

thing, however," said Mr. Springer, "we do need, and that is better conditions during transportation. What we want for apples is that the temperature inside the hold of the ship should be kept about the same temperature as the water outside. Where our apples get heated up on board and sweat, they come out shrunken and have lost that fresh, rosy appearance which catches the eye of the buyer. The English market seems to demand that the three qualifications in our apples should be: 1st, good size; 2nd, good color; 3rd, that they have good keeping qualities. The matter of quality as decided by taste seems to be a fourth-rate condition and one that is entirely overshadowed by the other three mentioned qualifications."

The Superintendent of Farmers' Institutes has just returned from

A TRIP THROUGH NORTHERN ONTARIO.

Very successful meetings were held during January in Muskoka, Parry Sound, Algoma, St. Joseph Island and Manitoulin Island. At Huntsville the farmers are planting orchards and small fruits, and where three or four years ago they imported from the Niagara Peninsula all kinds of fruit, during the past season only currants were required. At Bracebridge one farmer sold \$300.00 worth of strawberries last July.

The speakers who attended meetings in Algoma, state that the farmers are most comfortable, the land unusually fertile, and that the home market is sufficient to take all of their products. The activity in mining matters, the great timber interests and the numerous pulp mills that are being built will employ a lot of labor. The food supply of this rapidly-increasing population can be most economically raised right in Algoma, and the farmers are already putting into practice the ideas they have received through the Farmers' Institutes. Some are going into dairying too, and frequently you find a separator and a revolving churn, each telling of advanced methods. Most of those engaged in farming seem to be Old Country people and others that have met with reverses in life and have gone back into this northern country where land was cheap and where a home could be established and supported with a small capital. Yet they were good judges of land, for most of the good land is now taken up and under cultivation in Muskoka, Parry Sound, and Algoma. Wheat, oats, barley, peas and clover are the principal crops, and the Institute workers notice a greater improvement in this region from year to year than in any other part of Ontario.

Wisconsin Agriculture.

BY THE STATE SUPT. OF FARMERS' INSTITUTES.

This comparatively new State is developing rapidly along agricultural lines. The forests which originally covered its surface have or are rapidly disappearing before the woodman's axe, and well-cultivated farms and comfortable farm homes take their places; cheese factories and creameries are springing up everywhere. New York alone among the sister States leads Wisconsin in cheese production, and our western neighbor, Iowa, leads but slightly in butter. Adding the large amount of milk furnished to Milwaukee, Chicago, and other cities from this State to the amount used in the manufacture of cheese and butter, it is doubtful if any State produces more dairy goods of all classes. The dairy-men of Wisconsin are as a class prosperous and progressive. Other lines of live-stock husbandry have a good footing, and it can be safely said no State in the Union with a good tillable soil comes nearer to feeding out all the grains and coarse feeds grown upon the farms than does Wisconsin. This condition is constantly improving the condition of the farms in the older sections, and retaining the original fertility in the new lands of the central and northern sections of the State. This State, in its location, climate, water, soil, and general characteristics, is very much like Ontario. Many Canadians have settled in Wisconsin, and as a rule are such good citizens that we would be much pleased to see many more come among us. The FARMER'S ADVOCATE proves a valuable paper to Wisconsin readers, because most of its matter is just as pertinent to Wisconsin conditions as to Ontario conditions.

Sussex, Wis.

A Credit to Canada.

The FARMER'S ADVOCATE, of London, is one of the best agricultural papers in existence, and is a credit to the country. Every issue is filled with valuable information, but the Christmas number was a specially interesting one, being much increased in size, and containing many fine illustrations. No farmer who desires to succeed should be without a paper like the ADVOCATE.—*Canadian Epoch Era.*

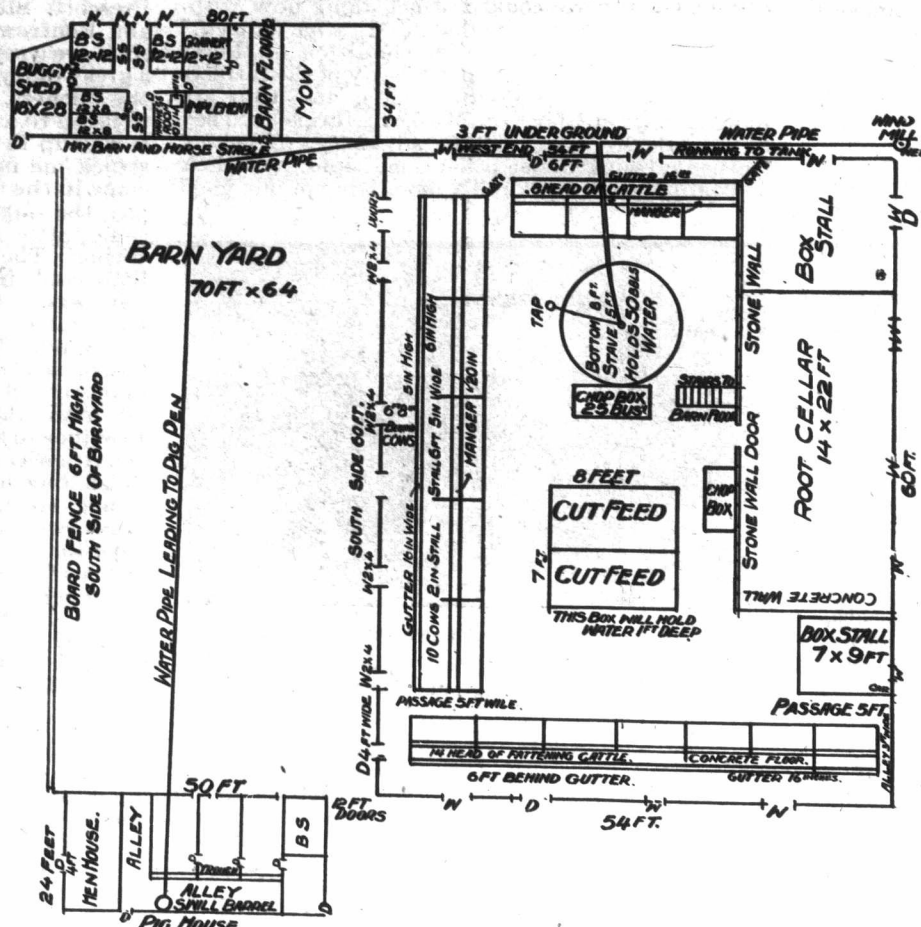
Much time is saved and advantage gained by having machinery, implements, grains and grass seed in condition for immediate use before seeding.

Camby Charlton's Stock Barn.

To the Editor FARMER'S ADVOCATE:

SIR,—Being a subscriber to your paper, and seeing some different cuts of barns and basements, I thought I would send you mine. It is 60 by 54 feet, is of stone, and has been built eight years. The wall is eight feet high and 20 inches thick, and is pointed. The inside is arranged as follows: On the south is room for ten cows, tied two in a stall. We tie altogether with chains. The stalls are 6 feet 5 inches wide and 5 feet from manger to gutter. The gutter is 16 inches wide, 6 inches deep at cow's hind feet and 5 inches at the other or back. The manger is 20 inches wide at bottom. In front of the cattle it slants from bottom of manger up 2 feet 4 inches from floor, and out 16 inches in front. These are all alike on every side. The wide black mark is to represent a 2-inch plank spiked on the posts in front of cattle. From this plank to outer edge of manger is 16 inches, which gives plenty of room to feed. From the top edge of plank up to top of post we have put wire. The first wire is 4 inches from plank, the second is 4 inches from first, the third is 5 inches, the fourth is 6, the fifth is 7, the sixth is 8. From the bottom edge of plank to manger is 18 inches. The slats rest on top edge of plank, and are fastened to wire with wire hooks. The slats are 2 feet apart. On the east end is room for 14 head of cattle; on the west is room for 8 head. The floors on east and west sides are made of concrete; on south it is blue clay and gravel. The mangers all around are concrete, with a partition 2 feet high in the center of every stall.

The water is forced from a spring well by a windmill which stands at the north-west corner of barn.



BASEMENT PLAN OF CAMBY CHARLTON'S STOCK BARN, PENS, AND YARD, IN ELGIN CO., ONT.

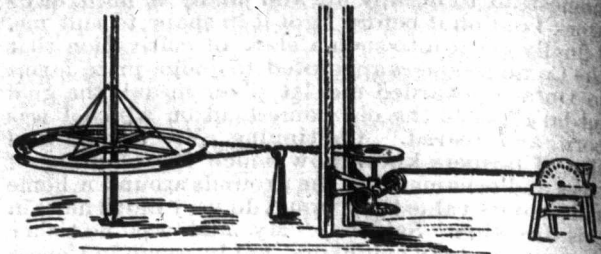
The tank in the basement is blocked up on timbers 3 feet from floor. The top of the tank is within 6 inches of the barn floor; it is 8 feet across bottom and 5 feet high. The water is conducted to horse stable and pigpen through 1-inch gas pipe, with a hydrant in both places under the ground 3 feet, so it will never freeze. The water pipes you will see marked on the plan.

The Cut Feed.—To explain this I will have to start at the cutting box. We cut every Saturday, so we keep it fresh all the time. It is put down from the barn floor into the cut-feed box, which is marked in plan. It is 7 feet by 8 feet, and water-tight one foot high, with a partition in center 4 feet high same as the outside. The cut feed is tramped into it as solid as we can get it, then wet with water enough to dampen it, and in 36 hours it will be warm. This makes it soft, and the stock eat it splendidly—cut straw, cornstalks, and hay enough to make it tasty. This, along with a little chop or meal and turnips is almost as good as ensilage. Half of this box full will feed 40 head of cattle from a day to a day and a half. So we have one half heating while we are feeding the other. Now, as regards light in a stable, the most of people do not get enough windows in. We have 14 windows and 7 doors, and with the wire in front of the cattle it gives plenty of light to do chores by daylight. When you enter either door on south side you can see every one of the cattle if they are standing.

The barn above the basement is 40 by 60 feet, with lean-to 14 feet wide at the north. On the left of door is a mow 26 by 54; on the right above the swing beam is a mow 24 by 54 feet; under the swing beam in main part is 40 by 22, which is used as gran-

ary; to the north is a granary 12 by 12; to south 1 granary same size. Between the two is where my wheel is built for power to cut the feed. At the end of carriers is a chute where the cut feed goes into the cut-feed box below.

The horse power used was made by myself, and described in the FARMER'S ADVOCATE of Feb. 15th, 1898. The barn floor is 12 feet from bay to swing beam. From swing beam to the end of barn is 22 feet on the right, and to the left is the granary. In the center is the wheel, 15 feet across; this suits the



cutting box in the center of the barn floor. The rim is built up and grooved. Exactly in center is hole 4 by 4 inches for the upright axle. The axle is 4 by 4 inch scantling, with 3-inch round gudgeons at both ends. The arms of wheel have 4 half-inch round iron hooks 6 feet long; the hooks are fast in the arms with small eyes. There are also eyes in the axle about 6 feet from the floor; the wheel lies on the floor when not in use; the horses are then put inside the wheel; it is then raised up until the hooks can be hooked in the eyes on axle; this brings the wheel about 24 feet from the floor, placing the draft for the horses where it ought to be. The cutting and pulping machines are run with a jack standing on end, bolted to two upright 4 by 4 inch scantlings. The jack stands under the swing beam, so that when the cutting machine is moved to the barn floor is clear for driving in with loads.

Elgin Co., Ont. CAMBY CHARLTON.

Fertilizers and Climate.

(CONTRIBUTED.)

There are so many forces at work in crop making that it seems simply impossible to give any hard and fast rules, that the successful farmer must begin young and must "hold the plow or drive." For instance, it may seem strange that fertilizers, regarded solely as plant food, are appreciably influenced in their effects by differences in climate, but such is undoubtedly the case.

This point is illustrated by the action of fertilizers in Canada as compared with the Middle States of the United States. In Canada the winters are usually marked by long periods of continued cold weather, while in the Middle States of the Union winters are more or less a close succession of freezing and thawing temperatures. Geologists tell us that the breaking up of rocks is largely due to this freezing and thawing; the larger rocks are first split into smaller fragments, then into soil particles, and these latter, in turn, are thoroughly disintegrated. In this way soil is made.

Now, these rocks contain relatively large amounts of potash and phosphates, which are liberated by this freezing and thawing process—that is, by the disintegration of rock particles.

It follows, as a matter of course, that where such disintegration is carried on most rapidly, the imprisoned plant food is more freely liberated, and growing crops are directly benefited thereby. As we go further south, where freezing rarely occurs, there is perhaps less plant food supplied in this manner than in the north.

In a practical way, attention was first called to this point by the observation of wheat-growers in New Jersey. It was noticed that after long, hard winters, or unusually mild winters with an open spring, wheat failed not only in quantity, but also failed to "weigh up." Lodging of grain, both wheat and oats, was also found prevalent under such conditions. The remedy was found in liberal manuring with mineral fertilizers rich in potash and phosphates, and this agrees with the theory of the matter, as scientific agriculturists have determined that the plumpness and full weight of wheat, or other cereals, is largely a matter of liberal potash and phosphatic plant food, also that lodging is a mark of insufficient potassic plant food.

Science is a very good thing, if applied intelligently; that is, if it is applied to practical matters. Manufacturers do not hesitate to employ scientific men, and spend thousands of dollars making scientific experiments. The results of such experiments are commonly responsible for the large profits of ordinary manufacturing. On the farm the same conditions apply, except that the farmer must himself do the experimenting. A great many farmers get scared at the word "scientific," thinking it necessary to have a college education to apply scientific principles. This is entirely a mistaken idea.

For example, in this illustration of the influence