the vat, and it can be rolled up on one of these as you would a map when not in use, and put away for safe keeping. If cheese makers give this a fair trial they will be convinced of its benefits during cold weather. Why is it that so many May and October cheese turn out so very bad and are not satisfactory? Simply because they are allowed to get chilled first in the making room and then in the curing room. Many of our dealers have had strict orders not to buy October cheese, and especially the last half, and why is this? Simply because they have not turned out well in former years. Now, there is nothing in the world to prevent all of Oct. and Nov. cheese from being fine and good quality. There is a process of fermentation going on in a cheese from the time it comes out of the press until it is cut up, and just in proportion as that process is interfered with by cold and improper curing, in that ratio is the quality and texture of the cheese impaired.

Another very important one of these agencies is *rennet*, and I am of the opinion that a great many cheese makers do not attach sufficient importance to it. I refer not only to the quantity, but also to the quality of rennet used, and the mode of preparing it. I have come across many cheese makers the past season who are still using water for soaking. I always expressed my surprise, for I thought that the use of water had entirely passed away. The proper thing is whey prepared by heating to boiling point with a jet of steam, then skimming and allowing it to settle, when it will become almost as clear as water. Use this with just a little salt, cut up your rennets fine and put in a bag made of a piece of bandage cotton, and keep under by means of a stone in the bag. The jars should be stone. I have seen many a rennet tub that smelled more like a swill barrell than a rennet jar, with the rennets floating on the top, exposed to the air and heat, and in a state of decomposition. How can fine cheese be made with such *stuff*, I might say *filth*?

The quantity to be used is not as well understood nor as carefully adjusted as it should be. During the hot weather the quantity to be used depends very much on the condition of the milk, but no rules can be laid down either for the appliance of heat or the quantity of rennet. Many of the early spring and late fall cheese should have more rennet. Many cheese makers are troubled with leaky and rather soft cheese in the month of May, and I feel confident that in many cases this comes from an insufficiency of rennet. For early cheese, and especially those that are wanted to cure fast for early shipment, there should be sufficient put in to coagulate in twenty to thirty minutes. That is, the curd should be fit to cut in that time, and if the milk is changing, or likely to work fast, still more should be used, sufficient to coagulate in fifteen minutes. Every cheese maker should know that the rennet is what breaks down the caseine or cheesey part and renders it soft and buttery, just in proportion as you want a fast or slow curing cheese should the amount of rennet be used in conjunction with the acid and salt. Rennet plays a very important part in the curing of cheese, and every cheese maker would do well to study its nature thoroughly.

The next point which we will consider is the *acid*, which is a nice point in cheese making. To determine what state the milk is in when being weighed in, and just how much rennet to put in, and how fast to heat, &c., are things which every cheese maker must study and watch very closely, and keep on studying and watching, for it is something you never will be thoroughly master of. So it is with the development of the acid; it is something which has to be very closely watched and varied according to the time of year, and also the locality. A cheese maker going from one section to another has to be very careful with his acid for the first few weeks, as some localities will not permit of anything like as much acid as others.

The fourth important agency is *salt*, and it is something which requires a good deal of care in the amount used and when to use. Every manufacturer should know that plenty of rennet, less salt and a warm curing room will make cheese come very fast, and less rennet, more salt and a cooler room will have the opposite effect. This is something which should be well understood by every cheese maker. I know to my certain knowledge that many cheese makers do not exercise the care they should in applying the salt to their curds. Thus if the salt is applied too soon while the whey is running off freely, one-half or more will pass off with the whey, leaving the curd without a sufficient quantity. The desire for a fast curing, early shipping cheese has had the tendency to reduce the amount of salt used until, in my opinion, there is not enough used, especially in the hot weather. Two and one-half pounds to the hundred of curd seems to be about the standard, although I think that 2¾, and even more during the heat of the summer would do no harm. At any rate it would be well for any cheese maker to try the experiment on one or two batches and watch the result.

These four agencies, *heat, rennet, acid and salt*, are of the utmost importance in cheese making and should command the closest attention of every cheese maker. They may decide your destiny and reputation, therefore study them well.

Free Grant and Other Lands in Manitoba.

We very gladly publish an answer to the enquiries of F. G. T., in our last, from our valued correspondent, Mr. A. W. Burrows, of Winnipeg, who, having acted for some time as Government Land Agent for the North-West, is fully qualified to speak authoritatively on the subject treated of. Mr. B. is one of the leading men of the North West, and perhaps one of the most enterprising of the early Ontario settlers, and controls very large property interests in the rising city of Winnipeg and neighborhood. He has been for some time Vice-President of the Provincial Agricultural Society, and was the main spring of its late successful exhibition. The best thing a farmer going to Manitoba can do is to call on a responsible agent like Mr. Burrows, and, taking his advice, act accordingly:—

SIR,—Noticing in your issue of the 1st February the enquiry by F. G. T., of Oshawa, I am led to send F. G. T., and others, the following information, viz.:—Any particulars required respecting the Government Lands of the North West, rights of homesteading (free grant on condition of residence and cultivation), preemption, (right of purchase on a credit of three years), and purchase, together with a list of lands open for such purposes, may be obtained, gratis, from the Agent of Dominion Lands at Winnipeg, who is, and has ever been found, ready and willing to give every assistance to enquirers and emigrants. Maps of the Surveys in the Province of Manitoba and the North-West may be obtained by application to Col. Dennis, Surveyor General of Dominion Lands, Ottawa.

Besides the Government or Dominion Lands, there are, or will soon be, finally in market, the reserves (1,400,000 acres) for the children of Half-Breeds, two-thirds of whom, it is supposed, are now of age. These lands are very valuable, as they immediately surround the city of Winnipeg, and lie along the Assinaboine and Red Rivers. The rights to these lands are now being sold at prices varying from 50 cents to $1 per acre, and during next season, when desired for settlement, will, in all probability, rule at reasonable prices, varying according to location. Large sums are now being invested in these rights, on a speculation basis, by parties in Manitoba and elsewhere. If the lands mentioned were finally patented to the Half-Breeds now, the prices would rule higher and the case be better for the Half-Breed.

Half-breed scrip, payable to the bearer in Dominion Lands, unclaimed, at cash prices for its face value, is procurable in Winnipeg at about 50 cents per acre. Lands available for scrip location, of the best quality, near wood and water, is found in large quantities between the Red River and Pembina mountains, west of the Portage, White Mud River, and Lake Manitoba. This latter division will attract considerable attention next season on account of the determined efforts now made by the citizens of Winnipeg and the residents of the western part of the Province to construct a railway from Winnipeg to the White Mud River. At a large and enthusiastic meeting of the citizens from all parts of the Province, held recently in the city of Winnipeg, it was unanimously resolved to ask a grant of land in aid of its construction, and failing that, the representatives of the city and counties guarantee a bonus of half-a-million. Now, when it is considered that the route is all lime prairie with gravel on what is called RR. Ridge, parallel to its whole length, so that the maximum cost is not likely to be much over one million; and that the Lake Manitoba Country last year produced over 60,000 bushels of grain, its early construction is tolerably certain.

In addition to the above mentioned lands there is available to the wealthiest class of emigrants who wish to settle near churches, schools, &c., a large number of improved and unimproved farms at prices varying from two to ten dollars an acre, within the older settlements. Yours, &c.,

A. W. BURROWS.

General Land Office,
Main street, Winnipeg,
February 10th.

Orchard Manuring.

There would seem to be no good reason why, if we wish to raise good orchard fruits, we should not manure our trees. People often look at trees growing on rocky hillsides, and argue therefrom that trees can grow without manure. They know that potatoes and other vegetables must have manures or they will not thrive, but they regard trees as a very different order of vegetation, something that can thrive and flourish where nothing else would. But in the case of trees on rocky hillsides, the land is often anything but poor. The rocks themselves frequently contain valuable mineral matter, which, as the rock decays, is presented in a form that plants can feed upon. Then, whatever vegetation grows among the rocks grows there to decay, and even leaves and other foreign substances that blow into the crevices formed by the rocks make a valuable plant food, on which the tree thrives. Indeed trees in apparently poor, rocky places are really much better off than trees in orchards, where they are in what appears good land. In more level land trees must be manured. In many cases it is as necessary to the success that trees have an occasional manuring, as it is that any other crop should have manure. There have been many discussions as to whether manure on fruit trees should be applied broadcast or ploughed in. For orchard trees there is no rule; it depends on circumstances. If the trees are on ground where vegetables are grown, the manure is, of course, turned in for the benefit of these crops, and the roots of the fruit trees fight with those of the vegetables for some of it; and get it, too. But there are many orchards where no crops are grown but the trees, and then it is an excellent practice to apply manure as a top-dressing, at least every other year, if you would have them bear an abundance of good fruit.

New forests are said to be growing up in the western part of Massachusetts faster than the old ones are cut off. Especially in the hill towns is this the case. Many a locality that was impoverished as farm land some twenty and thirty years ago, is now covered with a vigorous growth of young forests, the rapid increase in the population of the outlying agricultural districts having rendered such a change inevitable.

The phosphate mines, Loughboro', Ont., says the Toronto *Globe*, seem to be inexhaustible. The vein of phosphate appears to thicken and improve as it is exhumed. There are about 200 tons of phosphate now ready for shipment.