

added to the straw. Gypsum, or dry muck, will be found profitable under such circumstances, and will also add directly to the value of the manure. Charcoal and lime will also fix the ammonia.

Before commencing to build the heap, the physical character of the manure from the different classes of farm stock should be considered; also the causes which produce fermentation. Horse manure by itself is apt to ferment too rapidly; cattle manure is dead, cold, sluggish, and is apt to freeze in lumps—so is pig dung. The advantage of mixing the manures is therefore great; one plan of partially doing so is to put the horse or sheep manure into the pig pens or cow stables as litter. If the heap has the right consistency, not too heavily tramped, and has the benefit of the nitrogen and moisture of the liquid manure, with a free circulation of air, heat is produced and fermentation takes place.

(TO BE CONTINUED.)

#### Store Steers for England.

The demand for lean cattle in the British markets adds a new phase to our live stock industry. The exportation of prime steers is a demonstrated success, and immense profits have been made out of the shipments, the frozen and tierced meat trade still being doubtful enterprises. Whatever objections there may have been to live exportations, these are being gradually overcome, and it is an almost settled fact that the live form will be the future mode of supplying British consumers with beef, whether the stock be store or prime.

Ontario is destined to become more and more exclusively a beef and dairy country. We cannot much longer compete with our Northwest and with India in the production of wheat; these countries will be the granary of the future for the supply of the world's markets. But if we want to preserve our reputation for beef, we have a precious heritage to guard; we must not presume too much upon our climate in its relation to our vaunted freedom from disease, and the privilege we enjoy in the British markets therethrough. Let but a "scare" arise, similar to those which occur in the United States, and we may at once be scheduled, and our reputation damaged for all time to come. Attempting to suppress the truth will only aggravate matters in the end; we cannot permanently guard our good name by doing so.

If cattle are to be exported in store condition the growth of the trade will of necessity be gradual, and there is no danger of a perilous craze taking place in this direction. The question requires profounder thought than it appears to demand at a superficial glance. If our land continues to increase in value as rapidly as it has done, the time is not far distant when stock can be fed as cheaply in winter as in summer, unless the soiling system be extensively utilized, and this will give a powerful impetus to our beef industry.

It is demanded that we should build the framework and allow the British feeder to fill in the fat on his luxuriant pastures. This is too figurative by half. We are building too many frames already and of too small dimensions, and it has been placed beyond dispute that this is not the class of animals which

flourish on the green pastures of the "old sod." If by framework we mean well-graded animals which have been kept in a good thriving condition from calthood up, then we may lay some claim to our stock for the stalls and green herbage of Britain.

The practical question to be dealt with is, Shall we dispose of our steers in the fall, when they are 18 to 20 months old, or fatten them during the second winter and sell them the following spring? Experiments have proved that the younger the animal the more rapid the increase, and the declining rate of growth is made at the cost of an increasing rate of food consumed. The cost of the average daily ration during the second winter will be nearly 100 per cent. more than that of the average daily ration before the age of eighteen months, and the increase in weight will be correspondingly less during the second period. But there is no very marked decline before the age of 18 or 20 months, and this is therefore thought to be the most profitable time for selling. Superficially considered, it would seem that the younger the animal the greater the profit in selling; but let us see wherein resides the fallacy. This view would be entitled to consideration, if the value of the animals from a manurial point of view were totally ignored; and until the farmer begins to husband the manure heap and set some commercial value upon it, all hope of intelligent action will be in vain. It is as easy to allow valuable manure to run to waste as impoverished manure; hence the farmer does not get the benefit of feeding rich foods to animals that are past the period of their rapid growth. It is the frame of the animal that runs away with the money, leaving an impoverished manure heap and hence an impoverished soil.

Let us suppose that a farmer desires to pay exclusive attention to the raising of store steers. What are the preliminary requisities? A steer up to the age of 18 months should be kept in a thrifty condition on an average expenditure of 13 cents a day for food, whereas if he is crammed, as he should be for fattening, from the ages of 18 to 27 months, the daily outlay should be 25 cents; that is, during the fattening third of his days he is kept at double the daily cost as compared with the daily average of the framing two-thirds, or, the cost of food up to 18 months is the same as the cost during the remaining nine months. A good thriver will gain 2½ lbs. a day during the first period, and will therefore weigh about 1200 lbs. at 18 months, which, at 5½ cents a pound, would leave the manure to cover profit and labor; whereas if kept till the age of 27 months, even allowing a liberal gain of 1½ lbs. per day during the fattening period, the steer would then weigh about 1670 lbs., which, at 6 cents, would bring in round numbers \$100; but the whole cost of the steer for food alone during the two periods is \$140, leaving the manure to make up for the labor, profit, and \$40 cash outlay. The only answer which the feeder can make to justify himself is that the manure of the fattening period is of better quality, and this is no argument if he permits the juices of the heap to run to waste. These figures prove that the farmer in question should either raise store steers or change his method of stock husbandry.

But there are also other influences at work which necessitate even more radical changes under the store-steer system. The fertility of the soil must be kept up some way; and if the land has to carry double the number of store steers on the same quantity of food, as compared with the fattening system, the manure must be supplemented by commercial fertilizers, and unless the farmer is an expert in the knowledge of their composition and application, he will run a great risk. There is another influence which deals a serious blow to this business; that is, the cost of ocean shipment is rated per head, not by the weight, but this obstacle will be overcome if any active move is made in the store-steer enterprise. The coarse grains could be utilized more profitably with store than with prime steers.

The trade, if it takes place at all, must have a gradual rise; for the increased number of steers required cannot have instantaneous birth, and if some enterprising feeder should attempt to increase his stock on hand by purchasing, in dairying districts, calves which would otherwise have been destroyed, he would be unsuccessful from the fact that these calves are usually from "scrub" bulls, and would consequently not suit his purpose. Although the "scrub" cow is not defended enough for dairy purposes, the fact must be borne in mind that the breeder of store-steers cannot be too cautious in the selection of a sire from the best beefing breed. The least mistake in this direction might prove the ruination of his undertaking.

The late Wyoming sensation in the store-steer business should be a broad hint to our farmers. It is surprising to us that a Western live-stock king could be able to create such a furor on both sides of the Atlantic, bestriding the ocean, Colossus-like, as it were, under the apprehension that he was lord of both hemispheres. The press discussed the question in all seriousness, many editors, carrying companies, stockmen, and politicians exulting in the hope that the scheme was about to become the climax of modern enterprises. The fact that the smouldering embers of disease are liable at any time to break out amongst American cattle, should in itself be sufficient to blast all hope of obtaining a passport through Canadian territory. Even granting that the liability to disease could be removed, and thereby the same route and landing privileges accorded to Americans which we now enjoy, the question still arises, Can Western ranchmen compete with us in the production of beef frames for the British markets? Canada's greater proximity to England might not alone settle the issue for the present; but when the irregularities of the Western seasons are considered, so that ranch cattle have precarious seasons of growth, thereby jeopardizing their adaptability to the stalls or luxuriant pastures of England, while we are not affected by seasons so far as the growth of our young stock is concerned, the question assumes a different aspect. So long as cattle kings succeed in monopolizing vast tracts of land, driving back honest settlers at the muzzle of the gun, their hopes may not be entirely frustrated; but this state of affairs cannot last for an indefinite period. The truth is, western ranchmen cannot raise anything but ill-bred frames, improved stock being too weak to withstand their conditions, and the natives are not