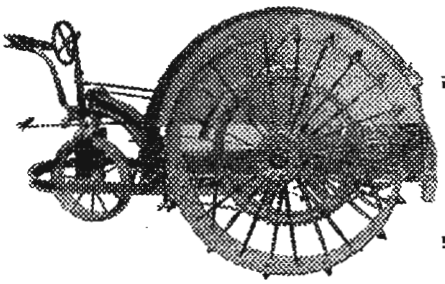
Friends of the Lester F. Larsen
Tractor Test and Power Museum



Judy L. Ray – Editor Newsletter #17 December 2003

To collect, preserve, research and interpret the traditions and technologies of agriculture

Milestones In Tractor Development

- by the late Lester F. Larsen

The main source of mechanical farm power before 1900 was the heavy steam engine that was used mainly for driving threshers and to some extent for plowing. Early development of gasoline tractors was encouraged to reduce the manpower below that needed to operate a steam engine.

In 1914, the Moline Plow Company designed one of the earliest general-purpose tractors. A later model, the Moline Universal, appeared in 1917 and was probably the first tractor equipped with a storage battery, generator, electric starter and an unusual electric type of governor.

Fierce competition existed during this period. Henry Ford produced a lightweight and low priced ($395.00) tractor. The first cast frame construction and enclosed wearing parts were so practical that most manufacturers soon adopted the idea. This tractor came at an opportune time—during World War I, when horses and men were scarce. During one year, this tractor accounted for over 50% of all tractor sales in U.S.A. and about this time there were over 150 tractor companies.

In 1924, the first successful attempt at building a truly all-purpose tractor was finally realized by the introduction of the Farmall. This unusual design probably did more to encourage power farming than any other development.

Even though it was considered very foolish at the time, Allis-Chalmers equipped their model U tractor with aero plane and truck tires in 1932. This was the beginning of an idea that has completely revolutionized power farming.

In 1939, and English engineer, Harry Ferguson, brought a new development to this country which made it possible to hitch farm implements on a three-point hitch with draft control. The entire trend of tractor design and equipment design has been greatly influenced by the success of this Ferguson system.

The improvement in farm labor requirements, largely caused by farm mechanization, which in turn depends mainly on tractor power, is in a great measure responsible for the high standard of living enjoyed by the American people today.

Board Meeting 1:30 p.m. January 20, 2004

This meeting will be in 225 Chase Hall, just south of the Tractor Museum on the East Campus UNL. All Friends members are welcome to attend.

Lester F. Larsen
Tractor Test & Power Museum
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Lincoln, NE 68583-0833
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MUSEUM HOURS

We are doing our best to keep the hours consistent 9-noon and 1pm–4pm, M-F, but please call to confirm any visit. 472-8389

Judy's Corner

In answer to my request for written info on the old tractor testing, I received a very nice write-up from Robert R. Mitchell from Kennewick, Washington that is included in this newsletter. Thanks!

Our museum is moving forward steadily. We are under the wing of UNL State Museum on city campus and 501C(3). An architect and a collections assessor did a Conservation Assessment from the Gerald Ford Conservation Center in Omaha. We are now applying for a grant for partial environmental control and to be listed in the National Register of Historic Places. This was the first building where tractor testing started in 1919 due to a law passed in Nebraska that tractors had to live up to their advertised claims to be sold here. Other states wrote for information on the tractors tested here. Testing is still done in a newer building. We have people-powered, animal powered, and tractor powered equipment and tools. Our visitors are getting more interesting as resources of knowledge and collections.

Luis, a museum studies student worker has come back with title of Assistant Curator, but like me he covers a lot more title territory. He is very good at recruiting volunteers and applying for grants. We hope very much we can get a large enough grant to keep him here permanently. It takes a while for them to appear, so—if you have any extra money for donations lying around this year—think of us!

Donations can be made directly to *Larsen Tractor Museum* or to the *Friends of the Tractor Museum* at the address on this newsletter. Please specify if part of your donation to the Museum *or* Friends is to go to being a Friends Member as memberships are separate from donations. Dues are $10 each January and are not tax-exempt, but donations are under 501C(3). Donations may also be made to:
University of Nebraska Foundation, Tractor Fund #4182,
1010 Lincoln Mall, Suite 300, Lincoln, NE 68508

Donation Update

The 1940 Farmall H John Schere, Burwell, NE donated to the Museum for the purpose of selling it for Museum support is waiting for your offer, or it may be sold by silent auction.

TRACTOR TESTING EXPERIENCES

by
Robert R. Mitchell, Class of 1948
Kennewick, Washington 9/03

I was lucky to be at Gowen Field, Boise, Idaho when World War II ended. Gowen Field was chosen to be a Separation Center and as a Bombardier, I was one of the first sent home. I returned to the University mid-year 1945 to continue my Engineering studies. I bought one of the nineteen small new houses on North 27th Street. At that time, it was an ideal location for I could drive from the north end of 27th Street straight east to the back of the main Agricultural Engineering Building. I first worked for Chauncey Smith.

After tractor testing resumed, I worked for Lester Larsen weighing fuel and recording the various test readings plus I made the coffee. This required timing, as exactly every ten minutes to the second I had to shut off the fuel from the supply tank and weigh it. A small tank up on the wall kept the tractor running while the flow from the supply tank was shut off. The supply tank was then weighed. The weight of the fuel used plus the barometric pressure, the room and tractor temperatures and dynamometer reading all had to be recorded. Between weighings plus the recordings, there was time to do only one thing, either wash the pot, fill it, light the gas fire and have the heat turned up just so the coffee would heat and not boil over and after a number of ten minute periods I would serve the coffee on my recording rounds.

I admired Lester Larsen. He could get things done. There was the instance when an engineer having a tractor tested wanted a wider belt used but thought that would delay the test a week or two. Lester had a wider belt delivered and on the tractor the same day. I also had him as an instructor in a class and he was superb at that too. He was good at detecting cheating by tractor companies. One of the few companies that may have gotten away with cheating was International Harvester. One of their tests got a higher rating than anyone else was ever able to obtain.

Some tests showed there were companies whose personnel lacked preparation or had poor ethics or had tractors that had faults or were poorly designed. Ford once sent a tractor with two engineers who were taken off of their car assembly line. They knew little about the tractor and admitted it. The tractor produced around 18 HP. They had expected 25 to 28 HP but it could not be set to run at test speed. The speed control had notches. One notch was over the 2000 rpm desired and the next notch was too slow. We designed and built a piece to fasten on the tractor so that the 2000-rpm speed could be controlled. The engineers said it would have taken two weeks in the factory to do what I did in less than an hour. The army had taught me when the war was on, get it done now. The problem with their first tractor tested after World War II was the governor on the fan belt. The tractor had been designed with a four bladed fan. When the block was cast, there was some poor coring that effected the cooling system. Instead of correcting the trouble, someone put on a six bladed fan. The heavier fan slowed the governor's reaction. Thus when more power was needed, the governor was slow to open the throttle. One of the men sent with the tractor was seen trying to correct the problem by beating the fan with a rock out behind the test lab. An engineer from the governor company and one with the carburetor company knew their business and tried to help but the test was disappointing. The next year a twenty-one-member team came with the redesigned tractor. The transmission that would not stay in place the first year without someone holding the lever in place had been corrected. It is sad to say but cheating had taken place. First the exhaust manifold had been sand blasted on the inside to make it bigger to reduce gas exit resistance until it was so thin it

cracked. A new one was obtained from a local dealer. Next, half way through the belt test, the engine lost over one horsepower for no apparent reason. The barometer reading and the room and tractor temperatures had not changed but power was lost. After the test tractor was disassembled to see if the specifications had been followed as the tractor was to have been a standard model. The crankshaft had been ground egg shaped so that the crankshaft was running on only the center of the bearings. This caused less friction and gave more horsepower. The Babbitt in the bearing was pulled and let the crankshaft run on the full width of a rough bearing causing the loss of over one horsepower. Larsen didn't say in his report that there had been cheating. He just said the bearing needed replacement after fifty hours.

Over fifty years is a long time to remember every tractor detail. One tractor, I believe a Massey, came for testing with no way to drain oil without cutting a hole in the bottom of the setup or remove the engine from the frame. Farmers are glad they don't have to buy that kind of mistake. The Oliver Company tested two tractors, a row crop type and an industrial type. The company filed or ground off the serial number on the engine, put on a new number and the same engine was tested twice. Larsen became suspicious when he wanted to know when the second tractor was to be tested. It seemed to him that it depended ion when the first tractor was returned to the factory. He called three of us student assistants to witness him make double small punch marks on the engine. When the second tractor arrived there was proof, we were to test the same engine but in a different frame. Larsen said nothing to the accompanying engineer until after the test. The engine gave a bit better results in the second test as an engine broken in should do a little better and did.

The only tractors I helped test that had no flaws or funny business were John Deeres and Cases. One tractor did show signs of having been started up during shipment when it was transferred from one truck to another without any coolant in it. The practice of always shipping tractor with antifreeze in them may have started after that problem. I recall the testing of two Case tractors. Their engineers knew their tractors and thought they would break the fuel economy record. They spent most of their time with their noses pressed up against the window looking in the fuel weighing room watching every figure recorded in fuel weighing. Both tractors broke the records. I would have been nervous if I had not had considerable experience in recording before their tests were made.

One of the jobs I helped on and did a large share of the work on was the building of tool boards for Larsen. He wanted and got boards that have a place for every tool with a back painting the size of the tool. One could tell at a glance what tool was missing before closing the tool room. It gave me pleasure that my work must have been satisfactory as the boards were taken down and moved as is to the new test lab.

Insert to Lester F. Larsen Tractor Test & Power Museum Newsletter #17 December 2003

Volunteers Highlights

- by Luis G. Vasquez

Mark Nickolaus

On a hot summer day in 1998, while having a refreshing ice cream with his relatives at UNL East campus Mark Nickolaus found his path leading to the Lester F. Larsen Tractor Test and Power Museum. His finding the museum was a total coincidence. The museum had been recently dedicated in early May of that year and Mark had relocated to Lincoln after moving from the old family farm in Stockham, NE. He had previously seen the Larsen collection of tractors on display at many occasions when visiting the annual Lincoln State Fair every August. However, on that summer of 1998 he decided to become much more active than a simple spectator and thus, with the help of his sister-in-law, Jane, the two of them met museum director, William Splinter for a tour and an interview. Dr. Splinter was impressed with Mark's extensive knowledge on tractors. He immediately got an offer to become the first volunteer helping with the tours and light maintenance of most tractors in the collection. Since day one in the museum, Mark found the right place for his long time passion for old tractors. His days spent on the family farm were over and he took his new job as docent in the museum with lots of enthusiasm.

For more than five years Mark has been the primary docent conducting tours on a daily basis, plus joining the crew at almost every important activity in the surrounding counties during the summer representing the museum. Supportive and enthusiastic at work, Mark hopes to see the Lester F. Larsen Tractor Test and Power Museum flooded with visitors of all ages. At home, Mark keeps increasing his collection of model tractors, publications and a variety of memorabilia on tractor manufacturers started long time ago. His other passions... black coffee and any kind of cookie at any time in the day.

Born in Henderson, York County, Mark drove his first tractor at the age of 6. That tractor was a Ford 8N, Mark's favorite one. His father bought it brand new back in 1948 and it stayed in the family until recently.

Mark Nickolaus and his gray cat at the family farm in Stockham, NE back in 1973.

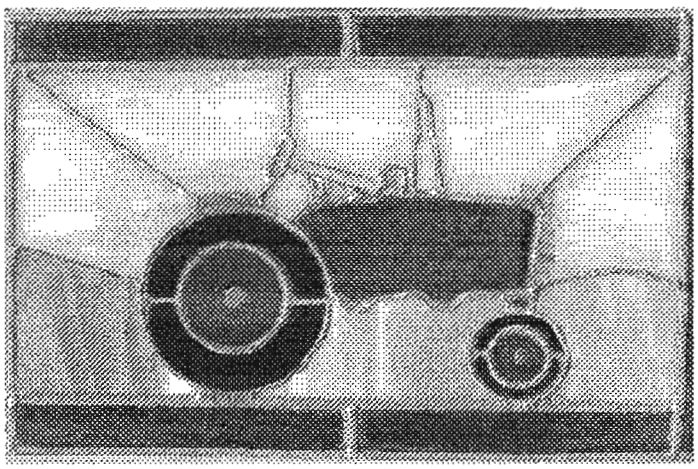
Next Volunteer in the spotlight: Jerry Kohl, in the Spring 2004

Stained-Glass Tractors at L. F. Larsen Tractor Museum

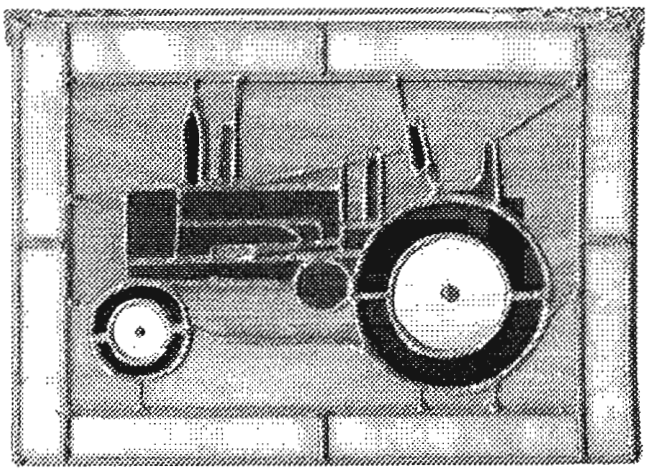
Just when you thought you have seen all the collectible items out there on tractor memorabilia, the colorful stained glass limited collection of old tractors has arrived to our museum gift shop this Christmas. All of these old-timers are made in colorful glass, exclusively handcrafted and signed by Phil Dinges, artist and volunteer at the museum.

Come and see them all, and do not miss out the opportunity to own one –if not all of these excellent samples of a brand new limited collection. Each piece is approximately 9"x12" sells for only $35.00

Farmall "M"



John Deere "B"



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ADDRESS CORRECTION REQUESTED

Best wishes for 2004!