

with very slightly perceptible round, and get its full share of the harrows. Should there be regals (1) through the field, it would be well to run the plough through them; also, at both ends of the ridges, throw the stuff into a cart with a fork and put it on the dung heap, it does not take long and makes a good job. Besides regals in a lea field are difficult to clean after ploughing if this is neglected. In making a start it would be well to plant three or four poles, so as to start straight, besides it is a good thing to learn to set poles well, quickly, and to go straight to them. The poles should be set 12 inches to the left of the old furrow, less or more according to the depth of the furrow, and width of plough underneath, so as to make two small furrows or scrapes from one to two inches deep, (according as the furrow is shallow or deep). In drawing off to the poles the ploughman will find use for all his hands.

As he has to drive his horses straight, steer the plough straight to the poles, and keep a uniform depth all at the same time. This can only be done well after he has got into the knack of driving the horses with such a light use of the reins that they scarcely know they are being driven. The scrapes should meet in the center of the furrow and touch but not overlap each other. Care should be taken in making the scrapes to set the coulter low enough to cut, not rag or tear them. Should the furrow be shallow, 4 to 4½ inches wide by the same depth, an ordinary furrow 5½ by 5½ will be found about the right size to make the crown; holding the plough in such a position that the feather or the sock will strike about the place where the scraping furrow was lifted: If well done the crown furrows will lie smooth and even about the shape of the roof of a barn, and touching each other. If they don't touch, the scrapes were too wide for that plough. If crowded, too narrow, the second furrows should be a shade thinner than the others following, but fully up to the level of the crown, the fourth and fifth, a little heavier than the third; but all about level with the crown. As when there is a flat, or low spot in the ridge it is generally, about the fourth and fifth furrow. A gradual but slight lessening in width, but not much if any in depth to the finish (unless necessary from the lie of the land). The ploughman should accustom himself to know by sight without measuring, when there are seven or eight furrows to plough, so he can make one less or more. To divide the land equally, counting the scouring furrow as one, which should be laid to the hinting furrow, as it is generally not pressed so firmly into place as the other, this can be done without loss of time of confusion till the field is finished. (1) It is a sort of puzzle, but not a difficult one, and need not be explained here. When the ploughman finds the width of scrapes that suits his plough, he should make several at once, if the ground is somewhat loose, covering one small furrow as in stubble is often done, but the sod seldom breaks evenly and gives the crown a ragged appearance. When a ridge is finished, if the crown is too high (higher than the furrows on either side a common fault) or flanked or uneven &c., the ploughman needs more practice.

Subsoil ploughing is very little practised, even by the best farmers, but it cannot be otherwise than beneficial es-

pecially on land with clay subsoil. I have in mind one field the soil being clay-loam flat, not drained and clay subsoil, that showed a marked benefit of one subsoil ploughing for several years after. Farmers that don't like to face the expense of underdraining could at a small cost do a good deal of subsoiling. It does not take the place of underdraining, but where the surface drainage is well looked after, good results will follow. The plough made for the purpose will I suppose do the best work, but an ordinary iron plough with mould board taken off, answers very well, and is I think, easier held. In ploughing stubble land, the first furrow is covered by the crown furrows, the subsoil plough following in the bottom of the furrow as deep as two stout horses can draw, following the first plough till the field is done. I would favour a heavier furrow in stubble than in lea, except on sandy land, as much care taken in shaping the ridges and making the furrows regular and even.

In ridging up potato land, or where roots or corn have been grown, it is seldom necessary to make them less than 14 ft. wide, that size can be sown by hand, and fits two widths of the ordinary harrow nicely. If the seeder is used, and the land naturally dry enough, 19 or 20 ft. would not be too much. Wide ridges suit the binder better than narrow ones, besides other advantages. Before beginning to plough, the whole field should be drawn off in ridges of the same width, beginning half a ridge from one side, set poles, 3 are sufficient and must be exactly the same length, so that in measuring two or three lengths will make the width of ridge wanted. Plant one at the end to be started from, another 2-3rds. of the way up, and the third at the other end in a direct line with the other two. Then, after measuring again with the first after measuring again with the first pole, plant for the next ridge, draw a furrow in a line with the other two stopping at the second before knocking it down, measure and plant like the first. There is but one pole left, but with a little practice the ploughman will learn to go straight to one pole. When the third pole is planted, turn the horses to the left, neither horses walking in the furrow but one on each side. Throw out another furrow in a reverse way to the first, and so on, till all the ridges are drawn off, then begin at the first and at the other end of the field as the first crown-furrow fits best on that side. To make a good shaped ridge on level land, care must be taken not to raise the crown too high. The first round should be light, increasing in size up to the fourth furrow. If the ridges are 14 ft. the fourth, fifth and sixth should be a little the heaviest of all, diminishing slightly to the finish. Otherwise, there would be a little flatness at the fourth and fifth furrow. If more than 14, keep up size accordingly. If when done, the ridge should have a very slight but uniform roundness, 5, 6 or 7 rounds may be put on each ridge before finishing between, but whatever number goes on first, the rest must get the same, else, the ridges won't be of equal width. Finishing as in lea, and always at the same end, there will be a few furrows left at each side of the field which can be finished by going round the field till done, the head lands, of course, ploughed like any other ridge.

As farmers, boys generally do a good deal of harrowing. Before trying the

plough, it should be taken advantage of in learning to drive the horses, as they should be driven when ploughing. They should practise driving straight from end to end with the least necessary use of the reins, or close tiring (tying ?) between the heads, turning the horses steadily at the ends, without their jostling each other, or overstepping the traces &c. He should be always on the alert to curb his temper, when it is like to break bounds, as the effects are bad both on the horses and himself. Beginners should as much as possible be started on summer fallow or land that has to be ploughed again. In being painstaking in his work, a ploughman need not get into the habit of being slow.

As seeing at a glance and deciding at once what to do, soon becomes a habit, time is money, and the best ploughman is the one who gets through the most work, in the best manner, with the least unnecessary strain on the horses.

NO NAME ATTACHED!

ESSAY ON CHEDDAR CHEESE MAKING.

Selection of milk—Rennet-test—Influence of locality, &c.—Stirring—Watchfulness throughout—Pressing—Dressing,

"Tempora mutantur nos et mutamur in illis."
HORACE

Perhaps no staple article of commerce has been subjected to so many and great changes in its manufacture within the past few years as has Canadian cheese, and as we review the work of the past twenty years and scan the present outlook we must confess that cheese making is much more pleasant in the retrospect than in the present reality of the future seeming.

Our present essay does not permit of more than a cursive glance at the past, and we may proudly compare the present with it, and so take courage and guidance for the future.

In the good old times, if a cheese had a little more consistency than butter, and somewhat of the shape of a cheese it passed inspection, the maker got through early, drew a large salary and lived royally, but now indeed "the time are changed we with them."

The cheese maker must not now be merely the platonic "animal bipedibus implume latis ungulibus; he must be the most rational of men, of quick judgment, logical mind and keen perception. The article he must now make is so "mercurial" that all kinds of milk may not enter into its manufacture. The time when it was considered impolitic to refuse sour, tainted, or greasy milk at the factory has passed away. Now the milk must be inspected on the wagons and improper milk rejected with that "suaviter in modo sed fortiter in re," which is characteristic of a man of whatever nationality he may be. When the milk is all in the vats, many considerations at once claim the attention of the maker. Has the milk sufficient acid? The rennet test is at hand and should be used wherever the least doubt exists, that he may know just how long he may agitate the surface after thoroughly incorporating with the rennet. How much rennet shall be used? This is a very important question and to solve it he must take many things into consideration. The influence of locality has much to do in deter-

mining this, the caseine, in some localities, yielding more easily and more perfectly to the coagulative action of the rennet than in others, a knowledge of the "timber" of the milk in his section is essential to obtaining a good average and that he may more perfectly understand it, he should keep a record of every vat of milk he handles. This should include every step in the manufacture and have a goodly space for foot notes and if he adds the specific gravity of the milk with the temperature at the different stages it affords a valuable book of reference.

Must the cheese when made stay in the curing room (often improperly constructed) for five or more weeks, or will they, if not sold within a month, be placed in cold storage? Of this he must be informed if he would act intelligently and if he most hold his cheese long in an overheated curing room, he must use rennet sparingly, even if he makes a poorer average thereby.

But this being settled, the greatest care must be taken in incorporating with rennet, stirring the surface until within two minutes of coagulation when it should be perfectly calm, and no vibration allowed to reach the bearings of the vat. All instruments used in cutting the curd, no matter at what stage, must be sharp and not contain too abrupt a bevel; the curd (if the cheese is for commercial purposes only) should be cut into a perfect cube; for fancy cheese, without regard to average, a diamond grain apparently gives better results, but not sufficiently better to pay for the lost in average.

When the curd has been cut preparatory to heating, the maker has many highly extolled so called systems at his command, yet each one with that grave fault inherent in any and all machine work (which the systems really are) that they allow no scope for individual fancy or ambition, giving the maker no incentive to make a cheese better than any or all that have previously been made, nor taking into consideration the many and peculiar changes to which milk is so liable; and when he wishes to run the whey off ah! "There is the rub" The curd must possess a certain amount of firmness by the time it has gained a given amount of acid, and that amount of firmness must be given partly by heat and partly by muscular rather than molecular motion, and the maker must adjust these with the care and precision of a chemist in compounding a formula; the curd must be firm but not dry, so must the cheese, the cheese must be creamy but not soft, nor salvy and must withal be close.

Yet, a little too much heat would cause a dry, chippy cheese and too much hand stirring would give a similar result, while too little heat would cause salviness, and in attempting to overcome this by a more liberal handstirring much of the fat would be expelled and that in the form of butter, some of it remaining in small cavities among the particles, a great amount of which would, doubtless, go out in the pressing and the remainder could not escape the buyers eye. In fact, the curd must be brought to a certain condition known only to cheese-makers and incapable of being defined by him or described, and this condition, in itself highly complex, differs in different localities, and with the change of seasons and yet the inventors (save the mark) of systems contend that with their system, failure to make a fancy article is an impossibility.

Nor can watchfulness be relaxed even when the curd has been piled and

(1) Is that the French "rigoles"—water-furrows?—Ed.

(1) The "hinting" furrow is what we call in England the crumb-furrow.—Ed.

(1) In most cases, subsoiling heavy land before underdraining does harm.

Ed.