us to estimate how much more such a stable would be worth to us.

The other suggestion advanced, namely, of having the stables built as annexes or wings of the feed barn, seems to me to be possessed of drawbacks which would prevent it from being adopted in its entirety. The lack of compactness is a fault of such a system which would seriously discount it in the opinions of many. The problem of conveying feed and bedding to where it is required would probably be found less simple than is assumed. It is true, the silo, where it has become general, has to some extent lessened the necessity for having the stable under the feed mow. Of the litter carrier, this cannot as yet be so truthfully said. As a convenience for cleaning out stables, it undoubtedly has a considerable value. As a means of conveying feed, many who have given it a fair trial do not regard it with nearly so much enthusiasm, preferring the feed-car or barrow. Not enough can be taken in a load to compensate for the time lost in this method of handling it; and for long hay and straw the carrier is not designed at all. Unless some more satisfactory way can be found of getting roughage to the wings off from the main barn, there will continue to be a very considerable advantage in having the stables where this can be shoved down directly to where it is wanted.

The stables built after this latter plan would possess some advantage over the basement in lighting, but scarcely so much as is represented by the difference between a window in an ordinary stone wall and one in a three or four-inch wooden wall. The wall, it is true, would not require to be heavily built; nevertheless, to contain an effective dead-air space, it would need to be somewhat thicker than three inches. One of the best which I have observed is about ten inches through, and therefore is not much less of an obstruction to light than a stone wall which slopes away from the inside of the window frame.

The stone basement, it is clear, does not represent the acme of perfection in stable construction; yet, to call it a failure, in view of the fact that in it, mainly, our live stock has been brought to its present degree of excellence, would be overstating the case, to say the least. Nevertheless, if any other form of stable or modification of the one now in general favor will help us to realize more of the great improvement in milk and beef production to which we are still looking forward, we need to know of it. A free discussion of this subject through the columns of "The Farmer's Advocate" should be of great value.

Waterloo Co., Ont. H. GROH.

Winter Roads.

Editor "The Farmer's Advocate":

I have seen a great deal in "The Farmer's Advocate" about the split-log drag, etc., since I wrote my last article on road construction last spring. Now, I think that if you saw some of our roads this fall, you might conclude that they needed something more than the split-log drag to begin with, and that something is the road-grader, as our roads are mostly gravel, and flat at that. I am not condemning the split-log drag, for I think it will prove an O K article to keep the ruts filled after the roads are graded, etc. I have seen again this summer the grader used out of season, and that is when the roads are very dry. Those new-graded roads were since out of sight in the mud. I maintain that roads needing grading should be graded early in spring, after the spring rains have ceased, before they are nearly dry, as then they will pack more thoroughly. Am I not right? This may be during the farmers' busy season, but, under the commutation system, it can be done by others. I would like, also, to say, before I begin my topic, that I saw in a recent number of a farm journal a new kind of split-log drag, for it is made of two pieces of old railroad rails, bolted together in such a manner that they are given a half tilt. This is claimed to have more effect on the roads than the other sort of drag.

Now, as winter is setting in fast, I must fall in line with my subject. In order to have good roads in winter, one of the most important factors is the width of sleighs. If it were compulsory by law for firms manufacturing sleighs to make the runners at least six inches wider, the problem would be partly solved. I would have the law made so as to permit the employment of sleighs already in use, for it would be better than to have the sleighs all uniform in width. Some may object to this on account of having to break the second track, but they might also object to the horses crowding and plunging, as is the case every winter with our present sleighs. As sleighs last a long time, I think this ought to solve this part of the problem for the next twenty years, at least. This regulation of width need not extend to cutters, but be confined to heavy and light sleighs only. I might suggest that cutters be left the regular width, light sleighs six inches wider, and heavy sleighs eight inches wider, as the more irregular widths the better, and four inches on either side of the sleigh road will be found to be not too much out of the way.

Another important matter in winter roadmaking is the avoiding of pitch-holes. The way to avoid these is to pull down all old rail fences and replace with wire. This, also, should be compulsory by law. Now, the reason I would resort to law in all this matter is because little will be done unless law intervenes. Quite a little bit of wire fencing is done along the roadsides, but in our neighbordhood by far the larger stretch of roads have rail and other fences. I might here also say that winter roads can be greatly improved by planting evergreens along the roadsides. Now, if wire fences are resorted to in general, quite a stretch of the road will be exposed to the wind and remain bare. It need not be necessary to travel on the center of such roads, for by only a little work when snow is off, levelling a bottom wide enough for sleighs along one side of the graded road to hold the snow will suffice. Perhaps there may be gullies and large hollows where it will be necessary to keep the center of the road. Well, I think about the only thing to do, in such cases, is to tack a board or two to posts or stakes along the top of such grades, leaving room enough for traffic, the object being to prevent the wind from blowing such roads bare. I think a better plan would be to plant evergreen trees half way up the grades, more or less. When these have sufficiently grown, they will have a more permanent effect than boards.

It would be well to keep to the side of the road for long stretches at a time, where possible, to avoid jogging from the graded road and back to the center again as much as possible. Where possible, the graded road may be taken or left at gateways. Where the graded road has to be used during winter across gullies or hollows, and where there are no gateways, level approaches can be made to the center, as the graded road lowers considerably into the hollow. This can hardly be called expensive, as it has only to be done once, and as the graded roads will be little used in winter, wheeling will be fairly good before sleighing is done.

The next thing to consider is the plowing, or rather disking, of the roads when necessary. The out-throw disk harrow has been used quite extensively in this county, and with the greatest success. I shall merely mention the snow plow, as it is a relic of the past on sleigh roads. Where the roads side or cut off badly, it may be necessary to plow previous to putting on the disk. This work will be necessary after a thaw and in the spring.

Now, in conclusion, I might say that some features of this matter, especially as regards the width of runners, which I have brought before the readers, may be treated with contempt and ridicule by some, but I think that all that I have written will hold good, not only in theory, but in practice. Before concluding, and aside from my topic, I wish to make a few remarks on your article of the 15th Nov., "A Lesson on Getting There First." It is certainly all right. The farmers are about as slow on "getting there first" as the capitalists of our country were at capturing Cobalt claims. With hardly an exception, farmers in this neighborhood are still following methods of ten or twenty years ago. Yes, and a well-known cattle-breeder and importer, not many miles from my home, who works a farm of several hundred acres, can hardly be called an exception, although he grows better crops than his neighbor. How can he, when he buys a lot of millfeed, etc., while his neighbors are selling their grain and hay. Farmers, as a rule, watch their neighbor and do exactly as he does, and many are still in the ruts of their great-great-grandfather, as it were, and it will take something like the split-log drag to level those ruts.

Bruce Co., Ont. J. W. Y.

Medium Strength Flour for Bread-making.

The results thus far obtained in our work at Ottawa, said Cerealist Chas. E. Saunders, before the Canadian Seed-growers' Association in June, 1906, seem to place Red Fife and White Fife at the head of spring wheats for strength, and Turkey Red at the head of the winter wheats.

While the strongest flour usually commands the highest price, those who grow wheat for their own use would do well to remember that excessively light bread is not always preferred, and that very strong flour usually makes tough and indigestible pie-crust and inferior biscuits and cake. There are, therefore, some sound arguments in favor of using flour, for general household purposes, made from wheat of good rather than the very highest strength. But, of course, the strongest wheats will always be in demand for mixing with those which are distinctly weak; and wheat grown for export should therefore be of the best possible strength.

THE DAIRY.

Our Co-operative Cow-testing Associations.

One of the most important recent developments in Canadian dairying is the interest and action taken in the private and co-operative testing of dairy herds. For years back a few enterprising dairymen have been quietly testing their cows, weighing each cow's milk twice a day and having occasional or periodical samples tested with the Babcock test to ascertain the percentage of fat, thereby enabling the owner to calculate, at the end of the year, how much milk and butter each cow had produced.

But while this is exceedingly profitable work, and while volumes of evidence were adduced to prove the great importance of every dairyman carrying it on, the fact was that only an odd one here and there could be persuaded to undertake it, and some who did lacked perseverance to continue long enough to learn positively which cows were paying for their keep and which ones were running board accounts.

To get people started in this most important work, Prof. J. H. Grisdale, Agriculturist of the Central Experimental Farm, Ottawa, publicly offered and still offers to send out printed blanks for the keeping of daily records, and quite a few dairymen have taken advantage of the opportunity, to their great benefit, as our correspondence last spring on the subject of milk records plainly showed. But still the rank and file of dairymen were not interested to any extent.

As a means of getting people to take notice what a wide difference there is between the best and poorest cow in almost every herd, the Dairy Commissioner's Branch of the Dominion Department of Agriculture began, in 1905, to make 30-day tests of cows in various factory districts. So striking were some of the figures, that it was a comparatively easy matter to persuade dairymen in the more progressive districts to organize themselves into co-operative cow-testing associations, after the pattern of those in Denmark, Germany and various European countries. The first one of these was organized at Cowansville, Que., early in 1906, and others have been formed during the year. The organization of these cow-testing associations and the duties of the members are very simple; and as the constitution and by-laws were drawn up according to forms supplied by the Department, they are uniform in the various associations throughout the country. The officers consist of a president, vice-president and a secretary-treasurer, along with three other members of a committee of management. The by-laws state that any person who will agree to keep a record of his individual cows during the whole milking period, to the extent of weighing the morning's and evening's milk on at least three days every month, and also take a sample for testing, will be admitted to membership. The members provide themselves with milk scales and sampling dipper, also a sample-bottle for each cow, and must deliver the samples to the place where the testing is done, as directed by the person in charge.

For the season of 1906, the Department of Agriculture at Ottawa, through the Dairy Commissioner, provided there are 20 members or 300 cows in one association, agreed to provide blanks for recording the weights of milk, do the testing once a month, compile the figures, and prepare a report at the end of the year. We are informed that the Department will continue this assistance during 1907.

The Dairy Commissioner intends to compile a complete report of the records for 1906 as soon as the returns are all in, and some eloquent figures will, no doubt, be forthcoming. So far it has not been thought advisable to insist on the keeping of records of feed consumed by the cows, though the Dairy Commissioner's Branch is trying to educate the members up to the point where they will be sufficiently interested to take up that work in addition to recording the weight of milk.

Mr. Ruddick writes us that he is receiving a great many enquiries, and already some half dozen new associations have been organized to begin operations as soon as the cows freshen next spring. There are prospects of at least 30 associations being in operation in 1907. The amount of good accomplished by these will be enormous, and every enterprising dairyman should tske steps to have one organized in his locality this winter. A line to J. A. Ruddick, Dairy Commissioner, Department of Agriculture, Ottawa, will secure the [illegible] to help start the ball rolling.

[illegible] that thought can be made [illegible] that labor can be [illegible].