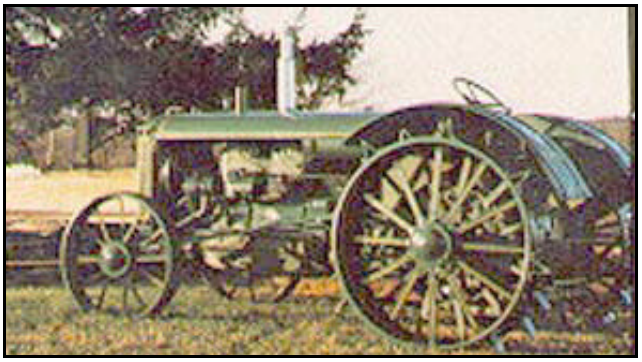


Figure 7.29 Allis Chalmers, Model E, 20-35. [AC1]

"This 20-35, built in 1928, had a four cylinder, water-cooled engine."

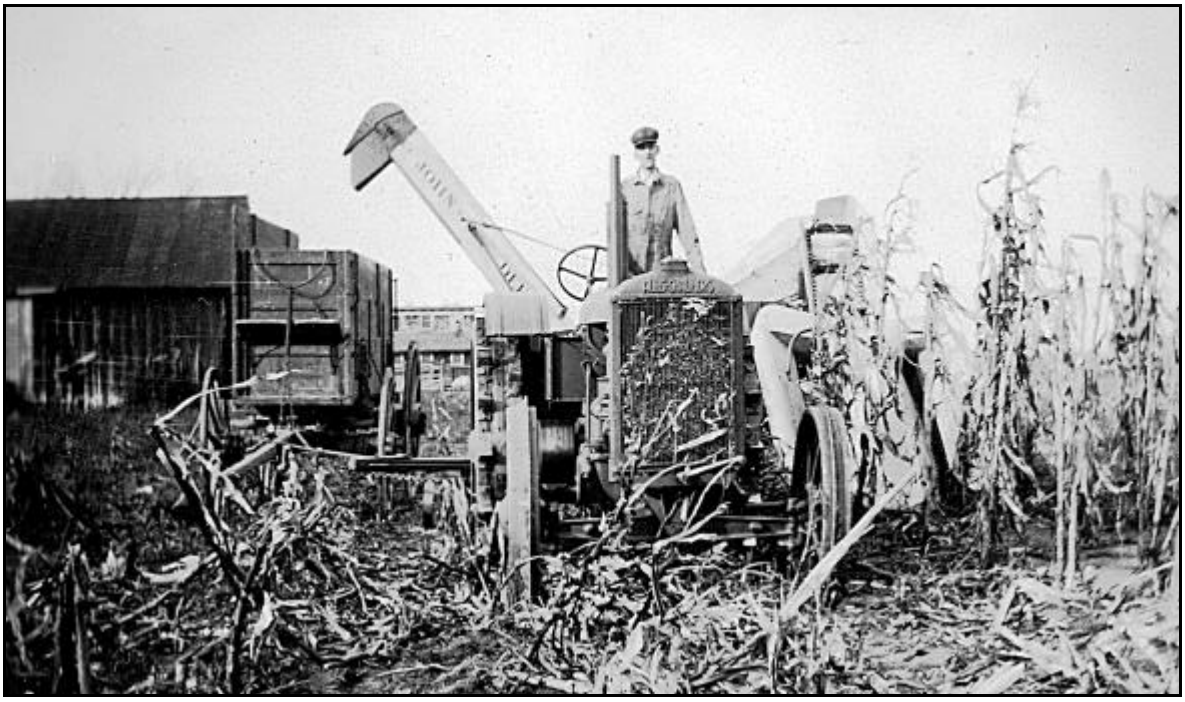


Figure 7.30 "Lester Johnston operating corn husking outfit. - W. I. Johnston farm. Ritchey, Ill. - Nov. 1934."

(AC, model E.)

Rumely tractors.

> *LWJ: When AC got into the farm tractor business, they were the one that developed the rubber tired tractor. That Model U, it was something. They got Barney Oldfield[1] to drive it down the highway at 60 miles/hr.*
>
> *After that I bought a WC and Dad bought a WC and a UC. Figure 7.42 shows that first WC. I bought the second WC with rubber tires. After that, I cut the steel rims off of the first WC and welded rubber tire rims on, and put rubber tires on it. The*

Figure 7.31 "Walter Johnston grinding feed on his farm. Nov., 1934."
(AC model E)

two WCs and the UC were the ones that really became the tractor operation at home. They were the ones that ended up putting the horses out of business. Dad kept a team of horses - two of them - for odds and ends of work, but eventually sold those too, and did not have anything but tractors. By 1939-40 he did not have any more horses.

---

1. Although Barney Oldfield retired from active competition while motorsports was still in its infancy, his achievements and his colorful style combined to make him the spiritual father of American racing.

Born Bernard Eli Oldfield on June 3, 1878 in Wauseon, Ohio, this Motorsports Hall of Fame inaugural inductee began his racing career on bicycles, becoming a works racer with the Stearns factory in 1896. His first exposure to motorsports came in 1902, when an acquaintance loaned him a motorcycle for a race in Salt Lake City.

That same year he went to Detroit, where he participated in the development of Henry Ford's famous 999 racer, eventually driving it to victory against, among others, Alexander Winton, the American champion of the day.

Oldfield went on to attack the mile-a-minute barrier, eventually whittling it down to 0:55.8 seconds, which was good enough to land a job with Winton, and his career as a barnstorming race driver was established.

Oldfield attracted national attention with his national match racing against all comers in the fabled Peerless Green Dragon. In the course of an 18-week tour that hit 20 tracks nationwide, Oldfield, clad in a green leather driving suit, went 16-for 16 against local opposition and perfected his skill as a showman.

Though his flair for showmanship kept him in almost constant hot water with the AAA, America's major race sanctioning body in those days, Oldfield did manage to make occasional record runs, and in 1910 broke all existing marks for the mile, two miles and the flying kilometer, hitting 131.724 mph in the famed 200-horsepower Blitzen Benz.

(Motor Sports Hall of Fame - http://www.mshf.com/hof/oldfield.htm)

1903: Barney Oldfield ("The Speed King") laps Indiana Fairgrounds' 1-mile dirt track with the Ford 999 at 60 mph, fastest speed ever obtained on a closed circuit. (http://www.ford.com/motorsport/1-0history.html)

ALJ: He had old Bob - I rode him. There was no saddle - I hung on to the mane. Jim Redmon was there too, and after I got off of Bob, I jumped on Jim's motorcycle and got a ride on that too.

LWJ: After I left [1942], John Deere came into the picture. Francis got the first Model A, and then several more, and from then on it was all John Deere, and the Allis Chalmers soon disappeared [from the Johnston farm]. ([LWJ1] #144)

Figure 7.32
John Deere, Model A. [AT1]

7.3.2.1 Spring

Corn planting starts in late May or early April, depending on the weather, and should be "knee-high by the 4th of July".

Figure 7.33 Seed bed preparation and planting with a disk and drag in the foreground, corn planter in the background. (5-18-1938)

(Lester Johnston is driving the Allis WC, on the left, and Walter is driving the UC, on the right.)

Figure 7.34 **The last cultivation of the year. (6-1-1938)**
Walter Johnston on the UC (left) and Lester on the WC.

7.3.2.2 Summer work

Figure 7.35 **Community work - rebuilding Lester Schroeder's barn.**

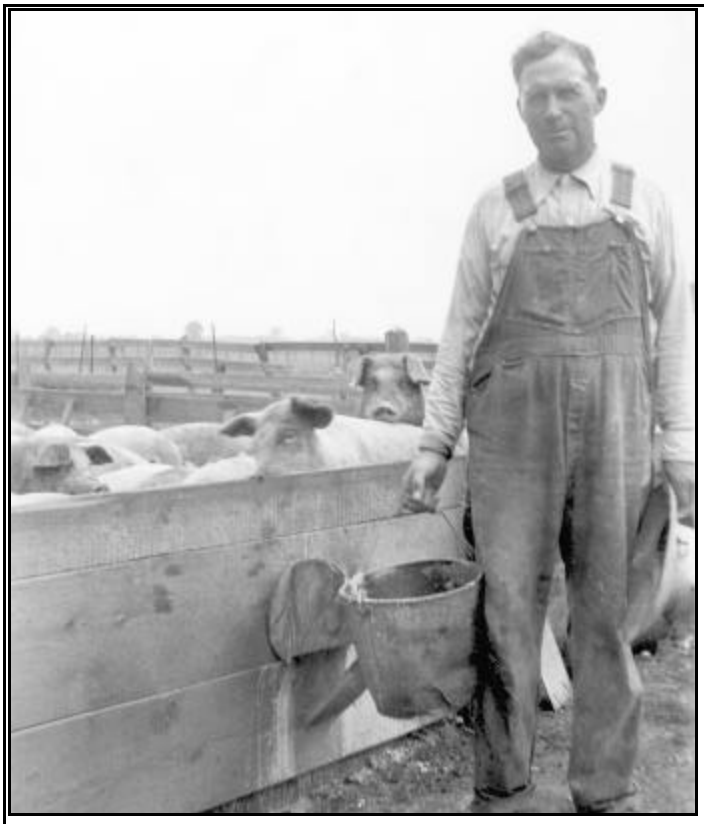
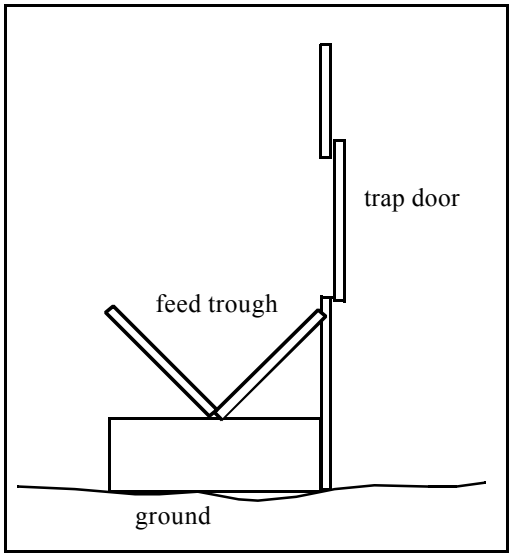


Figure 7.36 Walter slopping his pigs. The swill is poured into the trough through the trapdoor to prevent a pig "riot". The pig looking over the fence is not big, he has climbed up on top of the feed trough to try and get more food.



WEJ: Why put the slop through a trap door, rather than over the top?

LWJ: Well, I'll tell you - those hogs knew what was coming, and they are climbing over each other and trying to get over the fence. If you dumped a pail over the top you would have them all over you. You can see in the picture - the guy sticking up is not standing on the ground. He is standing up on the feed trough. "I'm going to get my share" is what he is saying.

The feed trough was about 16' long, and it usually was just two planks nailed together.

{note} *Date for this picture?*

7.3.2.3 Harvest

The role of hay - all fodder?

Figure 7.37 **Hooking the hay rack to the bailer to catch the bails as they come out.**

LWJ: That is Francs' bailing rig - he was the only one in the country that had one - but that is not a tractor that my dad had. I think that it is an Oliver. Lester Schroeder had an Oliver, so it might he his.

Figure 7.38 **Enterprising youth run a "small business" ("custom bailing").**

Clarence (?) Erickson in front, left to right in the back: Orvyl Beaver, Francis (?), and ??.

Figure 7.39 **Francis Johnston in front of his 4-H plot of corn, probably in October.**

{note} *date?*

Figure 7.40 **Walt Bell's Case Combine**

(Francis (?) and Walt Bell. LWJ: This 6' Case was one of the early, modern small combines. Note the Wisconsin engine sitting up above the pickers, by the grain tank.

{note} *date?*

7.3.2.4 The Tractor Powered Threshing Machine

Figure 7.41 Separating wheat (oats?) on the Henry Olhues (sp?) farm - the first farm that Lester rented. (1935)

Horses pulled the hay rack up in front of Willie Hazelton's separator that is being belt driven from the Allis E in the foreground. The grain is going into the truck, and the straw is piling up in back. The building is a cement block corn crib, and is still there today. Lester put the extended rims on the E for better flotation in muddy fields.

WEJ: Why such a long belt?

LWJ: Well, that dates back to steam days. The steam engine had to be back far enough so that the horses could pull the hay racks - a bundle of racks - so that they came in straight next to the feeder (of the threshing machine). Also, you had to have enough belt weight so that your belts wouldn't slip. You are transmitting 35-50 horsepower. The longest belts that I ever saw were on steam engines, and the one in the picture (Figure 7.41)looks like a steam belt.

The belt is about a foot wide, and you had to have your tractor aligned so that the belts would stay on the pulleys. Sometimes the load would get so high that the belts would begin to slip. If they slipped enough, they would be thrown off the pulleys, so you had to dress the belts frequently. The dressing was to make the belt sticky so that it would not slip, but rather transmit all the power through to the cylinder on the threshing machine. The belt dressing came in a stick form and it was almost like a tar - we also used rosin.

The bundle wagon was a hay rack. It was pulled by horses - they are headed the other direction in the picture. I think that is wheat stubble and he is blowing straw out the back side of the thresher. I don't know why we had the Model E there - they usually used the other tractor.

{note} *What other tractor? Did they ever use a steam engine?*

That was dad's tractor and Uncle Willie's threshing machine. The tractor was the Model E, or "20-35," the WC would not have enough power to run that thing.

The grain is going into the truck and the straw is going into the big pile.

WEJ: That is a big pile - what did they do with it?

LWJ: You let it rot. You used it to collect manure in the stables. Once in a great while you would bail it, but for the most part it was waste. When it rotted down you hauled it out and spread it on the field with manure. I have pitched tons of the stuff with a pitch fork. If you had it in a pasture where stock could get at it, they would eat part of it, and they would kind of make their own "nest" along the fence. It was good shelter from snow banks, and so on. You never see a straw stack any more.

7.3.2.5 Fall

Figure 7.42 shows fall plowing in the 1930s. Smoky was Francis' dog and constant companion.

LWJ: Francis put a plank behind the fender to extend the deck floor on the UC, and Smokey would ride there. Francis and Smokey grew up together. You never saw a kid and his pup have as much fun as they did.

**"Francis Johnston and 'Smokey'
W. I. Johnston residence, Ritchey, Ill.
Oct., 1934."**

**"Francis Johnston and
Smokey
July, 1934"**

{note} *When did the Post Office move from Ritchie to Wilmington? Or did the Ritchie Post Office just close?*

Figure 7.43 **Francis and Smokey**
[LWJPA]

Smokey loved to ride the on tractor. He would ride awhile, and then he would jump down and chase up and down the furrows over the field. Then he would come back, and he knew how to make a flying leap to land on that board without anybody stopping. He jumped off the same way. He would spend all day out there with the tractors. He was one of the most intelligent dogs I have ever known.

Figure 7.42 **Fall plowing on the Walter Johnston farm. (2-1-1939)**

Walter (above) is on the Allis WC (early 1930s vintage) pulling a two-bottom plow, and Francis and Smoky are on the UC (mid 1930s vintage), pulling a three-bottom plow.

7.4 The Home Place

Great grandfather William lived at the home place until about 1910 when he moved to the Octagon house in Wilmington. William moved the original house (low structure on the left in Figure 7.45) from the south end of his farm (the 80 that runs E-W) to its present location in about 1870.

> *LWJ: He built a limestone foundation and basement and sat the house on it. As big as that house is, I don't know how he managed to move it and get it up on the new foundation and basement with nothing but horses to work with.*

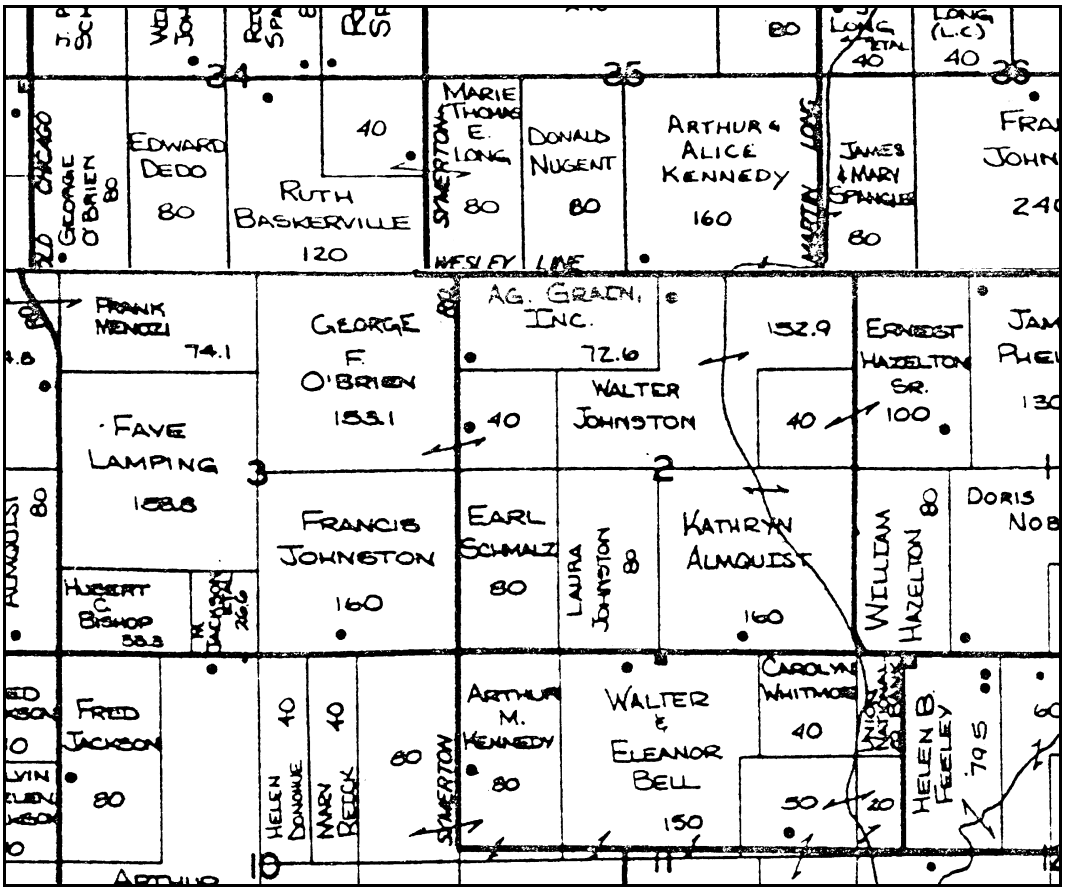


Figure7.44 Land ownership ca. 1990

The two story part of the house was added sometime in the late 1800s. All of William's children, as well as all of Walter's children were born in this house. Walter and Laura took over the

Figure 7.45 **"Walter and Laura's home." (ca. 1912)**
The big drain pipe running across the front of the house went to the cistern where the rain water was collected.

"Lester Boy"

Figure 7.46 **"Lester, 1916"**
(These photos are from Hazel Grimes' album, and were taken at the home place. Hazel was obviously fond of her first nephew. [HGP].)

house when they were married in 1912.

The living part of the farm included the house, the coal shed (left side of Figure 7.47) a cob shed next to that, a privy behind the coal shed, and the well and hand pump.

Figure 7.47 **The home place, fall, 1935, and the family car (1927 Dodge).**
The coal shed is on the left, and there is a plank walkway from there to the cement walk by the kitchen door.

The house from the stock yard. The cob and coal sheds are to the left of the house, the windmill and livestock water trough in the foreground.

7.4.1 Spring

There was always a big garden that grew tomatoes, strawberries, rhubarb, etc., that were harvested all summer. Chickens were part of the farm routine. Some were eaten and occasionally a "crate" of chickens were sold. Eggs were collected all year. The family ate what they needed and sold the rest in town to help pay for groceries.

7.4.2 Summer

7.4.3 Fall

7.4.4 Winter

Walter always had 20-30 pigs. The pigs were the main source of meat, and several would be butchered each winter. When a threshing crew was working, Laura (Walter's wife) would sometimes buy a beef roast, but that was rare.

Pigs were butchered in the winter when the low temperatures would help preserve that meat. The back porch behind the tree in the middle of the picture) was open until the early 1930s. The washing machine was on the back porch, and during the lengthy process of "processing" the butchered animal (separating all of the parts - cuts of meat, fat, etc.) parts of the carcass would be stored in the washing machine to keep the animals away from it. The fat was striped out and melted, some cuts of meat were covered in fat and buried. Some cuts were put in large stone crocks in the basement, where they were covered with a water solution of salt, sugar, and seasonings. Clean bricks were used to keep the meat from floating. Some meat, skin, etc. was pressed to remove the fat (the press looked a bit like a grape press, but was about 8" in diameter and two feet tall). Laura made lots of sausage - pork, sage and pepper.

The house was heated with cobs and coal. The building just to the south of the house is the coal shed. A wagon would pull up in front and the coal would be loaded into the shed through to small door under the peak. One end of the shed was used for anthracite (hard coal)[1] and the other end for soft coal. The hard coal came from mines in the East, and was purchased at the Symerton elevator. Soft coal was kept on the other end of the coal shed, and was purchased from the coal mines at Braidwood.

1. Anthracite, also called HARD COAL, is the most highly metamorphosed variety of coal. It contains more fixed carbon (about 90 to 98 percent) than any other form of coal and the lowest amount of volatile matter (less than 8 percent), giving it the greatest calorific, or heat, value. Because of this, anthracite is the most valuable of the coals. It is, however, also the least plentiful. Anthracite makes up less than 2 percent of all coal reserves in the United States. Most of the known deposits occur in the eastern part of the United States.

Anthracites are black and have a brilliant, almost metallic lustre. They can be polished and used for decorative purposes. Hard and brittle, anthracites break with conchoidal fractures into sharp fragments that are clean to the touch. Although anthracites are difficult to ignite, they burn with a pale-blue flame and require little attention to sustain combustion. They are particularly adaptable for domestic use because they produce little dust upon handling and burn slowly while emitting relatively little smoke. They are sometimes mixed with bituminous coal for heating factories and other commercial buildings to reduce the amount of smoke produced but are seldom used alone for this purpose because of their high cost. ("anthracite" Britannica Online. http://www.eb.com:180/cgi-bin/g?DocF=micro/26/20.html)

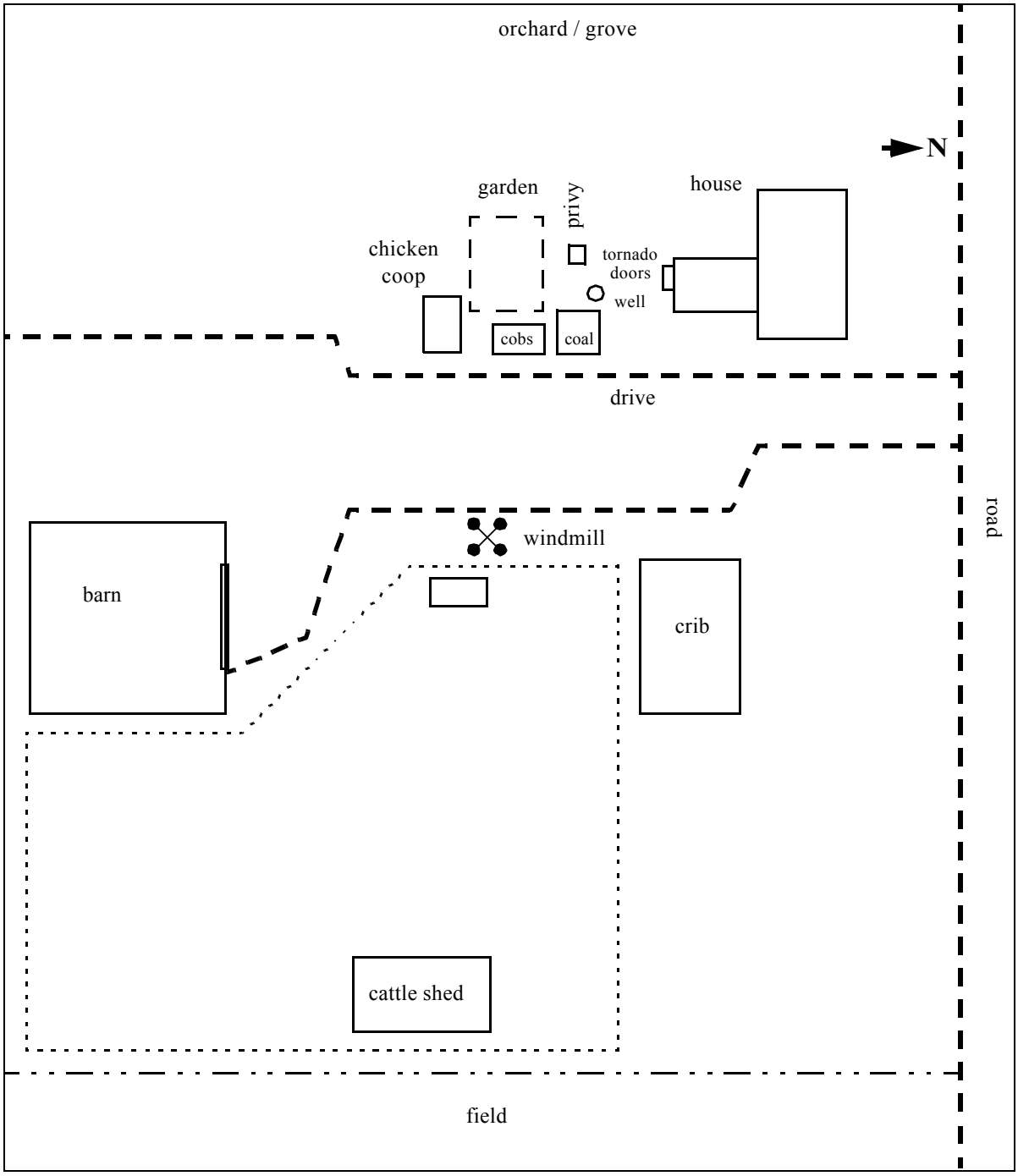


Figure 7.48 **Layout of the home place, ca. 1910.**

7.4.5 The House

LWJ: In the summer mother had an oil stove that sat inside the kitchen door. But that was just a summer operation

{note} *Why just summer operation? Did the cola stove stay hot all the time so that it was not practical during the summer?*

Originally the porch ran the length of the east side of original house, and was open. [As in Figure 7.45]. Then we enclosed it, leaving a small front porch.

WEJ: As I recall, no one used the front porch.

LWJ: Nobody ever used it.

ALJ: I used it during the winter to jump off into the snow.

LWJ: There was a soft water cistern under the east porch and part of the dining room. It was my job every so often to open the trap door under the porch and go down and clean the thing when the water was low in the summer. All the rain water from the eves went here. [In Figure 7.45 the big drain pipe that runs diagonally across the east side of the house drained into the cistern.] The cistern water was piped to the sink in the kitchen. The rain water was soft and the well water was hard. We never used the rain water for drinking, but for hand washing it was much preferable to the well water.

{note} *Washing your hands or hand washing of clothes?*

WEJ: I clearly remember grandpa Walter being very amused when, as a young boy, I got sceptic tanks and cisterns mixed up. I sort of knew what a sceptic tank was, but I had no idea what a cistern was.

In the house, the living room stove burned hard coal and was left running all night during the winter. The hard coal was very hard to ignite, a cob and wood fire was used to get the hard coal burning. Once ignited, it burned with a blue flame. A bucket of coal was loaded into a hopper on top of the stove, and the coal fed out of the hopper into the stove as it burned. A bucket load would last several days. The stove in the dining room burned soft coal, corn cobs and wood. A small boy had the job of hauling buckets of cobs to the stove, but the coal was too heavy for a boy. In the kitchen ... a coal burning cook stove ...

LWJ: Margaret and I had the two upstairs bedrooms. There was a register in the floor of those two rooms, and warm air came up from the living room. (The hard coal stove ran all night during the winter.) The registers were just holes in the floor with grates over them, and not much warm air got through. On cold mornings when we got out of bed, we made a dive down the stairs and parked our back sides along side the stove while we got dressed.

LWJ: Somewhere along the line it was my job to put a door between the two basements. When we put the bathroom on (ca. 1945), that was put over the southwest of the new house. Before the bathroom, there were stairs coming up out of the basement in that corner, with a flat door on top.

LWJ: The pantry was in the north cellar. Mother kept all of her food down there - cream, eggs, etc. The entrance was a stairway down from the pantry north of the porch on the ground floor.

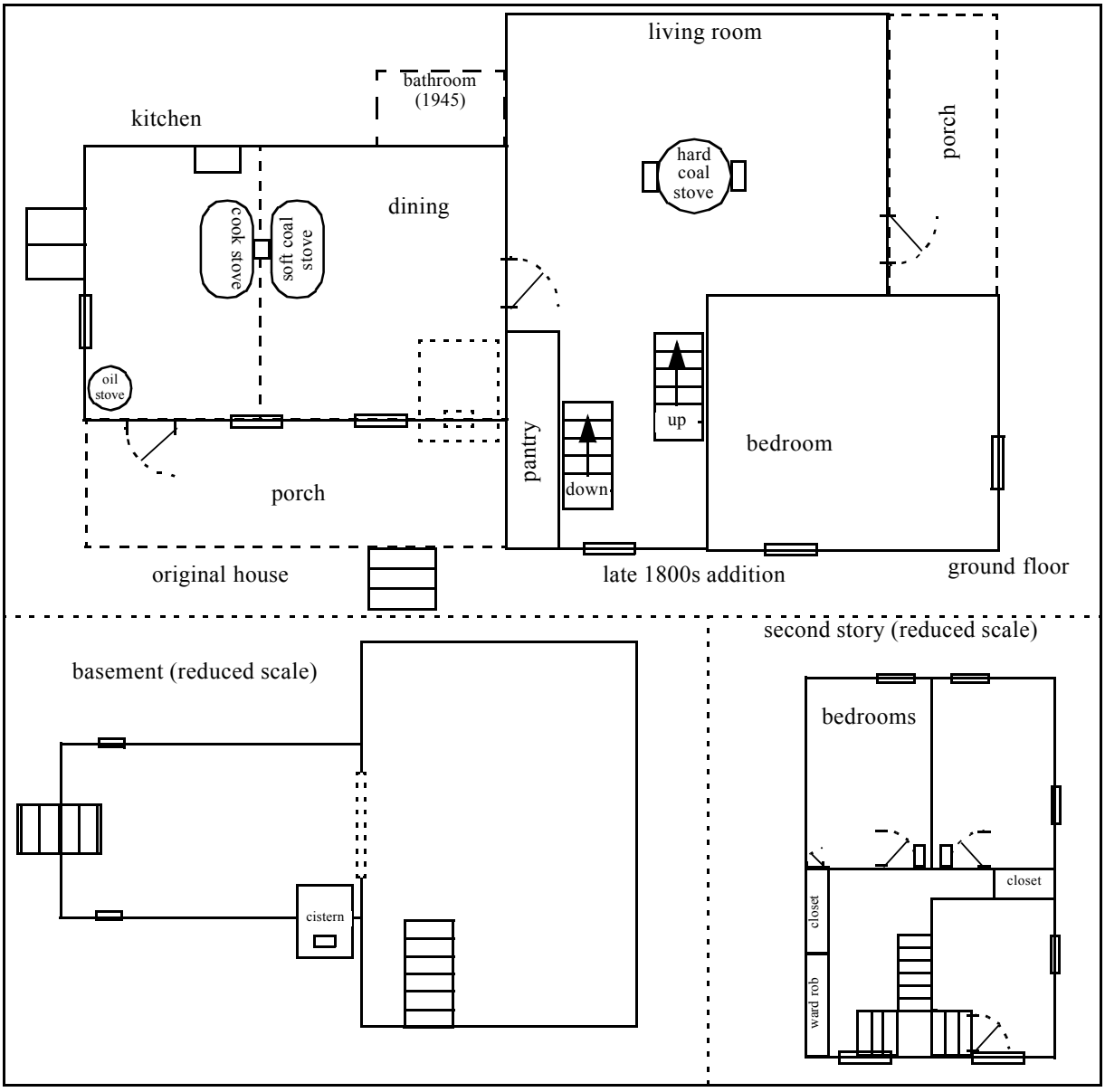


Figure 7.49 **Layout of the house in the early 1920s.**

FLJ: After the cows were milked, the milk was carried to the house where it was filtered, separated, and put in cans and, during the summer, set in cold water. Cream cans were taken to Symerton for the train to Chicago. Local trains stopped at all of the depots to pick up milk.

The light in the house was provided by kerosene lamps.

LWJ: In the kitchen mother had a head-height bracket on the wall - almost a little shelf type of thing - where she had a kerosene light for the kitchen. It was a typical kerosene lamp with a glass chimney, but she had a concave mirror behind it to direct the light out into the kitchen. That was the sole light for the kitchen.

Until the mid-1920s, these were conventional wick-style chimney lamps. A revolution in lighting occurred when Aladin introduced the mantel-style lamp. This innovation wrapped a mineral-impregnated gauze around the mantel and converted much more of the hot gas coming off of the flame into visible light. Even so, the typical kerosene lamp put out about as much light as "four large candles." There was an Aladin lamp on a shelf in the kitchen that had a reflector behind it and one sitting on the dining room table. When one went up stairs there was a mantle lamp in the bedrooms and a box of matches. That was the extent of the light.

Figure 7.50 A modern Aladin mantel-style kerosene lamp

In the living room there was a conventional, glass kerosene lamp on the table until the so-called Aladin lamps came along. These lamps had a cone shaped mantel in them over the wick. These gave several times the light of just the little kerosene flame on the wick. This was a major step up in lighting.

ALJ: I remember this, but it all seemed a little ancient to me, because all the houses in Joliet had electricity for a long time. The mantel lamps were good, but the others were horrible.

LWJ: The first mantel lamp that we got went in the dining room and sat on the table. In the old-style lamps the wicks were about 2" wide. By today's standards you would not believe how little light they gave off. It was maybe the same as you would get from four candles.

Upstairs, each of the bedrooms had one of the kerosene lamps sitting on the dresser. When you went up there, you took the lid off and struck a match to light it. When you went out doors in the winter, you carried a kerosene lantern so that you had a bit of light where you went. When you went to milk the cows or feed the horses, you had a kerosene lantern. That was also a source of danger in those days, because if you remember the Chicago fire - it was started by Mrs. O'Leary's cow kicking the lantern over. And there is more truth in that than there is fiction.

The house was electrified in 1935 or 1936 from the power grid, and Lester did the wiring.

LWJ: To get electricity to the house, it was several miles of additional line to put up (to get to the power grid), and it ran past several farms. To cover the cost of the putting up the lines, the Public Service people required the farmers to sign a contract that they would pay for a minimum amount of electricity for several years regardless of whether or not they used it. In the folks situation, that minimum never did apply. From day one they always made good use of the electricity. This was probably true for the other farms as well.

I remember the night that they turned the electricity on for the first time. I had the light fixtures all wired in and all of the lights turned on. We had nothing but kerosene lamps as far back as you could remember, and when the power came on, the whole place lit up. That was an event, Believe me!

{note} *compare with the electricity supply for the grain drying operation*

7.4.6 Transportation

.

Grimes family transportation, ca. 1900. - [HGP]

{note} *did Walter still have a horse carriage in 1916?*

Figure 7.51 **"Father and Mother"**

Figure 7.52 **"Dick"**

LWJ: Dad's first two cars were touring cars - a Cadillac then an Oldsmobile. I remember when dad was getting the old Cadillac - 1918 or 1919 - ready to go somewhere, that he had to put in new batteries. The ignition ran off of dry batteries. He had a whole box of those dry cells that he had to wire in before he could get that car to run.

Figure 7.53 Lester and Walter's 4 cyl. Cadillac touring car, 1916.

(Note that the car is sitting in the same place as Walter's plow horses in Figure 7.11. The broken board on the crib is still there.) [HGP]

Then he bought a Model T Ford roadster in the early 20's - the first car that I remember well. As I recall he paid $340 for that car new. I remember when he got the car, because mother drove it home she drove into a mud puddle in the yard and the front wheel came off and dropped the front axle into the mud. She was a bit perturbed.

AJ: We drove a Model T Ford all the way to Virginia. If it rained we would put the curtains on. When we went up a steep hill, the kids would get out and walk so there wouldn't be so much weight in the car.

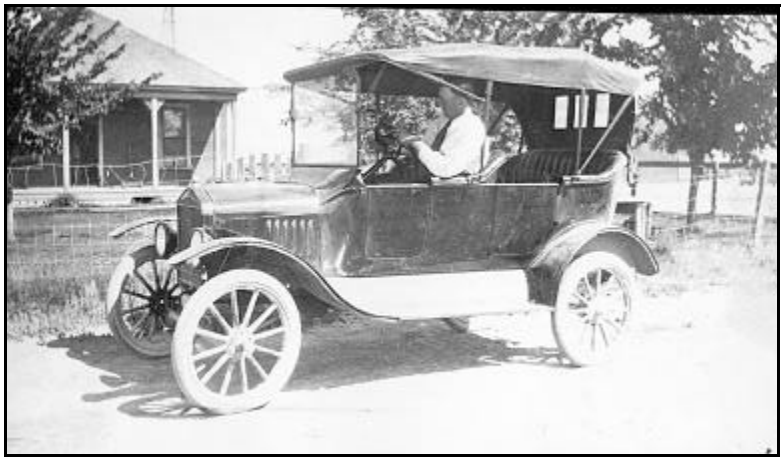


Figure 7.54 Bernard Grimes 1920 Ford.

[HGP]

7.4.7 Home Life

The Redmons and the Johnstons

ALJ and LWJ: Jim Redmon [Ann's older brother] worked for Aunt Lizzie and Uncle Hazelton one summer when he was in Junior College.

Uncle Marty (actually a cousin - he was Joseph Johnston's son) and Edgar Redmon (Ann's father) were close friends - they both worked for the street car company in Joliet. Edgar was a motorman - he drove the street cars - and Uncle Marty did something else for the screen car company.

The two families visited back and forth quite a bit. In fact the first time I (LWJ) ever saw Ann, Uncle Marty had brought the whole Redmon family down to the Wesley Cemetery for a Memorial Day service, ad there were three "little" girls in the family - Ann, Lucy, and Mary. This was in the mid-1920s.

LWJ: Aunt Lizzie was Uncle Marty's sister. When Jim Redmon got out of high school (1931), Uncle Marty said to Aunt Lizzie, "Hey, can you give this kid a job for the summer?". So, Jim worked for the Hazelton's for the summer. He came down from the Redmon's Comstock Street house in Joliet on a motorcycle, but it did not run very well. So, when he wanted to go home for a weekend, he would ask me to take him home. [About 25 miles.]

{note} *what car?*

I had known him a little from school - he was a year ahead of me. The first time I visited the Redmon home, I went into the back yard and went in the back door, and Ann scooted out the bathroom window onto the porch to avoid me.

Figure 7.55 **Ann L. Redmon on the Walter I. Johnston farm, 1935.**
Ann lived on the Johnston farm for a year while she was teaching at the Bell school in Wesley Township. She and Walter were great friends. - LWJ

{note} *What was the background for AJ living at the Johnston farm. While teaching at the Bell school?*

7.4.8 The Barn

The barn was a central feature in a livestock-based farm, and essentially all Midwestern American farms prior to the early part of the 20th century were livestock based.

William I.'s barn was compact and well thought out as the center piece for animal care .

LWJ: It had to be. If your horses were not well cared for, you buried them. And then you had no motive power. If your cows, pigs, and chickens dies, you lost your source of meat and eggs.

By the end of the summer, most of the inside of the barn - the hay mow on the ground floor, and most of the mezzanine area - was filled with hay for the winter. The piles of hay were not just a random pile, they were carefully layered, and because of this you could build an almost vertical wall of hay.

The hay was the winter feed for the horses and cows, but it also served as insulation. The barn walls were also "lined" on the inside with boards for insulation against cold, and were about 6" thick. (I.e. boards outside, 6" studs, and boards inside.) The animals had to be protected from the cold during the winter.

Thinking of Mrs. O'Learly's barn burning down, I don't know why more barns didn't burn down. all during the winter, the morning and evening "chores" - caring for the animals - was done in complete darkness. You took a kerosene lantern to the barn to provide a little bit of light. However, the entire inside of the barn was filled with loose combustibles - dry hay stacked to the ceiling, straw, dust, etc. A kicked over lantern would set the whole place on file.

When they were shelling corn, the sheller had a fan the blew the husks, silks, and bits of cob out one side and the grain went out the other. Walter would collect this stuff and put it in the stock shelter. I remember once it was three feet in the shed. The pigs loved rooting around in that stuff. You came out in the morning and there was not a pig in sight. Then they heard the slop bucket, and hogs popped up everywhere from under that pile of husks.

The horse stalls were in back, on the south side. Every stall had a manger in front, and in the corner of the manger was a feed box that you put grain in, and you put hay in the rest of it. There was a trap door in the oat bin. You would fill a bushel basket and carry it back to the stalls. We measured it out using an old wash basin as a scoop.

The horses went in and out of the door in the south-east corner, it was a sliding door. The door on the back side was mostly used to shovel manure out.

The little hallway in front of the horse stables had personnel doors at both ends.

There was a calf pen next to the hallway - it was big enough that you could put a couple of cows in there if you wanted.

Figure 7.56 **The old barn.**

This barn was the center of operations when horses were the motive power for the farm. The building was so specialized that when tractors replaced horses, it was torn down.

The stock fences were arranged so that the gates opened and latched against the barn forming different passage ways depending on which animals were going where.

The windmill was 60' tall, and was used to fill the stock watering trough.

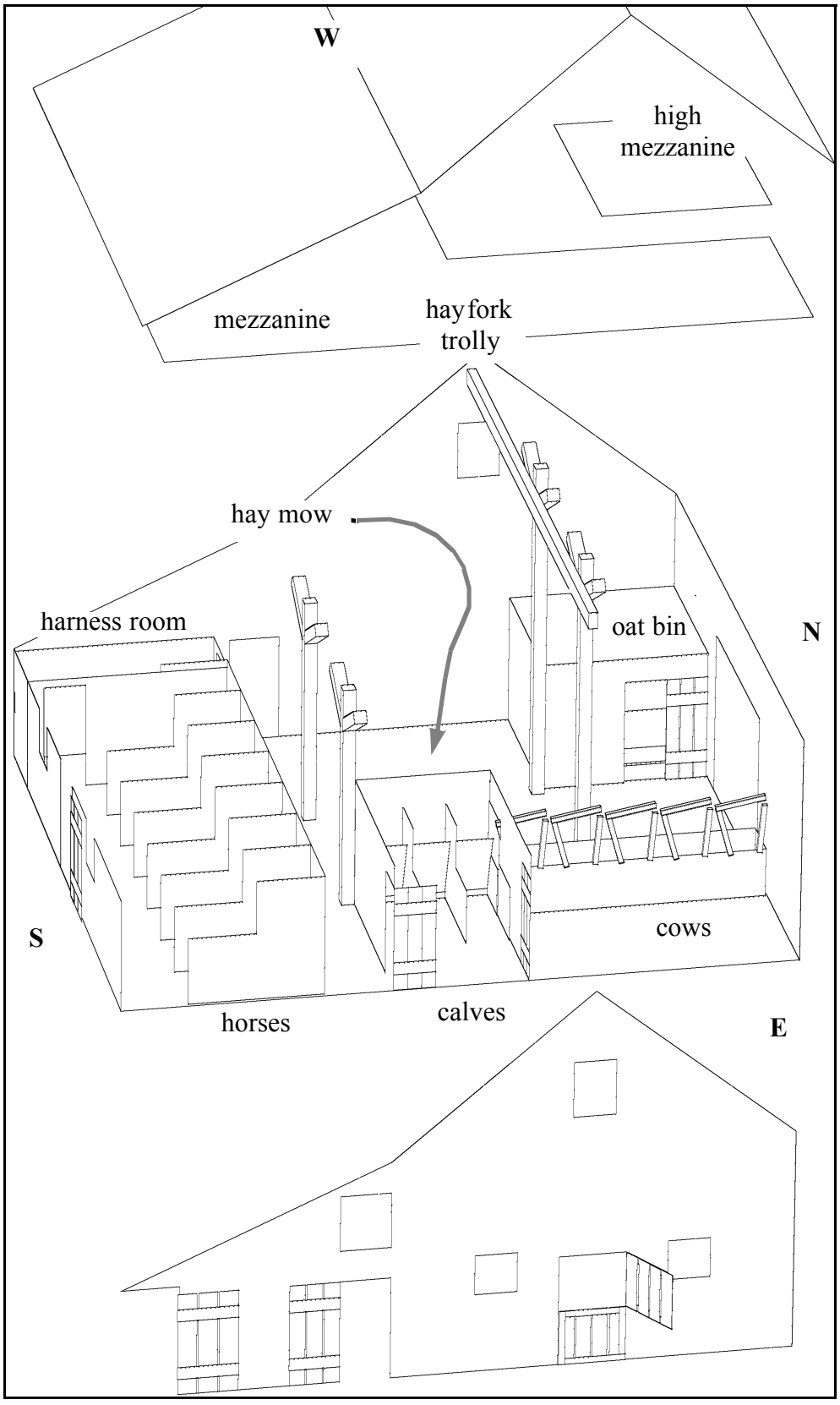


Figure 7.57
William I.'s barn.
This "exploded" architectural view shows the major functions of the barn.
The mezzanine floor is at the height of the top of the oat bin, and is open over the area where the hay wagons were unloaded with the overhead trolly and hay hook.

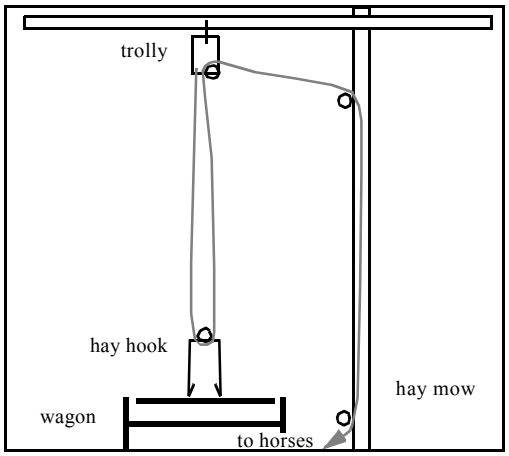
In the NE corner was the cow area. There was a feed bunk in front and behind that the stanchions for the cows. You did not have stalls like for the horses, but you did have the stanchions that were a "trap" for the cow's head. You got the head through and then closed and latched the stanchion, and the cow could not get its head out.

{note} *why the stanchion? For milking?*

There was a little hill in front of the big doors, and Dad was able to drive a team of horses pulling a load of hay right in the door. The horses would be pretty much right up against the stalls when you got the wagon all the way in.

In the peak of the barn there was a track that ran across the barn (N-S). On the track there was a traveling trolly. When the hay wagon was all the way in - with the horses as far forward as they could go - the trolly was over the middle of the wagon. The trolly would stay stationary in the middle - over the wagon - and the hay fork was on a rope that went up to the trolly. The rope came down one of the big posts at the side of the open area, and through a pully at the bottom.

I had a team of horses on the hay fork cart outside the big doors. That two-wheeled cart was actually the front end of a wagon. The rope had a hook on the end that was hooked to the cart, and I would drive the horses away from the barn - it must have been 150' - and the hay hook would go up and latch on the trolly. Then you could pull the trolly along the track and dump the hay in the mow. Then you had to level the pile of hay, stomp it down, and get it packed in.



The hay grapples were big - 7' across. They were stored on the high mezzanine over the big doors.

{note} *150 feet? Were there double or triple sheaves on the trolly and hay hook?*

{note} *Why more than one hay hook?*

You put some pretty big loads on the hook. Something that was loose and fluffy like straw, you could take half a hay rack load in one big bunch.

Figure 7.58 **"Haying"**
(On the C. E. Grimes farm, ca. 1900. [HGP].)

{note} *Was this like the hay wagons that were pulled into the barn?*

There was a mezzanine floor over the oat bin and over the cows. The trolly could be fixed so that it would dump on the mezzanine, with some difficulty.

When you got the thing unloaded, you backed the horses up, and down the little hill in front of the door, and went and got another load.

{note} *Where are these load coming from? Directly out of the field?*

Dad would feed off of the mezzanine floor first. He would pitch hay off the mezzanine down into the driveway when the hay rack wasn't in there - which it wasn't normally.

There was a sloping ladder at the end of the driveway that went up to the mezzanine. You mother [ALJ] and old Smokey and Francis loved to climb up that ladder and jump off of the mezzanine into a pile of hay on the floor. You would not believe how Smokey could go up that ladder. He just went flying up, and all three of them would jump off onto the hay.

Francis took the barn down [ca. 1945?]. It had become obsolete and wasn't being used. He built a much bigger building - he used one ned to feed cattle out of, and

he used the other end for machine storage. Also, the barn was built from heavy timbers, and he wanted those to build the first of the overhead bins for corn storage down at Vance's.

Figure 7.59
William I. Johnston's barn giving way to a modern building. Summer through Winter, 1962.
[FLJ]

7.5 The Farming of William's Grandsons and Great-grandsons (1940-1998)

7.5.1 The 1950s: Emergence of Large-Scale Mechanized Farming

Figure 7.60
Francis Johnston combining wheat (ca. 1950).
This John Deere was one of the early self-propelled combines. [Unk]

Figure 7.61
Walter Johnston windrowing wheat (ca. 1950).
Prior to the forced air drying systems, air drying for a few days could improve the quality of the harvest. (If it did not rain!)

WEJ: Why windrow instead of combining directly (as in Figure 7.60)?

LWJ: If you could cut the wheat (and beans) and let it lay in the sun for a few days, this reduced the moisture content of the grain - one of the quality factors. It could be risk, though. I remember a fellow who wanted me to combine 40 acres of soy beans. He cut and windrowed the beans, and it rained for the next several days. By

time I could get into the field to combine, he has lost most of the crop. [Why? It rotted?]

Figure 7.62
Francis Johnston
(ca. 1950)
Here the combine set up to pickup wind-rows. (All he needs is one more thing to take care of. After all, he still has one arm free!)

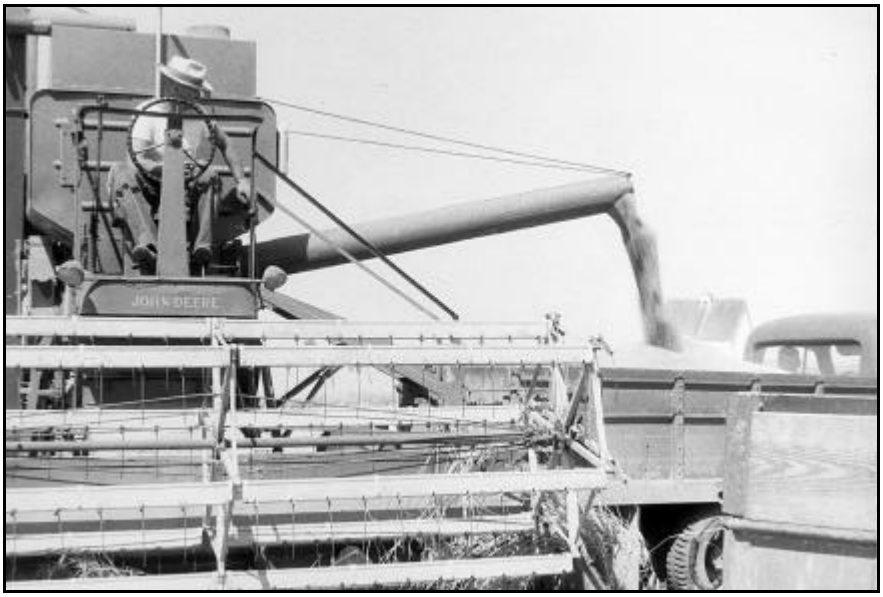


Figure 7.63
Off-loading wheat.
(ca. 1950)
The crib in the back-ground is on the 80 acres owned at that time by Hazel Grimes. (To the south of the home place.)

Figure 7.64 **Francis Johnston (ca. 1950)**

Francis and ? loading Walter's International truck. Earl Bell (?) watching.

LWJ: When the John Deere Model R was introduced and when through the Nebraska tests (see 7.6.3[Nebraska Tractor Tests] in the Notes at the end of this Chapter), it set the world standard for economy. It set the standard for modern tractors.

If I had my druthers to restore and baby an old-time tractor, this would be the one I would like to work with. It has a big two cylinder diesel engine. When you got it up to load it was pretty quite, combustion wise, but running at idle with no load, the ignition noise was very heavy. It was a very interesting tractor - there were never too many of them made. I don't think that you would find too many of the around the country. Talk to Francis about the "R" - that was his era.

Figure 7.65
Lester plowing with a John Deere, model R. (ca. 1955)
(The R was arguably the first the "modern" generation of farm tractor.) [FLJ]

Figure 7.66
Walter I. Johnston, June, 1960.
WEJ: Grandpa was 76 years old at this point, and close to retirement, but still doing some farming. [FLJ]

7.5.2 The 1960s: The Quest for Power

{note} *I would like to know more about the "tandem." Was this Francis' design? Did he fabricate the whole thing? How long was this used?*

WEJ: Was the tandem some sort of a kit from John Deere?

LWJ: It was no kit - it was the brainchild of Francis and Vance. Each of the Model 70s could deliver about 50 drawbar horsepower, so the two of them gave you something over a 100 hp. This would cut in half the time for one man to plow a field. I don't think that Francis used this for too long. John Deere came out with

Figure 7.67
"14' duckfoot and disc." June, 1960.
Walter Johnston. [FLJ]

the six cylinder tractors not to long after this, and they were over a hundred horsepower.

Figure 7.68
Tandem John Deere Model 70 Diesel. Fall, 1959.

This amazing attempt at increasing human productivity was the brainchild of Francis and Vance.

Vance is plowing with a five bottom plow. In the top picture, the front tractor is smoking a little, so he is probably in a high gear at full throttle. (Or maybe in the process of trying to balance the load on the two tractors.) [FLJ]

Figure 7.69
John Deere 4010: The early six cylinder diesels.
Top: Douglas Johnston, Vance Jones, and Willard Johnston.
Bottom: Vance and Douglas. Fall, 1974. [FLJ]

{note} *Why does the first tractor have two sets of duals? A differnt design of plow that lets you to keep both wheels out of the furrow?*

LWJ: In the 1960s we were experimenting at Chevron Research with using dual fuels in diesel engines. In addition to diesel fuel we injected propane into the intake manifold. What we wanted to do was reduce the black smoke, and it turned out to be pretty effective. We got an SAE paper out of it. Injecting the propane also increased the engine power output and the engine manufacturers were not happy about that. It increased the stress on the engines beyond what they had designed for.

I told Francis about this, and he promptly tried it in his tractors.

WEJ: I remember several of the tractors with propane bottles on them used for this purpose. I seem to recall Francis saying that it added maybe 5 hp. to the output.

I also remember - this was probably the summer of 1964 that I worked for Francis - that he had just started to experiment with putting turbo-chargers on the six cylinder diesels. He was getting the trubos from a third party and installing them himself. I don't think that John Deere had started to do this yet. I also remember helping to rebuild one of the six cylinder engines. We did some of the same kind of port polishing that the race car engine designers do in order to maximize the air that gets into the cylinders. I also seem to remember that LWJ did some tinkering on the injector pumps to get higher fuel charges out of them. Some of this shortened the engine life. I seem to recall that some models of the six cylinder engines could take this "enhancing" and some they had problems with.

7.5.3 Farming into the 21st Century

Figure 7.70
Soil preparation: A cultivator being pulled by one of the smaller tractors.

Figure 7.71
Jackie and Willard Johnston (Walter's grandson) loading seed corn into a corn planter.

Figure 7.72
A 23 row soy bean planter.
Francis and family spent the winter of 1995 building this in their shop.

Figure 7.73 **Combine with an eight row corn picking head.**

Figure 7.74 **Combine with an twelve row corn picking head.**

The batmobile with its high-flotation tires was designed to off-load the big combines in the field. This 12 row. John Deere 9600 combine can only make 2-3 rounds of the filed before it must unload the corn. It will pick and shell 10,000-15,000 bushels per day.

Figure 7.75 **The "batmobile" has 48" tires.**

Figure 7.76 **Alan Johnston**

Alan Johnston (Walter's great grandson) hauls 500 bushels at a time from the field to the grain dryer. Three of these trucks operate continuously to keep up with the combines.

Figure 7.77

Figure 7.78 **A new equipment shed that sits about where Walter's corn crib was.**

"There are three guide posts (cement) in the big door. Also a small walk-in door behind the right-hand big door, so you don't have to walk through the shop to get to the machinery." (Inset: Willard and Francis.)

Figure 7.79 **New grain dryer being installed.**

7.6 Notes and References

7.6.1 References

AC1 "The Unofficial Allis Chalmers Home Page - Taking a look back at the AC farm tractor line from 1914 to 1985." Stratton Systems. http://www.dstratton.com/allis/

AT1 http://www.antiquetractors.com/

Aug "Farm Implements." Augustana College Library, Special Collections: Local history through primary source material - Farm Life. Augustana College, Rock Island, Illinois. http://www.augustana.edu/library/farm.html

FLJ Photography by Francis L. Johnston.

HCV "Historical Currency Values." Robert Sahr, Associate Professor, Political Science Department, Oregon State University, sahrr@cla.orst.edu, http://osu.orst.edu/Dept/pol_sci/sahr/sahr.htm

HGP "Photo Album" Hazel Grimes. ca 1900-1925.

IL1895 http://fermi.jhuapl.edu/states/il_0.html

JD1 "New Ways to Break Old Ground." JD Journal, Deere & Company, November, 1994. http://www.deere.com/aboutus/pub/jdj/vol23no3/ground.htm

JD2 "Rummy's John Deere Page" http://johnnypopper.com/

LWJPA "Graduation Photo Album" Presented to Lester Johnston by Mrs. Laura Johnston when Lester graduated from Joliet Township High School. June, 1931.

LWJ1 Audio taped conversation, xx Feb, 1998.

MW Mike Wargo Web site (http://members.tripod.com/~MWargo)

Rum1 "Rumely Tractors: 'The Greatest Tractors Ever Built'" "This page was created to let everyone enjoy some of the best restored tractors that I have ever seem! All the tractors on this page were restored by Neil, Mark, and John Ford of Milton, Ontario, Canada." http://chem-eng.toronto.edu:80/~dorset/

Rum2 "Advance-Rumely: Allis-Chalmers purchased Advance-Rumely Thresher Co. in 1931. This purchase aided Allis-Chalmers' expansion into the agriculture market since Rumely had a well established and respected dealer network in place." http://www.dstratton.com/allis/rumely.html

Unk Photographer unknown.

WCH "Past and Present of Will County" (Ill.)

7.6.2 Historical Currency

TABLE 2.

dollar value relative to 1995	
date	value
1800	8.986
1805	10.184
1810	9.751
1815	8.333
1820	10.912
1825	13.479
1830	14.322
1835	14.784
1840	15.277
1845	16.368
1850	18.332
1855	16.368
1860	16.974
1861	16.974
1862	15.277
1863	12.386
1864	9.751
1865	9.963
1870	12.060
1875	13.888
1880	15.803
1885	16.974
1890	16.974
1895	18.332
1900	18.332
1905	16.974
1910	16.368
1915	15.010
1916	13.918
1917	11.868
1918	10.139
1919	8.799
1920	7.617
1921	8.506

TABLE 2.

dollar value relative to 1995	
date	value
1922	9.059
1923	8.901
1924	8.901
1925	8.699
1926	8.601
1927	8.749
1928	8.901
1929	8.901
1930	9.113
1931	10.007
1932	11.175
1933	11.777
1934	11.341
1935	11.094
1936	11.014
1937	10.632
1938	10.782
1939	10.936
1940	10.858
1941	10.345
1942	9.335
1943	8.799
1944	8.650
1945	8.459
1946	7.811
1947	6.804
1948	6.326
1949	6.326
1950	6.353
1951	5.888
1952	5.777
1953	5.734
1954	5.691
1955	5.713
1956	5.629
1957	5.448

TABLE 2.

dollar value relative to 1995	
date	value
1958	5.298
1959	5.261
1960	5.172
1961	5.120
1962	5.070
1963	5.003
1964	4.939
1965	4.860
1966	4.725
1967	4.584
1968	4.399
1969	4.172
1970	3.946
1971	3.780
1972	3.663
1973	3.448
1974	3.105
1975	2.846
1976	2.691
1977	2.526
1980	1.858
1981	1.684
1982	1.587
1983	1.537
1984	1.474
1985	1.423
1986	1.397
1987	1.348
1988	1.294
1989	1.235
1990	1.171
1991	1.124
1992	1.091
1993	1.060
1994	1.033
1995	1.000

7.6.3 Nebraska Tractor Tests

Nebraska tractor tests provide agricultural tractor users with unbiased information on machine performance.

Purpose of the Tests

Nebraska tractor tests are made to provide agricultural tractor users with unbiased information about tractor performance. The test data allows the user to make meaningful comparisons between tractors.

Nebraska Law and Testing

Provisions for testing tractors are made in the Nebraska Tractor Test law, first passed in 1919 and most recently changed in 1971. This law requires that a stock tractor of each agricultural model (new or used) of 20 or more horsepower offered for sale in Nebraska be tested. In addition, a permit for sale shall be obtained and a full supply of replacement parts be maintained within the state.

The Nebraska Department of Agriculture administers the Tractor Test Law. This department may issue temporary permits for sale if testing cannot be scheduled before a model is offered for sale.

Only one tractor of each model is tested. This tractor is chosen by the manufacturer and is certified as being a production tractor. This procedure ensures that

the tractor is one of the better performing units. Random choice of a tractor is not required in order to keep tractor variations to a minimum. This helps to ensure that the results are comparable.

Some tractors do not meet the manufacturers' expectations. These tractors can be withdrawn from testing. A missing number in the sequence of test numbers indicates that a tractor was withdrawn and no test report was published.

Tractor Preparation for Performance Runs

When a tractor is received from the manufacturer, it is assigned a test number and inspected. This is to ensure that it is a standard model. Additional ballast may be added to the tractor as specified by the manufacturer. The static tire loads and inflation pressures must conform to SAE tire standards. No modifications that would void the warranty are allowed. The fuel used and the maintenance operations must all conform to the published information delivered with the tractor.

The engine crankcase is drained and refilled with a measured amount of new oil conforming to specifications in the operator's manual. The tractor is then limbered-up for three hours or more on drawbar work in accordance with the manufacturer's published recommendations. The manufacturer's representative is present to make appropriate decisions regarding mechanical adjustments.

Power Take-Off Performance

Maximum Power and Fuel Consumption

The manufacturer's representative makes carburetor, fuel pump, ignition and governor control settings which remain unchanged throughout all subsequent runs.

The governor and the manually operated governor control lever are set to provide the high-idle speed specified by the manufacturer for maximum power.

Maximum power is measured by connecting the power take-off to a dynamometer. The dynamometer load is then gradually increased until the engine is operating at the rated speed specified by the manufacturer for maximum power.

This test lasts two hours. If rated engine speed does not provide a standard PTO RPM (540 or 1000), an additional one hour test is made at the standard PTO speed.

Varying Power and Fuel Consumption

Six different power levels are used. They show corresponding fuel consumption rates and how the governor causes the engine to react to the following changes in dynamometer load: 85 percent of the dynamometer torque at maximum power; minimum dynamometer torque 1/2 of the 85 percent torque; maximum power, 1/4 and 3/4 of the 85 percent torque.

This test also lasts two hours with a 20 minute test time at each specified load. Since a tractor is generally subjected to varying loads, the average of the result in this test serve well for predicting the fuel consumption of a tractor in general use.

Drawbar Performance

All engine adjustments are the same as those used in the power take-off tests.

Power and Fuel Consumption

The drawbar power runs are made to show the effects of speed-control devices (engine, governor, automatic transmission, etc.) on horsepower, speed and fuel consumption. These runs are made around the entire test course, which has two 180 degree turns with a minimum radius of 50 feet. The drawbar pull is set at 4 different loads as follows: 1) as near to the pull at maximum power as possible and still have the tractor maintain rated engine speed on the straight sections of the test course (2 hours); 2) 75 percent of the pull at maximum power (10 hours); 3) 50 percent of the pull at maximum power (2 hours); 4) maintaining the same load and travel speed as in (3) by shifting to a higher gear and reducing the engine RPM (2 hours).

Maximum Power in Selected Gears

Maximum power is measured on straight, level sections of the test course. Some gears or travel speeds are omitted because of high slippage of the drive wheels or because travel speeds would exceed 10 MPH.

Drawbar data are obtained for all gears at rated engine speed that provide wheel slippage less than 15 percent and a travel speed less than 8 MPH. One gear slower than those above will be tested with the load reduced to give approximately 15 percent slip. The engine speed for this gear will be higher than the rated RPM. One gear over 8 MPH but less than 10 MPH will also be tested.

Lugging Ability

Travel speeds corresponding to drawbar pulls beyond the maximum power range are obtained to show the "lugging ability" of the tractor. The run starts with the pull at maximum power; then additional drawbar pull is applied to cause decreasing speeds. The run is ended by one of three conditions: 1) maximum pull is obtained, 2) the maximum slippage limit is reached, or 3) some other operating limit is reached.

Sound Measurement

Sound is recorded during each of the drawbar power and fuel consumption runs as the tractor travels on a straight section of the test course. The dB(A) sound level is obtained with the microphone located near the right ear of the operator. Bystander sound readings are taken with the microphone placed 25 feet from the line of travel of the tractor. An increase of 10 dB(A) will approximately double the loudness to the human ear.

Additional Tests

Tractors equipped with a front wheel drive that can be engaged or disengaged from the driver's seat may require additional drawbar tests. The usual drawbar tests are first run with the front wheel drive disengaged. Then, with the front wheel drive engaged, a maximum power and fuel consumption test of two hours is made. Several gears are selected for additional maximum power runs, one of which will result in about 15 percent slip. The power take-off of some of the large 4-wheel drive tractors does not transmit full engine power. A special test is run at full throttle and minimum throttle setting that allows the power take-off control system to maintain standard PTO speed. In addition, a varying PTO drive and fuel consumption test is made.

Test Information

Test information is published in two forms: a complete individual report is printed for each tractor tested, and a summary booklet, MP 37, Nebraska Tractor Data, is published annually for tractors on the market each January 1. Because it is pocket size, only a few key performance figures and specifications are given. Both publications are available from the Tractor Testing Laboratory, Department of

Agricultural Engineering, Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln 68583-0832.

http://www.ianr.unl.edu/pubs/FarmPower/g579.htm

Appendicies

A. Who Were the Celts?

Book formatting notes (also on theFrameMaker "reference pages")

Notes about the format of the book: "John Johnston and Mary Campbell of Muirkirk, Ayrshire, Scotland: Their Family and Descendents".

1) Running H/F with chapter numbers when the chapter is split across several files. (Adapted from FrameMaker documentation "Inserting chapter numbers in multifile chapters".)

This is a kludge to account for the fact that apparently variables are statically defined. That is, a global variable cannot acqire a new value throughout the course of a multifile book.

Anyway, the trick is to define a dummy version of the chapter title that populates the local $paranum and $paratext variables to the correct values, and then modify the system "Running H/F4" variable to pick up that value. So, the dummy chapter PP has to be inserted in each file, but at least the H/F-4 variable deffn. can be common to the whole document.

The dummy chapter title is defined in a heading that is put in a separate text frame on the first page, that is connected to the main flow, and in which the text is assigned the color white so that it is not visible. (Ugg!) (CAUTION: The new frame may not be autoconnectd, and this will propagate to the std. text frame. This has to be fixed, or the numbering will be off.)

The dummy chapter title PP picks up the chapter number (which apparently is a dynamic global variable!) through a non-incrementing chapter number of the same flow as the chapter heading PP. So, e.g., the chapter heading PP numbering deffn "H:CHAPTER <n+1>" changes to "H:CHAPTER <n>" in the dummy PP, and the chapter heading text has to be inserted manually.

"Running H/F-4" gets the global deffn:

<8pt><$paranum[ChapterTitleDummy]><Default ¶ Font> <$paratext[ChapterTitleDummy]>

Finally, "Running H/F-4" is used globally as the footer on the pages where the Chapter number and title is wanted.