

the back bone, and leaving no slack. A third time around in the same direction just in front of the hind legs, crossing the rope well down the side, completes the preparation. Now we have three half-hitches around the animal, all of which will tighten simultaneously, and when the end of the rope is pulled steadily by one man, something in the pressure on the nerves causes the bull to go down on his side almost without a struggle and without choking.

It is well to hold the rope taut throughout the operation following, and the man at the head must be on his guard, for the bull will often try to rise. A sack under his head will keep dirt out of the eye.

If the operator is likely to be kicked, it is well to stretch the animal's legs by three-fourths-inch ropes around the hoofs, tied to convenient posts. To avoid chafing the skin, a piece of rubber hose may be slipped over the rope at the proper place.

—R. E. H., in Wallace's Farmer.

The number of really good pure-bred breeding rams is remarkably scarce in the country. Most of them have been "snapped up" earlier in the season. This augurs well for the sheep-breeding business.

An extra five or ten dollars put into the purchase price of a ram to head the flock, is always a good investment. Good rams are scarce, so don't delay in picking out the sire.

THE FARM.

Electricity and the Farm.

Editor "The Farmer's Advocate":

The development of the water-power that is running to waste on the farms of this country is the greatest advancement that will come to the farmers of this country within the next few years.

Labor-saving machinery has revolutionized almost every industry in the last few years, but the farmer has been unable to take advantage of many inventions meant to help him because of the absence of power to run them. The possibilities, however, were there, and now existing conditions make it necessary to utilize them.

The supply of farm labor at a reasonable cost is becoming smaller every year. Many of the strong young men are rushing to the cities. That being the case, the farmer is obliged to look to power-driven machinery to help him out.

The most promising source of power for farmers in the East is found in streams. An electric power plant, driven by water, requires comparatively little personal attention while in operation, and needs no replenishing of fuel, except such as nature herself provides in the flowing stream. Not only are there many of these sources of power that are undeveloped, but there are many others which were developed in years gone by and were then allowed to fall into disuse for various reasons.

Many old saw-mills were abandoned when the surrounding hills were denuded of their forests. A small investment would enable all such old power sites to be utilized for the generating of electricity. Such a water-power plant is frequently made to serve the owner, or the group of owners, with electric current at a very small first cost for each individual, and at an operating cost which should be very low.

I know of two notable electrical farm plants. What they and many others have done, thousands of farmers who have small streams on their farms can do. By electric power generated on the first of these farms, the owner runs a large saw for cutting up all lengths and sizes of stovewood, runs the milking machines, ensilage cutters and hoisters, separators and ice-cream-freezers, churn, thrasher, pumps, washing machines and wringer, besides lighting every room in his house and heating most of them in the same manner.

He has electric lights in every barn and every other building on his farm where lights may be needed, including a well-appointed machine shop, where he, with his sons, does all his own mechanical work. In that shop he has an electric motor that runs a lathe, drill, wire-winding machine, soldering iron, buffing machine, buzz-saw, and a large pump that operates the milking machines in the stables.

In his house he has electric heaters in the different rooms that give the exact heat desired by the occupants. He also heats the flat-irons by electricity, and even has a motor attached to the sewing machine. And this is all accomplished on a farm by a farmer, without any help, advice or assistance from anyone outside of his own family.

All this saving of labor and all these conveniences have been secured by the owner and his sons by harnessing a turbulent little stream that flows through his farm. At a suitable point in the stream, about a quarter of a mile from the

house, where there is a normal flow of about 4,000 cubic feet a minute, with about a six-foot fall, a 36-foot flow dam was put in, with a concrete and plank foundation. The dam is built to withstand almost any pressure that might come from floods and spring freshets, and to make it safe beyond all doubt they built slosh boards in the dam six feet wide and one foot high, that can be drawn out, one or all, as the supply of water demands. Further, they have two large flood-gates in concrete at the bottom of the dam that can be opened, and should the flood be so great that all these methods would fail to save the dam from going out, they have built a spillway on the side of the pond that would take care of a great quantity of flood water.

At the left of the dam, leading from the pond about a hundred feet down stream to an abrupt bank, a dike eight or ten feet wide was dug. At the lower end of this a wheel-pit, laid in concrete, was built, with a small power-house above. There it was found that a head of 4½ feet had been obtained, and an upright 30-inch Sampson waterwheel was installed.

Upon test, it was found that the wheel under this very low head developed 17½ horse-power. In the power-house a Westinghouse dynamo of 12½ kilowatt capacity was put in. This was connected with the barn building by 1,500 feet of bare aluminum cable. In the house were placed 25 16-candle-power, 220-volt lamps, and in the barns eight more, electric illumination being the first and principal object of the plant.

In a little more than two months after work was started in the bed of the creek to build the dam, the plant was started up, and it has been running successfully night and day ever since, and with no attention whatever from anyone, save as to oiling, which is necessary about once in two weeks. The water-wheel and the dynamo run continuously, and now that the expense of purchasing and installing them is over, there is absolutely no expense or trouble to it, and the vast amount of labor it saves and the many luxuries and conveniences it affords its owner and his family make life on the farm about as pleasant as it could be.

Only a small portion of the power that could be generated is necessary, and the owner placed a governor at the wheel-gate which regulates the quantity of water passing through the wheel to the amount of power needed.

After the problem of illumination on the farm had been solved, two of the sons proceeded to extend the application of the power then at their command. It was in the winter, and in this climate heat is essential, and fuel—either wood or coal—is always expensive. So there was a problem to solve, but it was easy.

They purchased a 4,000-watt heater, placed it in the house, and heated two rooms, one 16 by 13 by 7½ feet, and the other 12 by 13 by 7½, to

a temperature of 75 degrees, while out-of-doors the thermometer showed zero weather. And from that extension of his system the owner has continued, until it seems that there cannot be a further use to put electricity to on the farm.

In both stables, and in the horse barn, there is running water pumped in by electricity, and there is a plentiful supply of pure spring water at all times for the live stock. All the milking is quickly done by electrically-driven milking machines.

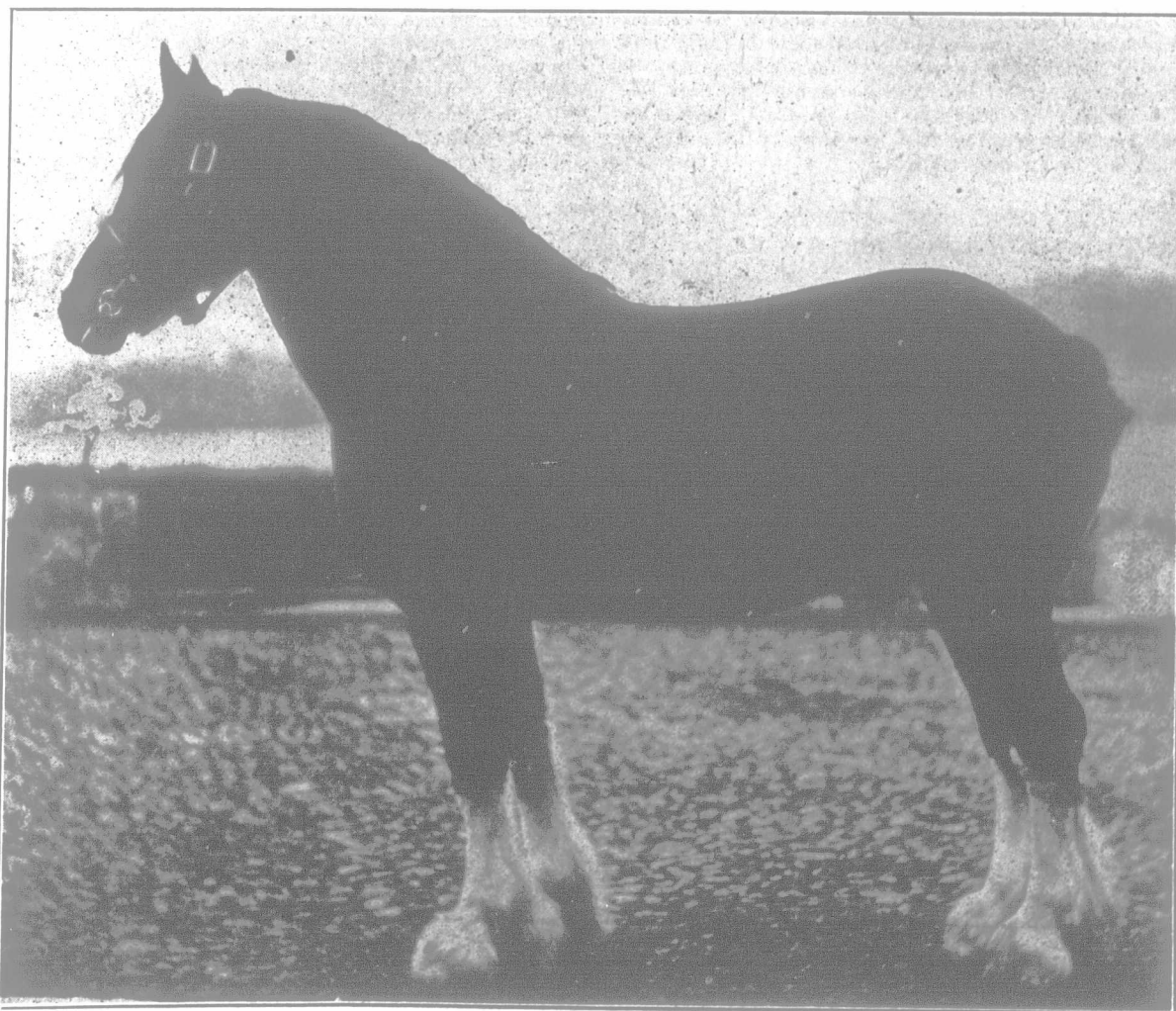
In the creamery, where the milk from a dairy of twenty cows is daily transformed into butter, is a cream separator, the heavy bowl of which must be made to revolve at a speed of 7,400 revolutions a minute each morning and evening till the entire milk product of the cows has gone through it. Before installing the electric power, this laborious work had to be done by hand, and was counted part of the hardest farm work. In addition was the big churn, which for an hour at a time several days a week demanded the strenuous attention of some muscular person, who, no doubt, could have been profitably spending his time at some other less laborious work.

A wire was run into the creamery, and on a concrete foundation a half horse-power motor was placed and connected. From this motor a narrow belt was run to the separator. Then the churn was placed on a platform, swivelled from one corner to the floor, the other three corners resting on casters. This arrangement permitted the churn to be swung into line with the motor and connected by a belt when the churn is to be used. After the churning is completed, the belt is stripped off and the churn pushed back out of the way.

In a room adjoining the creamery was the grindstone, that every farm boy has cause to remember, especially about harvesting time. The owner ran a small round belt from the motor through the open door and around the pulley on the axle of the stone, and labor on that crank was at an end.

The other farm has 5,160 acres, 1,200 of which is under cultivation, 1,200 is used for pasture, and the remainder is beautiful park and woodland. A lover of country life would find there many things to interest him, from the well-laid-out park, containing buffalo, elk and deer, to the fine herds of pure-bred Shorthorn and Guernsey cattle, the Dorset sheep, and the registered Percheron horses and Belgian hares. There is also a well-equipped fish hatchery, where trout are propagated to stock the streams and small bodies of water on the estate. Nearly everything that heart could wish for was there but the conveniences from electric current. Now those are there also.

There are two streams traversing the farm, the smaller being Tracey Brook. Three small concrete dams were thrown across the brook,



Lord Gleniffer 13289.

Clydesdale stallion; bay; foaled 1905. First in class, and reserve champion, Canadian National Exhibition, 1912. Owners, Graham Bros., Claremont, Ont. Sire Sir Ronald.