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THE CANADA FARMER

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NEW SERIES.

The Field.

Indian Corn, its Cultivation and Uses.

Maize, (*Zea*), or Indian corn, is a tropical, or at least a southern plant, though we have no positive knowledge in regard to its original habitat, as we are not aware of its ever being found growing in a wild state. It is the only one of the cultivated grains that is of American origin. It was found in its present condition, in the possession of many Indian tribes, at the earliest period of their discovery by Europeans, and according to their traditions had been cultivated by them for unknown ages. Its value was soon recognized by the discoverers, and it has now become an important crop in climates suitable for it in all quarters of the world. As an article of food for man and beast (but especially the latter), it holds a pre-eminent rank, and perhaps the loss that would be sustained by the entire failure of this crop, on this continent, would scarce be exceeded by that of any other crop.

Though generally believed to be an American plant, it has been alleged to have been known before the discovery of America. In Chambers' Encyclopædia, Article, *Maize* is the following statement:—"A representation of the plant found in an ancient Chinese book in the Royal library in Paris, and the alleged discovery of some grains of it in the cellars of ancient houses in Athens, have led some to suppose that it is a native also of the East, and has from a very early period been cultivated there, and that it is the 'corn' of Scripture; although on this supposition, it is not easy to account for the subsequent neglect of it until after the discovery of America, since which the spread of its cultivation in the Old World has taken place with a rapidity such as might be expected by its great productiveness and other valuable qualities." Columbus himself brought it to Spain about the year 1520. Probably, like the potato and tobacco, it is

a native of America, though it is now in general cultivation in the South of Europe, and supplies a principal part of the food of the inhabitants of many countries of Asia and Africa. It is by far the most productive of all the cereals; in the most favourable situations yielding an increase of eight hundred for one, whilst an increase of three hundred and fifty to four hundred for one is common where irrigation is practised, and even without this the yield is large. There is hardly any crop respecting which farmers differ as widely as they do in the management of Indian corn. They differ about the season of the year when the ground ought to be ploughed for it; in the depth it ought to be ploughed; about the time of planting; about the manner, whether hills or drills; about the distance apart that the plants ought to be left; about whether the seed ought to be soaked or planted dry; about the after culture of the corn, some using only the hoe, some the hoe and cultivator, others the *shovel*, or some other plough: some hill up the plants well, others keeping the ground as level as possible. They differ also about the time, and mode of harvesting. What has been written about the history, culture, and value of maize would fill volumes. Some farmers, (though few, if any in Canada do so), grow this for their principal crop; the crop upon which they place most dependence; others grow it rather as a fallow crop, and look for the profit to be derived from the following crops, rather than any direct profit that is got from the corn itself. It is to this latter class that the writer belongs. From being near the northern limit where corn can be grown with success, and probably also from peas being a more favourite crop with our farmers, Indian corn has never been very largely grown in Ontario; probably its growth might be profitably increased. Though it is certainly a cereal, it can be grown and managed in the same manner as a root or fallow crop. The ground can be manured, and cleaned with this crop, and if properly attended to, it will leave the ground in good condition for a crop of spring

wheat, barley, or oats. It might well occupy the place with us that the horse bean does in British Agriculture, and be principally used for the same purpose—the feeding and fattening of stock. When well secured, the stalks from an acre of good corn, are nearly as valuable as an acre of hay. It is a crop that requires a great amount of labour, but what valuable crop does not require labor?

The conditions most favorable to the growth of corn, are a deep, rich, and rather light soil, with a hot and moderately moist atmosphere; with these it grows the largest, best, and most profitable crops. Still it will grow on almost any soil, from the lightest sand to the heaviest clay, among granite rocks, and on the richest bottoms.

In preparing land for Indian corn, prepare as for a root crop. Plough stubble ground in the fall, and if you have it to spare, give the land a good coat of manure, and plough it well under, water furrowing necessary, so that as little water as possible may lie on the ground during winter or spring. On the opening of the spring, as soon as the ground has become sufficiently dry, and time can be found to do the work, thoroughly cross plough, and harrow it; should the land now prove fine, mellow, and pretty clean, no further preparation will be required; but as fine tilth is essential, should the land be rough or cloddy, it should be made fine by repeated rolling, harrowing, and cultivating; and should it be weedy, another ploughing before planting may be necessary, and will be amply repaid by the more rapid growth of the young corn plants, and the greater ease of the after cultivation of the ground. The ground may be either marked out and planted in hills, in straight lines each way, or it may be sown in drills. For a number of years past, after the ground has got all the preparation needed, I have been in the habit of drilling the ground in good deep drills, fully three feet wide, putting in them a good coating of barnyard manure, no matter though the land has been manured in the fall, it can hardly be made too rich for corn, it is a gross feeder, spread-

ing it well in the bottom of the drills, and covering it up as soon as possible with a good heavy furrow. I then plant the corn, with a planter, on the top of the drill, taking care to roll the drills well down, so that they are very little above the natural level of the ground. This plan I have found to answer very well, though in a very dry time the corn will sometimes be a little longer in coming up. In planting with the drill I use a one horse roller, sufficiently long to cover two drills, the one we are planting, and the last one we have planted; thus pressing down the manure well, breaking all the clods, and leaving the whole fine and smooth. Should the roller not be heavy enough to make the drill as level as it seems desirable at first, I roll them a second time, after planting, as I think it essential that they are well rolled down, weighing down the roller with some heavy article. The drill used is set to drop the corn nearly three feet apart, to drop from four to six grains in a hill, and to cover from one to two inches deep. If the weather is moist, shallow, if dry, we cover a little deeper. If pumpkins are wanted, they are planted afterwards.

As soon as the corn is fairly above the ground, I give it a top dressing of plaster or ashes, or plaster and ashes mixed, running at the same time the cultivator between the rows, as close to the young plants as possible, thus killing the young weeds that may be coming up; I then go over with the hand, killing the weeds between the hills. If the cultivating has been properly done, this can be done very rapidly, as their will be only a very narrow strip left to hoe. This past season, my farm hands hoed an acre a day the first time over. This process has to be repeated once, twice, or more times, as may be required to keep the weeds down, and the ground mellow, thinning out the plants to three or four in a hill, at the second hoeing. If time can be spared, the corn will grow all the better if run through with the cultivator once a week, until it becomes too large to work among. It is of great importance to keep the weeds from growing at all, but if they have got possession of the land they should be destroyed at all hazards, as every weed robs the ground of moisture; they are constantly absorbing from the soil, water through their roots, and evaporating it through their leaves into the atmosphere. The weeds in many a field of potatoes (or corn), evaporate during our hot July weather, 500 gallons of water per day per acre. I have sometimes set up corn with the plough, and then hilled with the hoe, but never saw any benefit from it, and think it best left level or very slightly hilled. When the land is mellow and clean, I do not think hilling, any benefit to the crop of corn.

In harvesting corn we like to cut it up, by the ground, as soon as we can, after the corn is fairly glazed. When cut rather

early, the corn will be fully as good, and the fodder much better, than if it is left till it is struck with frost. After cutting, bind it in sheaves, and set it up in shocks to cure; then draw to the barn and husk when wanted, or when convenient. As the fodder when thus got is valuable, care has to be taken, so that it may not heat or mould, as it is very apt to do. It should be spread thin on barn poles, or set up around the floor, or in lofts or sheds, or if it has to be stacked up outside, set up three poles and build around them, then covering the top with some straw—the poles to thoroughly ventilate, and the straw to prevent the rain from getting in.

The late Judge Buet, the first editor of the *Albany Cultivator*, was a great advocate for the growing of Indian corn; he used to say that it was as indispensable to a yankee, as the potato to an Irishman, or the oat to a Scotchman; that there was no crop more beneficial to the farmer than Indian corn; that it was the meat, meadow, and manure crop of the farm; that it was convertible into human food, in more forms than any other grain, and that its value in fattening domestic animals, was not exceeded by any other product of the farm. The method that he recommended for growing Indian corn, was to take clover lea, cover it well with long manure from the barnyard—say twenty loads to the acre, well spread, well and neatly ploughed under just before planting, well harrowed lengthwise of the furrow, but not tear up the soil, (the roller might precede the harrow with advantage); to plant about three feet by two and a half feet apart; to apply double the quantity of seed that was wanted to stand, to be thinned out to three or four plants when hoeing; that it should be slightly hilled up; that it should not be ploughed among when growing, as that broke its roots; but that the harrow and cultivator should be used instead; that it should be cut up by the ground as soon as the grain became glazed, or hard on the outside. He estimated the expense of ploughing, harrowing, planting, two hoeings, harvesting, and rent, for an acre of corn, at about sixteen dollars per acre.

Of the various special manures tried on corn, besides plaster, I have found bone dust, applied at the time of planting, the most beneficial. I have tried superphosphate of lime, but doubted if the increase of the crop repaid the cost. One experiment tried last season will not be repeated; when sowing turnip ground with salt and plaster mixed, having some left, I thought I would try some of it on the corn that was growing close by; so top dressed two drills, and omitted two, over a part of the field. On coming to hoe the corn a morning or two after, I found the drills I had sown the mixture on, looked just as if they had been struck with frost; some of the largest hills withered to the ground, and though they did somewhat recover, the drills thus dress-

ed looked much behind the others all the rest of the season.

The uses of Indian are very numerous; when very young we are told "the small young stalks of thickly sown crops are cut over by the Mexicans as an article for the dessert, and almost every one relishes green corn in its season. Then there are various preparations of the grain, such as johnny-cake, hominy, mush, samp, succatash, pop corn, &c.; and now it is largely used as substitute for arrowroot, known in Britain as *Osewego flour*, and as corn starch.

The use of the Indian corn plant for *soiling* cattle has long been known and recommended; a writer in the *Cultivator* of 1834, says that he had frequently adopted the expedient of sowing it for soiling, and also for winter fodder, when pasturage and meadow threatened to fail. It is now used largely for this purpose, and no plant answers better, or gives more feed to the acre than it does when properly manured and managed. Corn was at one time greatly recommended for making sugar, and many experiments were tried with it in the United States, but it evidently did not prove profitable, as for many years we have heard nothing of corn-stalk-sugar. This by the way was no new use for this plant, as Prescott in his history of the conquest of Mexico, after noticing several of the most important articles of their husbandry say "that the great staple of the country, as indeed of the American continent, was maize or Indian corn, which grew freely along the valleys, and up the steep sides of the cordilleras to the high level of the table-land. The Aztecs were as curious in its preparation, and as well instructed in its manifold uses as the most expert New England housewife. Its gigantic stalks, in these equinoctial regions afford a saccharine matter not found to the same extent in northern latitudes, and supplied the natives with *sugar* little inferior to the cane itself; which was not introduced among them till after the conquest in 1519.

Indian Corn is also largely used or abused, for distilling all over North America, and in South America it appears to have been made into *Chico* or maize beer at a very remote period—it was a common drink of the Indians long before the Spanish conquest. It was commonly made in a similar manner to ordinary beer. The liquor is said to be of a dark yellow colour with an agreeable slightly bitter acid taste; it is in universal demand on the west coast of South America, and is consumed in vast quantities by the Mountain Indians; scarcely a single hut in the interior is without its jar of these favourite liquors.

Besides the use made of Indian corn as food and drink for man in its various preparations, it is largely used for feeding cattle and stock of all kinds. In the Western States, cattle and pigs are turned into the corn fields and there fatten for the market, thus saving all harvesting. With us it is used for feeding pigs, either whole or ground

into meal, and also for feeding cattle when fattening during winter. It is excellent for feeding to milk cows during winter and spring, and is sometimes fed to horses; indeed all kinds of stock on a farm, horses, cattle, sheep, pigs, and poultry will readily eat, and seem fond of Indian Corn.

We hear of corn being sometimes used for fuel in the West, where wood and coal are scarce and dear and corn is cheap. In Illinois and other parts, they used the corn cobs chiefly for summer fuel, when kept dry they make a useful fuel and ready summer fire, and are no bad substitute at that season for wood or coal.

There are many varieties of Indian corn known, of which the most prominent are those distinguished by colour, as white, red or brown and yellow; those that have different numbers of rows on the ear, as the S. 10, 12, to 24 rowed kinds; those that differ in taste, as the sweet and common kinds, and those that have some peculiarities in their kernels as our common kind,—the horse tooth, gourd seed, the rice corn, &c. &c.

There is no doubt that this plant can be much improved by selection and cultivation, and that varieties may be multiplied to almost any extent by judicious selection of kinds, and crossing by careful impregnation. Almost every corn grower has his favourite kind; I have never found any kind do better here than the common eight rowed yellow corn.

Though corn is a tropical or subtropical plant, yet it is capable of being acclimated in almost any region up to almost the 50 degree of latitude on this continent, and is adapted in some of its varieties to almost any part of the country. Being a short lived annual it will succeed wherever the heat of summer is intense and of sufficient duration, whatever may be the cold of winter.

The corn crop must have been of immense benefit to the early settlers of this country. It succeeds well on new cleared land, it requires little cultivation there, it gives a large increase for the seed planted, it requires a short season to mature, and could be used for food before it came to maturity. It is no wonder that this was a favorite crop; even yet there is said to be more land devoted to the production of Indian corn in the United States than to any other grain crop; and on the whole earth, Schow states, that Rice, Maize and Wheat are the most extensively cultivated grains, and that rice supports the greatest number of the human race, but that maize has the greatest range of temperature.

The quantities of Indian corn grown in North America alone are immense; the total produce of this grain in the United States by the Census of 1840 was returned at 377,581,575, by that of 1850, at 592,071,104, and by that of 1860 at 838,792,740, and no doubt the Census of 1870 shows a large increase. By the U. S. census of 1860 the average of the whole United States was 35 bushels per

acre; the highest average of any State was 45 bushels per acre (Minnesota), and the lowest (Delaware) was 20 bushels per acre.

In Upper Canada by a census of 1847 the number of Bushels of Indian corn was returned at 1,137,555, an average of about 21 per acre, in 1850 is was given at 1,688,850 bushels at an average of 23½ bushels per acre, and by the Census of 1861 there were raised 2,256,290 bushels at about the average of 28½ bushels per acre.

In this county, (Northumberland), the number of bushels of Indian corn in 1861 was returned 64,118, being an average of 27 bushels per acre, and in this Township (Hamilton), there was returned 11,726 bushels, an average of 28½ bushels per acre.

W. R.

Cobourg, 1872.

Silver Beet.

It may be interesting to those who have sown Beet seed to know in what manner the hardihood of the plant has been accidentally proved.

Last Fall, when reaping the seed, the bundles were left to dry, where laid down—this was about the 23th of November. Up to that time no frost had affected the leaves to any degree, and we felt half afraid the benefits we expected to derive from its use as a manuring plant, would be partially or altogether neutralized by the thing becoming from its hardihood, an absolute weed. However, the frost was too much for it at last, and it died entirely down, thereby relieving our mind of that dread.

Where the bundles of stalks lay to dry, some seed was necessarily shelled out, and lay on the surface all winter. This spring we were agreeably surprised by seeing a mass of young plants covering the ground as thick as they could stand. These of course were self sown seed and had never been covered with earth.

At the time of writing this article, (the 20th of June), the plants are from nine to ten inches high, standing as thick on the ground as they can, and apparently ahead of the weeds; whilst the same seed, sown this Spring, is as yet, only two inches high. No culture whatever has helped the self sown seed, the object of the neglect being to show, that the seed sown the last thing in the Fall, would mature early enough to afford a heavy crop of green manure, to be ploughed under for wheat, about the middle of August, or first of September; as it at present looks, and judging from former trials, the crop will be fully matured by the end of July, and perhaps two weeks sooner, thus affording ample time for ploughing twice before seed time. If the seed were intentionally sown in the fall, and on properly prepared land, we have little doubt of thereby obtaining an abundant crop under almost all circumstances, by the beginning of July—and especially if attention be paid to killing of the first weeds, by preparing the

land early enough in autumn. There seems every prospect that under such treatment no culture whatever will be required in the spring.

I consider these experiments to obtain some manurial agent from the land itself, and at small cost, most important in their results, and have little doubt these notices, will in the end call the attention of farmers to the facts, and lead moreover to further trial in the same direction. C.

The Roller.

Of all the implements in use upon a farm, we consider that there is none, with the exception perhaps of a plough, more absolutely necessary to a thorough working of the soil than the roller. Indeed, we pin our faith so strongly to the roller, that we consider a farm might as well be without harrows as without the roller. Until we actually looked about us and made many direct enquiries we could not have believed that at least 50 per cent of our farmers, have not, nor did they ever possess a roller; while on the other hand we can find none who one possessing this implement will ever be without it. Of course, in neither of these categories do we include that class who don't buy one, although knowing its advantages as they can always find some kind, but to our mind, foolish neighbour who will "lend the loan of his'n."

The late seeding time of the past season was peculiarly dry, and we observed more barley sown upon lumpy land than usual. The grand secret of success in barley raising is thorough cultivation. The seed bed should be, if possible, as mellow as on onion patch, while fine tilth is an absolute essential to a sure catch of clover seed. When land is dry and breaks up lumpy we may harrow for a week without much effect, the harrow teeth jump from the lumps and slide past them. But the roller will crumple such lumps to dust. We have this year taken particular notice of the length of time taken by barley to come up, and have invariably found that it will be from 2 to 5 days later upon land that is lumpy than upon a mellow bed. In dry weather we use the roller as much as the harrows, invariably rolling immediately after the plough, and before dragging. A soil whose surface is finely mellowed will retain moisture much longer than a rough field. Therefore on our lighter lands roll your Spring crops when they are a few inches high; thus retaining moisture and compact the earth firmly about the roots. When a man plants a cabbage he always presses the soil tightly around its roots. Cereals require the same treatment, and this may be accomplished by the use of the roller. We believe that the time is not far distant when the iron rollers "The Cambridge" and "The Crosskill," so much used in the old country, will be adopted here. In the mean time let us assure our readers, that a roller at 25 dollars, compared by the good work preformed is of equally as much value as harrows at 20 dollars.

Hay Making.

We shall soon have entered upon the first work of harvest—the securing of our hay crop. Much has appeared in our columns in former years upon this subject, nevertheless we deem it expedient again to lay before our readers a few of those important points which should never, in the securing of a hay crop, be lost sight of.

First we would enjoin the necessity of curing before securing.

Upon a proper manipulation of the green grass in the process of making hay depends entirely the quality of the article when brought to market. While sweet, clean hay is the most wholesome and nutritious of all winter fodder for animals, there is nothing so injurious, especially to the horse and sheep, as the effects of feeding for several months upon ill-cured, dried up, or musty hay. While the difference in value between poor hay and that which has been well cured, is very great, the extra trouble required for thoroughness in hay making is a mere trifle.

In the days of the scythe there was often much difficulty in securing heavy crops, but now with our mowing machines the process is easy and simple.

In the flowering stems of all grasses as they shoot upwards is deposited a large amount of saccharine matter. This is found secured particularly in the joints, and is most fully developed just when the plant is in full flower. Immediately flower begins to go off and seed to form this juice disappears, and the stem having performed the work allotted by nature dries up and dies.

It is then that particular point of time when the stem is most full of this sugar, that we require to make use of. If we then cut the grass, the grass withers, absorbing into itself all saccharine matter contained, and securing to the hay the maximum amount of this fat-producing element. It is therefore when in full flower that hay should be cut.

It should, however, be borne in mind that the loss of juice is exceedingly rapid when seed begins to form, while from the first bursting forth of flower until full bloom little difference in the amount contained has been observed. Therefore we should begin to cut our clover as soon as the greater portion has come into flower, and thus not only do we secure more juice in quality but also a greater weight of hay; and it has also been found that a green crop does not exhaust the land as much as one that has been allowed to mature.

It is particularly necessary that fields should be rolled in the spring. If this has been done the finger-bar of the machine may be set to drag the ground. Let it be remembered that one inch at the bottom of grass is worth more than two near the head. More grass should never be cut down at once than can be raked into windrows before night. It is very essential to prevent a

large surface of hay being subject when partially dry to the wet from the heavy dew.

In warm weather the morning swath must be put together, though the evening cut being green at night will not be so apt to become discoloured as that earlier cut.

We do not believe that it ever pays to draw clover hay from the windrows.

We think, indeed, all hay should be cocked. Hay must heat somewhere and a certain amount of fermentation is necessary in order to retain that bright green tinge so greatly prized by buyers.

We have seen hay drawn from windrows apparently drier than that which was taken from cocks upon the same day and in the same field. The former heated in the barn whilst the latter kept sweet and bright until the ensuing summer.

The two grand principles ever to be borne in mind in hay making are—to cut early, and sweat hay outside.

Wheat Growing.

There are two ways of cultivating this crop: with no manuring except what was applied when the corn was planted—ploughing the ground in the spring as shallow as possible, and sowing from the first to the middle of May. The other method, I am sorry to say, is not practiced by much the larger number of farmers, and differs in this: The wheat ground is that where corn was planted the previous year, and, instead of ploughing in the spring, the ground is ploughed in the fall, and a good coat of manure is applied at the time of ploughing. So that the ground is all ready to sow as the snow leaves the ground in the spring. And on this early sowing depends the success of the wheat crop.

I feel so sure of this that I do hope farmers will make the experiment next spring to test it for themselves. Wheat likes a cool climate, like that of England, for example. Our climate is excessively hot and hot. If wheat is sown sufficiently early for the plant to become developed up to the ripening point before the hottest part of the season commences, the result is a heavy grain, provided, I mean, that the ground has been properly ploughed and manured. On the contrary, if the sowing is deferred till late, so that the hot weather has set in before the grain has arrived at the ripening, the consequence is, probably, shrivelled berry; and if the ploughing and manuring have been slight, we may with certainty say it will be so. Now let us contrast the methods. First, shallow ploughing in the spring, late sowing—result, shrivelled berry, crop that half pays, and a poor patch of grass. Second method. Deep fall ploughing, with some manure, at least, applied at the time, early sowing as soon as the ground is dry enough to harrow, and certainly by the first of April—result, plump berry, a crop that pays well for all labour expended, and a good catch of clover and other grasses—*Main Farmer.*

Liquid Manure.

Why is it that guano is for a given bulk of so much more strength and consequently so much the more valuable per ton than any other yet known animal manure? Simply because the liquid and solid excrement of the sea birds who make the guano, are both voided at the same time and are consequently thoroughly mixed together. We have before us a table by Mr. Lawe's, showing the proportions of excrements, (feces and urine), voided every twenty four hours by each member of a population, and we find that the table reads thus:

	FÆCES.	URINE.
Salts,	.116.	.527.
Carbon,	.443.	.539.
Nitrogen,	.053.	.478.
Phosphates,	.068.	.189.
Total,	.680.	Total, 1.733.

Or in other words the relative value of the solid and liquid is, as 6 is to 17 in the human excrement. The same or very nearly the same proportions apply to the several parts of barn yard manure. When we then consider that the two parts thoroughly incorporated form a manure in the proportion of 2:3 to 6 stronger than the solid excrement alone, is it not astonishing that our farmers will yet take no pains to save and utilize every drop of urine made upon the homestead? In how many stables do we see provision made for the drainage of every drop of urine into the manure heap? and in how few do we see gutters leading into liquid manure tanks?

One cow will in the course of twelve months void 8,000 pounds of liquid manure. When the animal is tied in the stable during the winter season, at least 4,000 pounds, or two tons of such might be saved directly for the land, an equivalent to at least 20 loads of ordinary barn yard manure. Every pound of this liquid manure may be collected with little or no trouble. Any of our readers who see the *American Agriculturist* will find an excellent plan for a liquid manure tank in the May number of that paper.

We are, however, in our own barn yard about to adopt the following somewhat simpler plan.

A large hollow is scraped out in a low part of the barn yard, with a gradual fall of, say 10°, to the natural surface. This hollow is planked to the edges of the square top of the cistern sunk in the centre. Should the yard lie upon a stiff clay, a cistern dug out and left will last for many years; in our own gravelly subsoil we plank this cistern, whilst we believe that it might be even better made by waterlining the interior. The top of this cistern is covered with stout cedar rails, and into the hollow and over the cistern is wheeled every night and morning the cleanings of the stable. Gutters are also built in every stable to conduct the liquid manure on to this hollow, and in this manner every drop of liquid manure is also

the leachings of the dung are allowed to drip through the rails into the cistern below. A pump placed in the tank enables us either to redistribute the urinal collection over the manure or to collect in water carts and dress any crop that may require the same.

There is one very great advantage in this large gradually sloping hollow, that the cattle tread down the manure, and that it is constantly tramped by the attendant who cleans out the stable, that all water falling on it, and all urine finding its way to it by gutters pass gradually through a large body of manure and thus nothing is lost to the tank.

As to turning our soft water into the tank, we have a better use for such in our long dry spells, and when we require to dilute the liquid manure to a safe strength for top dressing, we prefer to get our water from the creek or pond.

For less than 15 dollars we shall be able to make the whole arrangement, the plank being sawn from our own timber.

Stacking Grain.

Bad stacking is the cause of most of the really damaged grain in the market. To stack well, follow these directions :

Lay your stack on as level ground as it is possible to find, say on top of a little hill, which top is generally flat. Commence in the middle setting up the bundles as for a "shock;" build all around until you get as large a bottom as is desired. Now commence on the outside layers, having the butts of the bundles about even with the bottom, or a little farther out if the grain is damp. When this row is formed, lay the second with the butts four to six inches of the bands of the first row, and so on until you get filled up. If you find the middle getting too full, lay them in a little farther. Here let me caution all against filling up the middle of the stack with loose or broken bundles; if you have such, bind them up or lay them on the outside, for the middle of the stack must be solid. Don't walk any farther toward the outside of the stack than is really necessary. When you come to topping out the stack, be careful to keep the middle well filled up, and the outside as even as you can; but mind you don't go as much as one bundle with the heads the lowest; if such places occur, lay some bundles on the inside, filling up the hollow before laying the outside ones, for one bundle pitching the wrong way often lets in a great deal of water. In finishing, when you have no more middle to fill, keep in the centre, laying a bundle wherever the butt will be the lowest, until completely topped out. Force a long, nicely trimmed stake down well into the stack, to keep the wind from blowing off the top.

Summer Fallow.

What is a summer fallow? Answer—a thorough cleansing and stirring of the land, and the effectual destruction of all noxious weeds. We have been led to give the above question and answer because it is an observable fact that many farmers do not know, or at least do not practice as if they knew the object of a perfect summer fallow. We are as a general rule opposed the principle of a summer fallow, and consider that at any rate on the lighter land; the one excuse for a fallow, viz., dirtiness, should not exist under the management of a good farmer. Still we cannot shut our eyes to the fact, that there is much land in Canada that must be summer fallowed, and we would therefore endeavour to point out the principles on which the benefits of such a course rest, and the best means of bringing the same to good effect.

We have records that the Romans employed the system of summer fallowing largely when raising wheat in the "tight little island," and it is from them that we have received the custom. They, however, knew of no other plan by which to rest the land from ever-recurring crops of wheat, as they did not produce crops for the purposes of green manuring, nor did they practice the principles of rotation. When the soil has become foul and filled with noxious weeds, no heavy artificial crop can be produced; nature giving all her strength to natural plants, will drive the forced plants of man's manipulation to the wall.

There are, then, two ways in which such land must be cleansed,—either by frequent stirring and exposure of uprooted weeds to the sun's influence, or by the cutting of them by means of hoes and cultivators. The latter plan is effected when a root crop is grown. It is in part for this reason that we advocate the growth of our roots upon our grass land, for it is in grass land that noxious weeds usually first spring up, and in which they obtain a very strong foothold. But the land is by its very nature stubborn and tenacious, such as that of clayey bottoms, it is found unprofitable to raise roots, and the most effectual destroyer of weeds is then the thorough stirring of the soil.

The arguments, pro and con upon the subject of fallows have waxed loud and long, for very many years, and the opinions are even now about equally divided upon the point.

Many persons who have not a practical knowledge of farming, have reasoned, and do still continue to utter opinions upon the subject; such persons are fond of resting their arguments upon the fact that nature produces every year, forgetting that the plants which she produces spontaneously are the very enemies that the farmer endeavours to destroy in turning her resources to his own particular ends.

Business men who look upon all matters in the light of dollars and cents, contend that the loss of a year's rent, taxes and interest cannot but be the result of so poor a system. These men also forget that the land is constantly worked. They themselves after work find it necessary to relax, and lands must also be relieved of constant strain upon their energies. A charge is made by all business men upon the wear and tear of machinery, even so must our charge be made in time upon our soil, or in other words, if we have no more rapid way of recuperating and cleansing our plant producing soil, in our machinery by which food is taken up and manufactured for future use, we must do so by allowing it to rest or lie idle. Moreover, any practical man is assured that where we cannot otherwise pulverise land that has become baked, or rid such hard lumpy soils of noxious weeds, we must call in the aid of a hot burning sun bring his influence to bear upon the land in an exposed state and turn up to his destructive rays the tender rootlets of nature's flowers, and the farmer's plant enemies,

"Who shall prescribe when doctors disagree." At the head of those who disapprove scientifically of summer fallowing we find the eminent chemist Sir Humphrey Davy, who says, "that it is scarcely possible to imagine a single instance of a cultivated soil, which can be supposed to remain fallow for a single year with advantage to the farmer."

Let us now glance for an instance from the specious theories of science to the practical reports of the most intelligent farmers in the best farmed country in the world. These show that on the heavy clays of the North of the United Kingdom a summer fallow is found the only method of cleaning lands that have run together. In the South, on the contrary, it is contended that clay can be kept constantly clean, or if they chance to become foul may be made clean.

The difference is that in the South, under a milder and also moister climate, winter tares, beans and clover are sown alternately with wheat, (we are speaking of heavy clays not adapted to turnip culture). These crops come off early and admit of what is called a bastard fallow. By this bastard or partial fallow is gained nearly all the advantages of a summer fallow, a thing that the North country farmer cannot perform.

It thus becomes evident that in arguing the point of advantage and disadvantage of the summer fallow system the climate must be carefully considered. In Canada a bastard fallow, is, owing to the shortness of the season, scarcely feasible; besides we have to sow winter wheat very early. Also our very hot sun followed closely upon wet springs, bakes up our land so hard, that upon lowlying clays a full summer fallow becomes the only means of preparing such lands for the reception of wheat seed in September.

Again, supposing that in spite of root crops and of thorough hoeing the land becomes foul and it will sometimes from the presence of couch grass, red root, Canada thistles and many such lively weeds. The question then arises, can such land by any other course but summer fallowing be made clean? and we answer without hesitation, it cannot.

In showing that summer fallowing under certain circumstances becomes absolutely necessary, we are far from advocating a universal adoption of such a system. Nor do we believe that it ever will, or can be utterly ignored.

Rather let us carefully examine the natural causes that have rendered our land caked or foul, and let us if possible, do as long as possible without having to lay out of the use of a field for a whole year; but when the fallow becomes inevitable, let us not hesitate to perform the operation most thoroughly.

A carelessly executed fallow is worse than none, for we only cultivate the weeds, and by the sweat of our brows assist nature in her production, strengthening and a multiplication of noxious weeds.

It has been tritely said that to kill red root or pigeonweed, the best plan is to prepare the land for wheat, and then not sow the grain. It may be also remembered that the most effectual method of securing our land and impoverishing our pockets will be to prepare a mellow bed for the growth of weeds and then neglect to destroy them in their infancy.

We now proceed to the consideration of the effect upon land of a thorough summer fallow.

Thorough cleansing.—There is no plant yet known that can stand the effect of a hot July sun when it is torn up and exposed to its rays for a short time.

In ploughing and cultivating and harrowing land, all the rootlets of noxious weeds cannot be at once exposed; therefore the operation must be constantly repeated, until every rootlet has been torn up and left to wilt and die. So necessary has this regular cleansing of the land been thought in many cases in England, that landlords have made in many leases compulsory provision for the use of a fallow at stated periods by the tenant, thus following out the scriptural injunction of Moses to the Jews when he gave the law to the tribes of Israel after being led of Egypt in these words.

"And six years shalt thou sow thy land and gather the fruits thereof, but the seventh year thou shalt let it rest and lie still." (Exodus, xxiii., 10, 11.)

Aerating the Soil, is one of the chief benefits to be derived. Floating in the atmosphere is always a large amount of plant food, the largest portion of which consists of nitrogen, ammonia, carbonic acid, &c., and every storm of rain or heavy atmospheric pressure forces down these gases to immedi-

ate contact with the earth. Land in thorough tillage has a very large area, in the abundant quantity of particles of soil exposed and gathers in and lays up in itself a large amount of such matter, which is there retained for the use of the plant.

This aerating of the soil has also the mechanical effect of disintegrating the particles of compacted earth, and thus undoing the caked condition of heavy clay.

Many insects are exposed to the air, unnaturally and to the attacks of quick sighted birds and are destroyed.

A thorough tillage is secured for the coming wheat crop, and the land is in a peculiarly good condition for the absorption of barn yard manure.

The weeds which are the enemy to the cultivated cereal are made by decomposition subservient to its interests and thus again is reluctant nature forced to act for the benefit of the tiller of the soil.

The manner of conducting a summer fallow must be made suitable to the amount of soil in the land to be remedied. In general terms the land must be ploughed and thoroughly stirred as often as the weeds shew themselves fairly above the surface. Marshall in his Rural Econon. of Yorkshire says: "To begin a fallow without continuing it until its intention be fully accomplished, is throwing away labor unprofitably."

If possible a summer fallow should be fall ploughed in the previous year. If such fall ploughing be done early many tender weeds will be exposed to the action of a fatal frost, and much trouble thus saved for the ensuing season. Moreover, there is nothing so effectual for the disintegrating of a compact soil as the mechanical effect of frost. The rougher the land is left in winter the more effectually will frost take hold of it, therefore never harrow a winter fallow or the winter ploughing of an intended summer fallow.

Plough narrow, lay up tight and dry, and draw plenty of water furrows. When land is much covered with surface weeds, it has been thought desirable by some authorities well to plough shallow in the fall, so as not to bury such weeds too deep, but rather to expose them to the action of the winter. But as a rule we prefer to turn our first furrow as deep as the plough can be made to run, and for the following reasons.

If there be a harsh subsoil to turn up, we expose it to frost which has a perfect effect in mellowing such land. Also this cold subsoil will in the after ploughings be thoroughly incorporated with the old soil. Moreover, it is often found in a dry summer impossible to get the plough in deep after the hot sun has once begun to shine in spring. But if the land to be summer fallowed is a sod, such should be ploughed shallow, as if turned down too far, it will not readily rot.

In adhesive soils the plough should run narrow and deep, and set up the furrows at an acute angle.

As soon as the thronging time of seedling is passed, the first summer ploughing should begin. It is well, however, to run a heavy pair of harrows over the ground as soon as it is dry enough in spring, to encourage the growth of weeds that lie near the surface.

In June as soon as the land has thoroughly warmed and a large number of weeds have started cross ploughing should be done, and the land be thoroughly harrowed down fetching as many weeds as possible to lie on the surface, and encouraging the growth of such as have still a hold upon the soil. From this time the cultivators and harrows should be set on upon every available opportunity, and it is upon the efficiency of these latter operations that the effectual destruction of weeds, and the thorough aeration and preparation of the land by summer fallow depend.

Then will follow the preparation for wheat, as this hardly comes under the head of summer fallowing we shall defer speaking upon it until later in the season; but would simply give a few words of advice to the farmer who proposes to manure for that crop.

The manure that is intended for such use, have turned at once and cover it and if possible compost it with muck, or in lieu of such, with ordinary soil—turn it once more in summer, and if possible, again cover it. This manure will by September be thoroughly rotted, and all weed seeds will be sprouted and destroyed by the heat of fermentation.

Do not use the exploded plan of ploughing under manure, but after the last ploughing for wheat, spread your manure finely upon the land, and work it into the top soil with cultivators and harrows. You thus place manure above the root of the wheat plant, have every fall rain washing its essential qualities to the rootlets, instead of the root having to exhaust its strength in diving down for, and seeking its required food.

Queries.—Manure.

William McFadden, of Sydney, Nova Scotia, sends the following enquiries:—

- 1st. What is the best way to keep horse and cow manure? And is manure that has lain in a shed all winter, and heated, and burned, and turned white, any good?
 - 2nd. Should land that has borne potatoes be ploughed in the fall?
 - 3rd. Should milch cows be let out every day in winter, and how long each day?
 - 4th. When manure is spread on land for potatoes should it be ploughed in at once, or lie on the ground for some time first?
1. The best way to keep horse and cow manure is to mix them together if possible every morning when the byres and stables are cleared out. All manure should be

piled first under cover. In keeping manure it would be well if our correspondent can have a tank constructed in such a manner as to receive all liquid manure from the animals, and if his manure should be exposed, the leachings of the same, and so that a pump placed over this tank will pump back over the manure this liquid.

Your manure that has been in a shed and heated and burned white is much injured for immediate application. We should advise you to draw it out, if possible mix it with other fresh manure, compost it with muck if you have it, or dead leaves, and pile it with alternate layers of refuse lime. If you cannot go so far, simply throw it out and turn it twice before the fall, when it will be in good state for use.

2. If your land that has borne potatoes be of a heavy nature it were better not to plough in the fall, as if the roots have been properly tilled the tilth will be very fine, and such in very heavy land is apt to bake hard in early spring. But if your land be light, and especially if you intend barley to succeed the potatoes, by all means plough in the fall, but don't harrow.

3. Milch cows should be let out every day except in very stormy weather. The length of time each day depends upon the state of the weather. They are better of fresh air and a stretch to their legs. Nothing tends to taint milk more rapidly than close confinement where there are urinal odors arising.

4 Plough in your manure at once and shallow. We prefer to put it in with some sort of cultivator.

Our correspondent's question about the treatment of manure, opens out a much wider field than we can at present consider. In the winter months when less space is required for immediate practical information, we shall probably find room for a more extended article on the subject.

Sheaf Oats for Forage.

In answer to the inquiry, "What shall we grow in the place of corn fodder?" I would suggest the sowing of oats pretty thickly, and cutting when first in the milk, so as to have them saved as green and full as possible; store them under cover, and it will be found that more good food can be raised to the acre than of any other known grain or grass. That oat straw is of great value has long been proved, and allowed to be of nearly equal value to hay when cut green; adding to this the grain, say fifty bushels to the acre, would give nearly a ton of the best of feed, on which not only does young stock grow thrifty and large, and the condition of work horses improve, but with bran or meal it is one of the very best things to feed to cows for milk and butter.

Having a certain amount of milk to supply daily last fall, I used every means to keep up the quantity and quality, and tried almost

every variety of feed. I found positive evidence that corn fodder was the worst of all, even at no cost, while sheaf oats, cut green, were a cheap feed at forty cents a dozen bundles of average size. The corn fodder was good, full grown and well cured, but I would not feed it to cows I wanted a good supply of milk from, if I could get it for nothing. The only feed found superior to oats was clover cut in first bloom and well cured, with four ears of corn and four quarts of bran once a day. On this a fine supply of butter may be looked for, and a cow to do her very best.

It may also be said in favour of oats that they are easy to grow, nice to handle, and the most wholesome and nutritious food for stock; poultry, and hogs included; are early harvested and the land left in good condition for clover, which should follow.—*Cor. Rural World.*

Experience with Potatoes.

(To the Editor.)

SIR,—For the information of your readers I will give you my experience with four new kinds of potatoes last summer. I took a piece of ground that had never seen clover seed in ten years, nor received any manure during half that time. It was ploughed in the fall, and then in the spring the drills laid open about a week from the 15th to the 22nd of May—just in the driest part of the spring. So you may guess the consequences. The potatoes were the Peerless, Climax, Prolific and King of Earlies. The seed was cut pretty small, laid in drills about 3 foot apart, and then a sprinkling of barnyard manure laid on the top of them and harrowed in. I waited very anxiously till it was time for them to be up; then went and dug some seed, and found they had not started. I began to think that from the drying out of drills and the dry manure they were not going to come up at all; but by and by they began to make their appearance. A stalk here and a stalk there, till about three-fourths of them came up. They were hoed once, cultivated three times, and ploughed up. I never saw a more thrifty potato than the first named variety, after they got started. The tops were a dark green colour and the tubers of a medium size. From three bags' seed of the Peerless I dug one hundred and sixty-five bushels of as beautiful white smooth potatoes as I ever saw; and they were as good as they looked, for the folks would not eat any other kind after they had tried them; they were as pretty a potato as ever grew, as many can testify who saw them at Hamilton, Guelph and Ancaster shows. The Climax yielded well but were small. The Prolifics were a large yield and a very good potato. The King of Earlies did not do anything worth mentioning; I do not think much of them.

SAMUEL McLAUGHLIN, Jr.
Copetown, Ont.

Straight Rail Fence.

To the Editor.

SIR,—I have read with a great deal of interest in recent numbers of the CANADA FARMER the different opinions and practices of some of your correspondents on the subject of fence building, and as I consider it of very great importance that there should always be a good line fence between neighbours, and you wish the matter fully discussed, I will explain a method of making fences that I am in the habit of using, and that I see has not yet been discussed.

I first haul my rails, 13 feet long, and of good straight cedar, say 6 or 8 inches diameter at the largest end; then I square the two ends on the four sides for about a foot from each end, so as to have a good base for each rail to rest on. I next get cedar pickets 9 feet long, and not thicker than 4 to 6 inches at the small end, round, and as straight as possible—two for each panel of 7 rails high. After getting all the material to the spot, I range out a line of pickets for the centre of my straight line of fence. I next have holes dug for the pickets (two in each hole) just a foot and a half deep. I then lay my bottom rails for the whole length of the fence to be built, overlapping them well, and making the holes for the pickets about eleven feet apart, from centre to centre. I then place the pickets, two in each hole, (1½ foot deep), and with a heavy mallet drive them another foot and a half, and then fill in the holes with small stones and earth, driving the stones well about the pickets, so that by this plan the pickets are three feet under ground and six feet above. I then proceed with laying my rails, lapping them as before, and putting Juniper trenails through posts and rails both, every fourth rail high, and also the top rail of all. This makes a good, strong, and durable fence, which I defy any wind or cattle to break down, and will last a man's lifetime. I have several built on my own farm, and never have any trouble after they are once put up. A cedar fence is rather an expensive fence, but will last four times as long as fences built of any other sort of wood.

P. MURISON,
P. L. S.

New Carlisle.

GRASS SEED IN FALL.—Many of our farmers are going to be short of hay, and perhaps find that they have not seeded down enough this spring. Grass (timothy) may be sown in the fall. Work the land very fine and mellow towards the end of August. Spread finely composted manure; sow about 6 quarts timothy per acre; cover in with brush harrow; on light land roll; in the spring, early, sow 4 quarts clover and you will have a meadow to cut next summer. But remember the land must be clean and in good heart, and the finely comminuted manure ought to be used.

Effects of Forests on Climates.

The following observations (which we find in the London Garden), while they may not establish the effects of forests on climates, are certainly valuable in that direction. They were made by M. Mathieu, Professor in the School of Forestry at Nancy, and were reported by him to the Congres Agricole Libre, at Nancy, in 1839. They include the first eight months of each of the years named, and were made with reference to the following points:

1st. Does the wooded condition of a country exercise an influence upon the amount of rain it receives?

The answer to this question was attempted by taking two stations at an equal height above the sea, but separated between fifteen and twenty miles, the one situated in a wooded, and the other in a cultivated country, and observing the rainfall. The result, reduced to inches, was that at the Agricultural station the rainfall for the three seasons was 52.02 inches, and at the Forest station 93.13 inches; difference in favour of the forest station of 41.11 inches.

The second question was: Does the covert of the forest, by intercepting the rain falling from the atmosphere, diminish to a considerable extent the amount of rain that reaches the ground? This was answered by placing rain-gauges beneath the trees, and in the open ground close at hand, and comparing results, which were as follow:

In open ground	92.99 inches
Under the trees	57.74

Difference in favour of open ground 35.25

This shows that while some of the rainfall in a forest does not reach the ground, still by comparing what did reach it with the result at the Agricultural station, we have 57.74 inches for the rainfall under the trees, and 52.02 inches for the fall at the Agricultural station, an excess of 5.72 inches in the forest.

A third question was as to the effect of a wooded country on the conservation of the moisture received by the soil. The answer was sought in a comparison of the evaporation from two equal vessels, one placed in the forest the other in the open ground. Evaporation went on five times as rapidly, taking the whole year into consideration, in the open air as in the forest, ranging from three to six times, between April and July: 85 per cent, of the rain falling in the open field evaporated, whilst only 22 per cent. of that falling in the forest was lost.

The fourth question was as to the influence of forests upon temperature. The experiments in this direction had been conducted but a short time, but go to show that the mean annual temperature is lower in the woods than in the open country, and that the difference is least in winter and greatest in summer. In 1868 the mean temperature of the forest was lower than that of the open fields, by 4.35 in the morning, and 9.33 at night, in July; which difference fell in December to 0.48 in the morning, and 0.94 at night

Again, the average variation in temperature was much greater in the open country than under the cover of the forest between day and night. It ranged from 0°.05 to 8°.57 in the open air, but only from 0°.04 to 1°.22 in the forest.

How to make Land Lumpy.

About a dozen years ago, after twenty years' service in civil engineering, I turned farmer; that is to say I bought a farm adjoining the city for a home in which to educate my boys. The soil is a rich vegetable mold with a clay sub soil. Of course I took an agricultural paper, I bought a subsoil plow, and of course the cold clay got mixed up with the top soil, and of course my land was very soon lumpy, and of course the lumps grew coarser until the matter became serious and I sought my neighbour's advice.

"Why, man, said they, "you work your land too wet." In vain I asserted that I did not—that I was always behind them in putting in the plow. But my reasoning was unavailing—they had worked this soil for fifty years, and all knew that I worked my land too wet. So I followed their advice and kept off my land till the ground became so dry and hard that it was almost impossible to plow it, and it broke up in lumps of enormous size. Three plow-beams were broken in a field where now a single pair of mules plow ten inches deep with ease.

These large lumps/lumps in many instances had to be broken up with heavy sledges into smaller lumps, and then the most severe dragging and rolling only reduced them to a spherical form. The surface was covered with a mass of baked clay-balls, ranging in size from grape-shot to twenty-four pounders both being equally favorable to the germination of seed and the growth of plants.

There may have been other fields like mine, but seldom any so bad, for very few persons would have had the like perseverance in working land so dry.

After this experience I think myself qualified to instruct others how to make land lumpy; and if the reader still has any doubt on the subject, I will state more explicitly the principal requisites for entire success, on soils of clay or loam:—

1. Haul out your manure on to your fields in spring and fall when the ground is soft.
2. Let your cattle, colts especially, roam over your fields looking for something to eat.
3. Do not begin plowing till the surface of the ground is indurated by the sun and wind several inches deep.
4. Plow with a strong team, cut wide so as to turn well and deep, so as to bring up the "virgin soil" (yellow clay), to fertilize the exhausted soil at the surface.
5. Plow around the field so that the team may turn on the plowed land.
6. And most essential—do not put on the drag till the sun and wind have dried the furrow-slices sufficiently hard. Many persons, who are very successful lump-makers wait till the weeds start. One day at least is necessary, unless the winds are very strong and dry, in which case a few hours may give very good-sized lumps. It takes about the same time as to dry bricks in a yard. Indeed the process and materials are quite similar, and brick should never be turned till they are hard enough to handle without breaking.
7. Drag your land thoroughly. All old farmers know how important this is. It is a good plan to use a light drag and a young

team with a boy to drive. They will go over more ground and pack it much harder. Be sure to cross-drag it, or many lumps half-buried will remain beyond the action of the winds and never get properly indurated. Drag it repeatedly both ways. At every turn you will observe lumps becoming more numerous and more symmetrical in form. The more they are turned the faster they dry. The rough angles of the masses will be rubbed off as they were jostled about upon the same principles involved in pill-making. By the action of the wind and sun they soon become as hard as stones and are nearly as valuable upon the land. They are as good for a mulch or shade as sound stones, and they are equal obstacles to the growth of weeds. However, as a promoter of vegetable growth the stones are probably the most desirable. They are better conductors and reflectors of heat, and they do not, like the lump, rob the soil by absorption of the dews and gentler rains which are so refreshing to plant-life. If we turn a stone we shall find the earth moist beneath it, while under a clay-ball it would be dry.

I trust that the reader now sufficiently understands the process of lump-making to appreciate a system which I have adopted for making the land mellow and friable—which I intend to describe in another article—*Geamantam Telegraph*.

Sources of Fertility in Farms.

The sources of fertility to farms are the refuse of the crops which they bear, modified by the farm stock, and preserved and judiciously applied by the husbandman. There is not a vegetable matter grown upon the farm, be it considered never so useless or obnoxious, but will, after it has served ordinary useful purposes, impart fertility to the soil, and contribute to the growth of a new generation of plants, if it is judiciously husbanded and applied. There is not an animal substance, be it soil, liquid or gaseous—be it bone, horn, urine, hair, wood or flesh, or the gases which are generated by the decomposition of these matters—but, with like care and like skill, may be converted into new vegetable, and afterward into new animal matters. To economize and apply all these fertilizing materials is the province and the duty of the husbandman.

Seeding to Grass

Mr. Charles L. Flint, who is the author of the most valuable American work on the grasses, is the strong advocate of sowing grass seed alone, and of sowing it in the fall. In the last report of the Massachusetts Board of Agriculture, of which he is secretary, he makes some suggestions that are worthy of the consideration of farmers who neglected to seed down fields last spring on account of the bad season, or the high price of seed. At the close of an able article, he says; 'I am prepared both from experience and from observation to say and to maintain.—

1st. That, early fall seeding without grain should be adopted in practice in preference to seeding in spring

2d. That, as a general rule, it is poor economy to take any grain crop either with or immediately preceding the seeding down to grass. That the grass being the ultimate and paying crop, it is bad practice to reduce the land by the draught which a grain crop makes upon it.

3d. That wherever from any local reason it becomes desirable to take a crop of spring grain, it is more economical to sow the grain alone in the spring, and to plow up the stubble and sow the grass seed alone in the early fall.

4th. That in cases where it seems desirable to sow grass seed in spring, it is better to sow it alone and let it take its chance, without compelling it to struggle for existence under the disadvantages of a grain or any other crop.

5th. That in seeding down in August or early in September, we are following nature as to time, and that, unless the ground is already rich and in high condition, it is necessary to give the seed the benefit of an application of manure on or near the surface to which the seed is applied.

6th. That in the selection of seed for mowing lots and hay, we should choose varieties to mix that blossom at or nearly at the same time, and not mix very early and very late varieties together.

These propositions are clear and easily understood. I believe their adoption and application in practice upon every farm in Massachusetts would largely increase the grass and hay crop and materially promote the prosperity of our agriculture."

A Very Good Compost.

A very good fertilizing compost is manufactured by using the following substances according to the directions given. The mixture has been called "Leibig's great Fertilizer," as it is stated that it originated with him. This is doubtful, but it is a very judicious and sensible combination nevertheless, easy to prepare and cheap. It will prove serviceable for corn, wheat, and the other cereal grains, and also for grapes.

This amount will do well, applied to one or two acres, and it will cost not far from \$10:—

- 1 Dry peat, twenty bushels.
- 2 Unleached ashes, three bushels
- 3 Fine bone dust, three bushels.
- 4 Calcined plaster, three bushels.
- 5 Nitrate of soda, forty pounds.
- 6 Sulphate of ammonia, thirty-three pounds.
- 7 Sulphate of soda, forty pounds.

Mix numbers one, two and three together; then mix numbers five, six and seven in five buckets of water. When dissolved, add the liquid to the first, second and third articles. When mixed add fourth article.—*Journal of Chemistry*

A single county in California has 150,000 acres of wheat. And a single Ford Co., Ill., farmer has 20,000 acres of corn.

GREEN CURED HAY.—The principle of securing a green tinge in hay is simply this: Dry the hay quickly, and in the shade. All hay should be exposed to the sun immediately after it is cut; but never if possible allow it again to get wet. Gather it out of the effects of rain and dew by windrows and cocks.

Experiments in Germany, it is claimed, have determined the weight of roots per acre of several of the farm crops. Ordinary stubble with the roots in the first ten inches of soil were separated from the earth and dried. The pounds of red clover roots per acre were, 6,580; rye, 3,500; wheat, 3,400 pounds. This, of course, remains in the soil as a fertilizer.

Alsike Clover, says an English journal, is inexhaustible in its powers of production, as proved by the wonderfully curious formation of the plant. From its single crown innumerable heads are constantly being produced all through the season and tillering out laterally over the ground. It is a plant of very hardy nature, as is proved by the fact that it bears transplanting. It is best adapted to low, moist lands.

Novices commonly allow weeds to get several inches high before they think of clearing them out and destroying them. Now, the great secret of cheap and successful culture is to kill all weeds before they come up. Go over the bare surface of earth as often as once a week, and pulverize it thoroughly with a rake or skim-hoe. This will kill every weed just as it is starting, with less than one-tenth the labor required to kill them when several inches high. Do it often and thoroughly.

HAY CAPS.—In the older States, where economy in farm management is so much more closely studied than in the newer parts of our country, no farm is considered completely furnished without a good supply of hay-caps. They are found equally useful in securing hay and grain. The harvesting coming after the haying, one set of caps answers for both. About ten years ago when hay-caps were comparatively little known one of the best grass-counties of Massachusetts made a comparative estimate of their practical value. It being a very unfavourable year for making hay, they took for a basis the market value of hay and grain made with use of caps, and that made as best they could without them, and found the loss to the county about \$150,000 in that one year. The cheapest ones that can be used are made of four yards of yard-wide cotton sheeting sewed together with a sewing machine, and a stone of half or a pound weight sewed into a little bag and attached to each corner. These will last a number of years, with good care in reasonable drying and good storage.—*Prairie Farmer*.

Stock Department.

Watering Horses in Warm Weather.

There is a warm controversy coming up in regard to the watering of horses in warm weather. At present this controversy is as a cloud no larger than a man's hand; but we are sadly mistaken if it do not come to be one of the most stirring questions of the day; one in the face of which even "Drilling versus Hilling Corn," "Deep Plowing," or any other illustrious subject of the past, will pale.

Several writers have of late suggested that watering horses "while they are warm" in summer is a very bad thing; others say that "more suffer and are injured for the want of water in summer than from too much of it." The great centre of attack in this new line of thought is not Joseph Harris, although he is but one of several who has taken in hand the reformation of horse manners and customs in reference to drink.

The theory of horsemen in general is that it is an evil to perspire freely in warm weather, and that if little water be given them, they can perspire but little. "The more water we give them the more they sweat." On the other hand the laboring man in the open fields tells us he is never so comfortable at work as when he is perspiring freely and he takes his glass of cool spring water as often as he pleases. The argument from this is that what is good for the man is good for the beast. Perhaps so.

We suppose the truth lies midway between these opposing forces. At any rate the discussion will do no harm to the poor dumb beasts interested. Our own experience has been adverse to excessive watering. Even in the harvest-field we think moderation is advisable.—*Germantown Telegraph*.

The Diseases of Stock.

CATTLE PLAGUE.—In France the "bovine pest" bids fair to become a chronic affliction. Month by month we have to record the existence of the disease, with but little alteration of details. In our report last month we stated that seven communes in the Department du Nord were infected; the number has now increased to twelve, and this in spite of the measures of repression which have been adopted—measures which, we took occasion to remark did not accord with the English notion of "energetic." Belgium continues to enjoy an immunity which, under the circumstances, is remarkable, and which is only secured by constant watchfulness. The *Journal Agricole du Brabant* every week denounces, in strong terms, the apathy which prevails across the frontier. Russian Poland is reported to be free from rinderpest, and in consequence of the cessation of the disease the *Official Gazette* of East and West Prussia

has announced that the prohibition of the imports of cattle and certain other articles of commerce from those provinces is rescinded. The exemption, however, it is distinctly stated, does not extend to Steppé cattle.

PLEURO-PNEUMONIA.—Holland has suffered rather severely from this malady during the spring. In four weeks, up to the middle of April, between four and five hundred cases of the disease were reported to have occurred in different parts of the kingdom, principally among stalled animals. The measures adopted to arrest the progress of the disease are very stringent. All diseased animals are slaughtered, and those which have been herded with them are inoculated and isolated. If the owner objects to inoculation, he is compelled to keep his cattle from association with others for a long period, under the observation of the authorities. In Great Britain there has been no important change in the state of prevalence of the disease since the last report.

FOOT-AND-MOUTH DISEASE.—This affection still prevails in Hamburg and its vicinity, and diseased animals have been landed in England during the last month from Antwerp, Boulogne, Bremen, Bremhofer, Copenhagen, Corunna, Dantzic, Dunkirk, Hamburg and Rotterdam. Fresh outbreaks have occurred in Norfolk, Kent, Cumberland, and some parts of Scotland.—*The Veterinarian for June.*

Live Stock in Summer.

There is a lamentable ignorance of pasturing the different varieties of animals on farms in America, both as regards the welfare of the cattle and the productiveness of the pastures. No man can succeed in bringing to perfection prime animals by stocking his grass land with one sort of stock, for it takes only a short time to make the grass distasteful, in consequence of the dung and urine, and this is more particularly the case with horses, which, so to say, poison the ground to such a degree that they become lean, and look rough and sickly in their coats, while at the same time there may be an abundance of grass in patches. It is not necessary to put horses, cows and sheep in the same field, as, on any farm divided into fields, they can be changed around so as to follow each other. For instance, supposing horses to be the chief stock on an estate where eight fields out of the number were grazed, two might have them in, two cows and two sheep, leaving two more to be always freshening. In this case the change might be weekly; the horses could be put into the two fresh pieces of grass, the cows where the horses were moved from, and the sheep into the fields the cows had been taken from, which would leave the last mentioned a week to grow for the horses. This could be altered to suit the cows, if they were the principal consideration; and the time of moving could be every two weeks, or a month, if preferred.—*Country Gentleman.*

How to know the Age of a Horse.

We find the following in the *Southern Cultivator*, credited to "Exchange":—The colt is born with twelve grinders, when four front teeth have made their appearance, the colt is twelve days old; and when the next four come forth it is four months old. When the corner teeth appear the colt is eight months old; when the latter have attained the height of the front teeth it is one year old. The two-year old colt has the kernel, (a dark substance) in the middle front teeth, and when three years old, they are substituted by the horse teeth. The next four teeth are shifted in the fourth year, and the corner teeth in the fifth.—At six years the kernel is worn out of the lower middle front teeth, and the bridle teeth have now attained to their full growth. At seven years a hook has been formed in the corner teeth of the upper jaw, the kernel of the teeth next to the middle fronts is worn out, and the bridle teeth begin to wear off. At eight years of age the kernel is worn out of all the lower front teeth, and begins to decrease in the middle upper front. In the ninth year the kernel has wholly disappeared from the upper front teeth, the hook on the corner teeth has increased in size, and the bridle teeth lose their points. In the tenth year, the kernel is worn out of next to the middle front of the upper jaw, and in the eleventh year the kernel has nearly vanished from the corner teeth of the same jaw. At twelve years the old the crown of all the front teeth in the lower jaw has become triangular, and the bridle teeth are much worn down. As the horse advances in age the gums shrink away from the teeth, which consequently, acquire a long narrow appearance, and their kernels have become metamorphosed into a darkish point, gray hairs increase in the forehead, over the eyes, and the cum assumes the form of an angle.

Pork.

Large pork will be very scarce next fall—nearly all having been cleared out of Canada last winter.

There will in all probability be a large demand for pork in the fall. We have observed however, that there are a very great number of spring pigs in the country, and we would strongly urge farmers not to let a good price for pork slip in the fall of the year, as owing to the large number of spring pigs. We fancy the winter market will be pretty well overstocked.

A Texas cattle trader brought 3,000 head of cattle to Kansas, to graze on the sunny slopes during the Winter. He sold his ponies, belonging to his herders, together with \$180 worth of hides recently: every head of his vast drove having actually frozen to death.

An Experiment in Feeding Horses.

The London Omnibus Company use six thousand horses. To economize in feed is an important matter, and has led to several tests, the result of which is recorded as follows:

To each of three thousand of their horses they gave a daily allowance of ground oats, sixteen pounds, ground hay seven and one half pounds, and cut straw one and one-eighth pounds—the hay and straw being cut into pieces about half an inch long, and well mixed up with oats in a little water, and so making twenty-six pounds of food for each horse. And to each one of their other three thousand horses they gave a daily allowance of whole or unbruised oats nineteen pounds, and uncut or whole hay and straw thirteen pounds, without any water, in our old-fashioned way, making thirty-two pounds of this food for each horse. And what was the result? Why, it was soon discovered that the horse who was fed on the twenty-six pounds of ground oats remained in as good a condition and could perform just as much work and do it just as well, too, as the horse did who consumed thirty-two pounds of food as aforesaid—thus showing a saving of six pounds of food per day in favour of bruised oats and cut hay and straw—which, if valued at five cents per horse, per day, amounted to a saving of the snug little sum of \$300 per day.

Liquid Excrements.

How strangely we overlook the value of the liquid excrement of our animals! A cow, under ordinary feeding, furnishes in a year 20,000 pounds of solid excrement, and about 8,000 pounds of liquid. The comparative money value of the two is but slightly in favor of the solid. This statement has been verified as truth, over and over again. The urine of herbivorous animals holds nearly all the secretions of the body which are capable of producing the rich nitrogenous compounds so essential as forcing or leaf-forming agents in the growth of plants. The solid holds the phosphoric acid, the lime and magnesia which go into the seeds principally; but the liquid, holding nitrogen, potash and soda is needed for forming the stalk and leaves. The two forms of plant nutriment should never be separated or allowed to be wasted by neglect. The farmer who saves all the urine of his animals double his manurial resources every year. Good seasoned peat is of immense service to farmers, when used as an absorbent, and the stalls for animals should be constructed so as to admit a wide passage in the rear with a generous passage room for peat, to be used daily with the excrement.—*Boston Journal of Chemistry.*

There are said to be nearly four million head of cattle in Texas. Seven hundred and fifty thousand calves are raised and branded every year. All are raised on the great Texan plains, which cover an area of one hundred and fifty-two million acres.

Col. King's Short-Horn Sale.

We learn from the *Country Gentleman* that the sale of Short-horn and Ayrshire cattle which took place on the 19th June, at Col King's farm, near Minneapolis, was very successful, good prices being realized in spite of the late arrival of a train conveying intending purchasers, whose competition would, no doubt, have still further raised the prices. The highest price given for a cow was \$1,650, for Booth's Lancaster; \$1,500 was given for Henrietta, a Short-horn cow bred in Scotland. The highest price realized for a bull was \$1,000, the sum given by the Iowa Agricultural College for an 8 month's calf, Sam, junior. Omitting the prices of three cows not included in the return, the following is a summary of the proceeds:—

SHORT-HORN SUMMARY.

27 cows and heifers, average \$62—Total.....	\$15,500
11 bulls and calves do 452—do.....	4,975
Total	\$20,475

General average \$177—Total ..	\$20,775
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AYRSHIRE SUMMARY.

17 cows and heifers, average \$122—Total ..	\$1,975
7 bulls and calves do 66—do.....	460
Total	\$2,435

General average \$150—Total ..	\$2,415
Average price of Cattle \$20.100	

A cattle dealer from Fort Scott, Kansas, visiting Jacksonville, Ill., reports to the *Journal* that cattle in Kansas have suffered greatly from the long cold winter that has just passed. Nearly one-fourth of the Texas cattle brought to Kansas last fall to be wintered, have perished from cold and starvation.

A Scotch lay lord was seated one day on the hillside of Bonally with a Scotch shepherd, and observing the sheep reposing in what he thought the coldest situation, he observed to him: "John, if I were a sheep I would lie on the other side of the hill." The shepherd answered: "Ay, my lord, but if ye had been a sheep ye wad have had mair sense."

Mr. Thornton had a superb sale of the late Mr. Pawlett's cattle on the 4th of April, consisting of the whole collection of the late Mr. John Booth's Mantalini tribe, and Mr. Richard Booth's Fame animals. The total amount realised at the the sale was 78371 1s; the average of the 40 head being 1951 18s 7d. The highest priced animal was Rose of Warlaby, seven years old, who was bought by the Rev. T. Staniforth of Storrs, for 555 gs. Seven of the herd realized over 300 guineas each, and six fetched very great prices. The highest price for the bulls was 280 gs for Royal Hope, who went to the Duke of Richmond. The sale is said to have been remarkable for the number of practical breeders and eminent judges who were present and often bidders.

Kansas farmers are troubled by "grub-worms with side whiskers." So one of the locals say.

Veterinary Department.

Gorged Stomach in Horses.

Gorged stomach, or acute indigestion, is a disease which every year destroys a great many valuable horses. It consists either in distension of the stomach from food or from gas generated by the fermentation of its undigested contents.

This very serious disorder often results from giving food in large quantities and immediately subjecting the animal to hard or fast work. This is a very common cause amongst farmers' horses. A journey of fifteen or twenty miles has to be performed, the owner through kindness, gives an extra quantity of food, the stomach and bowels are overloaded, the horse begins his journey full of spirits, and after travelling for a few miles he becomes dull and sluggish and sweats freely; he is pulled up and after standing for a few moments shews signs of abdominal pains by cringing the body and attempting to lie down; the flanks are slightly swollen. In a few moments he seems easier and is driven on, now and then shewing symptoms of pain, possibly he reaches his destination and is taken out of the harness, when he may exhibit very alarming symptoms; he throws himself violently to the ground, turns over on his back and attempts to lie in that position; the agony increases, he rises to his feet, turns around several times, will again lie down and look wistfully to his flanks; the abdomen is tympanitic, the pulse quickened, and the breathing laboured, and the sweat flows freely from his body; there are eructations of gas, and occasionally regurgitation of food up the oesophagus, the rejected matter passing out through the nostrils. The symptoms increase, the mouth becomes cold and clammy, the pulse indistinct, the bowels unmoved, and in a short time the animal is a lifeless mass.

Another common cause is feeding heavily when the stomach has been weakened through enervating exercise, or long fasting. The food is greedily swallowed, the stomach is unable to digest its contents, and the above symptoms are the result; for the horse cannot relieve himself by vomiting, as the human being or the dog can.

In road horses that are highly fed on oats and hay, it is occasionally brought on by giving a quantity of green clover or tares immediately after performing a fast journey. Sudden change of food is another common cause. Chopped food, indian corn or barley have a great tendency to produce this disease.

Gorged stomach may terminate in rupture of its walls, or in rupture of the diaphragm, or an inflammation of the bowels; or cause death by asphyxia.

Treatment to be of any use must be prompt and energetic. An excellent remedy

is two ounces each of laudanum and sulphuric ether, given in a pint of cold water, or with twelve ounces of linseed oil, and if not followed by relief, repeat half the dose in the course of an hour; stimulate the belly with mustard, or cloths wrung out of hot water, and give injections of soap and water every three quarters of an hour. The patient should be placed in a comfortable box and the body kept warm.

Replies to Correspondents.

BRONCHOCELE OR SWELLED NECKS IN LAMBS.—Enlargement of the thyroid glands is a common occurrence among animals in some districts, and it is sometimes supposed to be the result of the nature of the food and water, and particularly the latter, when it contains lime in large quantities. Iodine is a remedy that appears very effectual in reducing those enlargements.

SWELLING OF THE JOINTS.—"Subscriber." It is our opinion that your ox is affected with a rheumatic inflammation of the joints, and we would advise the use of the following liniment, to be applied every second day, and to be well rubbed into the affected parts:—Laudanum, tincture of camphor, and tincture of arnica—of each four ounces; and give internally one drachm daily of powdered colchicum seeds; and to be continued for ten or twelve days.

INJURY IN HORSE'S KNEE.—"A Farmer." The injury to the knee must have caused extensive inflammation of the joint, which in all probability will terminate in partial ankylosis or union of the bones of the joint. We would now recommend perfect rest, and the application of a strong blister, made of powdered caustics, two drachms, lard one ounce. The hair should be cut off the knee, and the whole of the ointment well rubbed into the parts for twenty minutes. Afterwards dress daily with sweet oil, and wash off occasionally with soap and water.

Bone Spavin is best treated by giving complete rest, and subduing inflammatory action by the application of cold or warm water, and after a time repeated blisters, and in some cases the firing iron is beneficial.

CHINESE TREATMENT OF ANIMALS.—There are suggestions in the treatment of animals in China that may be noted with profit. In "Travels on the Horseback in Manchou, Tartary," it is stated that the Chinese never punish their domestic animals; hence a mule that, in the hands of a foreigner, would be not only useless, but dangerous to every one about it, becomes, in the possession of a Chinaman, as quiet as a lamb and as tractable as a dog. We never beheld a runaway, a jibbing or vicious mule or pony in a Chinaman's employment; but found the same rattling, cheerful pace maintained over heavy or light roads by means of a turr or cluck-k, the beast turning to the right or left, and stopping with but a hint from the reins. This treatment is extended to all the animals they press into their service. Often have I admired the tact exhibited in getting a large drove of sheep through narrow, crowded streets and alleys, by merely having a little boy to lead one of the quietest of the flock in front; the others steadily followed, without the aid of either a yelping cur or a cruel goad. Cattle, pigs and birds are equally cared for.

The Dairy.

Building a Dairy.

In the construction of a dairy I would have in view the following points :

1 The temperature must be low and even, not subject to fluctuations.

2 Good spring or pump water and plenty of it; spring water is far preferable.

3 Every facility for conducting the work with ease, and saving of labor as much as possible. Women, the moving power, are not always very strong.

4 Reasonable cost in building, and materials within reach of every farmer.

5 A Building so constructed as to be perfectly free from all taint or offensive smell, especially in its material of construction, and at the same time to be durable and adapted to its use.

I should choose a hill side, if possible, but this local advantage is not always to be found. An eastern or northern aspect is far the best I know a dairy so situated at Ernesttown, near Napanee, and the owner finds it cool, and considers this aspect far the best. I am convinced, the sun should never shine into a dairy door, or on its walls, thereby heating the atmosphere, and causing great alteration of temperature. I shall, moreover, follow the course of a lady friend near Guelph, who planted quick growing trees all round her dairy. Besides keeping the building cool, the shade in hot weather is very grateful to those who have the work to do. I saw at Mr. Morton's distillery, near Kingston, a dairy entirely enveloped in trees, and the relief to those working in it was very much appreciated. I was told by the lady of the house that the cooling effect of the trees was excellent, and quite perceptible in the quantity and quality of the butter made. I should very much like to have a spring of water to run in over head, as in these enlightened times, no one would think of erecting a first-class dairy, without plenty of spring or water well to cool the milk.

There are, however, in my case, none to be got that command sufficient fall, and I consequently must make a pump answer instead. I saw a dairy at the village of New Hope, near Guelph, where the water from a spring poured in at the back and out at the front, but was, nevertheless, kept under perfect control by means of a cock, which regulated the supply, and a sluice and drain, which also regulated the quantity retained. The floor, covered with flag stones, was always about one inch deep in cold spring water. The stream passing in and out at the same rate. Boards to form walkways were raised about three inches on chocks, but not otherwise fastened to the floor, in any way. By raising the same and closing the supply cock, the

dairy was comparatively dry in a few moments.

Our dairy in England was, (with many others thereabouts), floored with brick; but this flooring did not answer well, being liable to smell. If any accidental spilling of milk took place; smooth stones are of course better, and cooler, but cannot always be procured. Wood floors are never nice or even sweet, they are necessarily hollow and offer a perfect harbour for rats, and cannot readily be cleaned underneath. I laid a cellar floor with concrete last summer, and found it cheap and very clean. There were no joints to gather mess, or smell. It was easily cleaned, and no rats could work through it from below. These floors, however, require somewhat more than lime and sand to make a good firm job. One barrel of water lime, worth about \$2, will do a floor twelve feet square, provided the foundation on which it is laid is properly prepared, and there is, in addition, plenty of coarse sharp sand absolutely free from all earthy matter. This latter in particular, is very important, in fact, absolutely necessary. In laying the foundation for the floor, care must be taken to make the surface perfectly smooth, with about two inches fall from three sides to the centre, where a small depression forms a drain to carry off the surface water most effectually. The materials for the sides of the building are the difficulty. Some use bricks, but they are not so good as stone, provided the stone is shaded by trees. A nephew of mine has built a nice stone dairy, and as it is quite unshaded from the burning sun in summer, the heat inside is great, in fact, it is a complete failure. Concrete walls answer better than wood or stone, and are three times as cheap, where rough materials cost little or nothing but the hauling.

The foundation of the building is a most important portion of its construction, not only to secure firmness and solidity, but also to resist the inroads of rats. These vermin are most destructive in a dairy, and where they exist, they altogether deprive the mistress of the use of the floor on which to set her dishes of household stores that require to be kept cool. These articles ought not to be covered, and must be kept cool: and a concrete building, well shaded with trees and having a cement floor and eastern aspect, is equal in utility to an ice-house for these purposes. The construction of the trough for cooling arrangement of pans, supply of water, expeditious mode of getting rid of the waste milk, building attached in which the work of the dairy is to be done, and various other minutiae would necessarily make this communication too long. But the subject is certainly one of great importance to the farmer, and too much time can hardly be bestowed on it. Meantime, if any one who has had more experience, or possesses more facts, will give them publicity, we probably shall all be better and wiser for it.

Selecting Young Dairy Stock.

The very able article which lately appeared in your journal, by A. Willard, has made a great impression wherever read. One farmer was so impressed with the truths therein told, that he at once determined to purchase a young dairy of cows. The chief difficulty lay in selecting the kind best adapted to meet all the requirements of a first class dairy. This indecision once fairly removed, he felt perfectly satisfied that success lay within his own exertions. This person applied to me for advice and assistance, knowing I had collected information on the subject for my own guidance, from several influential farmers and experienced dairymen. I placed in his hand a letter I had received from a most reliable farmer, who therein gave me the benefit of his twenty-five years' experience. After some remarks not bearing on the question, the letter contained an interesting recital, which may be valuable to others in similar circumstances.

"I may mention first" the writer says, "that my original dairy was composed of common but good Canadian cows. I afterwards tried some Ayrshires, but found them too tender, and not hardy enough to rely on. They gave large yields of milk, but were always poor on the same feed in comparison with some other kinds. This proneness to lose flesh did not so much hurt them whilst milking, during the summer when feed was abundant; but told badly on them when spring came, after wintering with others, and on the same food. They almost always went into the yard, in the fall, in low condition, and required more keep than others, to enable them to be even in tolerable order in the following spring; I therefore abandoned them as unfit for the requirements of a Canadian dairy. I then thought if I could manage to get together some grade Durhams I should obtain a larger yield of milk, and at the same time have a breed prone to keep in good condition. I made the experiment, and I now erred on the other side. I certainly had a handsome herd of cows, but they proved on trial, most unprofitable as dairy stock, so far as milking qualities went. I soon found that these large cows ate more in quantity, and gave less milk, and poorer in quality, than ordinary good Canadian cows. It is true they were always fat, and had beef been my object, I could not wish to do better; but dairy stock was my view, and I soon concluded that that the grade Durhams did not answer. The great advantage about them was, their calves were as good steers at two years old, as others, Canadian bred, were at three and four; and here all benefit ceased. The heifers did not as a rule, do well after calving; whether their good condition affected them, or their youth (as they usually calved at two years old), I do not know, but certainly the fact was so. Then during short pasture time, in August, the

grade Durhams failed in their milk more than others, and unlike others, when fall pasture set in, did not recover it again after September rains. The Durham yield of fall milk was but of little value in comparison with the food they ate. I therefore concluded that all things considered, these grades were not the best kind to keep, I also found that they were more likely to miss being with calf; this I have no doubt was also due, in great measure, to their good condition. By this tendency I lost several good cows, having to kill them for beef; they were useless as strippers; a good Canadian would prove far superior for that quality. I now determined to part with all my Durhams, and get grade Devons instead; I did so without loss, as the Durhams were fat and sold well. I procured a well bred Devon bull, of the largest size I could get, and hunted the country, far and near, for grade Devon cows and heifers. Some were less than half bred; in fact, I suppose very few were in reality fully half bred. I found several, but they were valued high, and consequently my money did not go as far as I thought it ought.

I had kept a careful account of my previous dairy, in Canadian, Durham, and Ayreshire stock, and also afterwards of the Devons, and am fully convinced the grade Devons will beat all others, when taking into account all qualities as dairy stock; they yielded more milk, and of better quality, and much more butter and cheese from the same food; and whilst the Durhams during August used to loose their milk, and not usually, as a rule, regain it; the Devons always did so. The Devons wintered better, and with less food, and were most certainly much hardier; their heifer stock are excellent, and usually hardy and healthy after calving; and the steers, though not so large as Durhams, are very good, both to feed or work, especially the latter; I am confident a pair of small sized Devon oxen will outlog a heavy pair of Durhams, and stand the heat far better, and keep in as good condition with less feed, of this fact, taken as a general rule, there can be no doubt; in the south of England I never saw a Durham ox at work, whereas I have seen many teams of Devons. If I wanted a very heavy team to go to sawlogging, during winter, I would certainly choose Durhams, but not for ordinary farm work, especially logging new land; the Durhams are too slow. Then put Devons and Durhams into poor pasture, and you have nearly two mouths for one, to get a living with; and in bush range the Durhams cannot live, where Devons will thrive.

The above comparison is my experience; others may find it different, and my opinion is entirely based on keeping good cows over the winter; and I was never tempted to part with such, as some are whenever they have a chance to sell.

VECTIS.

Ten Rules for Milking.

Women make the best milkers. Stephens, in his Book of the Farm, says he never sees a man milking without thinking that he is usurping a place that does not belong to him. It would seem as though farmers had combined together to banish women from the barn-yard and cow-house. We can think of no other reason for allowing the yard to remain so dirty.

Milking requires a little skill, gentleness, and patience. And we insist that if men will milk they should do the work properly.

1st. The cows should be milked at the same hours every day, Sunday and week days.

2nd. If you milk "Daisy" first to-day and "Brindle" second, do not milk Brindle first to-morrow and Daisy second, but always milk them in the established order. Few pay any attention to this point, but it is an important matter, especially in a large dairy, as any irregularity makes the cows uneasy.

3rd. The same man should milk the same cows.

4th. No talking should be permitted during milking unless for the purpose of soothing the cow. The man who uses harsh words, to say nothing of blows, deserves to be kicked out of the stable.

5th. A kicking cow should be treated kindly and have her legs tied. It is the only sure preventive and is little trouble.

6th. Have a three-legged milking stool. A one-legged stool is a nuisance.

7th. Wash your hands before going to milk, and if the cows teats are dirty, wash them also with water. It is very common to milk some milk into the hand and then moisten the teats with it. We have often done it ourselves, but cannot recommend the practice. Water is better.

8th. Sit close to the cow. Do not stick your head in her flank, but sit upright; you will milk easier and have more control over the cow. Hold the pail firmly between your knees and do not let it touch the ground. We need hardly say that you should sit on the right hand side of the cow, or what teamsters call the "off-side." Of course it makes no difference which side, if the cow is only used to it. And it may be that as there are left hand plows, there may be in some sections of our widely extended parish left hand cows also. In this case you will have to sit with your right hand towards the cows hind leg, instead of the left hand, as is the usual custom.

9th. Do not milk too fast at first. Rub the teats or bag a little and soothe the cow. Then as the milk begins to come down freely strike a steady, regular motion, and continue it without stopping until all the milk is drawn from the udder. Rapid milking is desirable, but steady milking is still more important. Some people milk with a stripping motion of the hands. They pull down on the teats. This is a bad practice. A

good milker may bear down a little, but if he does he is hardly conscious of it. Nearly all the milking is done by the three lower fingers. The forefinger and thumb are first pressed tightly round the teat so as to prevent the milk from going back, and then the three lower fingers are contracted until the milk is forced out. There is no pulling or stripping, the milk is simply forced out by the contraction of the fingers. The forefinger and thumb are first closed, then the next finger, and then the next, and finally the little finger, and as one finger closes, the second finger above begins to relax so as to allow the milk to come into the teat. In this way there is a steady, uninterrupted stream of milk forced out. This cannot be done with a stripping motion.

10th. Milk clean. Not a drop of milk should be left in the udder. The last drawn milk is not only by far the richest, but if the cows are not milked clean they soon fall off in their milk. Our own practice is to insist on the men going over the cows again as soon as they are through milking, and "strip the cows." If a man is a really good milker this is not necessary, but it is ordinarily necessary to adopt the rule — *Heath and Home*.

Milk, Butter, and Cheese. Their Comparative Profits.

The following extract from the *Michigan Farmer* on the subject of the comparative profits of butter and cheese is taken from a paper read before the farmers' Club, of Coldwater, by A. J. Aldrich:—

I propose now to say a word with regard to the profits of cheese as compared with butter.

In speaking of this particular topic I have only one comparison to make, that is, with the average price of cheese and butter as received by farmers generally. The care of stock, and of milk so far as cooling and cleanliness are concerned, is the same whether we make cheese or butter. But there are many other things in making butter which take extra time and labor in doing them that can be dispensed with in making cheese. There is no setting of milk, there is no skimming, there is no care of the cream, and no working of the butter. After it leaves the milk can the care of it may be at an end, so far as the farmer and his wife are concerned? Indeed the expense of making butter is double that of making cheese. The price for manufacturing cheese at our factories is 2½ cents per pound; while the price for making butter is five cents per pound.

The question now is, how much milk will it take to make one pound of cheese as compared with the quantity to make one pound of butter? Of course it will vary with different seasons and even with different days. The amount of milk used in making one pound of cheese varies from 9 to 11 lbs.; to make one pound of butter from 25 to 30 lbs.

of milk. The result will prove that we can make from 2½ to 3 lbs. of cheese where we can make one pound of butter.

During all the past year butter has varied from ten to twenty-two cents per pound; while the price of cheese has varied from nine to sixteen cents per pound. During the months of July and August it will take from thirty pounds upward of milk for one pound of butter. Indeed, I imagine that not many farmers will make a pound of butter from less than 35 to 40 pounds of milk during the summer. I do not make this statement rashly, but on the authority of Hon. Zadock Pratt who began the dairy business in 1857. He made butter, and for eight months it averaged over 30 lbs of milk for one pound of butter. He was supplied with all the conveniences necessary to good butter making. If it took that amount with all his facilities, what would it take with the ordinary facilities of the average farmer? I think I would be perfectly safe in saying that the average farmer will not come up to the average of Mr. Pratt in that respect. If that is the case, the milk that will make one pound of butter will make nearly or quite four pounds of cheese. But for the sake of placing the matter in as favorable a light as possible for the average farmer, I will take three pounds of cheese to one pound of butter, with the proportion and the average price of butter at 16c. and that of cheese at 12½c., we shall have 37½c. for cheese where we should receive 16c. for butter. In one case 30 pounds of milk brings 16c., in the other it brings 37½c., difference in favor of cheese of 21c. If we discount the price of cheese making, we have 11c. in favor of cheese. But we will take cheese at the lowest price and butter at the lowest price, and see where the balance rests. We said that nine cents was the lowest price for cheese. Three pounds of cheese would yield 27c., and one pound of butter 16c., or 11c. in favor of cheese. Deducting the price of manufacture and we have 11c. for butter and 19½c. for cheese, or 8½c. in favor of cheese. I am sure no one could ask for a fairer comparison than this, and the experience of dairymen will carry me out in these deductions.

Upon this basis let us see what the profits will be on each one. It is plain enough to be seen that they will be in the same proportion as the price received for butter and cheese, consequently the profits favor the manufacture of cheese. I will take one example from our milk account with our patrons at the factory. Mr. B's cows in three months and five days yielded 16,554 pounds of milk, which made 1,622 pounds of cheese that brought \$210.86 or a little over \$30 per cow. If he had made butter it would have produced 551.8 pounds of butter, which at 20c. per pound would have brought \$111.36, or \$15 per cow, making a difference of nearly half in favor of cheese. Deducting the amount for manufacturing and we would have received for cheese \$170.31; for butter

\$83.77; per cow, for cheese \$24.33; for butter \$11.97, or more than twice as much for cheese as butter. This is only for half a season. Had we made six months he would have received \$60 per cow,—deducting the price of manufacture and he would have received \$18 per cow. The first season we made was the most favorable as the drought of the past year has lessened the flow of milk quite materially and the price of cheese has been considerably less.

Schools of Milk Production and Management.

The Swiss Mountain Union, which has for many years been interested in the milk business, has issued a circular in which it claims that milk production and the care of mountain pastures are the inseparable factors of the nation's wealth. The only article of export is cheese, which was exported in 1868, to the value of 18,674,832 francs, and in 1869, 21,453,796 francs. American factory cheese, an imitation of the English Cheshire, is rivaling its prototype in its home market. Sweden and Denmark have established extensive dairies, while Holland, which controls the cheese trade of the world, has established at Utrecht, a perpetual exhibition of dairy utensils, &c., for the instruction of dairymen. The Austrian minister of agriculture has given two annual prizes for the benefit of cheese factory associations, while in Vorarlburg Tyrol, Bavaria, Italy and Prussia, the latest facts, principles and improvements are disseminated by means of itinerant lecturers, fairs, exhibitors and publications. It is proposed in Switzerland to adopt this policy in the organization of a school of theoretical and practical instruction in milk production and management. For this purpose funds are to be raised from the cantons, agricultural societies and individuals.

Quality of Milk from Spayed Cows.

Mr. L. B. ARNOLD, of Tompkins county, writes to the *Country Gentleman*: I have had a few cows spayed by way of experiment, and find the milk considerably improved, both in flavour and richness, by the operation. My experience in respect to the milk of such cows is in accordance with others who have made observations in regard to it. From what others had said of the richness of such milk, an improvement was looked for, but the trial has exceeded my expectations. In the last week of November, 1871, 36 quarts of milk from two spayed cows, it being all they gave in six consecutive days, made six pounds of nice butter. This is the largest yield of butter I have ever had from a quantity of milk. The measure was wine quarts, which weigh 2 lbs 2 oz. to the quart, making the yield a pound of butter from 12½ lbs. of milk. Just how much of this extraordinary richness is due to the fact of spaying I cannot say. As the experiment in spaying was not made to determine the improved quality of the milk that might follow, but only to ascertain the duration of the flow, no trial was made previous to spaying, to show the exact richness of the milk, but nothing like the above

yield has ever been obtained before. In tests formerly made, it has required from 20 all the way to 44 pounds of milk to make a pound of butter, the latter occurred with the milk of a single cow that gave very poor milk for butter. But the extraordinary quality above stated was not all due to spaying. The cows both gave very rich milk before spaying, for active cows, one of them remarkably so, and yet for they were together with a quantity of good grass, and they were given all the ground feed they could appropriate, to fatten them for the butcher.

The milk of cows that come in every year is undergoing a change in quality through all the season of milking. Especially after they are in calf does the milk alter in quality. The nutriment taken is divided between the actual glands and the support of the fetus, at least as much of it as is now appropriated to the nourishment of the cow. The active state of the generative organs, besides originating the flow of milk, has a marked influence upon its composition and flavour, and when that influence is removed, as it is done by spaying, the milk takes on new conditions, and among them is an improvement in richness and taste. Though my spayed cows have produced the richest and best flavoured milk I have ever had, I do not consider spaying a success, as far as it relates to the quantity produced and the continuance of the flow. The large and unabated yield that has been said to follow spaying, has not occurred with the cows. The quantity has kept up somewhat better than with farrow cows, but is steadily diminished, so that it has not paid to milk longer than to years; the milk, however, has been of the finest quality to the last, which is rarely the case with farrow cows.

But for the purpose of fattening it pays much better. The few animals with which I have experimented have shown an unusual tendency to take on both fat and flesh, where cows have come about to the termination of their career as milkers, it may do well enough to spay them, and let them give milk as long as it will pay, and then feed them for the butcher; but I would not advise any dairyman to apply such treatment to valuable young cows.

A Cow Feeding Company.

There are companies for everything in these days. No sooner are girls and boys out of their teens than they keep company with each other, and as they grow older it is company still. Whether it is to manufacture pin heads, or those circumstances in life which make pin money a necessity, still the company style of business is the popular idea.

Every householder knows how nice it is to keep a cow, at least he thinks so. It is one of the inducements with many to rent a place in the country—the milk fed family is so healthy, and besides home milk is so cheap. But how can one do it without pasture? How many in Germantown or other suburbs would not keep a cow if only the pasture question could be solved? But Massachusetts has solved it. A company has been formed for just these kind of people. A cooperative cow pasturing company is the newest wrinkle from the land of brains.

It seems as if a plan of this kind might be made to work pretty well. The company

buys or leases land, a herdman is hired who takes and brings back the cows for a consideration, and for those who have no share in the company a paying price is asked for pasturing cows belonging to them.

A plan like this ought to work pretty well. It is surprising that in these days of companies and co-operation something of this kind has not been suggested and worked out before.—*Germanstown Telegraph.*

Keeping Cream.

Next in importance to having milk perfectly pure and sweet, and freed from all animal odors, comes the matter of keeping the cream after it is taken off the milk. In the first place, the less milk there is with the cream at the time it is set in the cream jar, the better. A great deal of carelessness is shown in this matter, for be it known that milk makes cheese, while the cream only makes butter, and the more milk there is in the cream at churning time, the more cheesy-flavored will be the butter, and therefore the more likely to spoil afterwards unless excessively salted. Really pure good butter requires very little salt, while butter as ordinarily made will soon spoil unless well salted, or kept covered in brine.

Secondly, the cream jar must be of the very best quality of stone-ware; thick glass would be still better; and it must have a cover that will exclude all dust and insects.

Thirdly, the cream jar should be kept in a place where no noxious odors or gases can be absorbed when the jar is open to add more cream, and also where the temperature can be kept cool and equable, say at about 60° C, and, lastly, the cream is to be made into butter as soon as it just begins to curd, and when the jar is emptied it is to be thoroughly cleaned and scalded in boiling water before being again used.—*Boston Journal of Chemistry.*

In Siberia, during the winter, milk is brought and sold in a frozen state, and can be carried for a long period in a simple bag. When required for use, the requisite quantity is chopped off with a hatchet or sheath knife, and thawed as needed.

The English Milk Journal describes a case where the milk dealer on a second conviction for diluting milk with water, was not only fined but required, in accordance with the provisions of a special law, to pay the cost of a conspicuous notice in a leading paper, giving in full an account of the transaction.

MILK STATISTICS.—Sixteen quarts of pure milk are required to make one pound of butter and ten quarts to make one pound of cheese. When butter is forty cents a pound, and cheese eleven cents, one pound of butter equals in value sixteen quarts of milk, and returns two and one-half cents per quart to the dairyman. But one pound of cheese from ten quarts of milk only gives him one and one-eleventh cents per quart for the milk.—*Ohio Farmer.*

Poultry Yard.

Comparison of Breeds of Poultry.

Isaac Lynde, of Ohio, in the *Poultry World*, describes an experiment tried by him last season. At the first of September he took 10 pullets each of five breeds, each within a week of being six months old, and placed them in yards 40 feet square, with comfortable houses. For the next six months he kept an account of their food and egg production with the following results:

The Dark Brahas ate 369½ quarts of corn, oats, and wheat screenings, laid 605 eggs, and weighed 70 pounds.

The Buff Cochins ate 406 quarts, laid 591 eggs, and weighed 73 pounds.

The Grey Dorkings ate 399½ quarts, laid 524 eggs, and weighed 59½ pounds.

The Houdans ate 214½ quarts, laid 783 eggs and weighed 45½ pounds.

The Leghorns ate 231½ quarts, laid 807 eggs, and weighed 36½ pounds.

All the eggs were sold at 15 cents a dozen. The Leghorns ate less corn than the Houdans so their food cost less, and the receipts, deducting cost of food, was largest from them. It would have been interesting to have had the weight of the eggs laid by the hens of each breed. The difference in value of the light and heavy fowls should also be taken into consideration.

Vitality of Eggs.

It may be well to say to those whose experience in rearing fowls is limited, that, because the sitting hen stays off the nest longer than they think desirable, or if by accident she gets on to the wrong nest, they should not be frightened into rejecting the lot of eggs as worthless. We have known a sitting of eggs that had been left uncovered all one cold summer's night, after having undergone the process of incubation for about two weeks, produce ten strong healthy chicks from the sitting of thirteen eggs, which is about as well as could have been expected under the most favorable conditions. In relation to this matter, Mr. L. Wright, in his new poultry book, says:

"In ordinary weather eggs sometimes survive a very long absence, and really valuable eggs should never therefore, be abandoned, even after quite cold, till the hen has fairly set her time out, and two or three days beyond. We have had a hen absent several hours in the middle of incubation, and still bring on a very fair number and on another occasion on the very last day of incubation, the eggs really became stone cold, yet we saved the greater part. This last case was somewhat peculiar, the hen nearly at the end of three weeks having manifested the unnatural vice of breaking the eggs and eating the nearly developed chickens, and finally aban-

doning the nest altogether. She had been absent many hours when this was discovered, and we gave the sitting up as a matter of course. The treatment we adopted was to put the remaining eggs into a vessel of water heated fully to 105°, while another hen was being procured, and, to our astonishment, in about ten minutes six of the eggs showed signs of life, and eventually hatched. We note this because in all cases of a decided chill at any period, this is the best plan that can be followed, the warm water getting the heat and life back into the eggs much more quickly and effectually than the hen can; besides which, if the hen has forsaken them, they may be kept thus for hours, if necessary with the help of a thermometer, whilst other arrangements are being made."—*National Live Stock Journal.*

Fowls Don't Pay.

Owing to some reason, farmers and many others look upon fowls as worthless in a commercial or pecuniary point of view; they are tolerated upon the farm to act as scavengers only and allowed to live as best they can, rather than being kept with an idea that profit may be realized by them. The trifle that is realized from poultry on the farm is so small as not to be considered worthy of the farmer's notice, and is not unfrequently the acknowledged perquisite of some female member of the family. He sees his fowls consume a quantity of his grain, but he individually reaps no benefit from them, little wonder then that he comes to the conclusion that fowls don't pay.

Now when we consider with how much disfavor all kinds of poultry are looked upon, and with the acknowledged idea that fowls don't pay predominating, it is not surprising that our farmers are slow to introduce into their farm yards improved breeds of fowls, and for which must be paid a price far beyond what they consider any class of poultry worth; nor is it to be wondered at that no greatly marked change is yet perceptible in the majority of the farm yards throughout the country, either in the increase of numbers or improvement of breed.

In no more forcible way can the value of improved breeds of fowls be brought to the notice of the community than by poultry shows, the usefulness of which, when properly managed, with a view to the general welfare and not to the pecuniary advantage of the few, cannot be denied; inasmuch as they tend to stimulate an increased interest in the keeping of good poultry and encourage the breeding of the best and most profitable stock. In the Province of Ontario we have, perhaps the best and most complete system of exhibitions that can be devised; each township and county, has or on complying with certain conditions specified may have their annual agricultural show, with their share of the government grant for such purposes, in which is a separate class for poultry;

it is only necessary therefore to utilize the means at our disposal to bring prominently before our farming community and others the benefits to be derived from poultry when only the best breeds are kept. In this respect we are far ahead of England; no such system operates there; and it is to private enterprise the public are in a great measure indebted for their poultry exhibitions, the high appreciation in which they are held, the popularity which they enjoy, and the benefits to the general community which flow from them is best attested by the public patronage bestowed upon them. There is no reason why a similar state of things should not exist here. If in England private enterprise supplements public patronage, why not in Canada? If silver cups and extra prizes are offered for the best birds of some particular breeds at the English exhibitions, why not a similar course be adopted in the poultry class of our agricultural exhibitions in the country? To committees of management of these exhibitions we must look for the successful carrying out of this idea: a little extra exertion on their part would secure the desired end, and we have no doubt in numerous cases it need only be suggested to be acted upon. Not until this or some such course be pursued will the desired end be gained: an inducement must be held out to farmers to induce them to introduce the new "fangled" breeds to their farm yards. Once there their superiority over the common barn door fowl will become too apparent not to be recognized by the watchful eye of the farmer or his thrifty helpmate, and the meaningless assertion that "fowls don't pay" be proved to a demonstration to be untrue in theory and in fact.—*Canadian Poultry Chronicle*

Helping Chickens Out of the Shell.

The Illustrated Book of Poultry says: "We formerly made many attempts at such assistance in vain, and, like many others rushed to the conclusion that chicks could not be thus saved, but an accidental discovery put another face on the matter. Keep the egg in warm water (about 100°) while the assistance is being rendered, and success may be hoped for. The shell must be cracked very gently, and the inner membrane very tenderly peeled off till the chick be at liberty, keeping all but the beak under water until nearly clear. The operation must be performed in a warm place, and tenderly as if touching raw flesh; and it will be found that the water greatly facilitates matters, liberating the membrane if glued to the chick; and enabling it to be separated without loss of blood. The latter occurrence nine times out of ten is fatal, but if the operation be completed without blood-flowing, success may be anticipated, and the nearly dead chick may be put by the fire in flannel, or under the hen, if a quiet, good mother—under her at night, in any case—the next day may probably be as well as the others."

PRESERVING EGGS.—A correspondent of the *London Field* gives the following receipt for preserving eggs: Two pounds and a quarter of unslacked lime, six ounces of salt, half an ounce of cream of tartar, to be added to three gallons of water. Pour the water boiling on the lime and salt, and when cold add the cream of tartar; place the eggs in the mixture the following day. The lime will remain at the bottom of the jar, and the eggs must rest upon it, and be kept covered with the liquid; the eggs will keep good for two years.

Brahmas—Rules for Breeders.

After careful observation, and considerable experience, I find that for all general purposes, the Light Brahmas are the best fowls I have yet found.

1st. They do not roam ail over the premises, which to those who value a good garden, is considerable of an item. My Brahmas never think of crossing an ordinary board fence.

2nd. They are more reliable layers, and lay larger eggs and more of them.

3rd. Notwithstanding others' testimony, I find them to make a good setters and most excellent mothers.

4th. The young chickens mature quickly, which for those who raise spring chickens for the market or table is a great consideration.

5th. When grown, one has as much meat as two ordinary chickens.

I believe many of the failures, of those beginning to raise chickens, are caused by a lack of knowledge of a few general rules. And it may help some if I give from my experience a few.

1st. Never set a hen in a box above the ground or floor of the chicken house, if possible, as the eggs dry too fast and lose their vitality. If possible to set hens on the ground you will have much better success.

2nd. Never set more than fifteen eggs, no matter how large the hen. Some set only ten or twelve, but under ordinary fowls, thirteen or fifteen will hatch as readily as a less number—though more are a waste.

3rd. Always be careful to mark the eggs set, with the date of setting, as other hens often lay on the same nest with a setting hen, and when the brood is ready to come off extra unhatched eggs are left in the nest, which you cannot account for, and do not know how to dispose of except by waste, not knowing when they were laid.

4th. Keep memoranda of all hens set, with dates when they should come off, that you may have coops and proper food prepared for them. Also take the young chicks from the hen as they dry, because sometimes they may run over their time a little, or hatch earlier.

5th. Better let hens come off their nests for a short time for food and water, than to confine them and feed on the nest.

Two boards nailed together at one end with slats of lath across in the form of an A, make an excellent coop.—*Cor. Prairie Farmer.*

Apiary.

Artificial Swarming.

(To the Editor.)

SIR,—Having read an article in your columns on Artificial Swarming. I find that the writer has found fault with my mode of artificial swarming, as laid down in my pamphlet, and he also says that if my plan is followed out it would certainly ruin an Apiary. Now sir, in reply to this I would like to let the public know that there are many different ways and plans adopted for making artificial swarms which have proved successful, and the one referred to in the pamphlet is the one that myself and many more bee keepers have adopted, and the one that in my experience seems to suit this climate the best, and by glancing over Quimby's book on bee-keeping it will be seen that a similar plan has been adopted, and that by one of the most noted and successful Apiarists of the United States.

The writer also says that my hive has several serious objections, but does not say what they are, and goes on to say no feature of it can possibly be covered by a patent that would be of any real utility.

In reply I would just state that many valuable improvements have been gained in my hive, and a Patent Deed has been granted, the utility of which has been thoroughly tested by many bee-keepers who have used the bee hive for the past two seasons, and it has gained for itself a good reputation.

Some bee-keepers think because they have adopted some plan of their own and are perhaps using some kind of hive not adapted to any improved theory, that all other hives and plans are at fault.

By inserting this in your wide spread columns you will confer a favor on the writer as well as the general reading public, and will be giving me a chance to acquit myself before the public.

GEO. OTT.

REMARKS BY THE AP'ARIAL EDITOR.

I cannot agree with Mr. Ott that there are many successful plans for making "Artificial Swarms." The truth is there are but few of the many methods adopted that really prove successful. Climate has nothing to do with artificial swarming. Whatever method is proper in Canada is proper anywhere. Artificial swarming should be as near to natural swarming as possible, and no method so nearly as the one which has been frequently given in this journal. The plan adopted by Mr. Ott may to the inexperienced work well for a year or two, and in some cases even longer but from the fact alone, that it is productive of drone comb it will eventually ruin an Apiary. While the method given by Mr. Quimby is similar, it is not exactly the same, and it is the dissimilarity that makes it preferable to that given by Mr. Ott.

If Mr. Ott will read again carefully what I wrote concerning serious objections in frame hives he will find that some of those serious objections are not only in his hive but in other hives. He will also find that what I said concerning the utility of claims in patent hives is far more general in its application than he would have it appear. I do not question for a moment that Mr. Ott and many others hold patent deeds for certain novelties, or claims thought to be original and useful, but it is not a guarantee that they are so, and I may therefore repeat what I before said "that every feature of a bee-hive of the least utility or practical advantage has for years been covered by a patent in Canada.

J. H. THOMAS.

Brooklyn, Ont.

Weight of Honey for Wintering Bees.

Mrs. Tapper states that in the case of a number of strong colonies of bees the consumption of honey in October was 1 lbs.; in November, 4½ lbs.; December, 2½ lbs.; January, 3 lbs.; February, 3½ lbs.; March 5 lbs., and April, 7½ lbs.; a total of 30 lbs. This was ascertained by actual weight affords a criterion of the amount needed for winter consumption out of doors. But as the amount varies in various localities and seasons, it will be safe to see that the hives contain more than this amount when the bees go into winter quarters.

Every empty hive on being made ready for occupancy, should be carefully weighed, and the weight duly marked upon it, or registered in a book. When the bees are put into it they can also be weighed, and the weight of combs and honey also be ascertained from week to week. Such facts will always be of interest and importance.

Will Queenless Stocks Winter.

Some parties ask if bees will winter without a queen? Under certain circumstances they will. If a stock is quite populous in the fall, when put into winter quarters, and the bees are mostly young, they will winter as safely as if they had a queen; but if the stock was queenless and quite depopulated when put into winter quarters, and the bees were old, they would all perish before spring, or be very likely to do so.

A queenless stock, however, is not worth much in the spring unless they can be supplied with a queen. As soon as bees commence to fly out they die off rapidly, and unless they have a queen they will dwindle away in numbers, so that by the time queens are raised they are quite worthless as a stock. It is always best to add the bees of any queenless stocks to other weak stocks and save the combs for new swarms.

J. H. T.

Irregular Swarming.

SIR,—I have a colony of hybrid bees that sent off a swarm on the 2nd of this month, and again on the 14th; I hived them and they appeared to be all right; I saw the queen in hiving them; and to-day, (16th), they flew out as if they were swarming, but never clustered; some of them came back to the hive but did not stop; others went back to the parent hive, but were refused admission. They did not make a particle of comb in the hive. Please give your opinion in the CANADA FARMER, respecting the cause of these apparently strange proceedings.

W. MATTHEWS,

Belleville, June 16, 1872.

The bees may have left the hive on account of the heat, but I am more inclined to think that the young queen went out to meet the drones, and the swarm went with her. In either case they would not be likely to return to the hive, but would be more inclined to go back to the parent stock, or into some other hive, in which case the queen if not lost would be likely to be killed.

The young queen does not generally go out so soon after being hived, but for some cause in this case the second swarm did not issue in proper time, hence the queen was much older, and nearly ready to take her bridal tour when the swarm was hived.

J. H. THOMAS.

Experience with Bees.

(To the Editor.)

SIR,—In 1870 I had two stocks that were weakened by robbing. I fed them in the fall and also in the spring of 1871, till white clover appeared. They cast one swarm each, and I sold honey from the four to the amount of about \$10.00. If I had used a honey extractor I think I could have got at least one third more.

My way of wintering bees is to place boards around the hives in such a way as to leave a space of 3 or 4 inches, which I fill with straw, leaving the entrance open, that the bees may come out on fine days. I feed them in spring, although they have plenty of honey, as I think it causes them to swarm earlier. I have now nine stocks doing well.

ALEX. McDERMID.

Fingal, Ont., July 6, 1872.

A California journal tells a story of a gentleman, who, having gone extensively into the Angora goat business, built a spacious corral, and erected water-proof sheds to protect his property from the weather. When the first heavy storm came he drove the goats into the corral at night. But on going late in the evening to look after them, not a goat could he find. Just as he was about to go away, greatly disturbed, he happened to lift his lantern and his eyes upward, and he beheld the entire flock of goats perched on the top of his carefully constructed shed, and evidently enjoying the heavy storm which was pouring down.

Correspondence.

Growing Seed Wheat for the Farm.

(To the Editor.)

SIR,—Few men are to be found who do not give their land, occasionally, a change of seed, selected, if possible, from soil dissimilar to their own. With your permission, I will offer a few remarks.

Seed purchased at a distance is generally obtained, in a manner, hap-hazard. With the assurance of purity, and a goodly number of bushels to the acre, many rest satisfied. Enquiry ceases when it should commence, and much in relation to previous culture, simple to acquire yet so necessary to know, is not sought. In many instances, disappointment follows, and that which was intended to be a benefit results in positive injury, presenting delicacy and lack of vigor during growth, an inferior sample, and scanty yield. From my own experience in raising seed grain, this hunkering after what is considered a good cheap has many absurdities connected with it, and I have always found it far more reliable and satisfactory to raise it at home. You then know its antecedents. Pedigree is not inapplicable to grain. Special preparation of a plot of land, and a little care, will give yearly a change of seed, far better than can be obtained elsewhere, unless the practice were general. The method is as follows:—

Select a patch of Fall wheat with pretty even plant, and where the land is old and known to be rich enough to grow a fair crop. In spring, as soon as dry, roll well, and afterwards apply a mixture at the rate per acre of 200 lbs salt and 8 or 10 bushels of unleached ashes—more of the latter if leached—both made fine and broadcasted. Harrow in, leaving the surface evenly stirred. Carefully weed and harvest the grain, as seed for the next season. Pursue the same system yearly. Spring wheat and barley may receive the same manures at sowing. In other respects treat alike. All this pays and soon demonstrates the advantages derived.

Grain will deteriorate unless care is taken to supply it with necessary manures and culture. —But by adopting the method I have indicated great improvement is witnessed. The berry becomes larger, the plant grows with more rapidity and evenness, and yields correspondingly well. Every year the farm is furnished with choicer seed, the result of its having been grown on soil where the mineral existed in fair proportion to the vegetable matter. The secret is, that the soil has been brought or made up to a proper standard, and we all know that what manures remain unused by the first crop successive ones remove.

My experience was gained some years ago in attempting to restore two very excellent wheats well nigh worn out. Both were

planted in the fall, and received a broadcast of 2 cwt. of salt per acre in the spring. Each land was top-dressed with a different manure, and the whole harrowed. Guano, nitrate of soda, wheat manure, superphosphate of lime, and wood ashes were used. With both wheats ashes did best, and great improvement was to be seen. The next year ashes and salt were used on the experimental land, and the crop was very fine. Year after year the wheat improved under this system, winning first prizes wherever shown, and at length weighed, white, 69½, and red 67½ the bushel. The farm was supplied from this nursery, and a finer bulk of wheat could not be seen.

I have been a few years only in Canada, and I may state it to be far ahead of what Englishmen suppose, especially in Fall wheats; which collectively are the finest display I have ever seen: indeed, I question if they are equalled in any country. But the spring wheats are no great things, I can see. The "Fife" perhaps is the best, though extremely chaffy and defective in yield. I have the English "April" wheat, which, last year—its first season—beat the Fife although grown under similar circumstances, 10 bushels per acre, and a week at harvest. It turned 36 the acre, and so did the barley, which is the best English sort known.

J. A. HOLLINGS,
Bondhead, Ont.

My Farm.

(To the Editor.)

SIR,—From the extremes into which many run in search of "happy thoughts," the more moderate men learn much experience. No special class of farming will ever suit the agricultural community in general. Exclusive dairying, stock raising, soiling, grain producing, or any other specific and special kind of farming, will not pay the general class of farmers. Nor will "no fencing" be found practicable; but I do believe that most of our farms are divided up by too many awkward and cumbersome fences.

From May till July we can have pastures; in most years after that month there are none in Canada fit to carry stock until for a short season under the influence of fall rains. Let us then reduce our acreage of pasturage and feed out to cattle in the months of drought.

If instead of devoting 20 acres to summer pasturage, we devote the half; during the dry months one eighth of the pasture run over by stock would keep our cattle well if secured as hay and fed out. Thus would we save seven eighths of our fodder. Surely that proportion will more than pay for securing.

Upon farms that have not contained, a large proportion of bottom land, free from the influence of a dry season we are apt to proportion our stock the wrong way. High pastures from the middle of July to October do not carry as a rule one eighth of the stock

that, if cut as hay they would support in winter quarters; and manure on such is comparatively lost.

I believe that high land farmers should decrease their stock in summer and increase in winter. Devote less to what is at the best a poor pasture, gather more hay and feed more cattle in winter, and make manure, every pound of which can be absorbed and returned to the land.

It has been argued that the summer is the time to lay on cheap beef. It is true where pasture is plentiful, as for instance in parts of the old countries; but I must say I have seen more leanness in the midsummer months' in Canada than at any other time; and that at the expense of many acres of land, which if utilized before the dry season would have produced a great crop of hay.

Then sir, I think less fencing and less pasture, and soiling on the limited pasturage, or feeding the remaining fodder in winter would be a more profitable plan for the high land and often imperfectly watered farm.

A Devereaux, Delaware Co., N. Y., in a recent number of the *Country Gentleman* had an excellent letter under the head of "profitable or unprofitable farming," in which he gives the current yearly account of and of his 80 acre farm. He shows there a clean profit of \$1660 upon this farm, every day work being performed by hired help; and he also remarks that his eighty acres carries no pasture, but are all in one lot, and that he keeps upon it 54 head of horned cattle and 13 horses, having he says to buy probably five or six tons of hay this year.

Now sir, these are facts fairly stated over a man's full signature and I have no doubt they are perfectly correct. If then Mr Devereaux can find feed with the exception of five or six tons of hay after a very bad season for 67 head of stock upon his 80 acres of land, what should not the farmer of 150 or 200 acres of land be able to keep? I feel convinced that the writer could not keep the same stock on pasture were *all his farm* in grass, and can only ascribe his success to perfect culture and soiling.

There are three especial points in this communication which I would have my brethren of the plough, and which I intend myself, to lay thoroughly to heart. They are:—

1st. Soiling (as much as can be practically and judiciously adopted).

2nd. He makes and saves all the manure he can, composting with hair and refuse from a tannery. We can assuredly most of us find some refuse to use. If many of our farmers employed their teams in winter in drawing refuse from town or elsewhere rather than hauling logs at \$3 per day, or spent their time in feeding coarse grain and hay rather than selling every straw and grain from the farm, their produce would shew a different result per acre.

3rd. He uses a large amount of ashes and plaster, clovers heavily and frequently, hav-

ing no piece in grass more than four years, and usually only three, thus re-seeding his land, ere the old clover seed has entirely disappeared from the soil.

These three points form the basis of good farming, and only by keeping to the spirit of these rules in all rotations and in every scheme can farming be made profitable.

Good farming is not only profitable but a money making business, while if we rank health, happiness and independence of equal value to the possession of gold, then is good farming the royal road to fortune.

II.

(To the Editor.)

SIR,—An old friend has just left me with the parting words, "Well, we'll see who has the best crop." We have had argument hot and heavy, on the best manner of preparing ground for turnips, and, each holding his own opinion, we part with the mutual desistance, as stated above.

He has spread his manure in the preceding fall and ploughed it under, while I have held on to mine, turning it to make it fine, and placing it in the drills beneath the turnip. I allowed him the advantages accruing from saving of time in Spring by his course, but this did not content him; he still maintained that he could raise a heavier crop of roots by his method, and as I was and am yet perfectly convinced of the superiority of my plan, as far as weight of crop is concerned, we came to that dead lock which resulted in a mutual determination to adjudge our respective opinions by the future results of crop; and Sir, I wish all farmers would take this course. Many a time have I heard a farmer call another a fool or an idiot for doing something new to his own ideas. They should tell him to his face their opinions, hear his reasons, and abide by the result of his experiment. Nature never makes a false step. If the farmers experimental plan is in accordance with her inner working, she will assuredly endorse the propriety of his operation by a favorable answer. If upon the other hand, he should have violated her regular principles she will in a most unmistakable manner point out to him his error.

I am plainly about to reap a benefit from thorough pruning. A year ago I came into possession of a very old orchard, one that had been for many years utterly neglected. Last Spring we undertook to prune it—the task seemed almost insuperable. So thick was the army of suckers, and so matted were the entwining branches, that when a limb had been lopped off it was quite a job to free it from the rest of the tree. The work was necessarily performed so slowly that we only managed to thoroughly thin out about two-thirds of the orchard, nevertheless that thinning was thorough.

We took from about 60 trees as much wood as kept a team two days steadily drawing a distance of about 200 yards from the orchard.

The result is now very observable. The leaves upon the prune trees are shooting out vigorously, while branches are laden with blossom, giving every encouragement to hope that they will return to their old standard of prolific yield.

A few of my neighbors had on the 1st of June washed their sheep. I think they were wrong. It is undoubtedly a fatal error to wash sheep before the weather becomes thoroughly warm; and we have had an unusually cold spring. Nor is it necessary to remove the wool so early in a cool season. We observed some fat sheep that had been sold to a butcher a few days ago; though very heavily fleeced we found on examination that they had not suffered in condition from heat, while it was easily seen that the oil or yolk had not ascended into the wool.

A man who shears before the "insensible perspiration" has fairly ascended the fibres of wool, little knows the percentage of weight that he loses in his clip.

I have always contended that farmers are not sufficiently business men, are not thoroughly posted as they should be in the probable coming fluctuations of the market. Every wool merchant in Canada was last winter morally certain that wool would rise to a high price in Canada by shearing time, and yet how few farmers seemed to be aware of the fact.

I know of a flock of sheep which costing 4½ dollars apiece towards the close of last winter, were bought for \$90. In all probability the wool from those sheep will at present prices fetch \$60, while the ewes are still to the fore, and there are 18 lambs also living. Or in other terms, those sheep which cost \$90 are now worth \$160, while the lambs being worth \$60 makes a grand total of \$220.

Take out \$60 for the cost of feed, and we have in six months a net profit of nearly 200, with a considerable amount of good manure made.

It is in these business transactions, speculations if you like so to dub them, that the farmer's business may be made especially profitable, and by a due and proper exercise of the reasoning faculties that the superior farmer rises far away above that class who drudging away in a weary round of heavy manual labor never rise above the position of an ordinary farm laborer.

OLD COUNTRY.

Ancaster.

ONIONS.—"Subscriber," Crediton, will find very full information on the subject, in the numbers of the CANADA FARMER for March, September, and November of last year, 1871. He can procure any one or all of them from this office for 10 cents each.

WOODEN DRAINS.—"Subscriber," Mountain View, is informed that wooden drains properly laid will answer well for a number of years.

Queries.—Roots and Rye.

A correspondent from the back woods wishes for replies to the following queries:—

1st. Will the beet roots fatten pigs, or only bring them into a fleshy condition?

2nd. Will turnips bring them into a fleshy condition fed plentifully early in the fall?

3rd. What land is the best and the most adapted for growing rye, and what is the average yield per acre, and is the straw good for cattle, or is the grain good for horses?

Beet roots, turnips, rutabagas, carrots, and all such esculents do not in themselves contain qualities sufficient to make pigs fit for the butcher. As auxiliaries to grain they are however of more value than an equivalent amount of extra grain. But they are all excellent to bring animals into a healthy condition as preparatory to heavy feeding of hard grain.

Rye can be grown on any soil but a pure clay. It will do fairly on land which is too sandy for wheat. It also admits of greater acidity in the soil than wheat or barley, and may therefore be grown on soils which have proved too sour for the latter grains. It is very valuable as pasture for sheep, as it may be fed earlier in spring than any other sort of artificial vegetation. The grain is good for horses and used to be very much fed in the Eastern States. It should, if possible, be ground and mixed with dampened hay or straw. We have found it very advantageous as a feed for mares for a few weeks previous to foaling, in small feeds once a day, and in this case unground.

The straw is of little value as cattle feed. We once, by advice, cut our rye for hay when in flower, and were entirely disappointed with the result.

The straw is much sought after by harness-makers for stuffing horse collars.

Steam and Machinery on the Farm.

SIR,—The time is come, when farmers must determine to meet the labor question with a remedy, or follow the only alternative open to them—namely, to do all the work themselves and with the help of their own families. To follow this latter course in these enlightened times is simply absurd. As well may we abandon the electric telegraph, or railroads, and return to our old stage coaches, and weekly mails, irregularly delivered as formerly.

The labor question must and will most materially affect the agricultural interest. We cannot hope to obtain more for our produce, now that labor is dear and scarce, than we did when it was cheap and abundant. Mechanics, and working men, are now fully bent on obtaining twelve per cent. advance in wages, and when they have succeeded, the price of manufactured articles, and the general cost of living will proportionally advance. The farmer alone remains powerless

to act or amend his condition; no combination will help him.

It may be argued that the farmer must ask more for his produce. The answer to that argument, is, that his prices are almost altogether based on foreign demand. This position does not therefore give the farmer fair play. As on the one hand he has to contend against the local supply for labor to produce his article, and on the other against foreign demand, where he has no power to influence prices.

Our course therefore is clear enough; in fact, there is but one open to us; we must diminish the cost of production, and increase the yield, thereby meeting the difficulty in the legitimate way in which all such difficulties ought to be met.

Steam is the one great adjunct, and at present the one most neglected by agriculturalists.

The idea seems to pervade farmers' minds, that steam power is altogether too costly, dangerous to manage, and difficult to apply. Every day we see most conclusively that steam machinery must be applied generally to farm operations. Double and triple work can then be done, and at one fourth the cost; and during short seasons the "iron horse" can be worked as long as day light lasts; so long as the steam is kept up and water supplied, there will be no complaint of long days from the steam engine.

The writer was one of several persons whose efforts led to the introduction of the first traction engine into Canada. This engine never reached our shores, having been lost in the gulf of St. Lawrence. The vessel having it on board was wrecked, but the "ice was broken," and other engines soon followed. It is true that failure was the consequence, as even in the next attempt a most imperfect machine was imported. But there can now be seen working in Toronto one of Thompson's "road steamers," hauling six heavy wagons, loaded with gravel, whose load including the wagons is about twenty tons. The speed with a light load is about six miles an hour, and when more heavily loaded, about four miles an hour can easily be made. This long train the writer sees daily turning any corner and passing over a crossway not two feet on each side wider than a wagon track. Recently the engine was employed to haul a house loaded on wheels about two feet high or less, the engine "walked away" with the house as easily as if it had been moving an empty wagon; and yet this engine that walked so well on the level road, is almost useless to the Canadian farmer. For all road purposes, whether for heavy lumber cars, or light passenger traffic, it may answer well enough; but never for a farmer. I have no hesitation in condemning such an engine *in toto* as not being adapted for farm use; and have also no hesitation in affirming, that I can build an engine at one half the cost of the imported article, that will go any where,

or do anything that teams can do—haul saw logs, plough ditches or fields, roll, harrow or thresh, cut cord-wood or haul it, haul fifteen thousand feet of lumber twenty miles a day, and return—in fact, do anything that horses can do, and at one fourth the expense whilst working, and at no cost when idle. Such an engine will last thirty years, by repairing the wearing portions, and although it will weigh only about 40 to 50 hundred pounds it must have available, at a pinch, at least *fifty horse power* and never carry more steam than 80 lbs. to the inch; and all this can be done; and our intelligent mechanics do not fail in what they say they can do. No country in the world can beat Canada for a perfect knowledge of a high pressure steam engine; we are not trammelled here by large capitalists who will “not move” in anything new because “the thing pays as it is at present conducted,” and they will not therefore consent to any change. Our men use their brains to meet difficulties and effect the object in view, calculating that if they do not make some move forward, some one else will, and they will be very soon not only behind, but absolutely “no where.”

I have no wish to detract from the mechanical skill and credit on the part of Englishmen. I am one myself. But I must say and feel that Canada is not behind any country in the world in mechanical skill and adapting means to ends, and ends to means—the two most important items in introducing any new enterprise.

I will join any one in constructing a road locomotive, and will assist without one cent of profit in constructing the trial engine, with the understanding that, as the idea is entirely patentable, if it succeeds, a satisfactory arrangement shall be entered into, my object being to furnish the land with an engine capable of doing his work and at a minimum cost, trusting to extensive sale for fair remuneration.

Cakeen's Bread Cast Sewer.

(To the Editor.)

SIR,—I would like to say a word about this machine; and I would please that every farmer who tries a new machine should endeavor, if it satisfies him, to give his experience for the benefit of his brethren. Thus does each one of us get sound opinions of far more practical value than a score of recommendations below a hand-bill. I do not like this machine. It may be that I cannot sew with it, but however that may be, although theoretically it is perfect, and when tested on a barn floor it seems perfect. Yet when it comes into the field, I do not find it perfectly level, with no side wind it will do good work, but I find that I can sew better by hand.

Two of my friends in this neighborhood

have used it and have cast it aside, while a third “swears by it.”

I would not therefore condemn the machine, for it has amongst other recommendations that of Mr. Harris, one of the most practical and able farmers in America, the well known author of “Walks and Talks” in *American Agriculturalist*, but I should like to hear from some of our Canadian farmers, further practical opinions upon its merits.

C. E. W.

Ancaster, June, 1872.

WORK ON CATTLE—In answer to the enquiry of “Pine Stump” we would recommend “Allen's American Cattle,” price \$2.50.

ILLEGIBLE.—The communication from R. C. Fonthill, Welland, is written in ink so pale that we cannot decipher it.

LIQUID MANURE TANK.—We would not advise the plan which a “Reader” mentions of adding miscellaneous refuse to the liquid manure tank. The better way to treat such is to compost it with plenty of dry earth. We shall have something to say on the subject of liquid manure in another article.

BURNING STUMPS.—It is recommended to pour coal oil into the stumps, so as to saturate the wood as much as possible, and they will burn out readily. In a dry time, they will often do so, if once well kindled, without the addition of any combustible.

SUFFOLK PIGS.—A subscriber from Markham wishes to know where he can procure thorough bred Suffolk pigs. Breeders having such to dispose of can reply through our advertising columns.

The Canada Farmer.

TORONTO, CANADA, JULY 15, 1872

British Immigration Report for 1871.

This report, which comes up to the end of March, 1872, gives a large amount of interesting information in reference to the movements of the British population.

It is very noticeable how, for a good many years past, the tide of English emigration has been increasing in volume, while that from Ireland has been markedly on the decline. In 1864 the number who left England was 56,618, while last year it was 102,452. In the former year, 15,281 left Ireland, but in the latter only 1,077. The whole emigration for 1871 was 252,435, of which as many as 198,843 went to the United States. This is very much due, according to the commissioners, to the superior energy and push of the United States emigration agents.

There is nothing more unfortunate and distressing than the great disproportion in the emigration of the sexes and the con-

sequent ever-increasing excess of the number of females in Britain over males. In ten years 2,128,235 emigrants have left the United Kingdom, and of these only 848,995 have been females, giving an excess of nearly 300,000 males. This is to be regretted on every account, both for the sake of those who go and those who stay.

The proportion of those who went to America by steamers was 96½ per cent. of the whole. It is a notable feature in this emigration movement that almost all the money sent back to assist friends to follow has been from Irish emigrants. In 1871 the money sent in the form of prepaid passage tickets amounted to \$1,554,950. This is a large sum, and very creditable to those who sent it. From 1847 to 1871 inclusive the amount sent home by emigrants has reached the large figure of \$85,183,995. The emigration to Australia was last year less than it has been since 1847.

In 1815 the total emigration from Britain was 2,081. For many years more went to British North America than to the States, but since 1835 the preponderance has all been the other way. The total emigration since 1815 amounts to 7,266,072. To all appearances the number will relatively be still greater in coming years.

The Old Country and

There is nothing more gratifying to Canadians and to all well-wishers of the British Empire than the increased interest taken in the old country about Canada and Canadian affairs, as well as its claims as a place of settlement upon those who propose seeking a new start in a new land. But a few years ago Canada was practically unknown in Britain, or was spoken of only in terms of contemptuous contrast when put beside the States. It was not even a matter of discussion. On all hands it was taken as a matter of course, that the British Provinces of North America had only one thing that was good about them, and that was the road to the neighbouring Republic. That is all changed now; and the change is becoming more marked every day. Canada comes to be known. Even statesmen and members of Parliament waken up to the strange idea that Britain has a settlement in North America actually worth looking after. The St. Lawrence is praised; the Great Lakes are found to have a Canadian side; and the provincials are actually discovered to be doing a very fair business in tilling the soil and building up a nation. The Yankee emigration agents are also finding

that they are not without competitors, and Canadian officials are actually known as having a local habitation and name in London and elsewhere.

Newspapers have letters upon Canada, and even editorials speak respectfully of the soil and climate of the Dominion. While, to crown all, the rose-tinted accounts about the Western States and the great advantages to be secured by going in that direction, are very rigorously called in question: and very different representations given of the actual facts. We have occasionally copied some of these; and for the benefit of those among ourselves who dream of moving westward, as well as for the guidance of those recently come among us, and who may be anxious to try their fortune in Kansas or Nebraska, we give the following extract from the *Kelso Chronicle*, which Mr. Dixon, emigration agent for Canada in London, England, has sent us:—

To the Editor of the *Kelso Chronicle*.

SIR,—I noticed in your paper of the 31st a paragraph headed "A Rare Country for Farmers," which proceeds to give a very rose-coloured and rather misleading account of farming in Nebraska, a State which Yankee land-jobbers are extremely busy in puffing at the present time; and as there are generally two sides to every subject, I give you, as the opposite, extracts from two letters written by persons who were beguiled into that Western Eden. The first is from an experienced farmer, who states:—

"We found no difficulty in taking up 80 or 60 acres lots, and went to work and ploughed up a good share, each helping the other—it requiring the strength of three stout horses to each plough, the sod being so tough. The first year no crops can be put in; the sod is so much affected by the summer sun that everything sown on it would be parched up. May, June, and July are the only months in which the prairie sod is ploughed: if turned up at any other season it would not rot. We consequently had to wait eighteen months before we had any return for our labour. We then reaped about 17 bushels of wheat to the acre, which we were obliged to haul a distance of 300 miles to Buraha market, and then sell it for 60 cents per bushel.

"We were debarred from raising any stock, owing to the want of material to build fences. Our wood for erecting buildings was hauled from Sandy Point, on the Missouri river, a distance of 15 miles. It consisted wholly of cotton-wood, about six inches in diameter, for which we had to pay \$25 per thousand feet. From the great severity of the climate in winter, we could not use these wooden buildings for dwellings in the cold season, we consequently were obliged to follow the usual custom of digging 'gopher-holes' in the ground, covering them over with prairie-grass and earth, which formed our winter habitation five months of the year; sheltering the cattle in somewhat similar structures, from which they were not taken during the winter—hay, water, &c.,

being carried to them. Our firewood was got from the Missouri river, a distance of 15 miles. We paid nothing for it, but, as it was composed wholly of driftwood, it is yearly becoming scarce. My object in penning these lines is that they may act as a warning to farmers.

The other letter is written in, and dated, "Nebraska City, February 7th," and addressed to the editor of *Lloyd's Weekly News*, London, and states:—

"I have just received a copy of your paper of December 31st, 1871, and find in the column of 'Annals of the Poor,' a letter relating to Nebraska. I fully endorse all he has written, and can add a few more facts. I feel it my duty to do this, as I hear that many persons from England are expected here this spring; but what they will do when they arrive would puzzle a philanthropic lawyer to tell. There is not a single manufactory in the whole State—neither iron, coal, nor timber. Before I left England I corresponded with one of the Nebraska commissioners, who informed me that the climate was like England, and carpenters earned from 14s. to 20s. a day and there was plenty of work as the houses were mostly of wood. I did not expect to get a living without work, much less to pick up gold, but hoped by steady perseverance to gain a comfortable living; but bitterly have I been disappointed. I speak now from the experience of two winters and one summer. The winters are fearfully cold: everything freezes in the house, including milk, bread, and even paraffine oil; blankets freeze on the bed at night; fat oxen, pigs, &c. freeze to death in their stables; human beings often meet the same dismal fate; many have been frozen to death this winter. The wind and snow-storms are also dreadfully severe. No work during this weather is next to an impossibility, even if there were any to do. In the summer the weather is intensely oppressively hot. Everything has to be iced. There is scarcely any employment in the whole State; hardly any brick-work, for there is no brick earth. When there is a job for one carpenter, there are four or five waiting to do it, and the same with labourers. Wages also are not near so high as stated in England. Carpenters get from 8s. to 12s. a day; labourers from 4s. to 6s. a day. Farm produce—such as beef, pork, flour, corn, meal, and potatoes—is reasonable, because having no market here farmers are compelled to sell for whatever price they can get. House rent is very high; taxes also are high on land; furniture is also taxed, even to a chest of drawers; machinery and tools also. Woolen goods are very dear. Cotton fabrics are greatly inferior to English manufacture and triple the price. Common tea sells from 5s. 6d. to 8s. per pound; sugar, 7d. and 8d. per pound, matches, like our halfpenny boxes, sell for fivepence each; common ink penny bottles, fivepence; penny reels of cotton, fivepence. To sum up, we reckon the dollar (4s. 2d.) here goes as far as a shilling does in England. The people wanted here are those with plenty of hard cash to buy up land and business lots. If any man has plenty of money, nerves of steel, a constitution warranted to stand all climates, and last, but not least, an 'India-rubber conscience,' he may do very well here. Any one not possessing these qualities, had better stay away. (Signed)—EDWARD STOKER."

I think that after reading the above, which is the other side of the subject, that many will agree with me that Nebraska should be "a rare place for farmers" or other decent men to think of emigrating to.—Your obedient servant,
WEST-WING.
June 3rd.

Notes on the Weather.

During the past month the characteristic warmth of a Canadian summer has reasserted itself after a prolonged and unusually cold spring, which almost made some croakers fancy we were to have no summer at all. We have received on the whole, favourable reports of the condition of the crops. Winter wheat will no doubt be below the average. Though much of the clover was winter killed, the hay crop promises well in many sections. Spring grains are generally in excellent order, and show well for a fair yield. Potatoes and roots generally are also represented as looking well, and making good progress. The Colorado Potato Beetle has of course reappeared, but no very serious or general complaints of its dreaded devastations have yet reached us. Vigilance on the part of the cultivator, and natural agencies may keep this scourge in check to an extent that from its past history in other places we had no reason to expect. If so we shall have great cause for thankfulness.

The monthly Meteorological Report from the Toronto Observatory, is as follows:—

The mean temperature of the month of June was 63°7, being 2°6' above the average, and about the same amount warmer than June 1871. The highest temperature occurred on the 30th, 88°0, and the lowest 41°8, on the 2nd, showing a change of 46°2' during the month. The warmest day was the 20th, the average of which was 75°8, and the coldest the 3rd, 51°3. One fact of importance must not be overlooked, that although the heat of the midday sun was in many cases almost oppressive, the night following was usually much cooler, the mean daily range being 21°5.

The amount of rain was 3.148 inches, being slightly in excess of the average; but of this amount almost one half, 1.551, fell on the 10th, and as during the second half of the month not a drop fell, it can hardly be said, as far as this neighborhood is concerned, to be any change from the previous year's deficiency of rain.

The amount of sky clouded was slightly below the average, the absence of clouds during the night being worthy of notice, in connection with the comparatively low temperature, as many as 22 nights during the month being almost free of cloud.

The velocity of the wind was considerably below the average, as many as 231 hours during the month being absolutely calm. The monthly register of the wind may be divided, N. 81, N. E. 35, E. 61, S. E. 43, S. 78, S. W. 86, W. 47, N. W. 58, hours respectively.

Thunder and lightning on 8 days, the storms of the 9th and 10th being severe and generally fell.

A cultivator in West New Jersey has seventy-five acres in blackberries, and sold last year \$20,000 worth of fruit, with a profit of \$14,000.

Emigration to Manitoba.

As was anticipated, the emigration to Manitoba is assuming very large dimensions. The *Manitoba Liberal* of the 15th inst. mentions the arrival of quite a number of farmers, accompanied by their families, and bringing with them a large amount of stock as well as farming implements. It is said they are almost entirely from Ontario, though some are from the adjacent parts of Minnesota. The *Liberal* adds that it is reported as many as 2,500 were, at the time of writing, on the road through the States, and that 800 at least were expected during the season by the Canadian route. This may very possibly be exaggerated, but there is no doubt the influx of settlers is very large, and is altogether likely to increase in volume.

As is natural and proper, the large majority of the new-comers are farmers. For these there is always room, with every prospect of doing well. They stay but a short time at Winnipeg, and that for the best of all reasons—they cannot do otherwise. It would seem that the emigrant sheds are not only not as yet finished, but they don't appear to be even begun; so that all the emigration agent can do is to read a homily on the beauties of camping out in the pleasant summer weather, and to urge them, nothing loth, to push on for the rural districts without delay. The few who remain about the village find no difficulty in making from eight to ten dollars a day per man and team, and are therefore sometimes in no great hurry in going. With the great majority, however, the natural and most praiseworthy anxiety is to get upon a location and have everything made snug, so as to be able to pass their first winter in some measure of comfort. The general feeling of all parties seems to be more and more inclining to the conviction that it was a great mistake to have made the Province so small. There will therefore be very little difficulty in having it considerably enlarged. We have always urged the necessity of this, and have often shown that it would be far better to make Manitoba of a decent size than to proceed almost immediately to lay off another Province.

In view of so considerable a movement of population, the unreadiness of the Government officials in the matter of the Canadian road is more evidently than ever reprehensible. We have no fear of Ontario being drained of its population, for what Canada gains we gain. The places of those who go will be more than filled up, and the Dominion

as a whole will be strengthened and consolidated by this westward movement. But how absurd it is to have hundreds going through the States much against their will, and being subjected to great expense and annoyance, without any very special effort being made to render the Canadian route practicable for emigrant travel as well as for the goods and chattel which emigrants are likely to take with them. Mr. Dawson may feel that there is no particular reason for hurrying; and his masters may also look complacently on while things are taken leisurely; but the general opinion on the subject is very different. That mixed route is to be the only one to the North-West we shall have for years, and no expense ought to be spared to make it an easy one for travel at the very earliest date possible. Nor will it be either useless or unused when the railway is pushed through. We are only beginning to have a faint idea of the resources of even the country between Thunder Bay and Fort Garry. In all likelihood it will be found to have riches which will attract and retain a resident population, and a large amount of through traffic will permanently seek that outlet during the summer. The change in the matter of population round Thunder Bay during the last three years has been wonderful, and it will be curious indeed if a settled population is not found all along the route of travel to the promised land of the North-West. The unfavourable verdicts passed on many things in the North-West country have had no lengthened existence. A few years have made them disappear. The disparaging accounts of the Red River country given by Hudson Bay officials, and other interested parties, have taken their appropriate places among myths. The impossibility of ever taking emigrants by the mixed Canadian route, which no longer than three years ago was strongly and frequently asserted, has for a good while now been given up as untenable. And so will it be with other "lions in the way," as energy and push are more fully called forth. Within three years, we venture to prophesy, the journey to Manitoba from Toronto will be nothing like so fatiguing or as tedious as that from "muddy little York" to Windsor twenty-five years ago. Pullman cars, of course, are not to be expected; but fair accommodation with reasonable comfort and speed may be confidently reckoned upon; nay, if the powers that be had done their duty this might have been already secured.

We are pleased to see so many substantial farmers, men of means and character,

going forth as the pioneers of the great new land. We have no doubt that their movement will tend greatly to their own advantage, as we have no doubt it will to the upbuilding and extension of British institutions and laws. The emigrant wagon and the settler's axe will determine many knotty and perplexing questions far more speedily and far more effectively than either politicians or seafarers. Clear the way for the free flow of the mighty tide of population, and difficulties will disappear and many perplexities will be laid finally and forever at rest.

Labour on the Farm.

The question often arises in the minds of Canadian Farmers, Why is it so difficult to obtain labour upon the farm? There is no lack of mechanics, and in our large factories there appears to be little difficulty in obtaining the necessary help.

We believe that the chief fault lies with the farmer. They work their men to the last extremity, and in consequence drive them from the slavery of farming to seek work upon the railways, or in the town. Whether manufacturers cede the nine hours to these men, or continue to enforce ten hours of work per day, the principle remains that their hands have a regular day's work before them, and they can always obtain some recreation after that work is done. With too many of our Canadian farmers how different is the management, showing, as it does, an utter want of system. The man must be up at 4 o'clock in the morning, not as Josh Billings would have us think, "to worry the hogs," but to hoe or get horses ready. His breakfast over by 6 o'clock, he must be in the field, where he and his team are supposed to work until near upon 12 o'clock; out again after dinner at 1 o'clock, and work till 7 in the evening, making a full day's work of 12 hours.

Now, there is moderation in all things. While we consider that eight hours per day, except at certain unhealthy jobs, is a time in which only a very medium of men can do a fair day's work; on the other hand, we consider that men will do more work in 10 hours than they will in 12, that is, when calculating their work for a month at a time.

We have tried every way upon our farm, and now find the very best results from a regular systematic allowance of working hours to the day. Moreover, we find that a good man will so appreciate a couple of hours to himself in the evening, that every spare hour renews his zeal, and sends him forth to the work following willingly, giving him a direct interest in having his day's job finished, so that he may enjoy his evening.

While we recognize the necessity just during the very important times of harvest of taking advantage of every minute, yet we think, however, through that time a little extra allowance for extra labour would pro-

duce far greater results than the present too prevalent system of slavodiving.

We would urge upon farmers the necessity of establishing regular hours of labor, and sticking to those hours; of allowing some time to their men before dark, and we feel assured that such a system would result in keeping many of the best men upon the land, who now, disgusted, seek for a freer life in some mechanical employment.

There is yet another system which, if adopted, would lead to the securing of a far higher class of men. We mean building cottages upon the farms, and hiring married men.

Why will not female servants stay on the farms? We answer, without hesitation, because they are too hard worked. One girl has to milk four or five cows twice a day, wet or dry, to feed the same number of calves, to wash for the house, to prepare three meals a day for a lot of hungry working men, and to do all the other work about the house. She is up when the cock crows, and working all day; she must, in order to rise, go straight from the washing of the supper dishes to her bed.

Young girls, if they be servants, are like other young people, they must have some recreation; they cannot slave from morning to night, day after day, and month after month, without some intervals of amusement.

Is it any wonder that they crowd into factories, some to the prejudice of their health? There they have allotted hours of work: in those hours, the eye of the foreman is upon them, and they must perform their allotted tasks: but when the bell rings, they are free; they can, in the evenings, stroll through the prettiest walks, can read, or sew, for their amusement, can, in fine obtain daily recreation. That recreation is a relief to the brain and the muscles, and its benefits are seen next morning in redoubled vigor and refreshed energy. Let us then, as farmers, relieve ourselves of the incubus of the profession, migratory working men; build cottages upon our properties, and thus secure permanent men, taking away much of that small home-work that is the aggravation of the farmer, and often the death of his too hardy driven wife.

We may piteously declaim against protection, saying that it throws a manual labor into the hands of the manufacturer, or we may sigh for the good old times when men worked like niggers, and girls were content to stay at home. Those days are changed; the ever rolling wheel of time has brought out machinery and scientific mechanism; the sweat of the brow is now more mental than corporeal. We must depend now more upon management and skilled labour than on muscular development; and if we, as farmers, could keep up the standard of our position, we must change too, and must hold out such inducements as shall show to the working men and women that

farming, while it is far more healthy than factory or mechanical work, has been cleansed from the sordid drudgery in which too long have its advantages been buried.

Statute Labor.

Again we come round to the time of the year in which that miserable humbug entitled statute labor is to be reproduced. There was a time in the early history of the more civilized parts of Canada when such things as ploughing bees, husking bees, &c. were a necessity. That was a time when the early settlers were poor men struggling with the uncleared land, living a hard to mouth existence, waiting with patience the time when the stumps should rot, the country open up, and they be able to put by a surplus of produce to be exchanged for hard cash. In those days, if work was to be done at all upon the public highways, there was no choice of methods; the early settlers could not pay cash. Moreover, such work as building corduroy roads required a large number of men at once, and it was then found imperative to adopt the system of a "Government bee." This "working for the Queen" as it is called has now degenerated into a perfect farce. It is an occasion upon which a number of men meet together to loaf. Men who never owned a horse or vehicle cannot be persuaded that it is fair for them to put in two or three days' work upon a job that, although doubtless required for the public good, yet upon its face appears of no immediate benefit to themselves.

Farmers send their men and teams, those men will not work, and why? Chiefly because the overseers are men who as a rule are utterly unfit to oversec. Not one in a dozen of pathmasters has any idea of making roads. Such a job requires a man of experience; half the labor put upon the work is misapplied.

The overseer has a few days in which he can command the services of a certain number of men. In his district there are hills to be levelled, hollows to be filled up, ditches to be cut, and roads to be graded and drained. He dares not put all the work upon the hill opposite his own farm, or if he does, the other men think he is selfish, and will not second his efforts; he will not take another portion of the road and utterly neglect that upon which he himself most frequently drives; as a consequence he attempts too much, patches up all over, and thoroughly completes no part.

He has a long beat, his retreat from one gang to overlook another, working perhaps half a mile distant, is a signal for the first to laugh, talk, sit down, smoke their pipes and spin yarns. When he comes back he knows they have been loafing, but what remedy has he? If they were working on his own place he could look closely after them, and proving them idlers, he can dismiss them;

but he would indeed find it hard to arrest these road workers, or if arrested with his own unsupported evidence to prove ought against them. Moreover, he is not on such an occasion as is offered here going to make a "fuss," to lead perhaps to a row with his neighbor, and that most unpleasant social state in country life, "bad blood" amongst the neighbors.

The system is obsolete, it has become rotten, it is a form of compulsory work into which no man will show his whole heart; the pathmasters are upon too equal a footing with the workers, familiarity breeds contempt; the work that should be extended over seven months is crowded into a day; there is little intelligence, an utter want of willingness, and not the slightest pretence at system in the operation. Can we then be surprised that it fails—that the state of our roads, the entire want of drainage, the hollow driving track, the endless number of broken culverts, have become a crying disgrace to those opulent townships that we have in the older settled portions of this province?

Look at it from another point of view. Does it pay the farmer? He is allowed 50 cents for a driver, and the same for each horse—that is, \$1.50 per day for a team and man. We never saw the day from the breaking up of the frost until the days of laying upon which we could afford to let our teams stand idle. This year we were called to do our labor upon the tenth and eleventh of June; we were busy preparing our land for turnips. Did it pay us to leave such important work for two whole days, for \$6, such being the amount equivalent to 12 days road tax? We were called by a man whose farm is the grand receptacle for every weed within the category of the Canadian botanist; he never raises turnips, no, his cattle exist through winter on the leeward side of a tumbling straw stack; and yet at the beck of such a man we are called to leave our root field because forsooth he has "done planting." But supposing that our teams had been idle, we can get three dollars per day for them at many another job. That is the regular hire of a team and man through winter and summer.

In a former article upon this subject in the CANADA FARMER of 1871, we showed how much more thoroughly the work could be done if a cash assessment were levied, allowing 50 cents a head for each man and horse, upon the same basis as the statute labor is now divided, and using the same cash appropriations as are now made by Municipal Councils to roads and bridges.

If our readers will refer to that article, or if any practical man will make the calculation for himself, we feel satisfied that the position we have taken will be fully sustained. It is high time that the old system were abolished, and that the important business of road making should be conducted in a more efficient manner.

An Implement Wanted.

In these days of high priced labor we must look for profitable work to labor saving machinery. The ingenuity of mechanical genius has for several years been at work upon, and is daily bringing into existence new machinery. We can secure our hay, sow our crops, and thresh with little pure manual labor. We have implements for sowing by machinery almost everything but potatoes. Who that has engaged for a day in the back breaking work of dropping potato sets would not welcome the advent of a mechanical contrivance by which a man could plant his potatoes without dropping each individual set by a separate motion of the hand in its proper position. A genius who will perfect a potato planter, rapid in its work and perfect under all circumstances in the exactitude of its execution, would undoubtedly realize a handsome sum.

A Hint to Machinists.

The question of the relative advantages of Soiling and Pasturage for the summer keep of cattle is now verging strongly round in favour of the farmer. If we should become subject to such droughts as have constantly occurred within the last decade, soiling will yet more rapidly gain adherents to its cause.

The great drawback to the system now is the amount of labour required.

If some of our machinists could invent an attachment at a moderate cost to the present field mowing machines, by which grass and other soiling crops might be cut and gathered together say 10 cut or even less at a time, and thus drawn to the stock-yard in bulk straight from the field, the chief obstacle to a system of soiling would be removed.

We remember the very first invented lawn-mowers had a box attached in which was thrown grass as cut by the knives—of course these knives revolved and worked upon the nipping principle,—yet we cannot but think that some inventive genius might perfect an arrangement to perform the same operation upon a larger scale with but slight alteration and addition to the present field mowers.

Increasing Wealth.

There has for some time been a steady and even rapid growth perceptible in Canada, especially in this Province of Ontario. This progress does not need statistics to compel belief in it: it is everywhere apparent—apparent in the increased amount of business done, in the number of new buildings erected annually in all its cities, towns, and villages, in the increasing demand for mechanical and agricultural labour, and in many other ways. So very evident to every one who gave the matter a thought was this progress, that when the

results of the decennial census were made public, showing so comparatively trifling an increase in population for the ten years, they were received everywhere with the utmost incredulity—at once set down as completely unreliable and worse than useless. There are statistics, however, which offer us testimony that can be depended upon, and which are infallible indices of the growth, or otherwise, of the business and wealth of the country. The monthly returns made by the banks, while now, under the improved form, furnishing valuable aids in determining the financial position of each individual Bank, are equally valuable, from a statistical point of view, in determining the comparative financial position of the country at large.

We propose now to contrast the figures of the Bank returns made five years ago with those made this month, and to show, among other things, how very great has been the increase in the business of all parts of Ontario and Quebec, the returns for the Banks of the other Provinces not having hitherto been regularly furnished. In making this comparison it is not possible to give the figures for 1867 in as great detail as in 1872, the present form of return not having then been adopted. We must therefore content ourselves with giving, grouped under a few comprehensive heads, the liabilities and assets of the chartered Banks of Ontario and Quebec.

The following statement shows the capital, authorized and paid up, the liabilities to the public, and the assets wherewith to meet those liabilities of all the banks in Ontario and Quebec, as at the 31st of May, 1867 and 1872.—

	1867	1872	Increase
Capital authorized	\$ 7,470,000	\$17,810,000	\$10,340,000
paid up	2,346,000	12,080,000	14,734,000
LIABILITIES TO PUBLIC.			
Notes	\$ 444,787	\$21,053,840	\$20,609,053
Discounts	11,270,754	33,774,900	22,504,146
Due to other banks	12,050,789	25,000,000	12,949,211
Due other banks	2,091,374	2,461,163	369,789
Not included above		291,560	291,560
Total liabilities	\$28,778,005	\$83,580,703	\$54,802,698
ASSETS.			
Specie and Gov't notes	\$ 380,233	\$13,018,075	\$ 3,637,842
Real estate	1,512,487	2,558,787	1,046,300
Gov't Securities	5,474,212	1,923,787
Notes, &c. of other banks	1,513,741	3,614,473	1,800,732
Due by other banks	2,822,098	11,422,617	11,588,739
Discounts	48,219,815	101,051,472	\$2,861,657
Not included above	2,361,179	1,751,666
Total assets	\$71,093,425	\$133,369,479	\$66,756,454

There is shown in the foregoing statement an increase in the money invested in banks of \$12,741,123 in the past five years, and large as this increase appears, it is smaller than it ought to be shown. In May, 1867, the bank returns included the Commercial Bank of Canada and the

Gore Bank. These have both since disappeared from the list. When the Commercial Bank was absorbed by the Merchants' Bank, \$2,666,666 of its paid-up capital was written off; and when the Gore Bank was taken over by the Bank of Commerce, the capital of the latter was increased by an amount about \$270,000 less than the nominal paid-up capital of the former. Deducting these two sums from the amount of paid-up capital as stated for May 31, 1867, the increased investment in bank securities will amount to \$15,677,789, or almost 60 per cent. more than was then employed in carrying on the business of the country. This new capital may be set down as derived almost exclusively from Canadian sources, although some of it undoubtedly was furnished by outside capitalists. Some additional allowance has also to be made for the amount of capital already paid in on the stock of the recently chartered banks, which have not yet made any returns. We have here evidence of two facts; first, that in the past five years there has been a very great accumulation of realized wealth withdrawn from ordinary commercial enterprise, and second, that banking in that period, instead of being overdone, has on the average been sufficiently profitable to attract this large sum of money. These two facts are again proof that the business of the country, especially its agricultural business, has been carried on in a profitable manner and on an increasing scale; it being very plain that there must be profit before there can be accumulation, and that if increased capital continues to be advantageously invested in institutions whose success depends on the amount of business transacted, the business to be done must also be increasing. No argument is needed to prove this.

Another proof of the growing business of this country is to be found in the increase in the note circulation of the banks, amounting to \$12,699,053, almost 50 per cent. There is no means of telling what proportion of the Government notes issued in 1867 were in actual circulation then, but they were probably less in amount than now, inasmuch as all the small notes of the banks have for some time been in process of withdrawal from circulation, and their place taken by Government one and two dollar notes. There are no symptoms of any great inflation in the currency at present to account for the so greatly increased circulation, and it may be safely accepted as indisputable proof of a corresponding growth and development of commercial, manufacturing and agricultural enterprises.

We next come to the consideration of the deposits, and here again the same tale is told, if anything still more strongly. What are put down as ordinary deposits have more than doubled, but to this item

not so much importance is to be attached. Discounts have also greatly increased, and undrawn balances to a corresponding extent would naturally result, and appear in the aggregate of ordinary deposits. It is different with what we have called special deposits (specified in the old form of returns as "deposits bearing interest, and in the new form as "deposits payable after notice.") These are not the products of discounted paper, but are, together with deposits in Post-office, Government, and other Savings Banks, the savings of the people at large, invested so as, while not paying any high rate of interest, to be more or less easily and rapidly realized without probability of depreciation. The increase, as shown in the above statement, amounts to \$11,881,817, or 85 per cent. on the amount held at interest May 31, 1867. The logical deduction from this fact would not greatly strengthen any argument in favour of entering into closer commercial relations with the United States, or of adopting the hot-house system of tariffs which has been in vogue there. We have every reason to be content with the position which this Dominion now holds, and the facts we have here presented should be quite sufficient to put a stop to those demands for protection which can only be admitted when the evidence is clear that the country is decreasing instead of increasing in wealth under existing fiscal arrangements.

Public Conveniences.

There are certain conveniences which can often, owing to certain local advantages, be made by a private individual for the use of the public. One is peculiarly that of watering troughs. We have often travelled for miles along back roads unable to find a suitable place, although we may have passed by many creeks, at which to water our horse.

There are many farms, creeks upon which pass under the public road, but there are few troughs. A farmer does not care as a rule, to go to a certain expense in making and keeping in repair such troughs. We therefore think that if the representatives of the people, the township council, would offer a premium in the shape of a remit on part of taxes to cover the expenses incurred by certain farmers in the erection of such conveniences, it would be a great boon to the travelling public. Of course due diligence can be used that such are placed at distances far enough apart, and also sufficiently numerous in different sections.

The State Legislature of New Jersey has passed a law exempting from taxation for ten years any establishment engaged exclusively in beet sugar manufacture.

The Executive Committee of the New York State Agricultural Society, at their meeting in Albany, decided to hold their next annual fair of the society in New York, and every three years thereafter. The fair will open September 30th and close October 4th.

Horticulture.

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Select Alocasias.

The genus *Alocasia* has deservedly become very popular, and, although less brilliant in colour than their near allies, the *Caladiums*, they possess many advantages, and are charming subjects for the stove of an amateur, as well as that of the professional cultivator. The majority of the *Alocasias* are not deciduous, and hence their ornamental leaves and distinct characters are enjoyable during the dull winter months. This is a decided advantage, as they contrast beautifully with such flowers as *Poinsettias*, *Euphorbias*, *Gardenias*, *Eucharis*, and other denizens of the hot-house which display their charms at that ungenial season. Another recommendation that *Alocasias* possess is the easy manner in which they may be grown, which combined with the leathery texture of the leaves of most of the species, renders them well adapted for the decoration of the drawing-room or the dinner table, always providing there is no gas in the rooms.

The majority of these plants may be grown in very small pots, and thus the amateur may remove them from the plant-house to the drawing-room, plunge them in an ornamental pot or vase, and enjoy their beauties in such positions for a long time. A week or perhaps two, will be sufficient for each plant to stand in such positions; but if five or six plants are kept (and if they are in small pots they will not take up much space), their admirers can always have one or two in their apartments during the winter months. The following species are all very beautiful, thoroughly distinct in appearance, and adapted for the purpose to which I have before alluded.

A. intermedia.—Hybrid between *A. longiloba* and *A. Veitchii*, and is, perhaps, more ornamental than any other kind in cultivation. The stems attain a height of from one to three feet (the latter only when well grown); their leafstalks are beautifully mottled, and banded with green and metallic white. The blade of the leaf varies from one to three feet in length, and its long ears render it very conspicuous. The upper surface is of a deep green, suffused and veined with silvery white, while the back of the leaf is tinged with dull purple.

A. metallica.—This is a plant of dwarfer habit than that previously named, usually growing from 12 to 18 inches high. The leaves are of great substance, obtusely ovate in shape, and of a uniform deep bronzy hue, which gives it a most distinct appearance; it is a native of Borneo.

A. Lowii.—A species from the same island as *A. metallica*, producing *cordate-sagittate* leaves, which are bright green on the upper side, ribbed with ivory white, the reverse of the leaf being deep purple. It is a most ornamental species.

A. Soleni.—This is another beautiful hybrid, produced by crossing *A. metallica* with *A. Lowii*; and when I say it combines the colors and characters of both its parents, my readers will readily understand that it is at once a handsome plant, and a valuable addition to our stove ornaments.

A. zebrina.—This is a grand species; a larger grower than any of those previously named, and, therefore, not so easily accommodated by those amateurs having but limited space; nevertheless, those who can find room for it will be amply repaid by its majestic character. The blade of the leaf is large, broadly sagittate, and full; deep, shining green in color. The leaves are supported upon stout footstalks, which are pale green, and beautifully striped with numerous zig zag bands or belts of deep green. It is a native of the Philippines.

There are several other species which form splendid objects in the stove, but are not included here, as my object has been to name only those which will bear removal to the dwelling-house. The soil I prefer for these plants is a mixture of peat, thoroughly good decomposed manure, some sphagnum moss, a little loam, and some sharp silver sand. Let the pots be well drained during the growing season; give an abundance of water, and there will be no difficulty in the amateur providing himself with elegant specimens of *Alocasias* for the winter decoration of apartments.—*Journal of Horticulture*.

How to use Strawberries.

THE strawberry is a fruit of such delicate flavor that it is best enjoyed fresh from the vines, either with sugar alone, or in the favourite form of strawberries and cream. All forms of preserved and canned strawberries are in point of flavor so much inferior to the fresh fruit, that they are among the most unsatisfactory of preserved or canned fruits. For the full enjoyment of strawberries they should be allowed to remain upon the vines until thoroughly ripe; hence those purchased in market are seldom in their best condition. To allow them to bear transportation they must be picked as soon as they are coloured, and before the slight softening that indicates full ripeness takes place. It is only those who grow their own fruit that can have them in this condition. After picking, the berries should be placed in a refrigerator to become somewhat cool, though not too cold. The fruit for the table should never be washed. Straw should have been placed around the vines in sufficient quantity to keep the fruit perfectly clean. Strawberries that have to be washed are only fit for preserves.—*Agriculturist*.

Use of Paris Green.

At a recent meeting of the Natural History Society of the Michigan State Agricultural College, an essay was read by Dr. Kedzie, on the Use of Paris Green on Potatoes, in which he stated that it was not poisonous unless used in excess, although it contains two deadly poisons, arsenic acid and arsenite of copper. It formed an insoluble precipitate with the ferric oxide, (Brown Hematite ore) contained in the soil, as he has proven by several experiments.

The argument some have advanced, that Paris Green is insoluble in water, and hence does not poison the potato, does not hold true, as it is only insoluble in pure water, and all our rain waters contain impurities and a small trace of ammonia in which Paris Green is perfectly soluble. From his experiments he has derived the following results:

1st. That the potato does not contain any arsenic.

2nd. That Paris Green can be used in quantities so small as to kill the bug and not poison the potato.

Arrangement of Flowers.

Of all the various mistakes made by persons in arranging flowers, the commonest is that of putting too many into a vase, and next to that, is the mistake of putting too great a variety of colors into one bouquet. Every flower in a group should be clearly distinguishable and determinable without pulling the nosegay to pieces. The calyx of a clove pink should never be hid by being plunged into the head of white phlox. However well the colors may look. Sweet peas never look so well in the hands as they do on the boughs over which they climb, because they cannot be carried without crowding them. But put them lightly into a vase with an equal number of mignonette, or, rather, ornament a vase half full of mignonette, with a few blooms of sweet peas, and you get a charming effect, because you follow the natural arrangement by avoiding crowding of the blooms, and putting them with the green foliage which they want to set them off. Few people are aware until they try it, how easy it is to spoil such a pleasing combination as this, a piece of calceolaria, scarlet geranium, or blue salvia, would ruin it effectually. Such decided colors as these require to be grouped in another vase, and should not even be placed on the same table with sweet peas. They also require a much larger preponderance of foliage than is wanted by flowers of more delicate color. It is unquestionably difficult to resist the temptation of "just putting in this or that," we, because "it is such a beauty," a beauty it may be—and so may be an apricot—but it would be out of place in a basin of green pea soup. There is at least one proper place for every flower, and let every flower be in its proper place.—*London Gardener.*

Horticultural Inventions.

It is always a matter for congratulation when any instrument is produced which lightens the burdens of human toil. Inventive industry has given to the agriculturist the reaper and the threshing machine, but beyond the rake, the hoe, and the wheelbarrow, but little has been done to help the labours of the horticulturist.

Recently the inroads of insect enemies and the blighting devastations of parasitic plants have borne so heavily upon the horticulturist, that it seemed as though he must give up the cultivation of some of his favorite fruits. More especially has the advent of the Gooseberry Sawfly, whose destructive habits have become well-known to every cultivator of the currant and gooseberry, brought consternation and trouble to many an amateur, who took a pride in supplying his table with an abundance of these wholesome fruits.

How, easily and surely, to get rid of these pests, has been the prevalent inquiry. It was at length discovered that white hellebore, applied in the form of a fine powder to the leaves of plants, would poison the worms and cause their speedy death. But a simple economical and rapid mode of applying the powder, so that it should be distributed evenly and thoroughly over the plants, was a desideratum which remained for inventive



ingenuity to supply. Happily for those who suffer from these parasitic and insect pests this long felt want is now provided for, and we are enabled to place before our readers an engraving of an instrument which has been found to be just the thing for distributing powdered hellebore, sulphur, ashes, slacked lime, Paris green, &c., &c., in such a manner that there is not only no waste of these materials, but they are so applied as to secure the most efficient results.

This instrument is the invention of Mr. P. Van Wagener, of Stony Creek, and is manufactured and sold by Messrs. Pauer & Cass, of Hamilton. By means of this machine the operator is enabled to cover the plants with the desired powder while he is exempt from the dust. As will be seen by examining the engraving, the instrument is a light portable box, which can be held in the left hand, while with the right hand the operator turns a small wheel. The revolution of this wheel gives a rapid motion to the fans within the box, which creates a strong air blast, that drives the powder, which is made to fall in the centre of the blast, forward from the operator and out of the box upon the plants. By this contrivance the discharge of the powder is continuous, rapid, and regular, and

can be thrown in a horizontal direction or upward, upon the under side of the leaves, at the will of the operator. It is much more convenient and efficient than any contrivance in which the air blast is made by the operation of a bellows, and is said to be capable of discharging two hundred and fifty pounds of flour of sulphur in a day. We believe this little instrument, which weighs less than two pounds and a half, which any lad can carry without weariness and work with perfect ease, will prove to be a most efficient machine for the destruction of these insects and many forms of mildew.

Watering in Hot Weather.

Injudicious watering is an injury to most garden plants; but properly performed, (for there is a right and a wrong way of doing it) it is a great aid to the plants, and few are the gardens, flower or vegetable, that are not watered artificially during the period of summer drouth. A slight watering in the middle of the day is an injury rather than a benefit. The heated earth at once absorbs the water thus applied, it bakes and forms a hard crust about the plant, the dews are not absorbed, and the plant is in reality worse off than if no water had been put on. It is more important to keep the soil light and loose about newly set plants, &c., than it is to drench them with water. Where this is done the moisture comes up from below, the dew is absorbed, and the plant thrives, which it cannot do so long as the earth is crusted over. Always water at night; and before watering have the ground loosened up with the garden rake. Then water liberally—the application of a little water is often no better than none. Indeed we had rather keep the hoe going in a flower garden, in hot, dry weather, than the watering pot.—*Maine Farmer.*

To Force Forward a Garden.

The question of the advantages of liquid manure over solid, have been often mooted and are patent to all in a theoretical point of view. The only drawback to their general use is that of expense or difficulty in their practical application upon a large scale. At present we would simply sketch a plan by which every man who has a spring creek, water hole or pump handy to his garden, may force his vegetables to an early and large growth.

Provide a barrel and a tub or water tight box. Sink the barrel in the earth. Over it place a box with several holes bored in the bottom. Partially fill the box with any sort of animal manure; (hen manure is the best). Fill up with water and allow it to leach through the manure into the barrel below. In this barrel we shall collect the best of manure, which, usually still further diluted with water, may be applied to all growing plants, and which is in the form best adapted for such to take up. C. E. W.

Pear-tree Blight.

On page 35 of the proceedings of the thirteenth session of the American Pomological Society is a very interesting letter from J. F. Tallent, of Burlington, Iowa, in which, among other things he says:—"I have lost fifty trees as many (pear) trees by blight as I have now growing. In 1861 I was induced to cease cultivating them altogether, to allow the grass to grow close up to the trees, only keeping it cut every few weeks, and to obviate the binding and repressive effects of this treatment by putting a wheelbarrow load of manure around each tree every autumn. Since that date, eight years ago, I have never lost a tree, and even saved some old wrecks which I had given up as past cure, which are now the most interesting specimens on the place. The success of the present year has been that of the preceding seven. I do not give this treatment at all as a cure for blight, for it may return again; but I do wish to make it public, that others may try the same method with, it is hoped, the same success."

Mysiphyllum Asparagoides, (Smilax).

The first or generic name of this is derived from *myrsine*, signifying a myrtle, and *phyllon*, a leaf, which it strongly resembles, and the second, or specific name, *asparagoides*, meaning asparagus-like. It is a perennial deciduous green-house climber, a native of the Cape of Good Hope, where we well remember seeing it in the jungles, and hanging in dense, rich, green masses. Little did we dream then of the uses we should see it put to in this hemisphere, or think that at some future time we should be cultivating it for sale at the rate of seventy-five cents per yard, but such is the fact. It is grown in large quantities for the Boston, New York, and Philadelphia florists, who use it considerably in various ways, especially in bouquet making, ornamenting and decorating halls, churches, &c., for which it is well adapted. Nothing can be more appropriate for festooning than its long and graceful streamers when tastefully arranged.

With the fair sex it is an especial favourite and is freely admitted to many a lady's boudoir and parlor, where it may be seen draping some masterpiece of the painter or sculptor's art. Every choice bouquet contains it, and no basket or vase of flowers can be considered complete without being looped or fringed in some way with its pretty light sprays of glossy green. We often wonder how bouquets were formerly made before the advent of Smilax. It is as much admired by the ladies of this generation, as the Bay, Olive, or Myrtle was venerated by the ancients, and very justly too, for somehow it seems lovingly to associate with those "charmers of life, ever tender and true," upon whose fair brows it often rests, like a beautiful emerald coronet of living green.—*Rural Home*.

New Varieties of Mignonette.

Already the fragrant and favourite Mignonette has been brought under the power of the gardener, and by selection and development he has acquired novel forms. Of these the earliest was known as the "large-flowered," which seems to be the *R. odorata grandiflora meliorata* of the seed lists, a plant of stronger habit than the original. Since that has appeared 'Parsons' White,' in which the colored anthers are less conspicuous than usual; and the "crimson-flowered," a sadly disappointing misnomer for a variety in which the reddish-brown anthers are simply more than usually prominent. Now M. Gebhardt, of Quedlinberg, introduces three new sorts, the Pyramidal Bouquet, the Tall Pyramidal, and the Dwarf Compact—varieties obtained by selection and careful seedling.

The Pyramidal Bouquet Mignonette forms a dense short pyramid of free growth, the numerous branches being terminated by large spikes of intense red flowers—as many as 300 of them being produced on one full-grown specimen. The foliage is luxuriant, and of a dark green. This variety is recommended for pot culture and for the open border. The Tall Pyramidal Mignonette, *R. odorata gigantea pyramidalis*, is said to have very woody stems and vigorous branches which are clothed with dark green leaves and blue-like spikes of flowers 10 inches long, and of fine red tinge. By good culture it grows to a height of 2½ feet, and a breadth of 1½ foot. In consequence of its ligneous habit, the more it is cut the more freely it flowers, continuing to bloom till quite late in autumn. It is recommended to be sown early and to be potted off singly, the plants being either turned out into the borders or grown on in pots as required. The new Dwarf Compact Mignonette seems to be a very desirable variety, and very distinct in character. It is called *R. odorata nana compacta multiflora*, and forms a dense semi-globular bush of about 10 inches high and 15 inches across, the robust and vigorous branches being clothed with dark green leaves, and decorated with innumerable close spikes of reddish-tinted flowers. These flowers are said to be produced without intermission from spring till late in the autumn, the blooming period being of longer duration in this than in any other variety, owing to the successional branching growths. Its dwarf habit adapts it for planting near the edge of the flower-border, while, if cultivated in good soil, it is said to have a fine effect as a single specimen. For pot-culture or for market purposes it is very highly recommended.—*Gardeners' Chronicle*.

Andrew S. Fuller states that of the 500 sorts of strawberries he has tried none have given him so much satisfaction as Wilson and Triomphe-de-Gand. Just so. The one for private use, the other for marketing.

Climbing Ferns.

The cultivation of ferns is sadly neglected in this country, but as we progress in floriculture, and learn that beauty in plants is not altogether confined to those possessing brilliant colored foliage or flowers, the ferns will come in for a larger share of attention. The climbing ferns, of which there are many species, natives of different parts of the world, are really superb little plants, suitable for culture in the Wardian case, or for training on lattice-work in a window. Our native climbing fern (*Lygodium palmatum*), although quite a rare plant, can be occasionally found from Connecticut to Florida. The plants produce two forms of leaves, the lower ones being separated into five divisions or palmate, while the upper are finely cut into many. The plants grow several feet high and form a splendid natural wreath of green leaves when trained around a window or trellis.—*Rural New Yorker*.

Thinning Fruit.

Hon. Marshall P. Wilder, in his addresses before the American Pomological Convention at Richmond, Va., stated:—

This is a lesson which we have learned, and the necessity of which we have often endeavored to impress upon cultivators, and which every successive season teaches with stronger emphasis. It is absolutely necessary for all who send fruit to market, to send large fruit, and the markets are constantly and progressively requiring large and fine fruit. Even the Seckel pear, which once commanded in Boston market the highest price, will not now, unless of extra size, sell for any more, if as much as common varieties of larger size. A medium sized fruit; or even one of smaller size, may be more economical for use, but until some decided change in the preference of the majority of purchasers shall take place, large fruit will sell better than small.

To produce this, the fruit must not only have good cultivation, but must be thinned, and we agree with Mr. Meehan that "one half the trees which bear fruit every year would be benefitted by having one half of the fruit taken off as soon as it is well set, and that the over-bearing of a tree will in a few years destroy it." We may lay it down as a certain rule, that excessive production is always at the expense of both quantity and quality; if not in the same season then in succeeding ones, for when branch is contending with branch, leaf with leaf, and fruit with fruit, for its supply of light and food it would be indeed an anomaly in nature if this should not result in permanent injury to the trees as well as to the annual crop.

A Missouri farmer attempted to smoke out a rabbit, and burned up half a mile of fence, and over a hundred apple trees; but he caught the rabbit.

Our Vines.

(To the Editor.)

SIR,—The present season has been a very trying one to vines in our locality, numbers are killed to the ground, and but few will yield any crop in comparison with that of last year. We lately held a "Pow-wow" on the causes and the method of prevention in future,—some argued that as the young wood showed more fruit and less injury, that the course to be pursued was to cut away all old wood, and reduce the vine to a plant not exceeding two years growth. Others refused to allow the doctrine to be sound, and cited as an instance that hitherto almost all vines were pruned to a large old stump, not even hurting to leaving about 3 inches of last years young wood, from which to derive the sprout to furnish a supply of wood and fruit for the present year; relying entirely on a full developed eye to spring from the old wood for young wood and fruit. This course probably has succeeded in many cases, but not this year, as all the vines we examined were at that time throwing out fine sprouts from wood one year old, whilst the old wood was apparently doing little. The young wood certainly was more forward and showing for fruit long before the old ones had started, and it was argued that the week or two thus gained was of great value in this locality.

Now, what we want to know is, are we to cut away all old wood this Autumn, leaving a supply to be derived from the young? or, is it better to trust to the old wood as formerly? We already have hitherto had a "cart load" of Grapes, and have followed the latter course, but that by no means proves we have done the best can be done. If your Horticultural Editor would give us his experience, we should be able to act with certainty instead of experimenting in the dark. Grapes are such a luxury and so extremely wholesome we are determined to do all in our power to furnish a full supply.

A FAMILY MAN

THE LIEB CHERRY.—A correspondent of the *Gardeners' Monthly* says.—'This cherry was brought from Germany twenty years ago, and was planted on one of the highest points in Galena, Ill., where this tree has withstood extremely cold winters without injury, and has never failed to produce an abundant crop of fruit, (except when the blossoms were destroyed by the late spring frosts.) The fruit is very large, of a crimson color, nearly sweet, while the flavor is not surpassed by that of any other cherry. It ripens within a few days of the Early Richmond, and the fruit has never failed to bring twenty-five cents per quart in the Galena market. It has been named and recommended by the Jo Davies County Horticultural Society, also by Robson, Scular, Kit-tôc and others.'

Dwarf and Standard Pear Trees.

Two years and eight months since I planted out twenty young pear trees, Dwarfs and Standards. The plan we pursued was to so arrange the position of each tree, that the Standards (so much the longest lived) should gradually take up the room occupied by the Dwarfs, as the one increased in size and the other decreased in vitality.

Our soil being sandy, we had been warned that Dwarfs did not do well in such land. We, therefore, determined to succeed, even at the cost of extra trouble and care. To ensure doing so, we dug a hole three feet in diameter, and three feet deep, where each tree was to be planted, removing the sandy soil, as being unfit for pear trees to thrive in, and filling up the holes with rich surface clay mold. In this the trees were planted, without any other manure.

Last year many of the Dwarfs bore finely, and one of the Standards. But this season some of the trees are quite loaded. The splendid, thrifty appearance they possess, clearly shows that our extra labor has been fully repaid. Some of the fruit reached one pound weight, and numbers weighed three-quarters of a pound.

Three of the Dwarfs and one Standard failed and died all at once from some unaccountable cause. We were told it was "fire blight," as the leaves all turned black, and soon afterwards the wood blackened also. To avoid the unsightly appearance, I cut off the trees so affected, within a foot of the earth, the portion below that being yet green and showing signs of vitality. I now have cause to see that this course was a good one. The trees so cut down immediately threw out sprouts that are now seven feet high, and upwards of an inch in diameter. The old stem I pared quite away, cutting deep into the green portion, and leaving nothing to decay. The wounds soon healed, and cannot now be observed. The sprouts grow four times faster than any young tree would, and hence I would most certainly advise any one whose young trees are suffering, to take this course, and at once remove the diseased part, cutting clean off the stem, and trusting to nature to renew the tree with a more healthy growth.

If the cause does not lay in the soil, you will thus renovate a tree much quicker than you can grow another, provided the stem be not too large before the amputation takes place. I sometimes think the roots of diseased trees are sound, and that the injured portion is affected by some local cause other than root influence, and hence the success of the experiment.

C.

It is better to have the fruit garden separate from the kitchen garden, if one is able to do so, if for no other reason that the trees and bushes are liable to be broken in cultivating among the garden crops.

Cucumbers for Pickles.

SOIL.

Pickles will grow upon almost any light porous soil, if properly enriched—from a light sandy, or gravelly loam to a black muck. We generally plant them on muck, for two reasons; First, low, wet muck land often fails to become dry soon enough to plant early crops, but is in good condition early enough for pickles; second, it will endure our severe drouths better than upland. It is of little consequence whether the ground is sod, or stubble provided it is well manured, and worked deep and fine.

WHEN TO PLANT.

This depends much upon your market. If you expect to sell to a pickle factory, and they will engage to take your pickles right along, after the 1st of August, then it will do to plant as early as the middle of June, for they usually require from six to eight weeks to grow large enough for pickles; but if you are to depend upon families for your market, then the first of July will be quite early enough, for it is difficult to prevail upon families to commence laying down pickles until the weather begins to set cool, near the first of September.

HOW TO PLANT.

There are two methods practiced by pickle-growers, each of which has its advantages, and advocates, planting in hills, and planting in continuous rows. Planted in hills, they are gathered more easily, as the rows of vines are more broken. Planted in rows, there is greater certainty of the grounds being occupied, without those vacancies frequently occurring in the other method from missing hills. In either case the ground should be marked out into very straight rows, six feet apart. A shovel plough is convenient for marking, as it makes a wide clean furrow for the reception of the manure. For hills, a shovel full of well rotted barn-yard manure should be dropped every three feet, and with a hoe well mixed up with the soil. From one to two inches of fine soil should be spread over, as a proper seed-bed for the cucumbers to start in. From twelve to twenty seeds should be scattered upon this, and covered with about three-quarters of an inch of dirt free from all obstructions, and the surface compacted with the back of the hoe. If sown in rows, the manure should be scattered all along the furrow, and the seeds sown in a broad, continuous row. It will require about two pounds of seed to plant an acre of hills, if used liberally, so as to provide for insects, and about half a pound more in rows.

VARIETIES

Many customers will do for the Long Green variety, considering the long slender pickle more fanciful, but the experienced housekeeper knows that it is liable to be tough, especially quite a portion near the stem, and she has learned that the Green Cluster, although shorter and thicker, makes

a tenderer pickle. The experienced producer knows that he can grow two or three times as many Green Clusters to the acre, and is unwilling to grow the Long Green unless he can be assured twice as much per thousand for them. Every year's experience is probably increasing the proportion of Green Clusters planted.

CULTIVATION.

To make the pickle crop grow fast, and become productive, it is essential that the soil be frequently stirred by the cultivator, and be kept clean around the plants, by hoeing and weeding. The cucumber seems to feed largely upon water and the gases, hence the soil should be kept mellow to admit them freely to its roots. As the vines begin to run, great care should be exercised to avoid tearing or crushing them, as it would diminish their yield.

GATHERING THE CROP.

This is an easy task, and is best performed by light workmen. Small, sharp knives, that can be bought, at most hardware stores, for about fifteen cents each, are best adapted to cutting the pickles from the vines. A half inch, or so, of them should be left attached to the pickle. The smaller the pickle that will satisfy the customer, the more profitable for the producer. To prevent their becoming too large the vines should be carefully looked over as often as every alternate day, for every cucumber left to grow large, or mature, diminishes the bearing capacities of the vines. It is well to assort the pickles into two or more lots, as some customers prefer large, and others small ones.

VALUE OF CROP

It is very difficult to estimate the average value of the crop, so much depends upon the yield, affected by the length and temperature of the season, the size of the pickle, and the price. But as the price is so much controlled by the yield, the gross receipts do not probably differ a great deal in different seasons.

In this vicinity we should state the yield at 125,000 per acre, and \$2 per 1,000, in favorable seasons, but 50,000 per acre, and \$2.50 per 1,000 in unfavorable seasons. We think the good cultivator can calculate upon an average gross receipt of \$225 per acre, and that sixty per cent., or \$135, of that will be profit.—*Rural Home.*

TO CLEANSE FRUIT TREES FROM MOSS.—Not only the mosses and lichens which so generally effect fruit trees, but the eggs of insect's, may be effectually destroyed by dressing the trees in winter, with a wash composed of a saturated solution of soft soap and common salt or brine. The trunks and large branches ought to be first scraped with a scraper made of old hoop or any other implement that may be improvised for the purpose, and when all the scales of bark are removed, apply the mixture with a painter's brush, working it well into the crevices. This is much preferable to, and not so unsightly as, washing with lime.—*Gardener's Year Book.*

Guelph Horticultural Society.

The Spring Show of this Society was held in the Drill Shed on Wednesday the third day of July. Two tables extending the entire length of the Shed were filled with flowers, and a third of the same size was filled with fruit and vegetables. The appearance of such a collection of the useful and ornamental is always pleasing, pleasant in the gratification it gives to the senses, delighting the eye with rich and varied coloring, and filling the air with fragrance, and pleasant in the evidence it gives of refined tastes and advanced culture in the community by whom these collections are grown.

When it is remembered that there is but one greenhouse in Guelph, and that by far the greater part of these plants have been grown in the window, one is surprised to find so many and so well grown plants. Surely the love of flowers must be very generally diffused among the good people of Guelph, and one can but feel drawn towards the unknown fingers that tended, and the unknown hands that so loved these beautiful flowers.—so loved them that they gave them the best place in the dwelling, and cared for their wants while they cared for the children. And they are paid, well paid for their loving care, paid in the pleasure they have derived from watching their growth and blooming, and paid in the refining influence these very flowers exert upon the home circle.

To the searcher after novelties there was not much to attract attention, yet the varieties shown prove that the newer introductions are not neglected. Some of the plants were remarkably well grown and presented a very pleasing appearance. A small collection of seedling verbenas presented some very fine blooms, shewing that it is quite possible to raise at home as choice varieties as can be found abroad.

Fuchsias and Geraniums seem to be favorite plants, judging from the number displayed, and though one could not find Smith's Avalanche among the former, nor Jean Sisely or Charles Glym among the latter, yet the sorts shewn were many of them of quite recent introduction. Elm City and M. Cornelissen among the Fuchsias, Madame Voucher, Lord Derby and Charmer, Madame Lemoine and Andrew Henderson, among the Geraniums shew that our Guelph friends are keeping pretty well abreast of the times.

The display of fruit was not large, in truth not as large as we expected to see. A few apples of last year, some ten plates of cherries, a goodly number of plates of currants and gooseberries, and less than twenty plates of strawberries comprised the collection of fruits. The very dry weather that has prevailed, filling the air with dust, has been very unfavorable to a display of that fruit which might naturally be expected to appear in greatest force. Such weather is extremely unfavorable to fine strawberries, and to this the want of display in this fruit must be attributed.

The collection of vegetables was large, and on the whole, very creditable. Early potatoes doubtless needed more frequent showers, but they were of very fair size. Among the Peas we noticed that superior variety the McLean's Advancer, a most deliciously sweet vegetable for the table, that our worthy hotel keepers should introduce to their guests in the place of the dry, tasteless shot they now give us. There were also some fine samples of that best of onions for table use, the Potato Onion, so called because it multiplies under ground.

This Society has existed, we believe, for something over twenty years, and has maintained a continuous and uninterrupted vitality, not dying out every now and then, and standing up with a sort of spasmodic life, as has been the case with horticultural societies in places that boast greater horticultural advantages. We congratulate our friends on their enterprise and success, and the work they have done in disseminating a taste and love for choice fruits, fine vegetables and beautiful flowers.

THE ORCHARD WORTH CARE.—It certainly pays to take a little pains with young trees, for what is there that is more remunerative than an apple crop one year after another? Who among our readers would be willing to take \$5 per tree for an orchard of young apple trees just coming into bearing? We have now an orchard of 600 apple trees, covering a lot of 15 acres, that we would not have taken from our grounds for \$3,000. Add five years more to them and one will see what they will add to the land. It is the strangest thing to us to see farmers owning 100 to 200 acres of land, with barely enough apples to supply the family; or, perhaps, an old orchard of 100 to 150 trees occupying three or four acres of land, from which they realize more profit than any 20-acre field they have, not planting more apples, or, after they do plant them, not giving them the proper care. When will farmers see this in its true light?—*Small Fruit Recorder.*

European horticulturists have lately adopted a mode of making rose cuttings root with more certainty, by bending the shoot and inserting both ends into the ground, leaving a single bud uncovered at the middle and on surface of the ground. The cuttings are about ten inches long, and are bent over a stick laid flat on the ground, holes being dug on each side of the stick for the reception of the ends of the shoots. The roots form only at the lower end of the shoot, but the other end being buried, prevents evaporation and drying up. A correspondent of the *London Garden* states that he has tried this, along with the old mode, and that while the weaker cuttings of the latter have shown symptoms of drying and failure, all the former have grown vigorously. Of course now is the time to operate in this way, while the plant is in the full vigor of growth.

Fruit in Amabel, County of Bruce.

The weather at present is very warm and dry, the grubs are doing a great deal of harm to the garden and field crops, both here and in the surrounding Townships. Small fruits will be very abundant, so will plums. Apples will be about an average. Pears promise well. Cherries are light, but there are not many raised. The fall wheat is good and spring wheat promises well. Peas, barley, and late oats are injured with the grub. Hay will be above the average. I never saw it better.

W. SIMPSON.

Amabel, June 25, 1872.

Killing Cut Worms.

St. Joseph, Mich., is again the theatre of another wonderful discovery in the way of destruction to insect enemies. It will be remembered that last year Mr. Ransom discovered the chip trap for catching curculios. Now Mr. Boynton has discovered a method of trapping cut worms by the thousand. It came about in this wise: In a field of tomatoes he was much troubled with the worms destroying the plants. Thinking they might be baited, he cut some green clover, wadded it up into small balls and distributed them among the hills of tomatoes, and found that the worms would collect about them, eat and go into the ground near them. In this way he took from the locality of these balls the numbers of 37, 68, 70 and 82. He has experimented with various poisons mixed with the clover to destroy them, and at last took boiling water pouring it over and about these wads, in that way destroying 15,000 in a single day.

The grasshoppers are again depredating extensively in Utah.

Four cases of cauliflowers, through in seven days from the stalks, were recently received in New York from Sacramento, Cal.

SCOTCH GARDENING.—Scotch gardeners and gardening have long enjoyed a well-sustained reputation. Various reasons have been assigned for this, such as their teeming numbers, climatal difficulties, and the genius and education of the people. As to the first, the Scotch have been called a nation of gardeners; they are, as it were, to the manner born. It has been facetiously added that they strike gardeners in Scotland like gooseberry bushes, and that, moreover, most of them find good warm roomy quarters in the south. To the majority of Scotch gardeners difficulty is simply a thing to be vanquished—a sort of mental spring-board by which to vault across the gulf of failure on the sure, solid ground of complete success. Cold, sunless skies but warm their skill into life; thin, poor soils are manured thickly with fruitful expedients. The school of trial turns out the most accomplished pupils, and the hill of difficulty is the best of all constitutionals for the strengthening of mental backbones. The best gardeners, whatever their nationality, have learned in this school, and exercised on that hill, till all things have become possible—easy to them.—*The Gardener's Chronicle*.

Poetry.

Aspirations.

Higher yet and higher,
Speed with upward wing
Pause not in thy mission,
Strive at once to spring;
Fling thy thoughts to heaven,
With hope's incense fraught,
That when earthly ties are riven,
Thou may'st reach thy thought

Higher yet and higher—
He who travels fast
By keeping on untiring,
Will reach the goal at last.
Never heed the distance,
Ere the goal be won,
Space hath no resistance
To him who travels on.

Higher yet and higher!
All that lowers spurn,
Flames in lofty regions,
Purer, brighter, burn,
Though our hearts be nearest
To the things we love,
He sees earth the clearest
Who gazes from above

Higher yet and higher,
Bid thy spirit soar
Through life's changeable ocean
Ply the strongest oar.
Fly ambition's juggle,
Shun the tempter's cup,
Better in the struggle
Die,—than give it up.

Higher yet and higher
Bid thy hop ascend,
Who keeps in view the summit,
Gains it in the end
Heaven hath dominions,
Naught can give us higher
Spirit plane thy pantons,
Higher still and higher

Woburn.

W S

The Childless Mother.

BY MARY CLEMMER AMES.

I lay my tasks down one by one,
I sit in the silence in twilight's grace—
Out of its shadow, soft and dumb,
Steals like a star my baby's face.

Mocking cold are the world's poor joys,
How poor to me all its pomp and pride!
In my lap lies the baby's idle toys,
In this very room the baby died.

I will shut these broken toys away
Under the lid where they mutely bide,
I will smile in the face of the noisy day,
Just as if baby had never died.

I take up my work once more,
As if I had never laid it down;
Who will dream that I ever wore
Motherhood's fine and holy crown?

Who will dream my life ever bore
Fruit the sweeter in grief and pain?
The fitting smile that the baby wore
Out-rayed the light of the loftiest brain

I'll meet the man in the world's rude din,
Who hath outlived his mother's kiss,
Who hath forsaken her love for sin—
I will be spared her pang in this.

Man's way is hard and sore beset:
Many must fall but few can win.
Thanks, dear Shepherd! My lamb is safe,
Safe from sorrow and safe from sin.

Nevertheless, the way is long,
And tears leap up in the light of the sun.
I'd give my world for a cradle song,
And a kiss from baby—only one.

Household.

Slop Barrel—Substitute for a Drain.

I was troubled in regard to waste from kitchen; tried underdrains both of wood and tile, and found many would become stopped up after a time. Then I tried open drains; the unpleasant odors from the gutters soon ended that experiment, but for the last five years I have been following a plan that I think better than underdrains even if they would work well.

I took an old axle with wheels, and had the blacksmith cut the axle, take a piece out, weld it together again so that it was just wide enough to go through my garden gate. I then had shafts set on top of the axle and bolted to it; the ends projected over behind some two and one half feet and had iron hooks to them, the shafts being connected together at the other end by a stout cross piece to push or pull by. The axle should have iron stays to come up from it to the shafts to make them firm.

I then got a common coal oil barrel and had "lugs" put on each side by the smith. This stands outside the kitchen door, and is the receiver of all waste from the house, kitchen and laundry, and once or twice a day the wheels are run up to it, the hooks hooked into the "lugs," and with the weight of a good sized boy, the barrel is raised and taken to the garden or compost pile, and its contents go to enriching the soil for future crops. I thus get rid of the refuse from the house in an effectual and economical way, and have, besides, a pair of wheels that are useful in various ways. The shafts have boards nailed to them over the axle and will hold wood pile, two bushel baskets of corn, crates of peaches, etc.—*Cor. Country Gentleman*.

Farm Household.

We, farmers, all live more or less in the home, and it is there we ought always to find comfort, rest, and peace. If we do not, there is some fault somewhere. The members of a farmer's family necessarily depend largely on each other. In cities or towns there is so much less immediate and actual contact that this is not equally felt. It little signifies whether the household is in affluence, or comparative poverty, without peace amongst its inmates there can be found no true rest after labor is over. A great deal depends on ourselves, and our bearing and treatment towards each other. If the father is violent, so will the sons be. If the mother is slovenly and idle, untidy and cross, the daughters as a rule, will follow her example. If the father and mother quarrel, so will the sons and daughters. If the sons are unbrotherly to their sisters, there will be little kindly feeling in return. In short, forbearance and mutual consideration should be the constant aim of all in-

mates of the farm household. Our whole lives are virtually made up of small pleasures or pains, small outlays and incomings, bickerings and forgivenesses, small family jars and forgetting them. We are all living in detail: and how much misery and unhappiness, as well as comfort and peace, arise from small beginnings. A spark kindles a fire where there is combustible material all ready. Gregarious animals, and man certainly comes within that category, must agree, or misery is the unavoidable consequence. On the farm, all this is felt more than elsewhere; there all are under the immediate parental control, and not having the restraining influence of other, and less familiar power, there exists the more necessity for a constant guard over our actions and words. It often happens that these disagreements commence with the parents themselves. They are occasionally too exacting to those in their power, and consider severity towards their children likely to coerce them into duty and obedience. I am strongly of opinion this course is a bad one, and will not, and usually does not succeed. Gentleness and consideration with all reasoning beings, will in the long run answer much better. Nine times out of ten these kindly feelings in a household, depend on our avoiding giving offence to each other in little things. These minor offences often rankle deeply in our minds; and some minds are so constituted they cannot forget these troublesome interruptions of harmony. The best thing any family can cultivate, so as to do away with the chance of this sort of things, is to behave to each other in the polite and agreeable manner it is customary to use towards strangers. A little politeness, a little cultivation of good breeding, determination to avoid giving or taking offence, will generally ensure peace and comfort at home on the farm

FARMER JOHN

FRUIT IN TIN CANS.—The *Boston Journal of Chemistry* says:—"The impression prevails among those who use freely fruits which are put up in tin cans, that they are injured thereby, and this impression is in many cases correct. We have long contended that all preserved fruits and vegetables should be stored in glass, and that no metal of any kind should be brought in contact with them. All fruits contain more or less of vegetable acids, and others that are highly corrosive are often formed by fermentation, and the metallic vessels are considerably acted upon. Tin cans are held together by solder, and alloy into which lead enters largely. This metal is easily corroded by vegetable acids, and poisonous salts are formed. Undoubtedly many persons are greatly injured by eating tomatoes, peaches, etc., which have been placed in tin cans, and we advise all our friends who contemplate putting up fruits the present summer to use only glass jars for the purpose.

Rural Architecture.

Concrete Walls.

In constructing concrete walls economically, a few rules must be observed, without which the walls must be made of more expensive material, or otherwise they will be soft and crumbling in their tenacity.

Instead of the ordinary broken stone generally used, any rough material will answer very well, as a foundation mass, wherewith to incorporate the lime and mortar. Old bricks, stones, rubble of any sort, coal ashes, coarse gravel, fine gravel, coarse sand, in fact, anything that is perfectly free from earthy matter; the coarser, however, a portion of it is in its size, under that of half a brick, the better, provided there is sufficient small stuff to fill up all interstices when mixed with mortar in a semifluid state, and poured in amongst the rougher materials.

The lime used must be first rate, fresh and hot, and entirely unslacked, at the time of using. Air slacked lime will not answer. One barrel of water lime to four of ordinary lime will cause the mortar to set much more quickly when speed is an object, but of course the cost will be somewhat increased.

It will be readily seen that with the exception of the lime, and hauling the rubbish otherwise used, there is but little expense for material. Where there can be procured without much cost, concrete walls are the cheapest, the warmest, and at the same time the coolest of any description of building material.

These advantages apply more particularly, when building a dairy where the great requirements are sweet, untainted atmosphere, and constant, unchanged temperature. Bricks, unless plastered, are objectionable, as being too absorbent, and liable to mould. Wood will not answer at all, as during decay, partial or not, it always communicates a bad odour. Stone cannot always be obtained, and is an expensive wall, unless where it encumbers the earth, and its removal is an object. But concrete walls may almost always be put up; they require but little skilled labor, and where materials are abundant, are certainly two thirds cheaper than stone.

We will suppose a building, such as a dairy, is required, and that the size of the building need not exceed 14x14 outside, and about 7 feet high, with one door and two windows, one on each side of the door. These windows should not exceed 4 lights each of 6x10 glass, and should turn on their centres with pins, and be defended by wire netting on the outside. The building may be built in any locality, but it certainly must be protected by trees, or something equivalent, wherever it is. The walls are thus made: after the usual foundation trench is dug, say twelve inches wide, and any depth required, and filled up with broken stone, or rubble;

the lime must then be slacked, and whilst hot and steaming, mixed with sand and gravel into a soft sloppy mortar, but very "poor," as it is called, with lime. In fact, it must be so thin as to ensure its running into every crevice in the stone work; sand, gravel, and all must be poured down together.

To ensure this being done well, the layer of stones, must not be more than about 8 to 12 inches deep, or there will be crevices left unfilled. When you have gone all round the building once, you must have used all the mortar you have, and make up more as required. We will now suppose the course repeated until the surface of the earth is reached, or probably a foot above it, and the mortar must be kept from running out until it sets by boards at the sides placed perfectly straight and true, one on each side, all round the building. In our present case four boards 14 feet long and 17 inches wide, and four 12 feet boards of the same width will answer well enough. These boards are supported on tough oak pins, of which you require two sets, or 24 in number, three on the inside, and three on the outside, of each wall; one set remaining in use, whilst the other is removed as the wall rises in height. These pins are made 2x2 inches at one end, and 1½x1½ at the other; this taper being to facilitate their withdrawal as they are wanted, and the wall rises. They are 20 inches in length, and have a ¼ inch cross pin through each end, at 14 inches apart. These cross pins form the gauge for the width of the wall, and serve to keep the boards in their places, when the mortar is thrown between them. There are square notches cut two inches deep in all the boards, three on each side—one at each end, and one in the centre; but they must be all cut absolutely alike, and so truly marked out, that the notches of any board will correspond with those of any other board, no matter which end of it is used.

We will now begin to lay up a row of concrete; but first we must place the tapering pins in their places on the foundation, one at each end, and one in the middle of each wall; on these pins place the boards, the cross pins prevent them spreading. The upper row of pins are similarly placed at the top of the boards, in both cases resting in the notches cut to receive them. This arrangement forms a trough into which the concrete is to be dumped if gravel is used; and if layer stones are used they must be built into the wall on their flat until the boards are filled, and as fast as they are loosely packed in, the mortar is dumped in on them. This must be just soft enough to flow into all the crevices, and yet not soft enough to run out below; a little practice will readily meet any small difficulties of this sort. As soon as one side is full, pass on to another; and directly the mortar is set sufficiently to admit of doing so, remove the small cross pin and release the boards;

then a tap with a hammer on the small end of the tapering pins will loosen them so as to draw out all the bottom row; place the boards again in position, resting on the upper row of tapering pins, draw in the small cross pins, and place the tapering pins again in the upper notches of the boards, and fill up a second row of concrete and mortar, and so on all round the building, until the walls are high enough, building in doors and windows as you go on. Two smart men would readily build a dairy of this sort of construction in about two or three days. When commencing, after the boards are in their places, a little stiff mortar should be spread all along the lower edge, so as to stop the soft mortar running out when poured in afterwards. If plenty of gravel exist on the spot there is no difficulty in running up the walls, as fast as it can be shovelled into the troughs. Of course in this case the gravel, sand, and lime are all mixed together on the ground, and placed on the wall. The only special care required, being to keep the boards true, and straight, or the wall will be crooked and unsightly, as it cannot be straightened afterwards.

In further corroboration of my own experience and opinion, I saw and inspected such a concrete building, now used as a store and dwelling house, built in one of the largest cities in Canada West, and the proprietor told me he built it last summer, with his own hands. He had two laborers to wheel up the stuff to him, as fast as he laid it up in the wall; I inspected the building and found it upwards of fifty feet long, and twenty inside, by twenty-nine feet high. I was told that the cost was not above one fourth that of an ordinary brick building, and am convinced it is much more durable. The time occupied in its construction, was seven weeks for three persons; and the man who built it had never been engaged at such a job before building this one. Of course all carpenter work was about the same as in other cases.

C.

Number of Shingles in a Roof.

J. D. Tate gives to the New York Farmers Club a rule for estimating the number of shingles required for a roof of any size, one which he thinks every mechanic and farmer should remember. First find the number of square inches in one side of the roof; cut off the right hand or unit figure, and the result will be the number of shingles required to cover both sides of the roof, laying five inches to the weather. The ridge board provides for the double courses at the bottom. Illustration; Length of roof, 100 feet; width of one side, 30 feet— $100 \times 30 \times 14 = 432,000$. Cutting off the right hand figure we have 43,200 as the number of shingles required.

Agricultural Intelligence.

AGRICULTURAL AND ARTS ASSOCIATION.

MEETING OF THE COUNCIL.

A meeting of the Council of the Agricultural and Arts Association of Ontario was held on the 20th June in the Board Room, Agricultural Hall. Present—The President, Mr. Stephen White (in the chair); Mr. Hugh Thompson, Secretary; Hon. David Christie, Messrs. James Young, M.P., and J. C. Rykert, M.P.P., George Graham, Archibald McNab, Nathan Choate, Andrew Wilson, Robt. Gibbons, M.P.P., George Murton, Irwin Diamond, L. E. Shipley, and Rev. Dr. Burnett.

THE APPROACHING EXHIBITION.

Mr. MURTON moved, seconded by Mr. GIBSON, "That the President, Messrs. Rykert, Burns and Wilson be a committee to proceed to Hamilton to confer with the local committee of that city as to the necessary accommodation for the successful carrying out of the exhibition this year, with power to make the necessary arrangements." Carried.

COMMUNICATIONS

were read

From the Secretary of the New York State Agricultural Society, with copies of the report of that association for 1889.

From Mr. John Watson, of Ayr, declining to send a memorial asking for the abolition of prizes in the implement class.

Mr. THOMPSON explained that the reason that Mr. Watson declined to send a memorial was that the letter he had previously sent, asking for the abolition of the prizes, was signed by himself as Secretary, and by the President of the meeting of manufacturers, who decided that the prizes should be done away with. After receiving the last communication from Mr. Watson, he (Mr. Thompson), sent circulars to the different implement manufacturers of the country, with a view to ascertaining whether they desired the prizes abolished or not. He received answers from about 40 manufacturers, of whom more than one-half were in favour of doing away with the prizes. The smaller manufacturers were in favour of continuing them.

From John Denis, of Newmarket, asking that a prize be given for the best barn to be erected on the fair ground.

From different parties making tenders for supplying furniture for the Board room.

From Thos. McLean, suggesting certain changes in the Poultry Department.

From Hugh Miller, presenting the Association with a beautiful solid silver cup to be given as a prize for the best pair of fat cattle exhibited at the next exhibition.

On motion of the Hon. DAVID CHRISTIE, seconded by Mr. GRAHAM, it was agreed that the thanks of the Association be conveyed to Mr. Miller for his gift.

PRINTING.

Mr. THOMPSON said that two tenders for the printing of the Association for the year had been received. One of them, which was from THE GLOBE Printing Company, was much lower than the other.

On motion of Mr. SHIPLEY, seconded by Mr. MURTON, it was agreed to accept the tender of THE GLOBE Printing Company.

PRINCE OF WALES' PRIZE MONEY.

Mr. GRAHAM said that at the last meeting the President and he were appointed a committee to invest the Prince of Wales' prize money, amounting to about \$800. They had invested it in mortgages bearing interest at the rate of 8 per cent.

THE PROVINCIAL EXHIBITION.

The report of the executive committee was then taken up. It recommended that from the rules for the approaching exhibition, be omitted the following, which was among those of last year:—"In the classes of Horses and Cattle, all male animals above one year old must have served in the Province one year previous to the Exhibition, or serve one year thereafter;" that an extra man be employed in the fruit on the Friday of the exhibition week to prevent the removal of specimens; that the Prince of Wales' prize be given to the best flock of Cotswold sheep, which shall consist of one ram, one ram lamb, five ewes and five ewe lambs; that improved Berkshire pigs be placed first in the classes of pigs, and Yorkshire and other large breeds last; that dairy products, &c., be placed in the agricultural department, before the classes of fruit, &c.; that Mr. Hugh Miller's cup be given for the best pair of fat cattle of any age; that a class of three sections be made for Lincoln sheep, two prizes in each section; that no third prize be given for Shropshire, Hampshire and Oxfordshire Downs sheep; that no third prize be given for fine woolled sheep; that the pens of Cotswolds and the pens of Leicesters each consist of one ram, three ewes, and two ewe lambs; that the poultry be fed and cared for at the expense of the Association; that steam power and shafting be provided by the Association for the working of machinery on the grounds; that a separate class be made for wines, apart from the fruit class; that the words "not less than" and "not more than" be omitted from several sections in the collections of fruit; that two sections be made for collecting minerals, one for Ontario south of, and the other for Ontario north of Lake Nipissing; that the sum of \$1,000 be appropriated for the holding of two Provincial ploughing matches in the autumn after the exhibition—one east and the other west of Hamilton—that rule 43 be amended, so as to read as follows,—"Any person who shall attempt to interfere with the judges while in the discharge of their duties, or who shall afterwards on the premises of the Association use any contemptuous or abusive language to any judge, in consequence of any award made by him, shall forfeit his right to any premium to which he may otherwise be entitled, and shall be excluded from exhibiting for one year thereafter." The committee would not recommend that the prizes for agricultural machinery and implements be done away with.

The above recommendations were all adopted by the Council, and some further alterations were made in the prize list.

THE EXHIBITION BUILDINGS.

Mr. KEYS, the Superintendent, attended and gave information with respect to the exhibition buildings at Hamilton.

On motion of Rev. Dr. BURNETT, it was resolved that if practicable the fruit, flowers, &c., shall be exhibited in a different building from the one one roots, &c., are to be shown in.

PLOUGHING MATCHES.

It was ordered that a notice be printed with the price list, setting forth that two ploughing matches will be held, one within 20 miles of Belleville, and the other within 20 miles of London, and that \$400 will be distributed in prizes at each.

In the course of the discussion that took place, it was suggested that the prizes be not fixed yet, as implement manufacturers might desire to offer some special prizes.

The President, Hon. David Christie, and Messrs. Wilson, Shipley, and Diamond were appointed a committee to make arrangements for the matches.

The Council then adjourned until the evening, when they met again and appointed the judges.

Beet Sugar in Illinois.

The experiment of profitably manufacturing beet sugar at Chatsworth, Illinois, has proved a failure, and the company conducting the enterprise have removed the manufactory to Freeport, in the same State, in order to test the matter there. The soil at Chatsworth, though producing fine beets, is said to contain so much saline matter that, coupled with the want of a proper supply of water, the sugar could be produced only at a loss. The Chicago Western Rural, from which we get the facts, states also that the buildings and arrangements at Chatsworth were not well planned for economizing labor, and that after boring thirteen hundred feet for water they failed to get a supply. In view of all these untoward circumstances, the company, still determined to succeed if possible, have removed the works to Freeport, and will be ready when the beet crop matures, to open business there. They certainly are to be commended for their persistence, and we cannot but hope that they will achieve success in the new location. They resume the undertaking, as the *Rural* thinks, under much more favorable circumstances, the buildings and machinery being greatly improved, and the water supply—of which they require fifteen cubic feet per minute—being much more abundant. The expense of moving, with the improvements added, will amount to about \$150,000.

Mr. Rosensteil, one of the leading proprietors, has two hundred acres now in beets for the manufactory, and there are about five hundred acres more contracted for by farmers residing within eighteen miles of Freeport. The price, delivered at the factory, is \$4.50 per ton, or \$4 per ton at the railroad depots where shipped. The prospect for a good yield per acre is not so good as could be wished, owing to a mistake in using too little seed per acre, and to insect attacks, but the test of success or failure in the new location will in all probability be decided with this year's crop.

The results so far indicate that the analysis of soils, and of the beet itself, do not necessarily indicate success in its manufactory. One mistake at the outset was in supposing that a splendid soil for corn would also do well for beet sugar. Perhaps it may eventually result also that soils at the east not so rich naturally as Illinois, may prove to be better adapted for beet sugar than the prairie soil itself. Since it has grown successfully in

Europe on soils not virgin, but kept rich by high culture, this result would not seem to be at all surprising.

The *Rural* states that millions of capital have been held in abeyance to know the result at Chatsworth. With success once demonstrated, it is probable that it will become a great industry, and this prominent instance of failure now does not seem so discouraging when it is remembered (as the *Rural* shows) that one of the now richest beet sugar manufacturing companies of continental Europe made three disastrous failures before finally succeeding:—*Country Gentleman*.

Ohio opens her Agricultural College next Fall.

San Francisco has sent forty cargoes of wheat to England since July last, valued at \$2,951,000.

Great numbers of agricultural machines are daily passing to the great Northwest through Sioux City, Iowa.

The famine in Persia is likely to be followed by a season of plenty, as the crops are reported to be in magnificent condition.

"You have only yourself to please," said a married man to an old bachelor. "True," replied he; "but you don't know what a difficult task I find it."

At the Mitchell station last week, 104 cars were freighted and shipped, and this week bids fair for nearly the same number.

The Michigan Central Railroad Company has started the running of a refrigerator car from Grand Rapids, Mich., eastward, designed to transport perishable articles, and maintain them in a fresh state.

The Agricultural Society of France offers a prize of 2,000 francs and a medal for the best memoir "On the Theory and Practice of Irrigation." The papers are to be sent to the Secretary before the end of this year.

The *Huron Expositor* is informed by Mr. Shantz, of the Scaforth flax mill, that a very large breadth of flax has been sown in this neighbourhood this season, and we are pleased to learn that the prospects of an abundant yield are most promising. Many farmers who only sowed a very small patch last year, have gone into it much more extensively this year, and judging from present appearances, their profits will be even greater than last year.

The prospects of the growing crops in the vicinity of Orillia are most encouraging, with the exception of peas and oats injured by the grub. The following, with reference thereto, is taken from the *Northern Light*:—"Owing to the destructive depredations of grubs, peas and oats in some localities are a complete failure. Fall wheat promises to be a splendid crop. Spring wheat also looks exceedingly well. The meadows never looked at this season of the year to better advantage; new meadows especially present a rich, luxurious appearance. Potatoes in all sections (provided they escape the usual incidental causes of failure) will yield abundantly. Altogether, the prospects of a bountiful harvest are very good indeed."

Chas. E. Whitecombe, Esq., of Ancaster, has lately bought from the Hon. Geo. Brown, Bow Park, Brantford, the thoroughbred Short Horn bull, "4th of June," [1826], Canada Herd Book, now aged 22 months. We understand that he is doing well, and, though only in good serviceable order, has dipped the scale to over 1100 lbs.

The new Cheese Factory started in the village of Baltimore this spring, is now in successful operation, and is making at present over five hundred pounds of cheese a day. Should the patronage increase as it has done, the Company will have to enlarge their establishment, as they are now getting nearly as much milk as they can work up.

The West Northumberland Agricultural Society, assisted by grants from the Municipalities of Cobourg, Hamilton and Haldimand, have lately purchased a piece of ground in the town of Cobourg, for the purpose of holding Fairs, and Agricultural, and Horticultural shows. They are at present preparing to get the ground inclosed with a close board fence, nine feet high, and to have suitable buildings and pens erected on it, in time for the proposed Union Show this fall.

The *New York Bulletin* calls attention to the significant relations of the exports of grain from the United States and from Canada. It shows that Montreal is now the second commercial city on the continent. She has forty-one regular steamships plying to Europe, and her receipts of grain have risen from 6,750,000 in 1860 to 16,000,000 in 1871, while New York, even with reduced canal tolls, scarcely maintains the position of a dozen years ago.

As an evidence of the increased value of farms in some of the western counties of Ontario we may instance two or three sales in the township of Downie, county of Perth, as noted in the *Stratford Beacon*: Mr. John Jones has made an excellent sale of one of the best cultivated farms in the Province—lot 4, con. 5, Downie, 98½ acres—to Mr. George Gibb, for the sum of \$6,400. Mr. Jones receiving this year's crop.—An equally good, if not better, sale has been effected by Mr. Thos. Orr, of his farm of 112 acres, in the Gore of Downie, for the sum of \$8,000, cash. The crop in this case goes with the land. The purchaser is Mr. Jacob Brunner of Ellice. The farm of 90 acres belonging to Mr. John Odbert has been sold for \$5,500.

IMMIGRATION REPORT.—The returns for the month of June at the Immigration Depot here are as follows:—English, 745; Irish, 210; Scotch, 370; Germans, 550; Norwegians, 900. Of these numbers it is estimated that 1,750 went on to the United States—namely, all the foreigners; the remaining 1,325 stayed in Canada. For the first six months of this year the number arrived at Toronto was 10,523; for the first six months of last year the number was 14,576; but it appears that a much larger proportion of the immigrants remained in Ontario this year than last. It is also stated that the demand for farm labour far exceeds the supply. Farmers, last week, were offering for hands from \$20 to \$25 per month, with board.

The spring in Northumberland county was late in opening, but the ground was so dry that it was in fine condition to plough and sow as soon as the frost was fairly out; the seed was got into the ground in the very best condition, and as there was no stop to the work after it did begin, it was nearly as soon got in as usual. The weather kept long cool and dry, but the seasonable rains of the latter part of May and beginning of June brought away the crops well, so that almost all spring crops are now looking unusually well for the season. Fall wheat was very much winter killed, and most of it had to be re-sown, but where it happened to escape the winter killing it looks well. Hay will be a poor crop, as the young clover was mostly killed out, and the old meadows are very light. It has been a favourable season for turnip sowing, and they are coming up finely.

SALE OF SHORT-HORNS.—The auction sale of Messrs. John Snell & Sons came off on Thursday last, at Edmonton, when fourteen cows and heifers and two bulls were disposed of at fair prices. Mr. R. A. Pabbege, of Dubuque, Iowa, was the principal purchaser, he carrying off eleven of the sixteen animals sold. He bought *Knight of the Lodge*, bull calf, for \$200; three yearling heifers, *4th Duchess of Solway*, *Eugene*, and *Bitter Sweet*, for \$250 each; two 2 year heifers—*Josephine* for \$325, and *Lady Gray* for \$260; and five cows—*2nd Duchess of Solway*, for \$375; *Welcome*, for \$320; *Tillie Courtney*, for \$330; *Emma* and calf, for \$400; and *Maid of La Prairie*, for \$270. Mr. W. T. Benson, of Edwardsburgh, bought *Princess Louise*, yearling heifer, for \$265; and *Blanche*, a 12-year cow, with her calf, for \$255. Mr. James Robson, Albion, bought *3rd Duchess of Solway*, yearling heifer, for \$170. Mr. Robert Paterson, Owen Sound, bought *Regina*, a 12-year cow, for \$195. Mr. Lemon, of King, bought a 9-months' bull-calf for \$100. The total amount of the sale was \$4,255.

From reliable accounts from Waterloo and adjoining counties, the Berlin *Telegraph* learns that the crops are promising. Fall wheat in this county is by no means equal to former years, much of it having been killed by the severe winter, but what remains is looking well. In Woolwich the yield promises to be nearly an average one, many fields on the northerly side of the township presenting a remarkably fine appearance. We know of one gentleman in the neighbourhood of Winterbourne who has a large field of this staple cereal in which the stalks now stand 5 feet 6 inches high, are well headed out and the whole crop unusually even.—We are glad to learn that in the counties to the north of this the fall wheat has suffered comparatively little from the frost, and a large yield is expected. The spring grains, such as wheat and oats, gave great promise that there will be more than an average crop. Hay, which was anything but promising previous to the delightful rains with which we were visited about two weeks ago, now looks well, and will be a fair crop. Fruit, from all appearance, will be abundant, especially apples. Should the weather turn out favourable for the gathering in of the products of the soil, the husbandman has every prospect of being fully rewarded for his labour.

According to the Melbourne *Argus* just received, mining was never, except perhaps in the earliest years of gold digging, in such a prosperous and hopeful condition in the colony as it is at the present time, regard being had to the smaller number of miners employed now than were employed some years back. The working miners, according to the statistics of the Government Mining Department, have decreased in a steady ratio from 108,562 in 1860, to 58,269 in 1871, and yet the amount of gold obtained per man employed has increased in a steady ratio during the same years, the earnings of the miners in 1860 having been £79 Ss. 11d., and in 1871 £93 ls. 3d. The decrease in the number of miners may be accounted for to a very large extent by the fact of many of them having settled on the lands and become engaged in agricultural and other pursuits in which they are assisting to develop the numerous resources of the country other than that of gold digging. The rise in the wages of the miners is attributable to an easily explainable and gratifying cause, namely, the great extension of quartz mining, which has now been proved to be a much more permanent and profitable pursuit, considering the time and labour employed, than the old system of alluvial digging, which was at one time in the colony the only method of obtaining gold. When it is borne in mind that a quartz reef often furnishes employment for many years to a number of men, it will be easily understood that the striking of a new paying reef in any district is a matter of considerable importance, not only from the mere value of the reef itself, but also from its indicating the probable existence of many other reefs of a similar character in its immediate or surrounding neighbourhood.

WHEAT STATISTICS.—The June report of the statistician of the Department of Agriculture, now in press, is exhausting in its treatment of wheat statistics. The report is based on reports from counties, of which 199 indicate an average condition, 270 counties higher than the average, and 434 a low condition, ranging from 100 the standard of a medium prospect down to 10 and, in a few cases, down to an entire failure. The State averages are calculated, not simply from the number of counties reported, but from the comparative production of the several counties. These 903 reports include a very large proportion of the wheat area of the country. The summary of returns of area shows a reduction of 2 per cent. from that of 1871. The average spring wheat in the States which grow that variety mainly is represented as follows: Maine, 108; New Hampshire, 106; Vermont, 102; Massachusetts, 95; Wisconsin, 103; Minnesota, 101; Iowa, 106; Nebraska, 113; Oregon, 107. California, where the distinction of spring and winter is scarcely known, reported spring 120, winter 130. Illinois, where winter wheat constitutes two-thirds of the crop, gives 101 for winter, and 75 for spring. Kansas, where spring wheat predominates, returns 140 for spring, and 62 for winter. The States growing winter wheat are: Connecticut, 95; New York, 98; New Jersey, 98; Pennsylvania, 90; Delaware, 96; Maryland, 100; Virginia, 98; North Carolina, 101; South Carolina, 96; Georgia, 95; Alabama, 105; Mississippi, 95; Texas, 115; Arkansas, 90; Tennessee, 107; West Virginia, 100; Kentucky, 97; Ohio, 88; Michigan, 92; Indiana, 91; Illinois, 101; Missouri, 92. The condition of predominant variety in each State is thus stated: Maine, 101; New Hampshire, 99; Vermont, 106; Massachusetts, 99; Connecticut, 88; New York, 68; New Jersey, 70; Pennsylvania, 70; Delaware, 70; Maryland, 44; Virginia, 85; North Carolina, 101; South Carolina, 97; Georgia, 105; Alabama, 115.

Miscellaneous.

The Value of Sewage.

The enormous loss to the country of fertilizing material through the waste of sewage of our large cities shows a remarkable lack of enterprise on the part of our people. In Europe great progress has been made in the introduction of means for utilizing the sewage of cities, and practical experiments indicate that this is a work which can be carried on with great profit to those who undertake it. At Crossness, near London, are the works of a "native guano company," which is now in successful operation, deriving its material from sewage. At Crossness is the reservoir for the southern sewage of the great metropolis. At this point 50,000,000 gallons of sewage are daily discharged. The works of the guano company are built on one side on the Government pumping station, from which is drawn daily 500,000 gallons of sewage, which is operated on by the A B C process, so called because alum, blood, charcoal, and clay are the ingredients used for purifying the stuff, 5000 gallons of the A B C mixture being added to 50,000 gallons of sewage. The whole is conveyed into mixing pits, whence it is transferred into tanks, where it remains from four to six hours. During this period the precipitated matter accumulates at the bottom as fine mud, and the water which has become clear, odorless, and chemically pure, is drawn off. The residue is then dried and packed in bags for the farmer's use, meeting with a ready sale at \$17.50 per ton. This leaves a profit to the manufacturers of \$10 a ton. It is estimated that if the whole sewage of London could be treated in this manner, the result would be a clear profit of over six millions of dollars annually on the manufacture, while the lands of Great Britain would gain in value much more than the cost of the guano from the return to them of so much fertilizing material.

Mr. Hughes on the Turf.

The British House of Commons having recently decided to discontinue the customary adjournment on "Ascension Day." Mr. Hughes proposed to adopt the same course in regard to the "Derby Day," and denounced its gambling spirit in the following terms:—

"I am told that the British turf has very much improved the breed of horses. There are, I believe, great doubts upon that subject, but many authorities say that this is by no means the case. Without going into that question, as to which I am not an authority, I do know what the turf has done for the British nation. The British turf has given to the British nation a system of gambling, the most corrupting and the most insidious, and therefore the most mischievous and

abominable, that ever cursed any country. Within my own personal experience in my profession, which deals with subjects of this kind, I have known of instances, not by tens, but by hundreds, in which this system has been the absolute ruin of young men. In the case of settlements under which I am trustee, I have raised £20,000 for youngsters who have lost it in gambling on the turf, and that sum has gone into the pockets of the greatest rascals who remain unhung in this country. Therefore I say that the great festival of the English turf is not a proper one to be recognized by this house in the manner proposed. I am just as much in favor of sports as any man in this house, and I suppose I know as much about them as any man. If we are to recognize any one sport for special distinction, do not let us recognize the one which has done the most harm, but some manly one which has done and is doing some good. If any honorable gentleman will move that we adjourn for the international boat race, for the match at Wimbledon between this house and the other house, or for the Gentlemen and Players' cricket match, I should be the last to oppose it; but I think it inconsistent, after the vote of the 5th of May, to do what is now proposed to do; we shall be stultifying ourselves if we come by this vote to give up the whole day and postpone public business for the whole day for the sake of allowing gentlemen to celebrate the festival at Epsom. We do not stop anybody from going to Epsom except those gentlemen who happen to be on committees; we merely say 'we put you on exactly the same footing as we do persons interested in other sports, and other matters, and we don't stop you by this vote from going to Epsom, or from attending sports like dog fights, if there are any or pigeon shooting, or other manly sports.'

The Water Pipes.

The Chartered Gas Company, during the process of laying down some mains now going on in Bishopgate Street, have come across several old wooden ones, pipes formerly used for conducting water through the streets. Some of these must have been laid by the old London Bridge Water-works Company, which were established by one Peter Morrys, an ingenious and enterprising Dutchman, in 1581, who erected a waterwheel under one of the arches of the bridge, which working force pumps, drove the water through the streets, and hence through branch pipes into the houses, a windmill being also used to assist in the work. In 1613 the New River water was brought into the metropolis by Sir Hugh Myddelton, and the works at London Bridge superseded. Though some of the old pipes were utilised it is probable that none made of wood have been laid down within the last hundred years, or perhaps within a much longer period. We understand that, though our streets are constantly being taken up for various purposes, none of these old wooden pipes have come to light for the last seven years or so till on the occasion we have men-

tioned. They vary in lengths from six to twelve feet, their diameter being two, and the bore from nine to twelve inches. The means of connecting these tubes appears to have been by simply paring down one end to within about two or three inches of the bore, and enlarging the bore at the other, and they were thus jointed together after the fashion of a fishing-rod. The most interesting fact connected with these tubes is that they are made of elm wood, and many of them are in a perfect state of preservation, even the rough bark of some seeming as sound as when they were first buried. It is well known that no wood endures so long under water as elm, and from the state of these tubes it seems the best adapted of all wood for lying under ground. The tubes have been found about four feet below the level of the street.

Science Notes.

An ingenious patent is now being worked by which leather for the sides of boots and shoes is rendered impervious to wet and damp by exhausting the air from the pores of the leather, and filling them up with a substance which unites with and adheres to the fibre, thereby strengthening without impairing the elasticity of the material. It is stated that the patent, known as "Fashawe's Water-proof Leather," is not only likely to be employed for the above-mentioned purpose, but that when asphalt pavement becomes more general, it will be possible to shoe horses with a material as hard as the asphalt itself, and which will prevent slipping.

Condurango root, the much celebrated specific for cancer, is becoming a subject of speculation in Ecuador and in the United States. In Ecuador it has reached a price of nearly one hundred dollars a ton, and in New York it is selling for fabulous prices. The Government of Ecuador has taken advantage of the situation and has imposed an export duty. It is more than probable that the "specific" will ultimately turn out to be worthless.

The Great Pyramid has again come forward in a paper read by Mr. Jacob before the King's College Engineering Society. The author gives in his adhesion to the theory originally propounded by that remarkable man, the late Mr Taylor, and subsequently upheld by Professor Piazzi Smythe, the Astronomer Royal of Scotland. On this theory, the Great Pyramid was built as a permanent standard of weights and measures, and not for sepulchral, monumental, or any other generally supposed purpose.

Some interesting statistics have been given by Professor Odling as to the amount of muriatic acid produced in the "alkali manufacture" in Great Britain. This acid is produced during the process of manufacturing carbonate of soda, the process depending upon the decomposition of common salt or chloride of sodium, by sulphuric acid. The estimated quantity of salt decomposed in the United Kingdom is stated to be from 350,000 to 400,000 tons per annum. Taking the quantity of salt at about 400,000 tons, the decomposition would yield in practice about 230,000 tons of muriatic acid gas, equal to no less than eighty millions of tons of the ordinary aqueous acid. The unfortu-

nate thing is that the uses of muriatic acid are comparatively so few that it does not pay the manufacturers to collect the gas. It has, therefore, been necessary to pass very stringent Acts, requiring the condensation of at least ninety-five per cent. of the muriatic acid gas produced in this manufacture, since the effects of this gas upon vegetable life are of the most pernicious character.

The Colonial Museum of Wellington, New Zealand, has lately distributed casts of several specimens of the eggs of the gigantic extinct wingless bird, known by the Maories as the "Moa." These eggs are of great interest from their enormous size, considerably exceeding that of the eggs of the Ostrich. The largest of three eggs was found in the Kaikoras Peninsula, between the legs of a human skeleton, which had been buried in a sitting posture, and which was supposed to be of great antiquity, not only from the presence of the Moa's egg, but also from the body having been placed in a sitting posture, a position not usually, or never, affected by the Maories.

The successful transferring of skin and flesh to assist the recovery of wounds, has induced some one to experiment on hair, and the result is a process of removing portions of the scalp, with the hair on, from some luxuriant head, and planting it on the victim of baldness. A contemporary points out that it soon may become fashionable to wear hair in various hues and shades, thereby producing the most singular and beautiful effects of colour; or the hair might be made to appear white, green, blue, or red, at the owner's option, and by various ways of disposing it. "Take, in due proportions, hair of all the prismatic tints, rumple it, and immediately you have white hair; comb it in another way, and there is your purple, your ultramarine, your yellow, or any possible hue." If these directions are followed, the recognition of the original colour of the head may require the use of the spectroscope.

It has generally been supposed that the use of the "rattle" of the rattlesnake is to warn all who may be concerned of the presence of the reptile. This would be so obviously injurious to the best interests of the snake, that it could clearly have never been formed by the process known as "natural selection." This is so clearly the case that Mr. Darwin has explicitly stated that it would annihilate his entire theory if this could be shown to be the true function of the rattle. Prof. Shaler, of Harvard, has, however, recently come to the rescue of the Darwinian theory thus threatened; and has stated his belief, from actual observation, that the rattlesnake's rattle is positively beneficial to it, its object being to imitate the sound of the cicada, thus attracting birds within the reach of the snake. We must confess we feel extremely sceptical as to the truth of this new theory.

The *Athenæum* states that Mr. E. J. Reed, C.B., late chief constructor of the Navy, is about to establish a new quarterly magazine of a scientific character, to be devoted to the improvement of naval architecture, marine engineering, steam navigation, and seamanship generally. It is to be called *Naval Science*, and will be under the joint editorship of the Rev. Dr. Woolley, Director of Education to the Admiralty, and Mr. Reed.

Polite Society—Where manners pass for too much, and morals for too little.

Punch says he has observed that the unfortunate man's friends live a long way off.

It is a curious fact that in the Orient *kohl* is used by the women to color their eyelids. In this country it is applied to the painting of noses.

The London *Architect* says that France has the largest number of landed proprietors in the world, as well as the most minute subdivisions of the land.

Corn cobs are an article of merchandise in request at Paris, and several New England firms gather them for shipment. After saturation with tar and resin they are used for kindlings.

The girls of the State Agricultural College of Iowa not only keep up in their studies with the young men, but do all the housework under the superintendence of a matron and a general housekeeper.

One of the most important principles established by Liebig, is the rotation of ammonia-collecting with ammonia-dispersing crops—that is, root and green crops alternating with cereals.

"What are you digging there for?" asked a loiterer of three men who were digging a trench in the street. "Money, zur," the answer came. The man watched the operation until the joke got through the roots of his hair, and then moved on.

Stirring the soil frequently with an iron rake about all garden crops, can not be too strongly urged. Let it be done frequently and well. Two thorough stirrings are as good as one rain, and when the rain comes the soil is in the best possible condition to receive it.

The trusses of the old part of the roof of the Basilica of St. Paul, at Rome, were framed in 516 and were sound and good in 1814, a space of nearly a thousand years. These trusses are of fir. The timber work of the external domes of the Church of St. Mark, Venice, is more than 810 years old, and still in a good state. There is other extensive timber work which has successfully withstood the ravages of time for from 400 to 600 years.

REMEDY FOR STRIPED BUG.—Having occasion to use Paris Green and calcined plaster, in the proportion of one of the former to fifteen of the latter, as a destroyer of the potato bug, I tried the stuff on squash, melon and cucumber vines; with me, the mixture dusted on from a common dredging box, has proved equally effectual against the Colorado Potato Beetle and the striped bug. On squashes of the tenderest variety foliage, like the Hubbard, for instance, and on the hardier, like Cymlin and the winter Crookneck, this mixture, whether put on while the plant is wet or dry, does not injure them, and so of musk melons and cucumber. The water melon, however, does not like to be so treated, but I would recommend that the mixture be used with care.—*Cor. Prairie Farmer.*

An Union Agricultural Exhibition for the West Northumberland, and the Township of Hamilton and Haldimand Agricultural Societies, will be held at Cobourg, on the 15th and 16th days of October.

To TOUGHEN GLASS.—Put the glass vessel into a vessel of cold water, and gradually heat the water boiling hot; then allow it to cool gradually of itself, without taking out the glass. Goblets treated in this way may, when cold, be filled with boiling water without cracking. Lamp chimneys may also be made tougher by this process.

SCIENTIFIC FARMING.—Any and every farmer, who, by the use of his reasoning powers, is enabled to raise one bushel of corn per acre more than he has hitherto done, by improved methods, is a scientific farmer, however much he may disown the name; and not only has he done a good thing for himself, but the world at large is, to some extent, better for his effort and success, his mission, as a man, has been to that extent fulfilled, and he will leave the world better than he found it.—*North and Home.*

Why is the hen immortal? Her sun never sets. Why is a hen on a farm like a cart? Head on one side, tail on the other. Why do chickens lay at night? Then they are roosters. Why is the first chicken of a brood like the mainmast of a ship? A little forward of the main hatch. Why is a chicken just hatched like a hen? Never seen before. Why should not a chicken cross the road? It would be a fowl proceeding. If a ship captain had no cargo what should he do? Lay to (two). And to conclude, a hen is a poor economist, because for every grain she gives a peck.

WORKING ON THE ROAD.—Joseph Harris tells in the *American Agriculturist* how they work out the road tax in his section. The path-master has had no experience in managing men. He does not know how to plan the work. To get rid of them, he sends a couple of teams to draw gravel, and they do not get back until half-past ten, and they think there is not time to draw another load before noon. Another team is started to plough along the side of the road, and the team with the scraper lies idle waiting until this is accomplished. There are stones to be picked up before the ground can be ploughed. When this is done the plough is finally started. The ground is dry and hard. One man drives, another holds, and one or two more ride on the beam. The horses are overtaxed, and have to rest every few yards. The men rest too. All this time the scraper is waiting. By and by it starts, with one man to drive and another to hold the scraper. The plough is still going back and forward, and at every bout it has to wait for the men with the scraper to get out of the way, and when the scraper comes back for another load it has to wait for the plough. And so the work goes on. Our path master is an intelligent, industrious and successful farmer. He is not to blame. It is the fault of the system.

How to ENJOY LIFE.—It is wonderful to what an extent people believe happiness depends on not being obliged to labor. Honest, hearty, contented labor is the only source of happiness, as well as the only guarantee of life. Idleness and luxury induce premature decay much faster than many trades regarded as the most exhaustive and fatal to longevity. Labor in general actually increases the term of life. It is the lack of occupation that annually destroys so many of the wealthy, who having nothing to do, play the part of drones, and, like them make a speedy exit, while the busy bee fills out its day in usefulness and honor.

From the Adelaide correspondent of the *Times* we learn that the yield of wheat in South Australia last year was not half so much as in the previous one, being only 7 bushels, to contrast with 11½ bushels in 1870. As a kind of counterbalance to the deficiency, there was an area of 100,000 acres more sown with this cereal in 1871 than in the preceding year—700,000 instead of 600,000, but still with this increased general acreage there is a deficiency of 2,000,000 bushels. The squatter last year had the advantage over the arable farmer. The correspondent goes on to say:—"The amount of breakfasts available for shipment for the present year is calculated at 75,000 tons, against 115,000 tons last year. The statement of the imports and exports for the last quarters of 1871 has just been published. The former it puts at 2588,904, the latter at 21,307,119. Of this the wool shipped from Port Adelaide alone, exclusive of the outports, is valued at £189,610. The export of wool and wheat from the same port is valued at £182,478 of which £17,706 was for foreign markets. The deficiency, as our readers will know, has had no effect upon raising the prices in this country.

CORN IN HILLS AND DRILLS.—At the Michigan agricultural college in 1868 two plots of land were set apart, substantially equal in character of soil, each measuring forty-eight rods in width. The ground was ploughed May 5th, and manure was spread evenly and worked in by cultivator and harrow. Yellow Dent corn was planted May 21st, in rows four feet apart; one of the plots being planted in hills, the other in drills. The plots were cultivated and hoed June 15th, and again July 7th; the plants being thinned so as to leave the same number of stalks on each plot, including an equal distribution of plants throughout the subdivision of the plots. As nearly as possible, each of the two plots received the same amount of labour in cultivation. The stalks were cut at the bottom September 17th, and stooked in good order, three weeks afterwards the corn was husked and weighed. The stalks then again carefully stooked, and were hauled and weighed, in good condition, October 12th. The corn on the portion planted in hills was better in quality than on that planted in drills. But the drilled portion produced 74 1-6 bushels of shelled corn and three tons of stalks to the acre, against 65½ bushels of shelled corn and 2½ tons of stalks per acre produced by the portion in hills.—*Rural World.*

Fishes' Nests.

A great deal of interest has been recently excited by the discovery of Agassiz that there is a fish (*Chironectes*) which makes a nest in the floating sea-weed of the Atlantic. It should not be forgotten, however, that the occurrence of nest-building fishes is no new phenomenon, but that it has long been known to occur in cases so common as that of the little Sticklebacks. These interesting little fishes are extremely abundant in Britain, and also in various parts of North America, some of them living in salt water, others in fresh. A most amusing account is given by Mr. J. K. Lord, of the habits of one of the Sticklebacks of British Columbia. "I have often," says he, "lain down, when tired, on the bank of a stream, beneath the friendly shade of some leafy tree, and gazing into its depths watched the Sticklebacks either guarding their nests already built, or busy in their construction. The site is generally amongst the stems of aquatic plants, where the water always flows, but not too swiftly. It first begins by carrying small bits of green material, which he nips off the stalks, and tugs from out the bottom and sides of the banks; these he attaches by some glutinous material, that he clearly has the power of secreting, to the different stems destined as pillars for his building. During this operation he swims against the work already done, splashes about, and seems to test its durability and strength; rubs himself against the tiny kind of platform, scrapes off the slimy mucus from his sides, to mix with and act as mortar for his vegetable bricks. Then he thrusts his nose into the sand at the bottom, and bringing a mouthful scatters it over the foundation; this is repeated until enough has been thrown on to weight the slender fabric down, and give it substance and stability. Then more twists, turns and splashing to test the firm adherence of all the materials that are intended to constitute the foundation of the house, that has yet to be erected on it. The nest or nursery, when completed, is a hollow, somewhat rounded, barrel-shaped structure, worked together much in the same way as the platform fastened to the water-plants, the whole firmly glued together by the viscous secretion scraped from off the body. The inside is made as smooth as possible by a kind of plastering system. The little architect continually goes in, then, turning round and round, works the mucus from his body on to the inner sides of the nest, where it hardens like a tough varnish. There are two apertures, smooth and symmetrical as the hole leading into a wren's nest, and not unlike it. All this laborious work is done

entirely by the male fish, and when completed he goes a-wooing. Watch him as he swims towards a group of the fair sex, enjoying themselves amidst the water-plants, arrayed in his best and brightest livery, all smiles and amiability; steadily, and in the most approved style of Stickleback love making, this young and wealthy bachelor approaches the object of his affections, most likely tells her all about his house and its comforts, hints delicately at his readiness and ability to defend her children against every enemy, vows unflinching fidelity, and, in true lover-fashion, promises as much in a few minutes as would take a life-time to perform. Of course she listens to his suit: personal beauty, indomitable courage, backed by the substantial recommendations, a house ready-built and fitted for immediate occupation, are gifts not to be lightly regarded."

After the eggs have been deposited in the nest, the male Stickleback watches them carefully till they are hatched, taking quite as much trouble in this respect as any bird. "For six weeks (and sometimes a few days more) the papa keeps untiring sentry over his treasure, and a hard time he has of it too. Enemies of all sorts, even the females of his own species, having a weakness for new-laid eggs, hover round his brimming nest, and battles are of hourly occurrence; for he defies them all, even to predatory water-beetles, that, despite their horny armour, often get a fatal lance-wound from the furious fish. When he has to turn the eggs, and expose the under ones to the running water, and even when the progeny make their appearance, his domestic duties are far from ended, for it is said (though I have never seen him do it), that when one of the young fish shows any disposition to wander from the nest, he darts after it, seizes it in his mouth, and brings it back again."

The defensive weapons of the Sticklebacks consist of sharp spines placed on the back, and the males have terrific combats; incited thereto apparently partly by an exaggerated parental affection, and partly by mere jealousy of each other. On the slightest provocation, or on no provocation at all, any male Stickleback will at once engage in combat with any other. "Let friend or foe but rub against his royal person or come near his private sub-aqueous garden, than he deems consistent with safety or good behaviour, in a moment the spines are erected like spear-points, the tiny eyes glow with fury, the colours decking his scaly armour intensify and flash with a kind of phosphorescent brightness, until the diminutive gladiator looks the impersonation of rage and fury. Skill in Stickleback battles appears to consist in rapidly diving under an adversary, then as suddenly rising and driving the spines into his sides or stomach. The little furies swim round and round, their noses tightly jammed together; but the moment one gets his nose the least bit under that of his foe, then he plies his fins with all his might, and forcing himself beneath does his best to drive in his spear, if the other be not quick enough to dart upwards and escape the thrust; thus squaring they fight round after round, till the death or flight of one ends the combat."

Where Plaster is Serviceable.

The *Journal of Chemistry* says:—From ascertained facts we should infer that plaster must prove highly serviceable to moist, mossy hills, and also to meadows not too wet, and this has proved correct so far as our observations extend. Often we have found that the north side of a hill will be greatly benefited by plaster, while upon the south exposure it has no perceptible effect. This is due to the fact that the northern slope is cooler, or oftener in shade, and has more moisture, and a larger amount of partially decayed vegetation, to aid in the promotion of those chemical changes to which we have alluded. It is certain that it does not matter so much what may be the nature of the soil to which we apply plaster, as external agencies are principally concerned in fitting it for plant food.

While the question as to how plaster acts in all cases as a fertilizer cannot be regarded as fixedly settled, yet we have certain facts to guide us in its application which are of the highest importance. With what we know, it would be absurd for a farmer to apply the agent to a dry silicious plain, or to a hot, impoverished hill, and also it would be unwise to sow it upon a meadow which is covered by water six months in the year. It must also be observed that the season has much to do with the effects of plaster. During the past three or four seasons of extreme drought, its application has notably failed upon almost all fields, but as soon as we have continued moisture through the summer months, it will manifest its influence upon vegetation.

Plaster may be applied with confidence to pastures and fields which are strong enough and moist enough to sustain a good growth of deciduous trees. Pine lands are not usually benefited by it. A hill side where moss will grow so as to crowd out good grasses is usually promptly benefited by plaster, and the white clover comes in at once. These suggestions we think may serve to throw light on the use of plaster as an important fertilizing agent to our fields, and also serve to show that we are not entirely in the dark respecting one of the most obscure problems connected with husbandry.

Old putty moistened with muriatic acid will immediately become soft, and is easily removed.

Rye flour boiled in water with a little alum added while boiling, makes an adhesive paste almost as strong as glue.

A contemporary tells this funny anecdote: "Wake up, here, and pay for your lodging," said the deacon, as he nudged a sleepy stranger with the contribution box. We were there, and we heard the sleepy stranger murmur, with a glance at the minister whose sermon had narcotized him, "Lodging! and bored too!"

If you don't look carefully after the bits of your horses, you may one day be looking after the bits of your carriage.

Improvements are making active progress in Russia. In the department of Finland they have both butter and cheese factories on the associated plan, and the products of them sell much higher than the butter and cheese made on farms. The demand for improved dairy utensils has become so great that several establishments have been started to manufacture them.

ASSOCIATED DAIRIES IN FINLAND. The *London Milk Journal* says that in Finland the system of associated dairies steadily gains ground, another butter factory on this principle having been opened within the last few weeks. The quality also of the butter is steadily improving, and bids fair to rival that produced in Holstein and Mecklenburg. North German friends must look to their laurels, or they may not improbably find themselves beaten on their own ground.

CEMENT FOR BROKEN CHINA.—A writer in *Harper's Bazaar* recommends the following:—"One of the very best methods of uniting pieces of broken china is by the use of boiling milk. The broken surfaces must be very clean, and brought into the closest contact by means of twine, which, after being loosely tied, should be twisted up so as to create considerable pressure. The a tie to be mended having been thus prepared, is placed in a pot and covered with milk that has been carefully skimmed. The pot is placed on the fire, and the milk allowed to boil gently for an hour or so. After being taken out and allowed to cool, the pieces will be found very firmly united; but it is advisable to leave them tied together for at least a week or ten days after which they may be freely handled and exposed to moderate degrees of heat and moisture."

SHEEP AS WEED EXTERMINATORS.—The *Pacific Rural Press* says: It may not be known to farmers in general, that it is a common practice in some parts of the country to turn sheep into the potato field for the purpose of eating down the weeds. The sheep will not touch the potato vine. This pasturing with sheep is advantageous when the crop is a late planted one, so that the hoeing cannot be completed until after the haying or harvesting is finished. At the growing season it is the farmer's aim to keep down the grass and weeds so that they may be covered by the cultivator and hoe, when these are used. Pasturing with sheep will attain this object. Early planted crops, the cultivation of which is completed in the early part of the summer, frequently become grassy and weedy, before the time of digging, when the size of the tops precludes cultivation. In this stage the sheep are economical weathers. It is hardly necessary to mention that the feed thus given to the sheep, makes a double profit, inasmuch as it costs absolutely nothing, while labor is saved, and weeds prevented from seedling.

A Western farmer, being obliged to sell a yoke of oxen to pay his hired man, told him he couldn't keep him any longer. "Why," said the man, "I'll stay and take some of your cows in the place of money." "But what shall I do," said the farmer, "why, you can then work for me and get them back."

Advices from all parts of northern Michigan represent the crop prospects as greatly improved by the recent rains, and all fears of a disastrous drought are at an end. In some localities the wheat was looking very badly, but even from these the word is now that the crop is visibly bettered by the rains, and promises a good yield, if not a very abundant one. In the districts where the forest fires made most havoc, the rain has been especially welcome, and the scorched farmers are taking heart again to rebuild their injured fortunes.

BEAUTIFY THE FARM.—The *Michigan Farmer* says: You can so beautify your premises that travellers will have to love it as they pass, study the points that attract, and carry in their minds ever after the recollection that it was a home of outward beauty, made so by the presence of inward taste and happiness. But to your own mind will come the greater good. Life will be the brighter and happier to you. Your children will grow up to love the home you have rendered so attractive to them, and its beauties will ever act as educating influences for good upon their minds and hearts. The dull routine of hard labour will be relieved by the rational enjoyments which come from the surroundings, whenever brought under their silent power, and you will grow into a purer life and a nobler manhood in consequence.

LIME TO PRESERVE WOOD.—In regard to the use of lime in connection with ship timber, the experience of an old ship builder on the coast of Maine, published in the *Mechanics' Magazine*, is of interest. He had been in the habit of filling up the spaces between the timbers with hard stone lime, and running it in, calculating that slight leaks would cause the lime to expand and fill all the crevices. Long observation had led him to consider lime a good preservative. A coasting schooner, built of Maine timber, unseasoned, and loaded with lime, had gone ashore and bilged. Being raised and repaired, the schooner remained sound for thirty years, with the exception of the wood that been used in making the repairs. It had been noted, also, that vessels carrying cargoes of lime generally lasted longer than others. But the most striking case was that of a platform of pine planks, used to mix mortar on and that had been employed by father, son and grandson, and, being no longer needed, was suffered to remain on the ground and became overgrown with grass and weeds. After a period of sixty years, having occasion to use the ground, the planks were removed, and found to be as firm and hard as when first laid down.

Many farmers would obtain a large product at less expense, if the labor and manure were concentrated on a smaller space of ground.

A lawn well covered with grass, entirely surrounding the farmhouse, prevents the dust from being blown into the parlor, kitchen or dairy room.

A cow standing on the track of the Chicago and Michigan Lake Shore railroad, near Watervliet, Mich., was caught up lately on the cowcatcher of a locomotive and transported three miles—the only injury being a broken leg.

Among the replies to an advertisement of a music committee for a "candidate for organist, music teacher, &c.," a vacancy having occurred by the resignation of the organist in office, was the following: "Gentlemen, I noticed your advertisement for organist and music teacher, either lady or gentleman. Having been both for several years, I offer you my services."

The women Down East take part in the discussions of the Farmers' Club meetings. A recent conundrum was, "Shall we dress for comfort or for show?" It was of course decided to dress for comfort, and then they all went away, and at the next meeting each appeared with a "three decker" head dress and a "Dolly Varden" suit.

NEW CUCUMBER.—The *Prairie Farmer* is responsible for the following:—The English agricultural papers give accounts of the Marquis of Lorne Cucumbers, a variety which was brought out last Spring by Sutton and Sons. Specimens only eight days old have been exhibited which were over ten feet in length.

Hearth and Home notes that, "according to a Boston chemist, corn-cobs are actually more nutritious substances than hay, clover, or peas cut while in blossom, and adds: So far as we have seen, an ordinary cow cannot be brought to entertain this idea, which shows how much mistaken a cow may be."

We will risk the sense of the cow, rather than the analysis of the chemist.

Contempt for "book farming" is simply a form of self-conceit. It amounts to saying "I know it all; nobody can tell me anything. But many men who thus turn up their noses at "book farmers," will furtively watch them for new ideas, and put them in practice, stubbornly refusing all the time to acknowledge where they got them. Such characters cannot bear to admit that they can learn anything from anybody. Their neighbours soon get to understand them very well, and sometimes smile at the ludicrous blunders they make in trying to imitate something they do not understand, but which they could learn all about in five minutes' conversation, if they could only bring themselves to confess their need of information. They pay a high price for the privilege of indulging their absurd self-love.—*Vermont Farmer*.

"The Dervise in the Eastern Fable claimed to have discovered the language of birds, while to the vulgar their notes were mere inarticulate sounds, without passion and without meaning. The Entomologist does not, indeed, pretend to understand the language of insects, for they all breathe through spiracles or branchiae, their mouths are everlastingly dumb. But from signs and tokens well-known to him, he can interpret their actions, and recognize at a glance what object they are pursuing, whether sport, or love, or war, or food for themselves, or food for their future progeny, or the construction of habitations, either for themselves or for that future progeny, which they are doomed never to behold. Under every stone, under every clod, and even under the most despised substances, there is a little world in miniature opened to his eyes. And there scarcely grows a plant but what contains, in Nature's own hieroglyphs, a whole volume of natural history written by the finger of the Great Author of our being." - *B. Walsh.*

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Office of the Appleton
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They claim for it a superiority over every other
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It is perfect in its action, working smoothly and ac-
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It will knit close or open, plain or ribbed work.
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Shirts, Drawers, Mitts, Scarfs, and all other knitted
goods, as perfect as the hand made article.

The Machine is constructed in the most substantial
manner, finished in first class style, and will last for
years. It does perfect work; simple in construction;
there is nothing about the machine but what may be
understood at sight, and the most inexperienced may in
a few hours acquire a knowledge of working it.

The Appleton Knitting Machine Company are pre-
pared to submit their invention to any test or comparison
with any other, and they desire no higher recommen-
dation than that they feel assured will be accorded it
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Hamilton, June 1, 1872.

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Markets.

The Canada Butter Trade.

NO. I.

Among the leading articles of export from the Dominion, butter takes a very prominent place, exceeding, as it does, two millions of dollars annually. It becomes then of no slight importance to consider whether the return to Canada from the large quantity of butter yearly shipped to England and the United States is as profitable—the nature of the trade as satisfactory—as it might and ought to be. The apparently trifling variation of one cent. per pound in the price obtained at place of sale makes a difference to the shippers of \$120,000 and over, on the total amount exported, and if the variation in price be five or ten cents, the sum lost or gained becomes very considerable to those who are interested. And although the shippers are the persons apparently who thus lose or gain, they really and on the average are only to a slight extent involved in the matter. Primarily, the producers, and in a less but still to a considerable degree, those who purchase from them at first hand, are the parties to whom it is of consequence that the article in which they deal should be of such a quality as to command the highest price obtainable in any and every market where it may be offered.

That Canadian butter does not command the highest price in any market whatever is a fact too well known to need illustration, and the obvious result is that the trade in it is most unsatisfactory to all concerned whether the country store-keeper, the large shipper, or the foreign consignee. To give an idea of the different value which Canadian butter might bear, we have only refer to any Liverpool circular. We will find there Irish butter quoted at an average of 112s. per cwt., while for extra choice Canadian the average is only 70s. This means that the butter of this country, which now only brings 7c. to 13c. might be of a quality to command 20c. to 22c. in the present condition of the English market. And it happens also that a very large proportion of the total exports of butter will not now bring anything like 70s. but has to be sold at from 40s. to 50s., or about the current price of lard. Some shipments on Montreal account have proved entirely unsaleable, and the consignments have actually been ordered back to New York. Both literally and metaphorically Canadian butter is "stinks in the nostrils" of all who have anything to do with it; and though the cause of all this is well known, the evils of such nature and appears so almost impossible of eradication that the trade have become well nigh hopeless of seeing it removed. The strangest thing in connection with this is that the very two classes who are most interested in obtaining some change are those whose short-sighted conduct perpetuates the evil. Before proceeding to point out what this evil and what its remedy, we take occasion to make a couple of exceptions to the somewhat sweeping condemnation of Canadian made butter. It is well known to the trade that in the Eastern Townships, bordering on the State of Vermont, and in the vicinity of Brockville, there is produced rich, sweet, marketable butter—butter that is very seldom handled by Canadian buyers at all—that made in the Eastern Townships being generally contracted for by Americans before a pound of it is gathered, shipped to Boston, rebranded and sold for the highest price under the name of "Vermont Dairy," while that from Brockville is also taken by Americans and finds its way to market to be sold as St. Lawrence County butter at an excellent per centage of profit.

The great prime cause of bad butter is, of course, because it is badly and carelessly and often dilly dally made; and for this the farmers' wives are for the most part directly responsible. But this responsibility also to a very considerable extent belongs to the country storekeepers who buy up the butter. The fault of the storekeepers consists in their actually offering a premium to their customers to make bad instead of good butter by paying the same price for an inferior as for a superior article—paying it not because they are ignorant of the quality, or deceived by the appearance, but because they do not feel sufficiently independent to say to a customer, "Your butter is poor—we cannot pay you the same price we give for the beautiful butter your neighbour brings us," because they cannot afford to run the risk of offending a profitable customer, whose patronage they think will more than make up for any subsequent loss on her butter. The matter is made worse by the fact that, generally speaking, there is not a sufficient amount of good butter to be kept and packed by itself, and the packages when shipped are streaky and uneven, and ever so much less valuable and less ready for sale than they ought to be.

It is exceedingly natural, when butter-makers learn—and it takes them a very short time to do it—that as high a price will be paid for an article upon which no care or trouble is expended, in the making of cheap salt and too much of it is used, as for that to the making of which all possible care has been given, and still and forethought exercised, it is most natural, we say, that they should in their generally over-worked lives select that course which involves the least expenditure of time and labour. It could not possibly be otherwise, it would be nonsensical to expect it. The fault does not lie, as a rule, in the ignorance of the dairymen, but in the absence of any strong inducement to do as well as they know how. They get the highest rate paid, in cash or its equivalent, and they are satisfied and fail to see that the highest price is not what could be paid were the character of Canadian butter generally raised to the proper standard, and were it known abroad as it is, it and ought to be, by its good instead of by its poor quality. If they could only be made to feel that they could command five or six or seven cents a pound more than they now get, there would be hope that their natural shrewdness and fantastic desire to increase their profits would lead them to take such pains with their dairy produce as very soon to establish an important improvement in this, so be it an article of Canadian export. Storekeepers should lose no opportunities of pointing out the necessity that exists why something should be done. They feel how heavily the loss they have to stand on poor butter falls into their pockets in selling their goods, but they seem unable to enfranchise themselves, and a change for the better appears to them almost impossible. The apparently impossible, however, might easily, by concerted action be made possible, and we will encourage, in a future article, to point out one or two modes in which a custom so hurtful to all concerned may be to some extent done away with.

Toronto Markets.

"CANADA FARMER" Office, July 15, 1872.

The produce and provision trades have been quiet during the past month, closing with slight receipts and generally limited demand. The movement in bread-stuffs, especially is devoid of activity, under declining quotations from Liverpool and the west, and prices of flour and grain have gone in a way very considerably.

In this city the wholesale prices are as follows—

FLOUR AND MEAL.

Flour—Superfine, \$5 75 to \$5 90 Fancy, \$6 00 to \$5 10, Extra, \$5 35 to \$5 50.

Oatmeal—\$4 00 to \$4 70.

Cornmeal—\$3 25.

Bran, in car lots, \$7 to \$8.

GRAIN.

Wheat Soules, \$1 32 to \$1 35, Treadwell, \$1 30 to \$1 31, Spring, \$1 30 to \$1 32.

Barley—No. 1, 95c to 60c, No. 2, 50c to 55c.

Oats—37c to 38c.

Rye—Nominal, none offering.

Poas—62c to 65c f.o.b.

HAY AND STRAW.

Hay, in short supply, at \$16 to \$23.

Straw—\$12 to \$14.

PROVISIONS.

Beef, by the side, Nominal.

Mutton, by the carcass, 5c.

Potatoes—per bag, 30c. to 40c.

Pork—sides, \$14 50 to \$15 00.

Bacon—Cumberland Cut, 7c to 7 1/2c, Canada, 6 1/2c to 7c.

Hams—Salted, 10c to 10 1/2c; Smoked, 10c to 13c.

Lard—9c to 10c.

Butter—Dairy, choice, 13c to 14c.

Eggs—Packed, 14c to 15c.

Cheese—11c to 11 1/2c, Keesons's Edam, 10c to 10 1/2c 17c.

Dried Apples—9 1/2c to 10c.

Salt—Goderich, \$12 1/2 to \$15 1/2.

HIDES AND SKINS.

Hides—No. 1, cured and inspected per lb 9c, No. 1, inspected, green, 9c; No. 2, inspected, green, 8c.

Lambskins—50c.

Calfskins—revin, per lb, 10c.

Wool—1 fleece, 52c.

THE CATTLE MARKET.

Heeves (live weight) \$4 to \$5 per cwt.

Sheep—\$3 to \$5 50.

Calves—\$3 to \$7.

Lambs—\$2 50 to \$5 50.

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