Lake Region Pioneer Threshermen's Association

PRESENTS

THE SAGA OF "THE PAST IN ACTION" Dalton, Minnesota "HOME OF THE GIANTS"

FOURTH EDITION





Preface

We are happy to present this our 4th edition. In this issue we have eliminated the advertising from the 80 pages. Instead, we have replaced it with more pictures and this, we feel, adds to the enjoyment of paging through the book. We feel this is the best book published by the Threshermen's Club. Stories of events and pictures of the "past in action" adds to the reader's interest.

Write-ups of interest include how the Case emblem came into being, and how it was used by the Case Co. The Corliss Stationary Steam Engine, how it was invented and why. Information on how the phrase, "Horsepower" came into being and how it was figured on a scale. Threshing grain in ancient times and how it progressed up to the present time. This and more is found in this book which we are happy to present to our friends.

Board of Directors

David Hanson

David Hanson grew up on a farm near Elbow Lake. At the present time he has a machine shop on the farm and does repair work for himself and also some of his neighbors. He has been interested in the Pioneer Show for many years, and has several pieces of antique machinery at the show.





Kenneth Bratvold

Kenneth Bratvold was born and raised on a farm near Ashby, Minn. He is at present employed by the Farmers Equity Assn. at Ashby. Kenneth is a charter member of the club and at present is the owner of 5 steam engines, the saw mill, grain separator and several gas engines.

Glen Risbrudt

Glen Risbrudt was born on the farm he runs 6 miles east of Dalton. He father and uncle were pioneer threshers in that part of the country for many years. Glen has a machine shop on the farm and does his welding and lathe work. He has a share in a couple of steam engines also.





John Halvorson

John Halvorson lives in Fergus Falls. He was raised on a farm near Ottertail, Minn. You will see John on the Gaar Scott steam engine. He is employed by the Otter Tail Co. Sheriff's office as a deputy. He is one of the younger members of the board.

Ralph Risbrudt

Ralph Risbrudt and Glen Risbrudt are brothers. He also was born on the farm east of Dalton. He is the Dalton postmaster, and has been secretary of the association for many years. You may hear him on the loudspeaker at the Shows.





Iver Hanson

Iver Hanson was born on a farm north of Ashby. His father was one of the pioneer threshers some forty to fifty years ago. Iver is a well-driller besides operating the old home farm. He has several items at the Show.

Henry Skindrud

Henry Skindrud still operates a farm south of Underwood, Minn. He threshed and sawed lumber in the older days. Back then, Skindrud Bros. had a complete Northwest steam rig. Henry can be seen on the Reeves engine at the Show.





Dale Akerman

Dale Akerman lives on and operates a farm northwest of Ashby. He works for the Otter Tail Co. Sheriff's office as a deputy. Dale is also a member of the board of directors of the Farmers Equity Assn. in Ashby, Minn.

Ralph Melby

Ralph Melby was born near Silver Creek, Minnesota on a farm. He has lived in the Dalton community for 60 years, and has threshed both with steam and gas tractors. He is one of the charter members of the Club and has several steam engines and other pieces of machinery at the show. He lives in Dalton and operates the Dalton Supply Store at the present time.





The end wall of the first shed built. Note: "Home of the Giants," referring to the large steam engines and gas tractors that are stored here.



12 h.p. Advance steam engine, owned by Art Nelson, Willmar, Minn. Art has been a member of the club for many years. This is a real good engine. Hjalmer Grant, an Osaskis man, is on the platform.



Threshing in the early days about 1904. This was a common scene in those days. Many threshed stacked grain into mid-winter. This picture was taken southwest of Ashby, Minn. Note the stacked grain in the background.



20 h.p. Witte gas engine made into a tractor, owned by Peter Bitzen, Alexandria. This is over 50 years old. Pete used a Minneapolis steam engine frame for his running gear.



40 h.p. Superior natural gas engine, hauled in from Cutbank, Mont. It was used in the oil fields in that country. Very few of the big engines are left. We are proud to have this one to show you at the show.



Sugar cane press. 110 years old. Purchased from Peter Bitzen, Alexandria, Minn. Peter no doubt used this mill when a young man living on a farm near Millerville, Minn.



LaVern Simdorn on a Twin City gas tractor in the Parade uptown in 1969.



Mrs. Osander giving the kids a ride on the little train that belongs to the Schmidt Circus, which travels in Minnesota, North and South Dakota. They are very much interested in our pioneer show and give us a helping hand whenever possible.



4½ h.p. Bulls Eye. Jacob's Mfg. Co., Warren, Pa. Bought from Haakon Fjoslien and sold to Mike Nohre of Elbow Lake, Minn. Mike really likes to play around with these engines. Some day he will be owning an antique tractor or steam engine, we hope. He is real handy already, repairing and getting them going.



Part of Milton Martinson's collection of gas tractors and steam engines. Milton has many more tractors and also some more steam engines not shown on this picture. It has been a real boost to our show to have his collection here. He is also a member of our club.



Mike Nohre standing by his gas engine. They really are interested. We are proud of them.



Ellsworth Grand and his lath mill at work at the show. Franklin Melby is giving him a hand. Ellsworth is a member of the Rollag Show also.



Arnold Schroeder's Model A Ford car. Arnold has had it all gone over and it looks nearly like a new one.



Henry Johnson's Huber engine. 30 h.p. One of the later engines built by the Huber Mfg. Co. Henry bought this engine from the late Clinton Jackson of Wisconsin about 10 years ago. It has a butt strap boiler, 7/16 thick shell.



Part of the crowd looking over the antiques at the show. Some look at steam engines, some tractors, some gas engines, and others plan on getting a lunch or what have you.



Two-ton Caterpillar tractor owned by John Halverson. It was bought from Peter Bitzen, Alexandria, Minn. John is at the controls. This is the smallest crawler tractor built by Caterpillar Co.



Huber gas tractor owned by Milton Martinson, Sheffield, Ia. Milton has many old tractors and several steam engines displayed at the show.



School house is old Dist. No. 20, loaded to be hauled to the Dalton show. We expect to make this building into a pioneer school house some day. This building was donated to the club by the members of Dist. 20.



Frank Beck and his home-made steamer. Frank is from Norcross, Minn. Oct., 1964.



Lunch time for the threshing crew. This was a common scene at threshing time. This picture was taken in 1928 on the Gregor Smoley farm at St. Stephen, Minn. The rig belonged to the late Frank Vauk, St. Stephen. Frank's son, Bill, has a very good show at St. Stephen each fall. It is worth your while to attend it.



John Logan outfit near Oriska, North Dakota. Christ Halvorson on engine and Iver Halvorson on machine, both from Vining. Taken around 1902 to 1905.



Moving day out near Abercrombie, N. D. About 1900.



This steam-driven outtit was made by Glenn Risbrudt and is used each year at the Thresherman's Reunion for sawing slab from the saw mill as well as being in parades. It is powered by a 5''x7'' Davis & Rankin engine, single cylinder. The boiler is 62''high and 74'' wide with 18 fire tubes. The undercarriage is from a 1950 Buick.



Cook shack ready to move to next setting, about 1900.



Loyd Hinker, Woonsocket, S. D. and Neil Miller, Alden, Ia. with Roberta Overgaard, Queen of Steam in the 1967 show. Roberta is a local farm girl. Her parents are interested in antiques and have a number of them on their farm.



Sawmill near Hudson, Wis. Taken sometime near the turn of the century. The owner of this mill is supposed to have moved it up north of Park Rapids, Minn., shortly after this time.



George Melby threshing with a Minneapolis 36x56 wood machine and Gaar Scott steam engine in about 1924. George started threshing in 1916 and threshed for many years with the steam rig in the Ashby-Dalton vicinity.



W. L. Vauk's 80 h.p. steam engine. This picture was taken in 1924 at the Matt Lahr farm late in November. The engine was bought in 1917 by Mr. Vauk's father. W. L. Vauk restored it many years later and used it at his show at St. Stephens, Minn. Good going Vauk.



16 h.p. Advance steam engine, owned by George Melby. It was claimed that the 16 h.p. was the biggest engine for its horsepower rating that the Advance people made.



25 h.p. Garr Scott steam engine, built by M. Rumely Co. of LaPorte, Ind. George bought this engine from Severt Thoreson of Henning some 45 years ago. It was used for threshing and lumber sawing for many years in the Dalton-Ashby territory.



Stack threshing on Earl Gordon's farm in the Breckenridge area. The year, 1917. Note the large water tank. They hauled water for several miles in some places. The engine is a Russell Note large grain stacks. Some built stacks that held up to 20 bundle loads of grain.



Chow line at the Threshermen's Breakfast. People come from long distances to get their fill of hot cakes or what have you.



How the trademark used by the J. I. Case Threshing Machine Co. came into being is interesting. In 1861 Company "C" of the 8th Wisconsin Regiment began their march to the south. As their mascot they carried an eagle, which had been captured by Chief Sky, a Chippewa Indian, and presented to the company, and which they christened "Old Abe." He was in every battle and skirmish in which the regiment was engaged (36 in number), receiving but two slight wounds, although he was always in the thickest of the fight, soaring above his regiment through the smoke and din of battle, screaming and encouraging the men onward. After the war was over he was presented to the Governor of Wisconsin. The J. I. Case Co. adopted him as their trademark, which has become known and famous the world over.



Making breakfast is no small job at the show. Getting up early to be prepared for the early customers is tough, but we have very little complaint.



Washing dishes is a big job at the show, but they still can smile. Left to right: Mrs. Ralph Risbrudt, Mrs. Lloyd Sonstebo, Mrs. Marwood Rude and Mrs. Kenneth Smith.



Lyle Hilden of Fergus Falls comes down each day to help the women make breakfast. He is pretty handy too. Pancakes, ham and eggs, hamburgers, or what have you, you name it, we have it.

Lavern Thompson and Mrs. Guy Thompson making meals at the show. Two large sheds are used for this purpose. After the show the sheds are cleared out and machinery put back in them again.





One of the horses and riders of the Horse Show each year. We have a Horse Show on the last afternoon of the annual show.



Part of the Horse Show. They really have some nice horses. An open horse show is sponsored each year on Sunday at 2 p.m.



The Horse Show just getting underway at the show. The Henning Saddle Club has showed here a few years. Before that the Elbow Lake Club, Evansville Club and St. Olaf Twp. Clubs put on their shows at the reunion.



Ted Lang and his model engine threshing grain. This engine has a lot of power. Ted has been with us for many years. He enjoys it and we do too.



LaVern Simdorn of Fergus Falls and his Twin City tractor. LaVern restored and repainted it himself. It runs real good for such an old tractor. LaVern is a member of the club and is very active in it.



1-cylinder Oil Pull bought from Oscar Shanky, Middle River in 1969. Has a 10" bore, 12" stroke. Restored by David C. Hanson. Rebored and new pistons made by Elmer Larson of Moorhead. Shanky used this tractor for field work in the Middle River country for several years, but it stood idle for many years before Shanky sold it to Mr. Hanson.



Huber tractor in the daily parade, owned and operated by Jack Housen of Osakis, Minn. The Huber Mfg. Co. built many steam engines, gas tractors and grain separators. Their thresher was considered as one of the best. Jack is at the controls.



Oil Pull 30-60 tractor bought by Milton Martinson, Sheffield, Ia., from Kenneth Kecker, Hector, Minn. This tractor was completely overhauled and operates like a new one. It is a late model. The operator is Jack Maple, Rushville, Ind. Jack has a large collection of Oil Pulls on his farm. He is also an Oil Pull expert.



30-60 Aultman & Taylor tractor and 36x60 Aultman & Taylor separator, owned by Ozzie Stephens, Brooten, Minn. This makes a fine rig for custom threshing in the good old days. The threshermen's club is going to restore the separator so it will be seen in action in the not too distant future.



Model T Ford trucks in the parade uptown in Dalton. We have a real large parade each year. Floats, horses, cars and whatnot. Everyone enjoys it very much. We are proud of our parade.



Large stationary steam engine given to the threshermen's club by the Fergus Dairy of Fergus Falls, Minn. This is a fine engine, runs nice and quiet. It was used to generate current for the milk plant in Fergus Falls for many years. The club extends a hearty thank you for this fine engine.



Stationary steam engine given to the threshermen's club by the Northland Canning Co., Cokato, Minn. This engine was used to generate current and run a line shaft in the canning factory at Cokato until 1967. We are expecting to have several more large engines in the future to be shown at our Show. We are grateful to the Northland Canning Co., who donated this fine engine free of charge.



Jim Winters and his big gas engine. Jim travels over much of the country looking for a different make or a real large one. He seems to be able to find them too. This engine was used in the Dalton Grain Elevator some 45 years ago. It is a dandy.



25 h.p. Wood Bros. engine; 10x11 cylinder; 26"x72" drive wheels; 5" bull gears and pinions; 3/8" lap seam boiler; 56—2" flues built about 1910. It was considered a plow engine. Had a normal speed of 240-250 r.p.m.



Hart Parr "60" and Minneapolis thresher. Dan Wandscheer owner, near tractor; and Joe Bruensma, engineer. About 1916-1918. Sioux Center, Ia.



Milton Martinson's 30-60 Oil Pull tractor. This was about the first day they had it running after being restored.



10-20 Townsend tractor owned by Milton Martinson, Sheffield, Ia. This is the smallest tractor the Townsend people made. They made a large 30-60. The round part of the tractor is the radiator. It exhausts in the smoke stack to draw the air through the tubes in the boiler part to cool the water in the radiator. Clarence Martinson's brother is at the controls.


Charles Swendsrud, owner of this pair of ponies, and his father and his grandchildren shown riding in the parade staged on Saturday at 11:00 a.m.



Pat Fiedler and his team of ponies in the parade.



Control levers and etc. on Garr Scott steam engine. From the back of the engine reverse lever, clutch lever and throttle lever in from the steam gauge. Steam gauges showing steam pressure in boiler per square inch. There are hundreds of tons of pressure in a boiler this size.



24 h.p. Kitten engine, owned by Joe Steinhagen, Dodge Center, Minn. This is quit a relic. Very few were built. The water tender was mounted in front of the boiler and on top of the front axle.





Church groups have floats at the show too. They are all welcome to take part.



Candidates for Queen of Steam, held in conjunction with the Talent Show. From left to right, are: Bonnie Bonnichsen, Betty Bothun, Mary Beth Rorvig, Vicki Mark, Jo Ellen Bergerson, Sandy Rude, Kathy Dewey, Gail Risbrudt, Janice Fosberg, Barbara Nickolson, Susan Casberg, Donna Swendsrud, Patty Miller, Vicki Demmer, Candace Hanson and Valerie Fossan.



Bonnie Bonnichsen, retiring queen, places crown on the 1969 Queen of Steam, Barbara Nicholson, while her attendants, Donna Swendsrud and Patty Miller look on.



American Legion Post 508 opens the parade at the show, carrying the colors. Left to right: Don Adams, Don Searles and Bobby Rude.



Orlin Moebius of Dalton is chosen "King of the Beards." Kenneth Borg of Ashby, master of ceremonies, giving Orlin a good send-off at the Talent Show.



Threshing with complete Peerless rig near Maddock, N. D. in 1925. Gilbert Kirkeby, now living in Dalton, is the engineer. Gilbert is the second from the left in the picture.



The 1968 Queen of Steam, Bonnie Bonnichsen is shown here on the float with her two attendants, Jill Jernigan and Paula Phillips.



The 1967 Queen of Steam contestants shown on the stage at the school auditorium during the Talent Show. Each year a new Queen is selected to represent the Dalton Steam Show.



Part of the crowd attending the Talent Show held at the school auditorium. These shows have been staged for many years in conjunction with the threshermen's show.



Princess Kay of the Milky Way and Clifford Kronbeck, operator of the Dalton Creamery. Even princess' like the threshermen's show.



1967 Queen of Steam candidates on stage listening to Miss Nietfeld of Underwood, performing at the Talent Show. Left to right: Pauline Matson, Karen Bratvold, Holly Matson, Susan Hanson, Paula Phillips, Bonnie Mykleby, Mary Jo Frigaard, Susan Schroeder, Barb Risbrudt, Audrey Bergerson, Roberta Overgaard and Bonnie Bonnichsen.



The 1967 Queen of Steam, Robeta Overgaard, and her attendants, Paula Phillips and Bonnie Bonnichsen.



8 h.p. McVicker 4-cycle gasoline engine without timing gears. Has cam on crank shaft and hole drilled from cylinder to another small piston to lift push rod which operates exhaust valve. Owner is David Hansen.



George Melby on his 16 h.p. Advance engine. George sure likes this engine.



Iver Hanson and trailer of assorted gas engines. On back of trailer is a Waterloo Boy $2\frac{1}{2}$ h.p. Fuller & Johnson combination gas engine and pump jack. Hanson is putting oil in oil cup on $2\frac{1}{2}$ h.p. Fairbanks engine. Engine with one flywheel is $1\frac{1}{2}$ h.p. Stover engine. Front one is $1\frac{1}{2}$ h.p. Fairbanks Morse engine.



Minnesota Giant chain-drive steam engine, made by Stillwater Mfg. Co., Stillwater, Minn. Was one of the companies that used chain drive for tractors instead of gears. Several companies made chain drive engines, but all changed to gear drive. This engine has a 7x12 cylinder and had a normal speed of 200 r.p.m. It is owned by Ralph and Glenn Risbrudt of Dalton. It is the oldest on the grounds.



Great Western 2-cycle gas engine. 4 h.p., 4x5 cylinder. Owners are David Hanson and Norman Carlson, Fergus Falls, Minn. The engine was completely rebuilt: cylinder line bored, new aluminum piston and rings made, crank shaft straightened. Engine was built by Smith Mfg. Co., Chicago, III.



Model T Ford trucks. They are used at times to haul grain from the separators.



Arnold Schroeder helping his son start the gas engine. These boys get pretty handy at fixing these engines.



12 h.p. Advance steam engine built about 1906. Has light gears, 5'16'' lap seam boiler. Made for threshing and lumber sawing.



22 h.p. Avery undermounted steam engine. 7x10" double cylinder engine. Was designed for plowing. Has 3 bearing crankshaft, 2-speed transmission, 3'8" lap seam boiler shell, 33" diameter, 58—2" flues, 5" drive gears and pinions made by some company as Yellow Fellow. Owned by Henry Johnson, Dalton.



Shock loader in operation. It is claimed it would load a big load of bundles in 4 to 5 minutes. It was impossible to be in the load. They used large racks, $10' \times 18'$ with one high side, the other low next to the loader.



1966 show, showing the crowd around the sawmill owned and operated by Lloyd Larson, Alexandria, Minn.



This picture was taken in the morning before many people came. The pile of logs were basswood bolts 50" long. They were sawed into lath by a lath mill located below the hill. Thousands of lath were sawed at this show.



A great attraction at our show is the Reeves (owned by Ralph Melby), pulling the 10-bottom John Deere plow. This engine handles the plow with ease.



Threshing stacks in about 1914. Nicols & Shepard 25 h.p. steam engine and Advance 40×60 separator. This was a common scene in the pioneer days. Some threshermen could thresh up to 60 days in the fall.



Old-time McCormick reaper, owned by Bothun Bros., Dalton. Lenny and Chester restored this machine to serviceable condition. They are ardent collectors of old farm machinery and antique household goods. Part of their collection is shown each year at our reunion.



Picture of George Melby and his early vintage of a grain separator. These separators were common some 70 years ago. The cylinder runs backwards, has no feeder or blower and it took very little power to pull it.



Ben B. Mauer with team of oxen he trained in 1941 for Sioux Center, Ia. 50th anniversary with rod bottom prairie breaker he used when a boy.



Reeves 40-80. Picture taken in 1918 north of Sioux Center, Ia. Left to right: Wm. Rons, Dan Wandscheer. Owner of rig, a 40x62 Case separator, Harry Miersma; Ben DeJong, engineer, now pastor near Warsaw, III.



Steam log hauler from the Pas Lumber Co., De Pas Manitoba, Canada. This engine has 4 cylinders, 2 on either side, with side shaft gang back to the final drive. The front end has two wheels which could be replaced by runners for winter use.



Rumely Do-All Tractor, built in 1926. One of the first rowcrop tractors built. Bought at auction in Ashby by George Melby. Now owned by Dale Akerman, Ashby. Glen Melby, Fergus Falls, is at the controls.



Jim Winters' large gas engine. It was used in the oil fields in West Virginia. Jim went a long way for this one. It runs real nice and Jim is proud of it, we are sure.



Floyd Brudevold of Valley City, N. D. operating the Minnesota Giant steam engine. Floyd feels at home on a steam engine and enjoys every minute of it.



Minneapolis Universal 15-30 2-cylinder opposed. First gas tractor sold in Elbow Lake in 1911 to Henry T. Hansen. Sold in 1918 to John Colman, Edwin Gilberts and Joe Reeser and used until 1928. Bought and restored in 1958 by David C. Hansen.



David Hansen adjusting one of his many gas engines. David rebores them if they need it and also casts pistons and rings.



HART PARR TRACTOR

Hart Parr Tractor Company was founded by C. W. Hart and C. H. Parr as young engineering students at the University of Wisconsin in 1887 to build stationary engines. During the years 1900 and 1901, Hart and Parr moved to Charles City, Ia. and established the Hart-Parr Tractor Company. After many years of unsuccessful attempts by others to design and produce a practical internal combustion engine for tractors, Hart and Parr produced the first successful production farm tractor. This tractor, produced in 1901, used a heavy type, oil cooled, twin-cylinder engine, The tractor they sold in 1902 was used by the same farmer for 17 years. In 1903 Hart-Parr built 15 tractors.

In development of the agriculture tractor in the United States, R. B. Gray, formerly Head, Farm Machinery Section, United States Department of Agriculture, observed: These men (Hart and Parr) had started experimental work on gasoline engines in 1895 and by 1905 had established the first business in the United States devoted exclusively to the manufacture of tractors. They designed their tractor for drawbar work rather than for belt work as evidenced by the ruggedness of its transmission which well withstood the heavy strains imposed when plowing.

On April 1, 1929, four companies: Oliver Chilled Plow Co. (1855), Hart-Parr Tractor Co. (1897), Nichols and Shepard Threshing Machine Co. (1848) and the Amercian Seeding Co. (1848) merged to form the Oliver Farm Equipment Co., now known as the Oliver Corporation.

The 12-24 Hart-Parr tractor in the above photo is owned by Ralph Risbrudt and it has been a workhorse on the grounds for many years.



Ralph Risbrudt, Dalton, Minn. is the owner of this 12x24 2cylinder tractor. Purchased from Pete Bitzan, Evansville, Minn. in 1960. Used for various jobs on the Reunion grounds.



1927 2-ton Caterpillar purchased from Peter Bitzan, Evansville, Minn. in 1967. Unique feature: has overhead cam. Operated by LaVern Simdorn, Fergus Falls.



Henry Johnson's New Huber 30 h.p. steam engine. Huber called their engines New Hubers from the start to the finish. This was considered a plow engine. We believe 30 h.p. was the largest engine Huber built.

MEASURING THE HORSEPOWER OF AN ENGINE

There are two common methods in general use for determining the horsepower of an engine. In the first method, a Prony brake is used, and in the second, an indicator. Brake horsepower shows exactly how much work the engine is doing at the flywheel, while the indicator shows how much work is done in the cylinder. Indicated horsepower is always greater than brake horsepower, because the work done in the cylinder shows the total amount of work done by the piston, and includes not only the work done at the flywheel, but the work necessary to run the engine itself as well.

An indicator is an expensive and delicate instrument, and the services of an experienced man are required to secure satisfactory results. A brake is something any engineer can make and is easy to operate. A device is made to fit over the flywheel with an arm extended and an arm from this is placed on a scale. To find the horsepower, check the speed of the engine per minute for at least ten minutes, and the load on the scales, subtract the weight of the brake on the scale and the result will be the load exerted by the engine. Now measure the length of the arm in feet, and proceed as follows: Multiply the length of the brake arm by the average load on the scales, and by the average revolutions of the flywheel. Then multiply this product first by two and then by 3.1416. Divide the final product by 33,000 and the quotient will be the brake horsepower. The above is accomplished by tightening the nuts on the brake without slacking the speed of the engine.



Kenneth Bratvold and his 25 h.p. Nicols & Shepard engine. This engine was built in about 1915. Was bought from Meral Jones at Little Falls some 12 years ago. Has $\frac{1}{2}$ " thick boiler and heavy gears. It was one of their plow engines.



Part of the crowd watching someone start the 40 h.p. natural gas engine at the Show. They can hear when it starts, we are sure!



Olin Thompson and Elton Helleckson on the 25 h.p. Advance Rumely engine. This size engine was the largest the Advance Rumely Co. built. Olin has run engines for many years. He owned a 35 h.p. Advance tandem compound, but sold out many years ago.



Rumely 6-cylinder gas tractor, owned by Harold Mryon, Elbow Lake, Minn. There are very few of these tractors left. They were powerful tractors, built by Advance Rumely Co.



25 h.p. double cylinder Gaar Scott steam engine in the parade at the show. This engine was a demonstrator at the Minnesota State Fair in 1910. Alvin Young is the engineer, R. J. Melby is the owner.

CORLISS ENGINES

When mathematicians were investigating the expansive action of steam, and the saving that might be effected, a professor in Providence, R. I. looking over some of the calculations, became interested and took them to a young man who had shown inventive ability while working at the harness makers trade. The latter was George H. Corliss, who then turned his attention to the steam engine, and invented a valve gear for using steam expansively. The great success of this gear made Corliss famous.

The first engine designed by Corliss with circular valves, the kind in general use today, was constructed in the year 1850. The expansion of steam had been tried with poppet valves and a fixed cutoff, but had not met with much success. With the Corliss gear, the cutoff can be varied and controlled by a governor; thus the degree of expansion is automatically changed to suit the load conditions. (Note: The first engine with the Corliss gear was the beam-type with flat slide valves. There were separate inlet and outlet ports, which were made as short as possible. The valves gave a rapid admission and cutoff, the latter being obtained by releasing weights suspended from a lever).

Conditions necessary for high efficiency - Economy in the use of steam requires that it shall be:

- 1. Quickly admitted to the cylinder at as near boiler pressure as possible.
- 2. Cut off with great rapidity quite early in the stroke.
- 3. Pre-released as late as possible without increasing the back pressure. 4. Exhausted with a minimum of back pressure.
- 5. Compressed only sufficiently to absorb the momentum of the reciprocating parts, and fill the clearance space, at a pressure most suited to the conditions of operation.
- 6. Used in an engine having very little clearance.



25 h.p. Gaar Scott steam engine with heavy boiler. It is claimed that it was built to carry 210 pounds of steam pressure. It was purchased from Ed Boyle, Young America, in 1958. Henry Lebacken of St. Cloud, Minn. is the engineer. Queen of Steam is Roberta Overgaard, Dalton.



25 h.p. Rumely steam engine pulling a 10-bottom plow at the show. Plowing with steam was common in pioneer days. An engine this size pulled eight breakers. They carried 175 pounds of steam.



Baker Fan used at the show each year. This type of fan was built by the Baker Co. to test engines and tractors before being shipped out to the trade.



Double drive separator using two drive belts. Owner believed this method would be easier on the bearings. Buffalo Pitts engine.



25 h.p. Wood Bros. steam engine. Present owner, Milton Martinson, Sheffield, Ia. Nels Fossan purchased this engine from Merel Jones, Little Falls several years ago.



This is the way some of them look when we haul 'em in. This engine was used in a saw mill in Canada and was completely rebuilt several years ago. Ralph Melby, owner.



John Neperud and David Hansen operating John's shingle mill at the show. John is a member of the Rollag Threshermen's Club, but finds time to spend with us too.



Clifford Olson and his 65 h.p. Case engine. This engine is used for threshing and sawing lumber each year at the show. Clifford bought this engine from Hjalmer Grant, Osakis, Minn.



22 h.p. Advance steamer, owned by Kenneth Bratvold, Ashby, Minn. Kenneth bought this engine from Torsky Bros., Conrad, Mont., and restored it a couple of years ago. It is an old engine but the boiler and gearing are excellent.

Threshing with a 40×64 Minneapolis separator equipped with wing carriers. Threshing is done each day at the show. This is one of the main attractions.

Hauling bundles and stacking. This scene is common each fall before the show.

Ted Lange, Hector, Minn. going over his model steam engine. This engine is one of the best models we know of. Ted built this all by himself, being an expert mechanic. He can build almost anything he likes.

Loyd Larson and his saw mill in operation at the show. Loyd has been with us many years. He has a real good saw mill.

David Hansen and his 16-30 Oil Pull tractor. David purchased this tractor from Peter Bitzan, Alexandria, Minn.

25-50 Huber tractor and Case separator getting lined up in place at the show.

Kenneth Bratvold's 80 Case and Minneapolis separator. Kenneth bought this engine from Merel Jones, Little Falls, some 12 years ago.

Part of the Parade of Steamers at the show. First one, 25 h.p. Nicols & Shepard; 28 h.p. Minneapolis; 25 h.p. Wood Bros; 80 h.p. Case; and a 30 h.p. Russell.

Minneapolis 28 h.p. This engine was purchased from Hjalmer Grant, Osakis, in 1962. It was located 15 miles north of Grand Rapids, Minn. When purchased the water tank and coal bunker were gone, the clutch was gone, the stud bolts holding the bearings on the counter shaft were broken and the front wheels were off. This engine was completely restored by the owners with help of Carl Evavold and George Melby. It has butt strap boiler, 56 flues, 11" bore, 11" stroke. Owned by Glenn Risbrudt and Carl Evavold.


Cross compound Reeves steam engine. Has one $8\frac{1}{2}$ "x14" high pressure cylinder, and one 14"x14" low pressure cylinder. Steam pressure 165 pounds per square inch. $7\frac{1}{4}$ " drive gears and pinions, 24"x76" drive wheels designed for plowing virgin sod. Reeves made engines from 13-40 h.p. and were one of the leaders in heavy engine design in the pioneer days. This engine was built in about 1908. Was used in Montana in the early days.



A few of the many steam engines at the show each year. They are all shedded on the grounds and pulled out about three weeks before the show.



80 h.p. Case that means belt horsepower. Has a 11x11 cylinder. Normal speed of 240-250 r.p.m. The Case Co. manufactured more engines than any other company. Case built engines in sizes 6-150 h.p. Only a few 150 h.p. were made. They had a cylinder 14"x14" and were designed for heavy drawbar work. The 80 Case was one of the most popular engines used for plowing and threshing.



One of the many attractions here in Otter Tail County is the Phelps Mill, located west of Otter Tail Lake about five miles. In the photo above, taken in 1915, the mill was in full operation. Notice the touring car with the straight front fenders. The mill was restored a few years ago and has become a tourist attraction.



Rumely Do-All tractor built by the Advance Rumely Thresher Co. Owned by Dale Akerman, Ashby, Minn. Dale's son is driving the tractor. This model was the first type of farm tractor that could be changed over to a regular 4-wheel tractor. Wheels were put under the front end and steering gear installed.



Ralph Risbrudt and his 14 h.p. Giant steam engine, bought from Oscar Shanky, Middle River, Minn. Ralph looks real proud of this engine and he should be. There are very few Giant chaindrive engines left. Made by the Stillwater Mfg. Co., Stillwater, Minn.



30 h.p. Russell steam engine. It is one of the late engines built by Russell Co. It was purchased from the late John Flom of Henning, Minn. Owned by H. N. Johnson and R. J. Melby, Dalton.

BOILER HORSEPOWER

This term has an entirely different meaning from the term horsepower, as applied to an engine. Originally it meant that a boiler of a certain horsepower was capable of supplying steam for an engine of the same horsepower. Later when engines were improved, and after a lot of experimenting, it was decided to base the power of the boiler on the amount of water it was able to evaporate in one hour.

For one boilre horsepower, a boiler should evaporate thirty-four and onehalf pounds of water in one hour into steam at atmospheric pressure, starting with the feed water at a temperature of 212 degrees Fahrenheit.

The power of boilers is often based on their heating surface, or upon the area of the grates. Ordinary multitublar stationary boilers are given twelve square feet of heating surface per boiler horsepower, and one-third of a square foot of grate surface. According to their rated horsepower, direct flue traction boilers are given about eleven and a half square feet of heating surface and forty-two hundredths of a square foot of grate area per horsepower.



Ben, Jake and Geroch, ', 10'' bore, 15'' stroke, "40-80", 500 r.p.m., 71/4× Threshing machines: n the 500 r.p.m. valve in head, 500 r.p.m. Dan, Two Minn. 14×9" Reliabl Photo about 1918. Sioux Center, Ia. Wandscheer Bros. Left to right: ractors: Hart Parr Old I 500 r.p.m. 5-cvlinder ,06-(Dear Minn. and Case 36 and 40", two with wing feeders. youngest, Jim, son of Dan, standing in rear. win 9", L head, 500 r.p.m. Aultman Taylor **4-cylinder** 2-cylinder. Valve in head, 300 r.p.m. center rear, Reeves "40-65" 4



Ready to go plowing at the show. 32 h.p. Reeves Cross Compound and John Deere 10-bottom plow. This is one of the big attractions at the three-day show.

HORSEPOWER

When James Watt, the inventor of the steam engine, first put his engines on the market, he found it necessary to adopt some method of measuring their power that could be readily understood and appreciated. He accordingly conceived the idea of comparing the power of his engine with that of horses. In order to do this he measured the work done by the large London dray horses and found that on the average, they were able to do 33,000 foot pounds of work in one minute.

Since that time the term "horsepower" has meant the accomplishment of 33,000 foot pounds of work in one minute. Thus it will be seen that the term "horsepower" is a perfectly definite quantity and does not depend upon what a horse may or may not be able to do. As a matter of fact, few horses can actually perform a horsepower of work for a considerable length of time.

Authorities on the subject state that a 1,200 pound horse, working eight hours per day, is able to accomplish only about two-thirds of a horsepower of work. Larger horses can do proportionately more. An ordinary man, working eight hours per day can do from one-eighth to one-tenth of a horsepower of work.

THE STORY OF THRESHING . . . ANCIENT UP TO THE PRESENT TIME

We think it appropriate that we tell the story or history of harvesting grain from ancient times up to the present. This is a reprint from the book, "Threshing," put out by the J. I. Case Company.

A story of threshing and the separation of grain by mechanical process cannot be told without a glance backward into the shadowland of antiquity. Such a story, if complete, and had we space to tell it, would include an inquiry into the origin of grain and its adoption by mankind.

As ancient Egypt is generally regarded as being the cradle of the human race and the motherhood of our modern civilization, we will begin our story in the land nourished by the Nile.

Under the Pharaohs, Egypt was an agriculture country, the main energies of the people being expended in turning to the best account soil of unexcelled richness, annually watered and renewed by the Nile. After the yearly phenomenon of the inundation, the land was plowed or broken by the hoe, the seed being sown by hand and trodden into the ground by goats that were driven over the field for that purpose.

In the process of harvesting, the heads of the wheat and barley were severed from the straw with a toothed sickle, and placed in baskets, or cut lower down and bound into sheaves. The grain was then carried to the threshing floor, a space prepared for that purpose, the ground being covered with clay and worked to a smooth hard surface.

In the process of threshing the heads and straw were first placed around the outer edge of the floor, a quantity being thrown into the center, over which oxen were driven, more and more being added, until a large amount of threshed grain covered the floor. The oxen were then driven off, and the process of winnowing began. The grain and chaff of course worked to the bottom. After the straw and threshed heads were taken off, the chaff was winnowed from the grain by being tossed into the air with wooden shovels, the wind blowing the chaff away.

The grain was stored in granaries, which were usually located near the threshing floors.

Records were kept by scribes, one of the amount of grain taken from the floors, another of the amount put into the granaries. The methods of the ancient Hebrews were similar to those of the Egyptians, due to their many years sojourn in that land.

In addition to the threshing floors, the Romans used the flail, and a heavy board, on the under side of which were stone or iron points. This board, after being weighed down, was drawn over the grain spread on the floor. While the Romans copied the Egyptian methods of threshing (as Egypt at one time was looked upon as the granary of Rome), they in turn introduced their methods in Britain, especially the use of the flail. These primative methods for the separation of grain were followed with slight variations, the flail being the most popular, until 1787, when the first threshing machine was invented by a Scotchman named Meikel. This machine, in some of its principles of operation, was not unlike the machine of the present day.

From this period the development of the threshing machine was gradual, due to the constant efforts of mankind to utilize the forces of nature to meet the increasing demand of human necessities.

It is worthwhile to note, that while the Scotch mechanic was inventing his machine, out of the smoke of battle between the contending armies of Washington and Cornwallis, the star of liberty was rising, a star that pointed the way to human progress and made possible the development of the future great wheatfields of the unknown and unexplored West and Northwest, as well as the

THE STORY OF THRESHING (continued from previous page).

future wheatfields of the world. This star marked the birth, not only of the greatest epoch of the worlds history, but a new nation, a nation that has encouraged and fostered human progress and achievement. This triumph of liberty, with its natural sequence of the unfolding of an era of progress, which has ripened into what we call our modern civilazation, and the invention of the Scotch mechanic, should not be regarded as a mere coincidence, but as a part of the plan of the Supreme mind that rules the universe.

From 1787, until about 1840, the story of the development of the threshing machine is but a repetition of the history of every great invention for the world's general good. While there are always to be found men of advanced thought, who keep pace with the times, and who even anticipate men's future needs, the great mass of the human family moves slowly — they cling to old ways and traditions. Then, again, the earth was not quite ready for the full developement of mechanical devices for the harvesting and threshing of her product.

From 1787, until 1840, and for many years thereafter, a steady stream of caravans might be seen moving westward, carrying the early pioneers of agriculture and their families, some of whom hewed out for themselves homes in the forests of the middle states, while others pressed on to the rich virgin prairies of the middle and far west.

Along in the forties of the nineteenth century the rapid advancement in the field of agriculture called for more modern ways and means for taking care of the product in the field. There were not enough available men to wield the sickle and cradle during harvest, or swing the flail in the winter. They were needed to build shops for the manufacture of labor saving devices for the farmer, homes in which the men in the shops could live, railroads over which to carry the product of the field. The time had arrived when antiquated methods must fall by the wayside, they were no longer able to keep pace with the world's onward march; for the earth was being prepared, and was even then yielding more grain than could be preserved by the primitive methods. The threshing machine became a human necessity; the work so well begun by the Scotch mechanic must be taken up again and perfected. The history of the development of the modern threshing machine therefore be said to date from the year 1840, and has developed into the modern combines of this country in use today.





Threshing with a small separator at the show. Steam engines, gas tractors, gas engines or what have you are used to power the threshing machines.



David Hansen and his shingle mill powered by his 16-30 Oil Pull tractor. Sawing shingles was common in the northern part of the state in the early days. They had plenty of red cedar logs to cut from. Now very few wood shingles are sawed anywhere.



O REVIEW PUBLISHING, Battle Lake, Minn.