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THE CANADA FARMER

Vol. IV. No. 2.

TORONTO, CANADA, FEBRUARY 15, 1872.

NEW SERIES.

The Field.

Beet Sugar.

Next in importance to the possibility of making sugar from beet roots grown in Canada, is the question of profit. The writer has established beyond a doubt, in his own mind, and by constant and unremitting experiments, made on a practical working scale, that there is a certain and paying business to be done in the raw sugar manufacture alone, leaving out of the question altogether the refining of the article; and also that the sugar made from roots grown in Canada will crystallize as well, and is as strong in its quality as any made in France or Germany from continental grown roots. Also, after much thought and consideration, I have arrived at the following conclusions: That every ten square miles of land may have its raw sugar factory; in other words, that roots within such area can be grown sufficient for the employment of a reasonable sized factory, and that such factory can be built for about as much as an ordinary good steam saw mill; that such a factory can afford to pay from \$30 to \$50 an acre for beets delivered at its door, and then have at least 50 per cent. as profit in manufacturing raw sugar fit for the refinery; that from the refuse cake, vast numbers of cattle can be kept and fattened; that there is no end to the demand for the article at reasonable prices, so far as has yet been demonstrated by the experience of other countries; and that all these advantages can be had without any sensible diminution of the fertility of the soil, or fears of injuring the land. Now this may be considered "tall talk," but the facts will sustain the assertions. We all know that ten to fifteen tons of beet can be grown to the acre, and can be hauled a mile without much expense, and will pay well at \$4 cash per load of 2,000 lbs. Five acres of beets would at this rate yield a gross return of about \$260, and the beets can all be raised and hauled by

one team, at the rate of about half an acre a day; and the second load can be taken up and prepared by two boys, whilst the driver is away with the first. Then, when the beets are worked out, and the sugar extracted, the pulp or cake can be hauled back again in about one-tenth of the time, as ten tons of beet make about one ton of cake; and this cake, if pressed into pits, will keep for months perfectly fresh, and be all the better for it.

There is some loss of potash to the farm, but I am told years of experience have established the facts above stated, as being the result of growing beets in France and Germany.

For some months past the writer was in some doubt as to the possibility of securing the perfect crystalizing of the sugar; but steadily pressing on with experiments has demonstrated to almost a certainty that the glucose or uncrystalizable sugar can be generally avoided, provided certain fixed rules be always followed. Here then is one great point gained.

The next and not less important question was that of a market; and here we have been met by a most liberal letter from one of the principal sugar refining firms in Canada, stating that they were quite prepared to treat with parties willing to furnish such sugar, provided it was well and carefully prepared, and of good quality, and they were willing to pay all it was worth, estimating the value by the quantity of crystalizable sugar it contained.

Briefly recapitulating the foregoing conclusions, I submit—

1st. I have established the fact that sugar exists in Canadian beets in equal degree as in continental grown roots, and can be extracted in paying quantities therefrom.

2nd. That the price the raw sugar manufacturer can afford to pay for the roots will prove remunerative to the farmer.

3rd. That from all reliable accounts obtained from the continent, no depreciation takes place, as a rule, in the quality of the farm from the continuous growth of beet root.

4th. That there is every prospect that there will be a fair price paid for the raw sugar, even now at its first introduction; and in future, as competition brings the value more on a par with the cost (and machinery is introduced), there is every probability of a further rise in its value.

And therefore, lastly, we may hopefully look forward to the day, and not very far distant, when thousands of acres of sugar beet will be grown in Canada.

VECTIS.

Double Furrow Plough.

This plough seems rapidly coming into general favour, notwithstanding the quite natural idea that it ought to take four horses to draw *two* ploughs, as it certainly requires two horses to draw *one*. By the most carefully conducted experiments, made in the presence of several members of the Royal Agricultural Society of England, it was clearly proved by the dynamometer that the power requisite to draw an ordinary iron plough when doing its work in the average soil and depth, was only three times as much as when the implement was drawn on the surface of the soil without *ploughing at all*—that is to say, to draw three light unloaded ploughs on the top of the land would take as much force as to draw *one*, when doing its work under it.

The next experiment had reference to the special locality or cause of resistance. A number of differently formed mould boards have been tried and patented, as great improvements, adapted each for special circumstances. Many great improvements have no doubt been developed by this enterprising spirit, but the great point established by the experiments in question was this—that the friction of the land side, when compelled to "hug" the earth close enough to resist and turn over the furrow slice, caused an enormous waste of power; yet the double plough attacked this point by placing the wheels *obliquely* in the furrow, so as almost altogether to remove the friction so complained

of—not entirely, however, as the rear end of the land side still touches, and rubs quite hard in its passage through the earth

Another important advantage gained by the double-furrow plough as now constructed is the support given by the wheels, which take off the friction from the bottom of the furrow, and thus again materially diminish the draught.

Mr. William Rennie, of Toronto, lately went to Scotland, and arrived the very day that a large and influential number of gentlemen and manufacturers had assembled to test the relative merits of various double furrow ploughs. The trial took place at Edinburgh. Some triple furrow ploughs were also tried, but did not seem to meet with general approval. The double furrows were found to work to a charm. On moderately light soil, two ordinary team horses are quite sufficient. On strong, tenacious soils, three horses can do, with more ease, double the work in a day that can be performed by two teams as ordinarily used.

The first prize was awarded to Messrs. Jack & Son, Maybole, Ayrshire; the second to Messrs. Jno. Gray & Co., Uddington, Scotland; the third to G. W. Murray & Co., Banff. Some of the ploughs were furnished with handles, which answered well for match work, but were quite unnecessary in ordinary farm operations. One or two ploughs were furnished with subsoil attachments, which possessed the advantage of avoiding any treading in of the subsoil thus moved. On the whole, the work performed was excellent.

Eradicating Wild Oats.

Mr. John McKenzie, Chatsworth, wants to know how to destroy wild oats. To destroy wild oats is one of the most difficult tasks in agriculture; but, like most other things, it can be done, provided the proper means are used. I have had many years' experience in contending with this most noxious weed, and have come to the conclusion that it is absolutely necessary, in order to succeed in the destruction of the wild oat, that its eradication must be the first thought, and must be prosecuted altogether irrespective of the amount of trouble or apparent sacrifice involved.

Wild oats never rot. The seeds will lie below plough gauge for fifteen years, and probably twice as long, and directly they are brought to the surface and within the influence of light and air they will grow as well as if just thrashed. It therefore follows, that no sooner have you eradicated all that are near the surface, than from an accidental depression of the plough, up comes from below an abundant reserve of seeds, which within a week are all as green as if never buried at all. These are facts, and cannot be denied.

Now, it follows that any chance of destroying this pest lies altogether in getting the seed raised to the surface to vegetate, and by repeatedly killing all that grow, at length to get rid of all that can come from this source. Then, when there is little danger of burying fresh seed (that may have ripened during previous operations), let down the plough to its deepest gauge, and bring

up all that you are ever again likely to disturb, and proceed to treat them as you formerly did those that grew at that time on the surface.

You will naturally say "What an endless piece of work; it is more than the land is worth;" and so it would be, but the act of eradicating the wild oats by all this culture and care, will also bring the land into splendid condition. Meantime, to succeed with certainty, you must not have crops on the land by which the oat can get time to go to seed; and you must also recollect that if you cut down a wild oat before it has borne seed, and whilst the stalk is yet green, it will throw out abundance of seed shoots, which, although they may not reach more than six inches in height, and sprout as late as harvest time, say the end of July, yet before winter sets in this plant will have matured seed that will grow. I have often seen this exemplified, and gathered seeds that would grow well, the sprouts that bore them not being more than six inches high, and the parent stalk having been previously cut down to prevent ripening its seed in July. It follows, then, that to commence destroying this pest with any chance of success, say after harvest, the land must be first lightly ploughed or cultivated, say about two inches deep, and afterwards well harrowed; all seeds dropped at harvesting the previous crop will thus be made to germinate, and all young plants, or old ones, yet willing and ready for future mischief, will be pretty well done for. Directly the field is green again, and all seed within influence of the air has germinated, plough them under a little deeper than before. This must be done before the frost sets in. This, however, will not kill them at that time; they will come as good as ever in the spring about May, but it will retard their growth most materially. Now, some crop may be sown, like potatoes or roots, that requires cultivation, or very early peas may be dragged in, without ploughing, say as early as the first week in April. Peas of this kind, and thus sown, will harvest by the first week in July, and by this time the oat will be four feet high, and in full bearing, but the seed will be green; yet a great deal of it will grow even then. Cut the peas, and thrash them in the field. Do not on any account haul them home. Stack up the straw, and carefully protect it from the weather. Fence in half an acre, and feed the straw there and then to sheep. By this course you will have a crop from the land, and the straw, and you will have the only animal to consume it that can kill a wild oat by digestion (with the exception of a bird.) The second chewing that sheep give all they eat will effectually destroy all the seed they may swallow unmastered. If you haul home the peas to the barn, you will fill your manure with seed, and thereby seed every field you convey any out on. If horses or cattle eat the wild oats, they will grow afterwards quite freely.

Proceed again the following year as you formerly did, and you will probably thin out the crop of wild oats the next year to a great extent. But now persevere; do not "let up" on this pest because you have a few only.

In a year or two they will be as bad as ever; therefore stick to it for three or four years at least, and after that time you will only have to go through the standing grain and pull a few stalks here and there, and shortly afterwards the cure is complete. But any farm that is once overrun with wild oats will always be subject to a return of the disorder. Just on account of the extreme vitality of the seed, pasture or hay will not kill one seed, even if persevered with for ten years. Directly you plough you will have thousands again, unless you proceed as I have pointed out.

I have a field that has lain in grass pasture and meadow upwards of twelve years, and if I were to turn up the sod there would come up a splendid crop of wild oats; and to my certain knowledge not one plant has been seen for the above term of years.

Eradicating Wild Oats

To the Editor.

SIR,—In a recent issue of your journal I noticed, under the above heading, a correspondent, signing himself "C," gives his opinion and advice to one John McKenzie, an inquirer. No doubt "C." is entitled to thanks for the attempt he has made towards helping his fellow tillers of the soil, out of a difficulty which, judging from his writing, has been to him a very grievous one. To follow out his suggestions, however, would entail endless labour, and should the farm be a large one, a man's head would be turning grey before he could hope for the complete victory over such an enemy as he describes the wild oats to be. I beg to differ with "C." in reference to the nature of the pest, and also to suggest another mode of treatment. I notice in "C.'s" article what I consider four errors: 1st. He says wild oats never rot; 2nd. Those now in the ground cannot by any chance be killed except by vegetation; 3rd. If they are harvested and carried to the barn with other grain, they will fill the manure with their seed; 4th. A piece of land once affected with them will be always liable to a return of the disorder.

In reference to the first error, I may state that I think he would have been correct if he had restricted his remark to the ordinary earth into which the seed may have fallen on ripening; but who ever knew wild oats to grow that had been exposed for any time to the heat of a dunghill? I believe that in this way few seeds are more easily destroyed.

Fermentation appears to be certain death to the wild oats. If you bury them by the bushel in a fermenting manure heap, you may spread the manure heap on your daintiest piece of land, and risk the result. In this neighbourhood nearly every one knows something about wild oats, and until within the last few years many almost despaired of ever waging a successful war against them; but of late they are losing ground, and causing much less alarm. If any one who may chance to scan these lines has a piece of land badly infested with wild oats, let him sum-

mer fallow it, sow it with buckwheat, and, when at its proper state of maturity, plough it under as a manure, and if that do not kill the oats, his experience will be different from that of many. I pretend not to say positively how it comes to pass, but I can point to more than one cure effectually made by this means. As to land once contaminated with wild oats being liable to a return of the disorder, it may be admitted, but not more liable than other land. A field near where I am now writing, which several years since was completely overrun by the pest, was cleansed by the above prescription, and has since given no further trouble. D.

Silver Beet Seed.

The silver beet seed is now ready for gratuitous distribution, and an ounce will be furnished to all who may send an envelope, with their address on it, and with a stamp attached sufficient to cover postage. Of course I cannot promise more than I have raised, after deducting a few ounces for seed next year. To avoid difficulty, and consequent loss of postage stamps, I may say I have about six pounds of seed, and as the distribution is entirely gratuitous, I will enclose the ounce as long as the seed lasts, taking each envelope in rotation as received. All I ask is that each person receiving it will sow the seed in some rich piece of land, in rows, each seed about 3 to 4 inches apart, and the rows about 12 to 16 inches from centre to centre. When the plant grows and matures its foliage, do not allow cattle to break in and destroy it, but take care of it; and next October or November, just when heavy frost sets in, cover the plant with some straw, and heap over it about twelve inches of earth, first cutting the greens off within about four inches of the crown, and removing them for feed or otherwise.

About the last of April, or beginning of May, the year following, remove the earth and straw, and the plant will bear an abundant crop of seed. When ripening, there should be a pole or two, tied longitudinally, at one and two feet high from the earth, to support the heavy loaded seed stalks. About November the seed will be ripe, and enough for an acre or two will be thus saved. Some of this can be again in part sown for seed, and a fair experiment made of the value of the crop as a manure plant to plough under. To those who only sow the seed to test this point direct the first year, I would say that Messrs. Charles Dawbarn & Co., of this city, say they can import the seed from France, and sell it here at about 30c. to 35c. per pound; but I by no means believe so fine a variety can thus be obtained as the present sort raised on Canadian soil. Saving seed is of itself a business, very difficult for amateurs to be successful in. I have, however, found no difficulty, and profess not to be more clever than my neighbours.

Full description of the growth and treat-

ment of this plant has been given at various times in the CANADA FARMER and WEEKLY GLOBE; and to those who have omitted to file their paper, and who would like to be reminded, I may say the plant in question is grown and treated in all respects like garden beet, with the exception of thinning out, and as it is principally wanted for manure to plough under, and will thrive if left pretty thick, no thinning out need be done, or only enough to be able to get at the seed, until the plant attains some growth, when it will take the matter into its own hands, and smother the weeds out. Therefore, plant in pretty good soil; soak the seed in water twelve hours before planting, and bury it about two inches (not more) in finely pulverized soil. About ten weeks after sowing, the plant will probably be thirty inches high, a perfect mass of green, ready to plough under, an operation which must be conducted with a double chain attached to the plough, as for ploughing down buckwheat or heavy clover. I feel satisfied, where ploughed under for wheat, 30 to 40 bushels an acre will be the probable return.

Address, "C.," CANADA FARMER Office, Toronto. C.

Profits of Good and Bad Farming.

The following estimate of the cost and return of two systems of cultivating wheat may prove instructive to those who have been in the habit of farming at random, and who, like too many Canadian farmers, would be wholly unable to say how much it has cost them per bushel to raise the crop, and therefore do not know whether they are losing or gaining money in the sale of their produce. To such we commend the very suggestive comparison.

Least cost of the production of 10 acres of wheat at a yield of 10 bushels per acre:

| | |
|---|---------------|
| Seed for 10 acres, 20 bushels at \$1 30 per bushel | \$26 00 |
| Rent of 10 acres | 30 00 |
| Ploughing, at \$1 50 per acre | \$15 00 |
| Harrowing, at 20 cents per acre, 3 times | 6 00 |
| Sowing broadcast, man at \$1 25 per day | 1 00 |
| Reaping (self-raking machine) at 40 cents per acre | 4 00 |
| Binding, at 60 cents per acre | 6 00 |
| Housing, at 50 cents per acre | 5 00 |
| Thrashing, at 4 cents per 100 bushels to thrashers | 4 00 |
| " at \$12 per day to hands | 4 00 |
| Winnowing and bagging up, at \$1 per 100 bushels | 1 00 |
| Marketing (one day's journey), at \$4 per 100 bushels | 4 00 |
| | <hr/> \$50 00 |

| | |
|---|----------|
| Total cost | \$106 00 |
| Average value of fall wheat for the past few years being \$1 15 per bushel. | |
| Full value of crop | \$115 00 |
| Balance of profit on 10 acres. | 9 00 |
| Or on 100 acres | 90 00 |

Maximum cost of the production of 10 acres of wheat at a yield of 40 bushels to the acre:

| | |
|--|----------------|
| Seed for 10 acres, 30 bushels at \$1 30 per bushel | \$39 00 |
| Rent for 10 acres | 40 00 |
| 2 Ploughings, at \$1 50 per acre | \$30 00 |
| Cultivating, at 30 cents | 3 00 |
| 100 Loads barn-yard manure, at 50 cents | 50 00 |
| Artificial manure | 20 00 |
| Harrowing 3 times, at 20 cents per acre | 6 00 |
| Sowing broadcast | 1 00 |
| Reaping | 4 00 |
| Housing, at 60 cents per acre | 6 00 |
| Binding, at 60 cents | 6 00 |
| Thrashing, at 4 cents per 100 bushels to thrashers | 16 00 |
| " at \$12 per day to hands | 12 00 |
| Winnowing and bagging, at \$1 per 100 bushels | 4 00 |
| Marketing, at \$4 per 100 bushels | 16 90 |
| | <hr/> \$174 00 |

| | |
|-------------------------------------|-----------|
| Total cost | \$253 00 |
| Full value of crop at \$1 15 | 460 00 |
| Balance of profit on 10 acres | \$ 207 00 |
| Or on 100 acres | 2070 00 |

We will now, supposing both fields to have been seeded down with the same amount of grass seed, proceed to show the probable profits of each ten acres in the ensuing crop of hay.

| | |
|--|---------------|
| Cost of production of ensuing hay crop under the first or poor system of farming, probably 1 ton per acre: | |
| Clover seed for 10 acres, say 1 1/2 bushels at \$7 per bushel | \$10 50 |
| Mowing, at 50 cents per acre | 5 00 |
| Securing hay | 20 00 |
| Marketing, at \$2 per ton | 20 00 |
| Rent | 30 00 |
| | <hr/> \$85 50 |
| Full value of crop at \$10 per ton | 100 00 |

| | |
|-------------------------------------|----------|
| Balance of profit on 10 acres | \$ 15 00 |
| " " 100 " | 150 00 |

Cost of production of ensuing hay crop under the second or good system of farming, probable return, 2 tons to the acre:

| | |
|--|----------------|
| Clover seed for 10 acres, say 2 bushels, at \$7 per bushel | \$14 00 |
| Rolling | 2 00 |
| 2 Tons plaster at \$5 50 | 11 00 |
| Mowing | 5 00 |
| Securing | 30 00 |
| Marketing | 40 00 |
| Rent | 30 00 |
| | <hr/> \$132 00 |
| Full value of crop | 200 00 |

| | |
|-------------------------------------|----------|
| Balance of profit on 10 acres | \$ 68 00 |
| " " 100 " | 680 00 |

In the two years the profit upon the first system amounts to \$240 upon a hundred acre farm. Upon the better system to \$2,750, leaving the good farmer, on the average of two years' returns, ahead by the neat sum of \$1,250 per annum, besides having his land increased in fertility by the application of 100 loads of barn-yard manure, nearly a ton of artificial manure, and two tons of gypsum; from that date his farm is ever increasing in productive capacity, while that of his contemporary is ever deteriorating.

Does farming pay? Not necessarily; but good farming most undoubtedly does, and that right handsomely.

Sowing Different Cereals Together.

Of late years the attention of several experimental English agriculturists (as well as some Canadian) has been turned towards the possibility of increasing the yield per acre of various cereals, when sown together in the same field. There seems little doubt that a much larger yield can thus be obtained. Instances are quoted where peas, oats, barley, and wheat, all sown together, have produced a very large yield. This plan has especially been successful where various sorts of wheat alone have been sown together, or, as we should term it, a mixed sample of seed. One man mentions a yield of upwards of seventy bushels of this mixed seed (wheat) per acre, and this great crop was composed of four different sorts of wheat.

A most intelligent farmer in Pickering lately told me he had succeeded in raising upwards of sixty bushels an acre of mixed wheat and barley.

Another farmer from Lower Canada states eighty bushels of mixed barley, oats and peas; and also states that in his section it is quite a common thing to thus mix seed.

A correspondent in England tells me that farmers in his locality find mixing various sorts of wheat often very successful, and lately it has been much practised.

It seems the *rationale* of this system is: That some sorts are subject to particular enemies, whether of season or insects; whilst others are not influenced by the same, at the same time, or escape altogether; so between the various chances which affect the different plants, a crop matures. It too often happens that where one kind alone is sown, midge takes the whole; whereas, as in the case of Treadwell or Deihl wheat mixed with Soules, if the Soules is taken by the midge the other will escape; and although it has not the natural large yield that the Soules has, yet certainly "half a loaf is better than no bread;" whereas, if the Soules escapes, the yield will be in all probability much increased.

I had a most signal instance of this peculiarity in a field of wheat I sowed two or three years since. There were four kinds planted side by side—not, however, mixed together—about an acre of each, White Kentucky, Mediterranean red, Treadwell, and Soules. In my locality the Soules had been a perfect failure, the Mediterranean being considered the only reliable midge proof, the Kentucky-white was midge proof, but tender, and subject to being winter killed under some peculiar circumstances of locality and soil. From some cause not at all apparent, the Soules wheat entirely escaped in this case, whilst the Mediterranean and Kentucky were badly winter killed, and consequently very thin on the ground. There was, however, a large yield of Soules at harvest, and a very moderate return of the other sorts; but had they been mixed together, the yield

would have been abundant all over the field, as the extra room for the Soules made by the absence of the rest from winter killing, would have enabled it to stool heavily out. So, on the whole, this plan of sowing different kinds of cereals together, or different sorts of one kind, seems worthy of consideration.

Our improved fanning mills are now brought to such perfection that the separation of different grains is not difficult. We have all seen at our fairs trials of fanning mills, which cleaned several different sorts of grain, such as wheat, barley, oats, pea-weed seeds, and Timothy, all put together and passed through a fanning mill, and each parcel of seed has in a few minutes being taken out perfectly separated. I remember in England one neighbouring farmer who always mixed in his seed peas several sorts together, and rarely failed in getting a heavy crop. Some years since I had some Black-eyed Marrowfat, Golden Vine, large garden Marrowfat, and several more sorts of peas, all put away in the barn almost together, but in reality separated, when you knew where to begin to take them out. In my absence the thrashing machine was set to work, and no care taken to preserve the peas apart, and consequently all were thrashed at the same time. For some years I sowed this mixed seed with an excellent effect, so far as yield is concerned; but gradually the predominant sort overcame the rest, and finally succeeded in becoming far more prevalent in the sample, but the yield decreased greatly.

A very intelligent farmer from Euphrasia told me he had for some years been in the habit of sowing mixed seed fall wheat, and liked the plan exceedingly, especially when sowing Soules and fall midge-proof. He argued that if the Soules wheat escaped the midge he had a fine crop, but if the midge took it, he had still the smaller but more reliable yield of midge-proof to depend on.

I must further remark that all agree as to the necessity of sowing rather more seed of each kind when following out this plan. It will readily be seen that if all grows, the grain will only be somewhat too thick; whilst if one sort is winter killed, the rest is still thick enough.

C.

Rail and Picket Fence.

To the Editor.

SIR,—Having noticed several articles on fencing in late numbers of your paper, I will, with your permission, describe the picket and rail fence in general use by the *habitans* in the Province of Quebec. They cut the rails from 11 to 12 feet, and the pickets about 7 feet long. All that may be required for one season are hauled to one place in the winter, and in March they are prepared for use. Two blocks about 4 or 5 feet long are laid on the ground, with notches cut in them to receive the rails, which are secured by wedges, and the ends dressed for a length of 6 or 8 inches to a thickness of three inches. The wedges prevent the rails from moving, so that both ends are dressed in a line with each other, a point which must be carefully attended to. By afterwards moving the blocks closer together, the pickets may be secured in the same way, and the small end brought to a point which must be rather

short, as if it is sloped too much the picket will not stand so firm in the ground. To build the fence, the rails must be laid with the butt end foremost, and a stone or cedar chip placed under each end of the first rail in every panel, to keep it off the ground. The rails should be allowed to overlap about six inches. A man and boy are required for this work, with a strong stool, a short piece of rope, and a one-and-a-half inch auger. The boy holds the pickets upright, whilst the man drives them about twelve or fifteen inches into the ground, or deeper if the soil is light; and as all the pickets will have at least one side fair, it is necessary to turn these sides inwards, so that the ends of all the rails may be tightly jammed when the fence is finished. As soon as the fence is four rails high, the rope is used to hold the pickets firmly together. A hole is bored through both pickets with the auger, and a cedar pin driven through, and wedged that it may not slip back. A fifth rail is laid on over the pins, and the pickets bound together with strong withes, so that the top rails cannot be thrown off by a breachy ox; neither can the rails be shifted endways. A breachy animal must either jump clean over or break the top rail by his own weight, for he cannot knock down a panel. I have resided for some years in the Province of Quebec, where no other kind of fence was ever used on bush farms, and I never saw the pickets thrown out by the frost or blown down by a gale of wind, although this may sometimes happen in light soils. The rails can never settle down on each other so long as the pickets are firmly held at the top. The withes generally require to be renewed every other year, when a man should go round with a beetle, and drive the pickets a little if necessary. When this fence is well made, neither pig, goose, nor duck can get through, and the plough can pass as close as to a post and board fence. Pickets or posts for any kind of fence should always be set with the small end in the ground, as experience has proved that they will last a year or two longer than if they are set with the butt end downwards.

I had some fencing of this kind put up here in 1864, and I have never had a picket thrown out by the frost, or panel blown down by the wind, although we have experienced some heavy gales of wind since it was put up. It certainly involves more work than a worm fence, but the worst of it can be done in the winter. As for worm fences, they ought to be called lazy men's fences, except on a bush farm, where they will be required to be shifted until the removal of the stumps will permit of the farm being laid out on a regular plan.

SARAWAK.

It would seem that beet sugar is at last destined to become a success, at least in California. The two principal companies there propose to extend the cultivation of the crop to one thousand acres during the present year.

Wire Fence.

Several correspondents have lately written to ask information respecting the construction of wire fence. For their information we reproduce an article published some time ago in the CANADA FARMER. One correspondent asks which is the best kind of fence: That must depend very much on the locality. The question has lately been pretty fully considered in these columns, and we must refer enquirers for estimates of the comparative cost of different kinds, and other particulars connected with the subject, to the numbers of the CANADA FARMER for December 1871, and January 1872.

The following remarks are in answer to certain queries with which the extract commences:

How far should posts be separate?

Should there be a board at bottom?

What size and how many wires to use?

How stretched?

How fastened?

Should the top wire be heavier than the others?

In regard to most of the above particulars some variety in practice exists. In reference to the first query, eight feet apart is perhaps the most suitable distance for the posts.

Some persons put on a bottom board, and it has the advantage, where the fence borders a road, of keeping sufficient snow on the ground to make good travelling. Some also use a scantling for top rail, to prevent colts and other stock from injuring themselves, as they will sometimes do against a wire that they cannot see. Both top scantling and bottom board are, however, often dispensed with.

The size of the wire very frequently used is No. 7. Some prefer it stronger, using No. 6, while others find No. 8 sufficient for all purposes. The number of wires and distances apart must depend upon the kind of stock intended to run in the adjoining fields. Where no top scantling is used, the fence need not much exceed four feet. Animals seem afraid to jump the wire fence, and are easily hurt in the attempt. With a bottom board, the first wire three or four inches above it, the next four, the next five, and others, according to the height, from eight to twelve inches apart, make a thoroughly efficient fence, capable of keeping out any kind of stock; but where only the larger animals are to be restrained in bounds, fewer wires will suffice.

Different methods of fixing and stretching the wires are adopted. Some bore holes in the posts at the required distances, and pass the wires through. By this method they cannot be forced out of place. But more commonly staples are used, driven into the face of the posts where required. These staples may be made out of the wire itself by cutting off pieces about three or four

inches long, sharpening the ends, and bending them into shape. These will readily drive into cedar posts. If hardwood is used, stronger staples would be necessary. The staples should not be driven home before the stretching is completed, but as soon as the desired tension is attained, they may be driven up and serve to fasten the wire in place. The ends of the wires—and they should be divided for proper stretching into lengths of four or five chains each—are coiled two or three times round the post, and fastened with staples. For stretching, a common handspike may be used, or a short roller about three or four inches in diameter, with two opposite holes into which pins or short rods may be inserted, to keep the roller from turning back. This forms a kind of windlass, working in slight grooves cut in a post. But where it can be procured, a screw is the most effectual implement. The wire being first tightened by ordinary means as much as possible, the end is attached to the screw, and the required tension is usually secured by one screwing up.

When staples are used, the fence should face the fields in which stock run, otherwise they will sometimes press against the wires and force out the staples. When the fence divides stock fields, the posts are sometimes placed alternately on the opposite sides of the wire line.

The top wire need not be stronger than the rest, except where No. 8 is used, in which case, perhaps, a stouter wire would be best for the purpose.

Planting Swedes and Mangels Together.

In a recent number of the CANADA FARMER I notice some observations about planting Swedes and mangels together. My own experience goes far to show that the plan is in some cases advisable. Mangels are not subject to be injured by fly, as the Swede turnip is; and therefore where a crop would be otherwise endangered or reduced in yield, by being too thin on the ground, mangel seed may, as the plant escapes the fly, fill up the vacancies.

There are, to be sure, some practical difficulties in drilling in the two kinds of seed with a turnip drill, as it is manifest that they could not be mixed with impunity, and not run a great risk of either sowing so small a seed as turnip too thick, or by confining the outlet to meet this difficulty, the larger mangel seed would choke the orifice, producing "gaps" in the rows.

Some years since (in 1839) I experimented, during one summer, with these two seeds, and at harvest noted carefully the results. I obviated the above difficulty in sowing by passing the mangel drill over the ground after the Swedes were sown; but even in this case there were some "gaps," as the fly was quite destructive, destroying nearly one-half the turnips, and in some spots altogether eating them up; but the mangels all escaped, and I deeply regretted not having sown more. However, the crop at harvest proved heavy—nearly 600 bushels of mixed roots (about half of each kind) to the acre, say

about 18 tons, the quality of both being good. My experiment, with the best cultivation and heavy manuring, with the long red mangel, gave a wonderful yield; I weighed per acre nearly forty tons, or about fourteen hundred bushels. Of course this enormous yield was the result of heavy manuring and excellent land, and very favourable season. Many of the roots were two feet long and five inches in diameter, thus rivaling the famous California sugar beet produce, where the manufacturers, in self defence, to be sure of small-sized roots, rent the land, and plant beet as close as possible. In these cases the farmer receives \$10 an acre rent, and does the work required to prepare the ground for seed; the beet sugar manufacturers sowing the seed and doing all else the crop requires. By this course they can grow small beets, which yield by far the most sugar. Until this was done, farmers used to bring to the factory beets of occasionally 20 to 30 lbs. weight; prodigious roots they were, and no doubt excellent for cattle food, but almost worthless for sugar. My mangels were not of such a calibre as the Californians, but they were very large.

Amongst other experiments that year, I sowed some winter vetches, but they failed to withstand the intense cold, and they almost all perished. The summer variety, however, yielded exceedingly well. We cut them green for our working horses, as we had little else to feed them with; but I thought the extreme diuretic effect they produced was somewhat injurious to the team. I do not think this would have been the case to such an extent as it was if the vetches had been less luxuriant in their growth; many stalks measured seven to ten feet in length. The land was exceedingly rich, however, and the season, as before stated, very favourable.

In the same field I had an acre of English white potatoes, and measured off the 160 rods upwards of 300 bushels. The good old potato crops are now again returning, and 300 bushels an acre is no longer a thing of the past, but an ordinary every day yield in many cases where the prolific new kinds are planted.

In the same field I had an acre of white beans, and harvested nearly 42 bushels; but there was little sale for them, and no animal seemed to relish them for food except sheep, so I did not repeat that experiment. Subsequent trials have determined in my mind that medium sized mangels are far the most nourishing as food for cattle. I do not, however, think the same rule applies to Swedes, as I have grown transplanted Swede turnips in the south of England that weighed eighteen pounds weight, and hundreds would weigh ten to twelve pounds. But it must be remembered that, in transplanting turnips, there was often two months extra time for this larger growth to be obtained over those grown from seed; and transplanted turnips were easily grown in such a moist climate as England. I grew in Canada one transplanted Swede in my garden last year, and it was a monster. It had somehow got in among the cabbages, and being planted early, attained a great size. This plan, however, will not answer for turnips intended for table use. They are usually weedy and tough, not creamy and soft, as turnips ought to be when grown for the table.

Connecticut Agriculture.

Connecticut, one of the smaller of the original thirteen of the United States, contains about four thousand seven hundred and fifty square miles of surface, exhibiting a great diversity of soil, and consequently adapted to all kinds of husbandry. Much of its surface is broken and hilly, approaching to mountainous, with the original beds of rock outcropping, and otherwise being well sprinkled with boulders. In fact, but a small portion of surface may be said to be free entirely from more or less boulders. The numerous valleys, through which pass its larger streams of water, possess great fertility, and hence are exceedingly valuable for agricultural purposes. The value of these lands is greatly enhanced in consequence of the natural addition or compensation to their fertility which is occasioned by a valuable deposit made at times of freshet in the spring. In some cases, as the banks of the Connecticut river, this forms a considerable belt on both sides of the river.

In general, the farms of this State are small, seldom exceeding one hundred and fifty or two hundred acres in extent, and much oftener less than one hundred. Farming here is pretty generally of a mixed character, consisting of the cultivation of numerous crops, stock raising, pork and beef fattening, &c., &c.

Still there are cases of some particular speciality that receives almost exclusive attention, as for instance stock breeding, dairying, tobacco growing, &c. The general and mixed farming is more particularly confined to the smaller and perhaps rougher farms, wherein the conditions would seem to require such course; still there are some of the rough portions of the State in which sheep raising is considerably carried on. Again, as in the western part—Litchfield and Farnfield counties—dairying is carried on extensively, formerly more particularly for the production of butter and cheese, but more recently for the production of milk for the New York market, which is sent by a daily milk train that runs from Massachusetts down the Housatonic River Valley. These counties are especially adapted to dairying, being hilly, and possessing a limestone soil, which furnishes a rich, rank growth of herbage peculiarly adapted to the production of milk. The towns on the banks of the Connecticut River are extensively engaged in the cultivation of tobacco, which they have carried to such success as to give a world-wide reputation to the "Connecticut seed leaf tobacco." A few towns are also considerably engaged in the cultivation of the onion, and one in particular has been so successful in that line as to give its name to the onion, which is almost as extensively known as its tobacco. The *Wethersfield* red onion stands unrivalled for its size and productiveness, as many as twelve hundred bushels being taken from an acre. Fruit growing, until within a few years, received but little attention, but is now advancing in consequence of the great demand at remunerative prices.

W. H. YEOMANS

Columbia, Conn.

Fences.

To the Editor.

SIR,—In the CANADA FARMER, for December, you call for the opinions of farmers on fencing. I give you mine. The old snake fence was in past times so generally used because it so well suited the circumstances of the country; but a change is now required.

A straight rail fence, confined between upright stakes, soon becomes an unsightly nuisance, as the rails will settle down, and that unequally, leaving at intervals wide spaces between the rails and riders. As far as my observation goes, the best cedar fence is made by planting rails seven to eight feet long in trenches thirty to thirty-six inches deep, banking up a few inches high on each side, and leaving corresponding trenches, then nail on a narrow board near the top, and saw off the rails to a uniform height. You will then have a straight, narrow, durable, handsome fence, with a water-course on each side, as fences generally ought to have. Further, I suppose a ditching machine would be just the thing to dig the trenches cheaply, expeditiously, and about the proper depth and width. After all, we must try and something somewhere that will answer for live fences.

In regard to a recent article on "Parsley or Sheep," I may remark that during a visit to England, I observed, in walking over such land as was alternately ploughed up and seeded down, quite a considerable quantity of parsley growing among the grass. I guessed it was for the use of hares and rabbits, but found on enquiry it was for the sheep, and afterwards found "sheep parsley" on seedsmen's catalogues, so presume the use of it is pretty general.

BRAMLEY.

Marsh lands suitable for cranberry culture, near Berlin, Wis., have advanced in value from \$1 or less to \$100 per acre.

From the annual statement it appears that receipts of grain at Buffalo, which were, in round numbers, 49,000,000 bushels in 1870, advanced to 78,000,000 in 1871, while her shipments by canal increased from 29,000,000 to 48,000,000 bushels.

The production of beet root sugar in France now employs more than four hundred factories, and the process of manufacture is each year brought to a higher state of perfection. There are several French journals specially devoted to subjects connected with the cultivation of the root, the manufacture and sale of the sugar, the chemistry of the process, the machinery required, &c.

A sub-variety, or "sport" of the Early Rose potato, has been originated in Washington Co., N. Y., and another at Delaware, Ohio. The first is called the "Late Rose," and the latter, "Campbell's Late Rose." These are not so smooth as the parent, and much more pointed at the end. They are highly spoken of as to yield and quality.

Stock Department.

Economy in Feeding.

I suppose it is many years since fodder has been so valuable in Canada as it rules this winter, and when speaking of the probable scarcity of hay in the coming spring, I am met on all sides by the rejoinder that every farmer is saving his hay and feeding straw, and thus is going on such a system of economy throughout the country that there must be plenty of hay in the coming spring. Economy in this case is the word to which I take exception. Hay is dear, and so is straw. What will be the result? Why, cattle will also be dear in the spring. The economy of straw feed in the majority of cases may be summed up in the following process:

No hay is fed, there are but few roots to feed, and straw is thrown helter-skelter to the cattle. Assuming that a ton of straw be worth \$14, and a ton of hay worth \$20, let us analyse this economy—"figure up" for the benefit of those farmers who are not given to that sort of thing, who take a product to be valuable because it commands a high price, not stopping to reflect upon its value when compared to that which must be used as a substitute.

It has been established by the most eminent chemists, and endorsed by the most able of practical British agriculturists, that 100 lbs. of good clover hay are about equivalent in value as food, or rather as flesh-forming nutriment, to 70 lbs. of good oat straw. Therefore, by simple rule of proportion, seven-tenths of a ton of hay is about equivalent in feeding qualities to one ton of straw. Now, seven-tenths of \$20 is exactly \$14; or when straw is worth the latter price, and hay worth \$20, the two are exactly equivalent in value as feed. This is the dictum of science; but what says practice? Why, that whereas there is no cow that will refuse to eat clean her 10 lbs. of good clover, it is almost impossible to find an animal that will eat her 10 lbs. of the best straw, or in any other relative amounts of proportion. Moreover, the manure made from the animal fed upon hay is of much more value than the produce of straw.

When we come to "figure up," then we find the generally accepted idea of economy to be false. It matters not what the price of hay may be, my belief is, that as opposed purely and simply to straw as feed, the cost of the latter is as great as the former.

I have been led to make these remarks from observing, in ramblings amongst my neighbours' barn-yards, that their idea was to substitute straw for hay.

This may work where the object of the farmer is simply to winter through a lot of cattle that have been bought at very low figures; but to the breeder who has on hand good grade cattle, young, growing or of full

are, the economy is false, for when spring sets in he will not be enabled to show his stock in that first-class condition which will most assuredly command very high figures.

But whilst I deprecate this system of the simple substitution of straw for hay, I believe there is still a way in which, until the pastures are fairly started, a true economy of hay can be accomplished.

The same results that have led to the above equivalent proportions as food between hay and straw, have also shown that 60 lbs. of barley is equal to 100 lbs. of hay. Now, 60 lbs. of barley is worth 75 cents, while 100 lbs. of hay is worth 100 cents. If then we substitute grain, such as barley, for a portion of our hay, we are saving 25 cents per cwt., or five dollars per ton of hay in our food, whilst we provide a sustenance peculiarly agreeable to the taste of the animal, and containing far more heat-producing qualities, and making a richer and better manure.

Let our readers "figure up," if not upon paper, by the light of actual experience and experiment and they will assuredly find that barley at 60 cents, or even peas at 80 cents per bushel, is the most economical food, when taken in conjunction with good hay or straw, and if possible with turnips, that we can use during the present winter and spring.

This is true economy, for we put our straw to its proper use, as the absorbent of all the manurial elements that are passed by an animal richly fed.

I feel assured that high feeding will pay this winter, for the demand for well conditioned cattle next spring and summer will be great; but such high feeding must be performed with the same judgment as shows grain to be a cheaper food this season than hay or straw.

"Many a muckle mak's a mickle," says the Scotchman, and he is in some things the prince of economists. It is upon the many savings of animals' fodder, and of animal manure, that the success of farming depends.

I have seen straw-stacks this winter, which, if I had them in my own barn-yard, would make the third part of some hundreds of loads of manure worth 75 cents a load, lying wet, frozen and rotten in their yards. As they stand, even when completely rotten, 100 loads of such are not worth five loads of good, hardly compacted, covered manure.

My neighbour and I have not actually made a wager, but we are watching for the results of our two plans of operations with regard to our hogs, with as much interest as if a great stake depended upon the issue. He, in view of the low price in the fall, and I suppose looking forward to high prices of grain, sold nearly every hog in his possession at some such prices as 4½ or 5 cents per lb. I kept a fast hold on every one, and even bought two choice breeding sows to winter. I did not kill my nine months' hogs; I was just about to put them up to fatten, but changed my mind, and bought my pork at \$5 per cwt. dressed.

My hogs would have been killed with a certain amount of feed at perhaps 150 lbs.; they would have been worth \$7 50 apiece. Now, I winter them over, and keep them just moving in growth on boiled turnips, swill,

and *tearmth*, and after next summer's pasture and the same amount of grain that they would have had this fall, they will probably turn off 300 lbs. on an average, and be worth \$3 per hundred, or \$24 apiece.

Although, as a rule, I cannot advocate wintering over hogs, yet it is better to winter over than to throw them away.

C. E. W.

Sheep.

NO. III.

The feeding of all live stock is, in Canada, undertaken by the majority of our farmers, with no recognized course in view. Many a farmer, when asked what sheep he is going to keep over next winter, cannot answer the question; far less has he already selected such lambs as he intends to fatten when they are first weaned. Now, periodically, a flock of sheep should be carefully looked over, and the ewes that are not in a perfect condition for future breeding should be weeded out with a view of killing them to advantage.

The greatest seasons of demand for mutton are here at Christmas and at Easter. We should then endeavour to have such sheep as we wish to sell to the butcher in readiness at either of these two seasons. A semi-annual weeding of the flock is then necessary.

If a sheep has over-past her period of gestation from the time that the ram was taken from the flock, we may be well assured, unless she show immediate signs of lambing, that she is not with lamb. In order to ascertain this with certainty, we would have every farmer remove his rams from the ewes, at the latest period, dating from which he would like to have lambs come in the spring. We think it a great mistake to have ewes coming in at intervals all through the summer, and we consider a midsummer lamb altogether an unprofitable animal.

Say that early lambs are required, then let the buck be put with the flock early in September, the main bulk of lambs will come in the first half of February, (none too early, we think, when proper accommodation can be found for the ewes.) He is a very poor tup that does not cover all his ewes in one month; but allow him six weeks, and all the stragglers will have come in by the end of March, and are still early lambs.

Again, if we desire lambs to come when there is pasture, they need not come before the middle of April; and if the buck be given his six weeks' law, a few may arrive in the end of May, which will be late spring lamb.

We consider the plan too often followed by many farmers, of allowing lambs to take the ram when only five or six months old, to be highly injurious, and we trace to this custom the fact that we see so many small and stunted sheep throughout the country. Fifteen months is the youngest age at which a ewe should be served. We should then weed out just after lambing season. If there be any ewes who have refused the buck, it is good time to fatten them for the Easter

market, when, owing to the presence of large quantities of spring lamb, large mutton is greatly in demand.

If pasture prove short, the male lambs can be sold with profit for Easter and summer market; while if kept until the following Christmas, they will dress to a great weight.

Commend us to early lambs. The ewes will take the ram better in the warm days of September than later; will fall feed better when in lamb; will lamb with more success in the early spring in the fold than later in the field; are better looked after before the busy throng of work comes on in the spring; make better and richer milk when judiciously fed, than upon the early grasses; and the lambs are large, and able to stand castration before the warm weather sets in; can be weaned in the very height of plentiful pasture, and cut their maximum weight of wool in the ensuing spring.

SHEARING.

We have seen this operation performed in Canada with such carelessness that at the risk of dwelling too much upon a subject, a full discussion of which has been so often found in our columns, we would yet again devote a few lines to this important subject.

Closely connected with, and preparatory to the operation of shearing, is that of washing, and upon the thorough effectiveness of that operation depends in great part the sample of the wool for our Canadian markets.

Now, in washing, we have to contend with two antagonistic principles—to free the wool of all superfluous dirt, and at the same time not to lose the essence of weight, or the oil of the wool.

It is thought by many that running water is the best adapted for the thorough cleansing of the wool, and for this reason we have frequently seen flocks of sheep driven two or three miles along a dusty road to a rapid stream, into which they are hastily plunged, and from out of which they are as quickly with drawn.

The effect of this is to wash little or no real dirt from the wool, for the water is in its very nature hard, and any oil from the wool that may have been freed is carried away by the rapid current.

Now, we greatly prefer a roomy pond of clear stagnant water, with a hard bottom; and if this pond be formed by damming up a stream, so much the better, as there is a constant gradual current slowly changing the water. In this water, after a few sheep have been thoroughly washed, is deposited sufficient of the oily matter or "yolk" of the fleece, to form an excellent soap, and the water containing this is far better adapted to remove impurities from the wool than is the clearest of rapid running streams.

Moreover, such water having been for some time comparatively stagnant, and under the influence of a hot sun, does not afford such a shock to the sheep when plunged in as does well water or a cold clear stream.

The sheep, if we wish to show a No. 1 sample of wool, must be turned directly from the water upon grass land; for if driven along a dusty road, the wool becomes black-

ened with dirt, and if turned upon bare land, the first action of the sheep is to lay itself down upon the barest spot that it can find.

Many shear the third day after washing. We prefer to put off the operation for at least a week. The wool is thus more thoroughly dried, and that "yolk" which is formed by the insensible perspiration of the body is also allowed time to spread itself through the fleece, increasing its weight, and imparting that softness to the fibre which truly forms the beautiful "feel" so much esteemed by every wool buyer.

There is some difference of opinion as to the proper form in which to cut the fleece. Some cut along the body. This allows the shears to be kept always level, admits of a closer cut without being liable to nick the skin; but as the shearing across or around the sheep gives a neater appearance to the fleece when rolled up, the latter has become the more general fashion.

The process of shearing is so simple that we would here explain the best method of operation, for the benefit of those who, unable to obtain a regular shearer, or having too few sheep to make the attendance of a professional necessary, would like to try for themselves. And we may say that the use of sharp shears, care in handling sheep, and having each sheep in good condition, are the only essentials to make any farmer his own clipper.

Catch the sheep in the usual manner, i.e., by the neck and rump; place it upon its rump between your legs, with its back against your knees; hold it with your left hand upon its head, and with the right and a pair of strong springed, handleless, sharp shears, with the right hand cut the wool from round the neck and shoulders, commencing close to the head, and working round and round until you have stripped the whole of the neck and the two shoulders.

Then lay the sheep upon its side, and holding it down by the pressure of the leg upon its neck, and kneeling upon one knee, cut continuously in ridges from belly to back until the one side is stripped; then turn the sheep upon its other side, and holding and clipping in an exactly similar manner to that used upon the first side, the fleece is stripped from neck to rump, and lies extended upon the floor; then raise the sheep gently, and set him outside the fleece, without allowing him to touch it with his feet whilst in the act of rising.

To roll up the fleece, first turn in the sides which came from off the thighs; then commence at the tail, and roll up tightly towards the head, folding in the belly wool as you proceed; when past the shoulders, draw out the neck wool to a comparatively thin cord, twisting it and turning it tightly around the whole roll; secure it by a twisting bight under itself.

Some roll up as above until they come to the shoulder; then turning in the shoulders, they begin at the neck, and twist and roll back again, until they meet that part of the fleece already rolled, when they secure the whole with a strong piece of packing cord.

Of the two we would recommend the latter, as it ties the fleece tighter, and the fleece is more readily untied by the sorter,

who is often bothered by the breaking of that twisted wool which, under the more common method, forms the band.

The shearer should ever bear in mind that the closer the clip is to the skin the heavier will be the fleece, for it is at the roots of the wool that is deposited the greatest amount of "yolk," and also that the wool nearest to the body is by far the softest, and its presence upon the outside of the fleece gives that elastic and soft feel so highly prized by the buyer and manufacturer; and the owner should bear in mind that to cut a sheep close it is necessary that the animal be in good condition.

The best of shearers will, however, at times nick the skin. Such nicks in the summer, unless attended to at once, will become the places of deposit of flies' eggs, which will hatch to the most loathsome of maggots, causing the sheep to fall away rapidly in condition. A little turpentine or cold tar smeared immediately upon these raw spots, will keep the flies away.

Sale of Short Horns.

On Wednesday, the 22nd January Mr. William Miller, jr., of Pickering, offered for sale by auction a fine lot of short-horn cattle and Cotswold sheep. Most of the animals were in excellent condition; and some of them, including several recent importations, were of great merit. The sale was not altogether confined to Mr. Miller's stock, some of the lots having been put in, we are informed, by Mr. Thompson and other breeders in the same neighbourhood. The day was fine though very cold, and there was a good attendance of visitors at east, if not a large number of actual buyers. The "Colorado Company" was represented by their agent, who made several purchases.

The following is a list of the thoroughbred shorthorns sold, with the prices at which they were knocked down, and the names of the buyers

| COWS AND HEIFERS | | |
|------------------------|-------------------------------|--------|
| Fan | W. Robt. Markham, | \$ 175 |
| Perlette Battery, | J. F. Armstrong, Guelph, | 410 |
| Perlette Battery 2nd, | H. Thompson, Pickering, | 210 |
| Oxford Maid, | H. Thompson, Whitby, | 440 |
| Oxford Maid, 2nd, | — Harrison, Pickering, | 500 |
| Violeta Forth, | W. M. Miller, Pickering, | 1 515 |
| Catherine | H. Thompson, Pickering, | 700 |
| Red Grizzly, | R. Collicott, Burlington, | 600 |
| Beauty, | H. Collicott, Burlington, | 450 |
| Maggie May, | H. Thompson, Pickering, | 250 |
| Dorah, | J. F. Armstrong, Guelph, | 285 |
| Music. (and calf) | Mr Brown, ——— | 285 |
| Miss Rose, | Colorado Co | 175 |
| Pride of Markham | W. M. Milne, Scarborough, | 150 |
| Wild Rose, | W. M. Milne, Scarborough, | 200 |
| Nettie, | J. Marsh, Markham, | 270 |
| Miss Bell, 2nd, | J. Graham, Beach, | 500 |
| Monte, | Colorado Co. | 180 |
| Miss Irisclla, | Eurell & Johnston, Pickering, | 226 |
| Clerry, | W. Thompson, Pickering, | 100 |
| Daby Queen, 2nd, | H. Thompson, Pickering, | 125 |
| Vesta 2nd, (and calf.) | J. Little, Pickering, | 250 |
| Florence Fightingale, | J. Marsh, Markham, | 240 |
| Lady Esmerald, | Colorado Co. | 85 |
| Lily, | Bersor, Markham, | 160 |
| Beauty, | J. & offset, Markham | 125 |
| Red Rose, | W. M. Milne, Scarborough, | 175 |
| Rose of Alkdale, | J. Thompson, Whitby, | 175 |
| Bella 2nd, | J. Beatty, Pickering, | 50 |
| Alice, | E. Bwes. do | 75 |
| BULLS. | | |
| Heir of Scotta, | Colorado Co., | \$350 |
| Markham Duke, | W. M. Milne, Scarborough, | 120 |
| Young Forest Duke, | Colorado Co., | 80 |
| Duke of Springwood, | T. McAvry, Pickering, | 60 |
| New Years Bay | R. Miller, | 150 |
| Lord of the Valley | J. Thompson, Whitby, | 1 5 |
| Sir Charles, | R. Spiers, do | 25 |

The Horse Stable.

From an elaborate and carefully prepared report on horses, submitted to the Massachusetts State Board of Agriculture in 1860, by Prof. W. S. Clark, now President of the Massachusetts Agricultural College, we take the following:

A suitable stable is the first requisite in the care of a horse. Should be capacious, well-ventilated, but warm, well-lighted, and so situated as to be free from dampness. Stables are not unfrequently built over cellars or depressions in the soil, which receive the manure, and are often partially filled with water. The constant evaporation from this pond keeps the entire stables damp and chilly, and thus in an excellent condition for causing founder, rheumatism, lung fever, colic, and other diseases in the poor, exhausted creatures, whose uncomfortable nights must be passed here. Warmer, but not more salubrious, are stables over cellars, dark and close, which are fumed with the pungent, noxious gases generated by fermenting dung. Such cellars ought always to be very thoroughly ventilated, not merely by an open door or space on one side, but by a constant and abundant circulation of air.

The stalls should be as wide as circumstances will allow, but never less than five feet, in order that the horse may have room to lie in an easy, unconstrained position, and rise without any danger of bruising the points of his hips.

Wherever it is feasible, a loose box-stall twelve or fourteen feet square is by far the most comfortable for the horse, and there should be at least one in every stable, for use in case of sickness or accident. The difference between such a resting place, into which the horse is turned loose, and a narrower stall, where his head is hitched up two feet from the floor, as often happens, is much like that between a berth in the cabin of a steamboat and a nice double bed.

The floor upon which the horse stands should be as nearly level as possible, and if it must be inclined to carry off the water, it would probably be more agreeable to the horse to have his fore feet the lowest, as his back sinews are less tense in this position; and it is observed that for this reason horses in pasture usually stand with their fore feet in a hollow which they have excavated by stamping.

The English method of having a grate over a drain in the centre of the stall, is an excellent one.

Another good plan is to lay a double floor, the under one with an inclination of three inches, and the upper one of planks four inches thick at one end and one inch at the other, placed about one inch apart. In this way the standing-place is perfect, and the draining perfect.

Many horses have been seriously injured, besides being made uncomfortable, by being confined in narrow stalls upon inclined floors. In box-stalls, where the horse can move

about and take the most agreeable position, it is of course not necessary that the floor be level, and perhaps better that it should not be.

The sides of the stalls should be smooth, and if the horse is disposed to rub his tail he may be prevented by fastening strips of plank six inches wide to the partition, about three feet from the floor. In a narrow stall there might be danger that the horse would injure his hips upon these planks, but he will soon learn to avoid them in rising.

The common form of rack and manger for ordinary stalls is on the whole not very objectionable. When the hay and straw are cut, the rack is quite unnecessary, and if one be used, it would be much better to set it in a vertical position than inclined, as is usual. The horse would feed more easily and be less annoyed by dust. The edge of the manger should be protected by a strip of band iron, both that it may not be destroyed and that the horse be not tempted to acquire the vicious habit of cribbing.

The best mode of fastening a horse in a stall is the English one of attaching a light weight to the end of the halter, and allowing it to run up and down under the manger, which should always be boarded in front from the floor up. By this arrangement the horse enjoys sufficient liberty, and yet has no chance of getting cast by stepping over his halter.

Soiling Farm Stock.

The Mark Lane Express publishes the following remarks from Mr. Mechi:—"The longer I farm, the more I am convinced of the superior economy of soiling farm stock. It is cheaper and better to bring feed to the animal than the animal to the food, because in the latter case he is permitted to trample, excrete, and lie upon it. One of the largest and most successful farmers I know, has no cumbersome, obstructive hedges to impoverish him: he has always folded his sheep and cut the grass for them—one man, a lad, and a horse chaff cutter being on the field, there feeding the sheep with green grass, chaff, mixed with cake, &c. He has always been among the very best root and corn growers of all my acquaintance. Green tares, clover, &c., are all passed through the chaff cutter for my horses and cattle, the corn is ground, and the roots pulped. One trial will prove the fact, and put money into the pockets of my agricultural friends. My sheep and lambs are close folded, and have no more food than they clear off. I old moved twice a day—one fifteen feet iron hurdle to every five sheep. Lambs have the first bite, and are followed by the ewes to clear it all up—tares, clover, and Italian rye grass."

"Is not mildew often caused by too thick sowing and consequent laid crops. My wheat crops from a bushel of seed per acre drilled, are all I can desire; and even two pecks per acre are undistinguishable from the rest of the field."

Messrs. Orendorf Brothers, of McLean Co., Ill., recently had at Chicago a lot of 81 hogs, fed by one of them, the average live weight of which was 513 pounds; and a lot of 60, fed by the other brother, the average weight of which was 509 pounds. They were Poland China hogs, and were seventeen months old.

Points of Excellence—Ayrshires.

The New York State Agricultural Society furnish their judges of Ayrshire cattle with the following points of excellence in the Ayrshire cows, with the appendix accompanying in the case of the bull.

- POINTS OF EXCELLENCE IN AN AYRSHIRE COW.
- Head—As in the other breeds, small; the face long and narrow; the muzzle and nose variable in colour. 4
 - Eye—Placid, and not strikingly large. 2
 - Ear—Of full size, and of an orange colour within. 4
 - Horns—Small, tapering, with an outward and upward turn, and set on wide apart; the face somewhat dishing. 2
 - Neck—Of medium length, clean in the throat, very light throughout, and tapering to the head. 4
 - Shoulders—Lying snugly to the body, thin at their tops, small at their points, not long in the blade, nor loaded with muscle. 6
 - Chest—Must retain sufficient width and roundness to ensure constitution. The lightness of the fore-quarter, and the "wedge shape" of the animal, from the hind-quarter forward, arising more from a small, flat, and thin shoulder, than from any undue narrowness of the chest. 12
 - Crops—Easily blend in with so thin a shoulder, and prevent all hollowness behind. 4
 - Brisket—Not overloading the fore end, but light. 4
 - Back—Should be straight, and the loin wide, the hips rather high and well spread. 3
 - Pelvis—Roomy, causing a good breadth at what is termed the "thurl" or "round bone," and between the points of the rumps. 4
 - Quarters—Long, tolerably muscular, and full in their upper portion, but moulding into the thighs below, which should have a degree of flatness, affording thus more space for a full udder. The flank well let down, but not heavy. 6
 - Ribs—Behind springing out very round and full, affording space for a large udder, which by Ayrshire breeders is considered very essential to secure the milking property; the whole carcass thus acquiring increased volume towards its posterior portion. 8
 - Rumps—Nearly level with the back, projecting but little. 4
 - Tail—Thin in its cord, of full length, light in its hair, and set somewhat further into its lack than would be admissible in some other breeds. 1
 - Legs—Delicate, and fine in the bone, inclining to be short and well knit together at the points. 3
 - Udder—In this breed is of more especial importance, as the Ayrshires have been bred almost exclusively with reference to their milking properties. The great feature of the udder should be capacity, without being fleshy. It should be carried squarely and broadly forward, and show itself largely behind. As it rises upward, it should not mingle

too immediately with the muscle of the thighs, but continue to preserve its own peculiar texture of skin—thin, delicate, and ample in its folds. The teats should stand wide apart, and be lengthy, but not large and coarse. 12

Hair—Soft and thick, in the phraseology of the country, woolly. 4

Colour—Varies; a dark red, a rich brown, a liver colour, or mahogany, running into almost a black; those very much broken and spotty at the edges on a white ground are the favourite colours at the present time. The light yellow is, however, a colour sometimes found on good cows; but those pale colours are objected to from an impression that such belong to animals of less constitution. 1

Carrriage—Should be light, active, and even gay; this latter appearance is much promoted by the upward turn of the horns. 1

Quality on Handling—Will show the skin to be of medium thickness only, moving freely under the hand, and evincing a readiness in the animal to take on flesh when a drain on the constitution is no longer made by the milk pail. 6

100

POINTS OF EXCELLENCE IN THE AYRSHIRE BULL.

The points desirable in the female are generally so in the male, but must of course be attended with that masculine character which is inseparable from a strong and vigorous constitution. Even a certain degree of coarseness is admissible; but then it must be so exclusively of a masculine description as never to be discovered in a female of his get.

In contradistinction to the cows, the head of the bull may be shorter, the frontal bone broader, and the occipital flat and stronger, that it may receive and sustain the horn; this latter may be excused if a little heavy at the base, if its upward form, its quality and colour, be right. Neither is the looseness of the skin attached to and depending from the lower jaw to be deemed other than a feature of the sex, provided it is not extended beyond the bone, but leaves the gullet and the throat clear and free from dewlap.

The upper portion of the neck should be full and muscular; for it is an indication of strength, power and constitution. The spine should be strong, the bones of the loin long and broad, the genital organs large, and the whole muscular system wide, and thoroughly developed over the entire frame.

SHEEP FARMING IN SCOTLAND.—Sheep farming is an extensive business in Scotland. In June last there were 6,700,000 sheep in that country, and of these 4,500,000 were on regular mountain sheep farms; the remainder were on arable lands. In the Lowland hills about two acres are required, on an average, for each sheep, and each farm grazes from 500 to 2,500 animals. The Highland sheep farms comprise from 1,000 to 25,000 sheep; the common size, however, runs from 4,000 to 6,000. Highland sheep farming is regarded as a more speculative business than Lowland, the weather being more severe. In the Lowlands the principal stocks are of the Cheviot breed, while in the Highlands the large proportion are the hardy black-faced sheep.—Turf, Field and Farm.

The Straw Yard.

A few hints relative to the care of straw yard stock may not be out of place at this season of the year.

The first caution may seem unnecessary, yet experience shows it is needed. Be careful that the cattle do not eat away the foundation, and throw down the superstructure on themselves. Last year a neighbour of mine had two young oxen smothered by the stack falling on them. One was killed outright, and the other was a long time before it revived again, and never did well afterwards. No doubt it was injured internally somewhere. Feeding cattle from the straw stack certainly saves a great deal of trouble, and as long as the best straw can thus be picked over, and the refuse trampled under foot, the stock may do well; but when they come to the upper part of the stack they will not eat half of it, and as that generally happens towards the end of the winter, just when fodder begins to run short, it then becomes "Hobs n' choice," and, moreover, from the wilful waste at the commencement, the poor cattle are now compelled to eat this portion up clean, as it is then discovered that fodder will run short. The fact is, such feeding, and from a straw stack, in any case, is a miserable arrangement. The cattle are poor, and infested with vermin almost all winter, and it is June before the old hair is all off; whereas, if stabled, and fed with straw from the barn, less fodder will do by nearly one-third, and more manure will be made, and the cattle will look sleek and well at the end of April and beginning of May.

Another great evil, accompanied with considerable danger, exists in the bull running with other cattle and colts. He is a nuisance amongst horned cattle in the yard, and is decidedly dangerous amongst horses. A year or two since I had a splendid mare killed by a bull, and two horses severely injured by him. They recovered, but the mare died at once.

A near neighbour of mine had a span of beautiful mares killed by a bull, within five minutes of the time they were driven into the yard and on their way to the stable. The furious brute charged one and gored her to death, and when she fell he deliberately attacked the second, and gored her dreadfully. The whole mischief was done, and both mares were dead, in ten minutes at the longest. The enraged farmer and owner was so beside himself at the loss of the team, worth \$400, that he in his turn charged the bull with a pitchfork, and wounded him so badly that he was obliged to be killed.

I was pestered by my bull for months, and tried all manner of remedies. "Pokes" of all kinds, ring in his nose, chains, and every rig that a bull could wear, were tried, but nothing did any good but blinding him so effectually that he could not see at all. This quieted him, whilst it could be kept on; but he very soon found out he could tear it off in a fence corner or with his hind foot, and once I was on the point of finishing his business and power of doing mischief by putting

out his eyes outright, and would have done so but my more humane foreman interceded, and the operation was delayed and finally abandoned, and, as a recompense probably for our forbearance, the bull killed the mare within two weeks.

On all accounts, depend upon it, the practice of giving stock promiscuously the run of the straw yard, is the most wasteful and least satisfactory mode of wintering them.

C.

Selecting Rams.

The first and most important qualification of a stock ram is constitution. No matter how perfect he may be in every other particular, if he is defective in this one point he is worthless. His stock will be feeble, short-lived, poor breeders, and always ailing. Constitution is to be determined by the full, robust, physical development, the deep, full chest giving ample room for the vital organs; a uniform development of all the parts, giving a look of strength and vigour, and by family antecedents. The ram should not only be all right himself, but he should come from healthy, vigorous families on both sides, else he may have lurking in his system the germs of weakness and disease, to be developed in his stock.

In choosing a stock ram, size is important. A large, roomy sheep makes a better breeder and nurse, carries a heavier fleece, and makes more mutton.

It does not pay for the wool-grower to give much attention to the development of fancy points. These should be left to the breeder who expects to realize fancy prices. — *Vermont Record and Farmer.*

Another shipment of American Shorthorns to England is reported. Recently Mr. Alexander, of Woodburn, Ky., sold to an English gentleman two Durham heifers—the eldest two years old—for \$13,000.

The horses belonging to the Street Railway Company of Brooklyn, N. Y., have again been attacked with spinal meningitis. There were sixty-three cases in the stables on a single day recently, and the mortality is very great.

The *Pacific Rural Press* says that in some portions of the State cattle are suffering much from the continued severe weather, and the low state of flesh to which they were reduced by the destruction of the old pastures by the early rains. Many have died in consequence.

John Snell & Sons, Edmonton, have sold the celebrated premium bull "Louden Duke" to J. T. Sayers, of Wythe Co., Virginia. "Louden Duke" won four first prizes at Provincial shows. At London, in 1869, he won the sweepstakes for the best bull of any age, and stood at the head of the herd that won the Prince of Wales' prize, and at Kingston, in 1871, he and his calves won the Prince of Wales' prize for the best bull and five of his calves under one year.

The number of sheep in Scotland in 1871 has been estimated at 6,700,000. In the low lands the principal breed is the Cheviot, but in the high lands the greater proportion are the hardy black-faced sheep.

A Connecticut farmer sold a lamb to a butcher at a certain price per pound, with the agreement that a quarter of the animal should be returned to him after killing. The butcher charged the farmer retail price, and, on striking the balance, the latter found himself indebted to the cunning butcher by the operation.

The Kentucky rule for estimating the net weight of hogs, is said to be, for the first 100 lbs. deduct 25 for gross; for the second 100 lbs. deduct 12½; for the third 100 lbs. deduct 6½; all over the third hundred is net. The net weight of a hog weighing 100 lbs. gross is 75 lbs.; a hog of 150 lbs. gross with net 118½; of 250 gross, 209¾ net; and a hog, the gross weight of which is 300 pounds, will net 256½ pounds. From the gross weight of a hog that goes over 300, 43½ pounds only is deducted, even should the weight be 400. This rule, if correctly stated, may be of use to somebody.

A California publication (the *Pacific Rural Press*) contains an account of a cattle sale in Colusa county, in that State, which rather dwarfs similar sales on this side of the Rocky Mountains. The sale was made by order of the executor of the estate of R. J. Walsh, deceased, to pay off legacies, and it realized *forty thousand dollars!* The number of horses and cattle is not stated, but it must have reached nearly two thousand head. The price of unbroken horses ranged from \$120 down to \$24; the bulls from \$100 down to \$5. Other horned stock from \$100 down to \$18 25. These latter alone numbered 1,145 head.

BEANS.—Our correspondent "Sarawak" gives his experience with beans for feed as follows:—Although white beans are of no value for fattening stock, yet they are the best things that can be fed to young animals, as they contain the necessary materials for making bone and muscle. For a young colt, one pint of beans and oats crushed together will be found much better than oats alone. A neighbour of mine, a few years ago, fed his store ewes with a regular daily allowance of beans and peas crushed, during the winter, and as a consequence the next spring never lost a lamb. They were so strong that they were on their feet and tried to suck almost as soon as they were dropped. It is, however, necessary when sheep get an allowance of grain, to begin in the early part of the winter, as if such feed is only commenced towards the spring the new wool will begin to start, and the old wool become loose and ready to drop off before the usual shearing time arrives. No doubt every experienced farmer knows this; but many of your neighbours may not have had much experience with sheep, and it is for their benefit I mention it.

The *Country Gentleman* is glad to know that there is a prospect of the importation into the United States, next spring, of Norfolk Polled cattle, the merits of which for the dairy, as well as their symmetry of form, have been frequently referred to. They have long been bred with care, and during the past ten years, as we are assured, have been considerably improved.

FATTENING HOGS.—Joseph Harris gives in the *American Agriculturist* an extract of a letter of John S. Bowles of Ohio, describing his treatment of fattening hogs. He has now 165 head—and generally endeavours to have 30 head ready for market every three months the year round. An engine grinds and cooks his corn. In shelling, the cobs alone run the engine. He thinks cooking food saves grain, saves time in fattening, and renders the animals less liable to disease. It can hardly be otherwise; for the man who will take the pains to give them good, pure, wholesome food, will provide clean sheltered quarters for them, and to avoid the bad air and filth which some farmers permit, and which as every one knows are a fruitful source of disease everywhere. No animal takes more pains to avoid dirt than a pig, if he can obtain what he wants; and the farmer who crowds him into foul quarters must not only expect these animals to become diseased, but ultimately the eaters of such badly fed pork must become diseased also, as many do.

A VALUABLE HORSE—The Pottstown (Pa.) *Reader* gives an account of a mare which is employed at the iron works at that place. Her business is to haul carts loaded with iron. Part of the day she is required to draw a cart from the furnace to the puddling mill, and the rest of the time to the plate mill, which lies in another direction. The distance to each place is over two hundred yards. The mare has been engaged in this business for over two years, and after only a few trips has made her rounds without a driver. One route leads over a railway track, and such is the sagacity of the animal, that if she sees a train approaching at some distance she hurries over the track, but if it is near at hand she stops for the train to go past. As the wages paid to drivers in this establishment are \$41 per month, it will be seen that this mare has saved her present employer \$1,600 by going without a driver.

There is such a demand for teams for the shanties, and such high wages offered, that owners of good horses do not wait, says a local paper, until their threshing and marketing is done, before starting up the Ottawa. The Ottawa Valley is full of unthreshed grain and hay, and is likely to remain so until the timber-drawers "catch up" to the axemen in the woods, and there is no more work for them in the *chanties*. A great many farms are left without anything in the shape of a team except young colts and old brood mares.

Veterinary Department.

Bog Spavin.

In compliance with the request of a correspondent, we again take up the subject of bog spavin, though we have already repeatedly described its nature and treatment:—

Bog spavin is a disease attacking the hock joint of the horse, and consists in distension or dilatation of the capsular ligament of the true hock joint. The hock of the horse corresponds to the ankle of the human being, and it is therefore a very complicated structure. There are no less than ten bones entering into its formation, six of which are known as the bones proper of the hock, and the union of these bones forms a number of articulation with very limited motion. The union of a very powerful bone (called the astragalus), which presents an articulating surface that has been likened to a pulley, with the tibia or thigh bone, forms what is known as the true hock joint, and this joint allows of very extensive motion.

The bones are kept in their position by white fibrous substances called ligaments, some of which are called binding ligaments, whilst others are known as capsular. The articulation formed by the ten bones above mentioned, presents a very large ligament, and this, like other ligaments of the same class, is lined by a very important membrane called the synovial membrane, from which is formed the synovia, or, as it is familiarly known by the majority of our readers, the joint oil. Passing over this joint, both in front and behind, are a number of tendons or sinews, all of which are bound down by a fibrous substance that is called the annular ligament.

The hock joint in a healthy state contains from two to three drachms of synovia, the secretion and absorption of which are gradually taking place; but when this structure becomes irritated from undue stress or motion of the joint, a larger quantity of synovia is formed than can be absorbed, and the result is pressure and distension of the capsule, producing a bulging or tumour at that part that is but little protected by ligament or tendon; hence the soft puffy tumour known as bog spavin appears first towards the antero internal part of the joint, and has been so called from its yielding and fluctuating feel in contra-distinction to bone spavin, which is hard and unyielding. When the irritation is extensive or prolonged, the secretion alters in character, and the whole joint may become severely diseased, producing either a thickening of the capsule or leading to a deposition of osseous matter between the articulations, and consequently lessening the motion of the joint.

The causes of this disease are both predisposing and exciting. Some of the heavier breeds of horses are very liable to bog spavin

and bursal enlargements, and so are horses that have a tendency to swelling of the legs. In the lighter breeds some are predisposed from some faulty conformation, as weak and ill-shaped hocks and limbs.

The exciting causes are sprains of any kind, or putting young horses to hard or rapid work. A very common cause is backing horses forcibly and quickly when attached to a heavy load, or anything whatever that sets up an irritation in the joint. In young horses this affection is very quickly produced.

From this brief description of the nature and causes of the disease, the reader will more readily comprehend the course of treatment that ought to be adopted.

When the capsule is thickened and accompanied by a deposition of osseous matter in the joint, although means may be resorted to that will give relief to a certain extent, yet the parts can never be restored to their natural condition; but in recent cases, before any change has taken place in the nature of the secretion, the enlargement may be completely dispelled.

It must also be understood that in the treatment of bog spavin the patient should be kept perfectly quiet, and therefore the placing of him in a comfortable box or stall is of very great advantage. The enlargement should be bathed two or three times a day either with cold or warm water. When lameness is present, the latter appears to be the most soothing in its effects. The food should consist of bran mashes for a few days; and if the horse is in high condition, give a good dose of purgative medicine, the operation of which tends to increase the action of the absorbents. Pressure is also beneficial, and may be applied by means of a truss, or by a carefully applied bandage. Whenever the irritation is somewhat allayed, blisters are useful, and in blistering invest a considerable surface with the application. The safest and the best blisters are cantharidine or biniodide of mercury ointment. Caustics and other nostrums, which are much vaunted by itinerant practitioners, should not be used on any account, as they tend to blemish the parts, and are not so effectual as other applications. We have mentioned the general course of treatment that should be pursued, but we would recommend our correspondents to call in the services of a duly qualified veterinary practitioner in all severe and alarming cases of bog spavin.

Sore Throat in Horses.

Diseases of the organs of respiration in the horse have been unusually prevalent during the fall and winter, and in many instances have proved of a very alarming nature. No doubt the great exciting causes of the various complaints have been the severe weather and the very sudden changes in the state of the temperature, often aggravated, however, by the injurious effects of the impure air that is generated in ill-ventilated stables. The mucous membrane of the larynx has been principally affected, in many cases, producing what is commonly known as sore throat. The symptoms are a difficulty in masticating the food and in swallowing. The latter

symptom is particularly noticeable when the animal is drinking; he gulps the water, and in his attempts to swallow, part of it is returned through the nostrils; he has a hacking, painful cough, which is very easily excited by pressure on the outside of the throat; the pulse is quick and very weak; the ears and limbs are cold; the membrane of the nostrils is reddened; the breathing is increased and laboured, producing a heaving at the flanks, and giving rise to a peculiar rattling sound in the throat. The patient becomes exceedingly weak, and falters in his walk; the absorbents become affected, shown by swelling of the legs and dependent parts.

About three days from the commencement of the attack a discharge of matter takes place from the nostrils, at first thin and watery, then becoming very thick, and of a yellow colour. When the discharge comes away freely it is a good sign, and the sufferer obtains relief.

In treating this disease the horse should have complete rest, and the body be kept warm with plenty of clothing. The limbs should be well hand rubbed several times a day, and the throat rubbed with mustard or some mild stimulating liniment. The food must be such as is easily masticated, such as boiled oats, barley, &c. The horse must also be allowed plenty of pure air; therefore, it is preferable to keep the affected animal in a loose box than in a stable with other horses. If the patient becomes very weak, the strength must be supported, by gruel, beer, or other stimulants, which must be carefully administered, owing to the difficulty the animal experiences in swallowing. Any matter that accumulates around the nostrils should be removed with a sponge and tepid water several times daily, and the parts afterwards carefully dried. Such little attentions have a beneficial effect, and are very pleasant to the patient. When convalescence takes place, moderate exercise daily is required, light at first, and gradually increased.

Navicular Disease.

A "Reader," from Homesville, near Godrich, asks for advice concerning the treatment of navicular disease in a horse.

The treatment of a severe case of this disorder is seldom attended with success. If the toe of the hoof is preternaturally long, and the heels high and contracted, it will be advisable to shorten the toe, and thin the sole and heels, and afterwards envelope the foot in a bran poultice for several days, the poultices to be removed and renewed three times a day. After the hoof is somewhat softened, a blister applied above the coronet is found useful in some cases. Relief is also occasionally given by passing a seton through the frog.

The after treatment consists in applying a suitable shoe, with the heels slightly raised, by means of caulkins. The foot should be kept clean, and whenever it becomes unnaturally hard, a poultice may be again applied for twenty-four hours.

Foot-and-Mouth Disease Amongst Children.

In Hertfordshire, Cheshire, and other parts of England, infants and young people have been affected with many of the symptoms of foot-and-mouth disease, occasioned by their drinking the milk of cows suffering from this contagious disease. In the medical journals, Dr. Alfred Packman, of Puckridge, is stated to have recently treated several children suffering from "the peculiar eruption of the mouth, nose and face, accompanied by sore tongue and throat, and salivation." Dr. Packman has no doubt that the symptoms resulted from the patients having used the milk of affected cows. Where the foot-and-mouth poison in a state of activity has not been swallowed in quantities sufficient to reproduce the special disorder in children, it very frequently proclaims its injurious presence by inducing sickness and diarrhoea. Somewhat similar results occur among calves, many of which have troublesome and often fatal diarrhoea from their being fed with the contaminated milk. Even pigs, which are supposed to have omnivorous appetites and digestive vigour adequate to make away with almost any description of diet, have often sickened and died from being fed on murrain milk, which the ignorant, senseless owners fancied was "too good to waste."—*North British Agriculturist.*

Can Foot-and-Mouth Disease be Prevented?

In some of the northern and more remote counties of Scotland foot-and-mouth disease has hitherto been absent, and we are asked whether it is possible to prevent the infectious complaint from invading districts and premises hitherto free from the disorder. The disease may readily enough be stayed. With animals in houses and yards, with comparatively few fairs and markets which bring together sound animals, and expose them to the contagion, the special virus may die out from want of material on which to fasten itself. There is little doubt in this country at any rate that foot-and-mouth disease spreads only by contagion. It cannot be engendered by crowding, filth, or any other such errors of management. It cannot be developed *de novo* on the passage, for example, from Ireland or the continent. It will therefore be evident that perfect separation of sound stock from diseased or infected stock must be the only means of prevention.—*North British Agriculturist.*

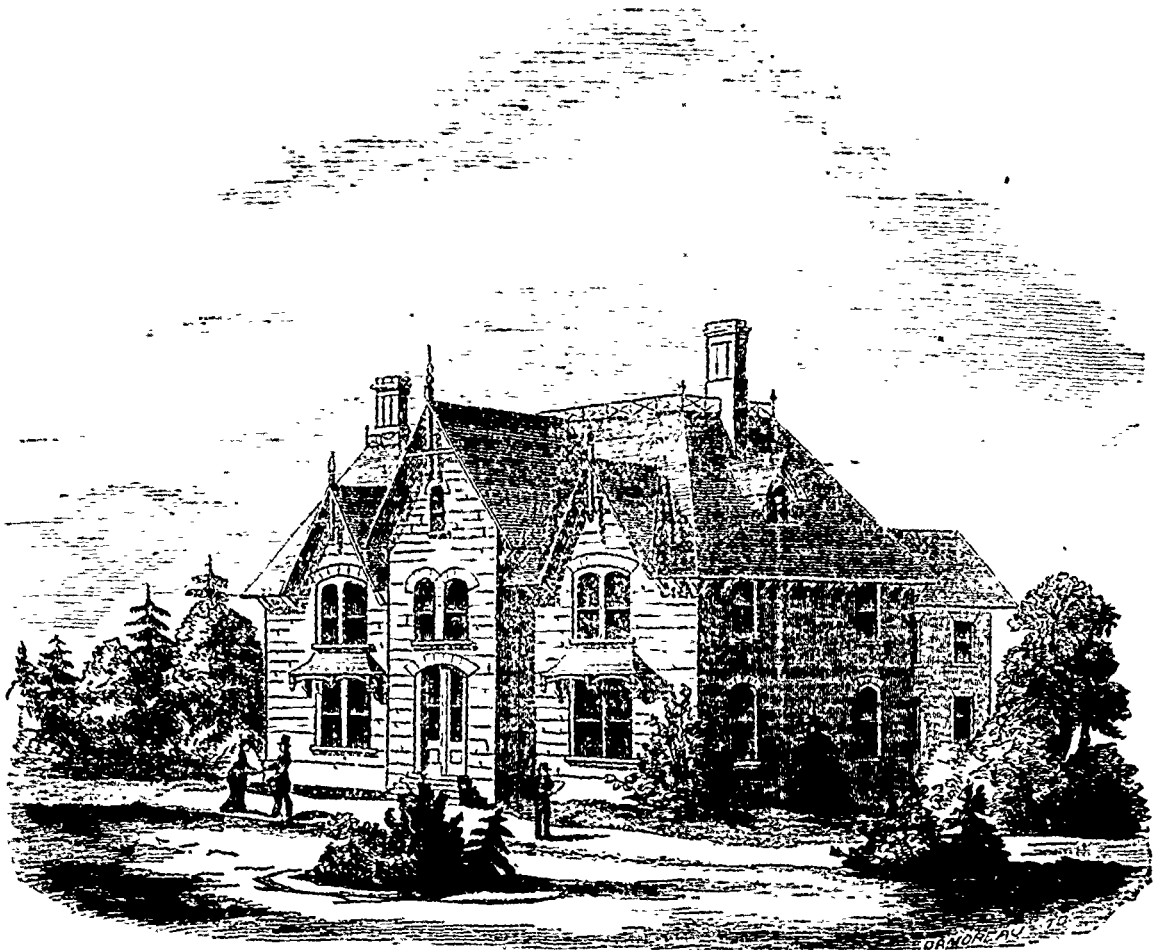
PONY KICKING.—R. McLaughlin writes that a pony in his possession has suddenly contracted a habit of kicking violently in his stall without any apparent cause, and wishes to know the probable reason and remedy. We cannot from his bare statement of the fact give any opinion. Sometimes a loose strap or circingle will give rise to the dangerous vice, or the animal may have been teased. If the pony is still addicted to the vicious habit, our correspondent might try the effect of a strap connecting a hind and fore leg, or both hind legs may be strapped together.

Directions for Examining a Horse's Legs.

In examining the legs of a horse, the purchaser should first stand with his face to the broadside of the horse as he stands on flat ground, and observe whether he rests perpendicularly on all his legs, having the natural proportion of his weight on each leg straightly, squarely, and directly; or whether he stands with all his legs straddled outside of their true aplomb, or with all drawn together under the centre of his belly, as if he were trying to stick them all into a hat; or, lastly, whether he favours one or more of his legs, either by pointing it forward or by placing it in any position in which no weight at all, or a very small stress of weight, is thrown upon it. A horse may apparently favour one foot accidentally from a casual impatience or restlessness. He is not, therefore, to be rejected because he points a toe once or twice. But if he seems to do so, he should be constantly brought back to the original position in which he must bear equally on each foot; when, if he be found to constantly favour the same foot in the same manner, something serious must be suspected, which gives the horse uneasiness and pain, though not perhaps sufficient in degree to produce present lameness. If the toe of a fore foot be persistently pointed forward, disease of the of the navicular, commonly known as the coffin bone, is to be suspected, than which no worse or less curable disease exists. If both the fore feet are protruded and the hind feet thrown back, as if the horse were about to stale, he has probably been at some time foundered. If he stands with all his feet drawn together under him, he is generally entirely used up, and what is called groggy. If he stands with one or both his knees bent forward and his legs tremulous, or with both his fetlock joints knuckled forward over the pasterns, one may be sure that however good he once may have been, he has been knocked to pieces or injured by hard driving and hard work. Supposing the horse now to stand square and true on all his legs, leaning his weight on each and all indifferently, with one glance at the horse in profile the side examination may be held as complete and satisfactory. That glance will ascertain whether the posterior outline of the hock-joint is nearly perpendicular, or whether it is angular or has a convex curvilinear protuberance immediately above the commencement of the shank-bone. This curvilinear protuberance, if large, is a curb which will produce lameness, though not of an incurable sort; if not large, it is either the trace of a curb which has been cured, but may at any time return, or an indication of tendency to throw out curbs on being put to hard work, especially in heavy ground. Horses which have been curbed, or which have curb-shaped hocks, are generally to be avoided.

Do not starve your stock in water, hoping to make it up in the spring. Such farmers generally have to sell hay in October, and hides in May.

Rural Architecture.



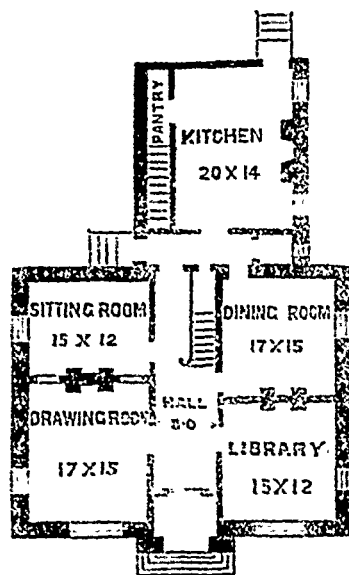
PERSPECTIVE ELEVATION.

Design for a Country House.

In many parts of Canada a house can be built with stone much cheaper than of wood or brick, and is more durable than either. Our prosperous farmers all over the country are turning their attention to building more permanent residences than they have been accustomed to do in the past. It is fitting and natural that as the country grows in wealth, like progress should be made in the erection of more elegant and convenient houses.

This laudable desire to make our houses ornamental and pleasing, as well as substantial and convenient, should by all means be encouraged. Far from being merely subservient to self-complacency or ostentation, an attractive dwelling is an important means of rendering the home beloved by the younger members of the family, and contributes no insignificant share to those happy influences that in after years, as households become dispersed, still link the members of the family together by the ties of fond remembrances and endearing associations. The indulgence of a certain ambition and of a refined taste in regard to the aspect of our houses and homesteads, is a commendable use

to be made of ampler means and more prosperous circumstances.



GROUND FLOOR.

The design here illustrated is one that will commend itself both for its simplicity in ar-

range and attractive exterior. The plans will explain themselves sufficiently without further reference to them; only we may say the rooms are all large and well lighted, and all the principal rooms are furnished with fire-places, the dining-room with pantry, and the bed-rooms with ward-ropes.

In addition to the main stairs, in the front hall, there will be a back stairs for access to the bed-rooms over the kitchen, and under this stair will be the stair to the cellar, which will be under the kitchen.

No plan is given of the upper story, as the general arrangement of the rooms may be the same as that of the ground floor, or may be modified to suit the wants or convenience of the owner.

The cost of building would depend to some extent on local circumstances; but in all probability would anywhere somewhat exceed three thousand dollars. Much of course would depend on the amount and quality of the interior finish, which must be accommodated to the purse of the proprietor.

The perspective view gives a correct idea of the appearance of such a house when erected and the grounds planted out.

The Dairy.

American Dairymen's Association.

The annual Convention of the American Dairymen's Association was held in Utica on the 9th of January, and two following days. The *Utica Herald*, as usual, publishes a full and interesting report of the meetings, of which we can only give a very brief and imperfect account, condensed from the columns of our contemporary.

After the ordinary preliminary business of appointing committees, etc., Dr. L. L. Wight read the first paper, entitled, "The Lessons of my Experience in Cheese-making in 1871." He referred to the use of rennet and the importance of having not only the right quality, but the proper quantity, which varied according to the condition of the milk and the circumstances of season, temperature, etc. The poorer the milk the more rennet was required, and *vice versa*. He next adverted to the "gang press," which he considered a great improvement on previous methods of pressing. He preferred large or medium-sized to small factories, which he did not consider could be carried on with equal efficiency and economy. He suggested that the prices given for manufacturing cheese should be regulated by the price realized, the patrons giving a certain per centage on the sales.

Considerable discussion followed the reading of the paper. Among other topics brought up, the importance of aerating, as well as cooling milk, was urged—the first process to remove taint, and the second to prevent souring.

The principal business in the evening of the first day's session was the reading of a paper, by Mr. Greene, of Pa., on the "manufacture of butter in creameries." The paper was of considerable length, and full of valuable practical information, but we can only here refer to one two points. It was essential, Mr. Greene observed, in the first place, that the condition of the milk should be very carefully attended to before churning. The first three essentials, after the native quality of the milk, were light, air, and a proper temperature, while the cream is rising. Light was necessary to secure neatness and colour in the cream; a current of air carried off animal odours; and the temperature should be so regulated as to allow all the cream to rise before the milk became sour. About 58° was the most favourable. The greatest amount of butter is secured by taking off the cream just before the point of souring—when the cream is densest, and while it is yet sweet. After skimming, the cream is strained, and then poured into a vat similar to a cheese vat, in which the temperature can be regulated. It is then left to become slightly sour. This is preferable, in Mr. Greene's opinion, to churning sweet cream. He observed.—I have in all my experiments,

when fairly tried, obtained a yield of 20 per cent. more butter from sour cream, and the difference of quality is also in favour of the same. Sweet cream butter is of a fine texture and delicious flavour, but lacks solidity, and in a warm room melts down very quickly, while sour cream butter has a coarser and firmer texture, retaining a chemical element not found in sweet cream butter, and though its flavour and aroma may not be quite as fine, they are longer retained. Although it is an easy matter to ruin either by carelessness in handling, sweet cream butter especially requires gentle handling to preserve its texture. For churning he uses the ordinary dash churn. The butter-milk, after being withdrawn from the churn, is strained to secure all the butter, much of which is lost without this precaution. The butter is washed in the churn by a few movements with the dasher, to remove the butter-milk. It is then taken from the churn-room into a cooler apartment to be salted. The best Onondaga or Ashton salt is used, finely pulverized, in the proportion of 3 pounds of salt to 48 of butter. A small quantity will suffice when butter is not wanted to be kept any length of time. The salt should be thoroughly incorporated, using the lever alone, and not the hand. It should be packed as soon as it is sufficiently worked.

On the second day, in the forenoon, Mr. Curtis delivered an address on "The Standard of Excellence in Cheese-making." He was followed by Mr. Folsom, with a paper on "The Commercial view of the Dairy Interest." Some discussion next took place on the value of corn as fodder.

In the afternoon of the same day Mr. Willard delivered an address on "Condensed Milk." Beginning with the earliest history of milk-condensing, the lecturer traced the history, carefully and fully in every particular, to the present time. The date of the beginning of the manufacture, in America, the speaker placed in 1846. The two prominent methods known as the Provost and Borden processes were described and ably compared. After this historical review, the prerequisites came next under consideration. Methods were described for keeping the milk in a good, healthy condition, for this is, of course, of the greatest importance.

The lecture was illustrated throughout with large maps and diagrams, which made every part of the description clearly intelligible and very interesting.

Neither a condensed report nor such extracts as our limited space would allow, could do otherwise than very imperfectly present the very interesting details of this address, which, moreover, we hope to refer to again.

The next order of business was the election of officers for the ensuing year. The following nominations of the committee were confirmed by the meeting by acclamation.—

President, Horatio Seymour, of Oneida.
Vice-Presidents—Hon. Thomas G. Alford, of Onondaga; Henry Wade, of Canada, O. J.

Blits, of Vermont; C. H. Wilder, of Wisconsin; T. L. Harrison, of New York; B. F. Bruce, of Madison; C. E. Chadwick, of Canada; J. V. H. Scoville, of Oneida; X. A. Willard, of Herkimer; John G. Cahoes, of Chautauqua; Alexander Macadam, of Montgomery; R. R. Stone, of Illinois; Harvey Farrington, of Canada; M. Folsom, of New York; J. R. Smith, of Erie; J. H. Holloway, of Kentucky; Halsey Safford, of Cattaraugus; Hiram Smith, of Wisconsin; D. L. Lincoln, of Massachusetts; L. B. Arnold, of Tompkins; S. A. Farrington, of Yates; H. Cooley Greene, of Pennsylvania.

Secretary—Gardner B. Weeks, of Syracuse, N. Y.

Treasurer—Dr. L. L. Wight, of Whites-town, Oneida County, N. Y.

Hon. H. Lewis next read a paper on the "Winter Food of Dairy Stock," after which the Committee appointed to report on the resolution of the last Convention respecting Sunday cheese making, presented their report as follows:

We heartily endorse the views expressed in the resolutions offered, and would recommend that dairymen keep their Saturday night's and Sunday morning's milk at home, setting it away in pans, with as much convenience and as little trouble as possible, for the purpose of making it into butter. That the Sunday night's milk be aerated and cooled in such manner as to preserve it in good condition until Monday morning, when it may be carried to the factory.

Your committee would also suggest the propriety of delivering the Saturday night's milk at the factory at an earlier hour than usual, and having the same worked up in the evening.

The report, after some adverse discussion, was adopted.

On the following day, Professor Caldwell, of Cornell University, delivered an able address on "The Value of Chemical Analysis." Mr. Arnold, on behalf of the Committee, on the "Juster apportionment of Milk delivered at Cheese and Butter Factories," read a report, in which a scale of payment in proportion to the quality of milk delivered, was recommended; the quality to be ascertained by testing each man's milk at regular periods, to ascertain the proportion of curd contained, if the milk be destined for cheese, or of cream, if it be intended for butter, and taking the average thus ascertained as the basis for apportioning the amount each patron is to receive for the milk delivered.

Mr. Arnold then read a very interesting and important paper (for which he subsequently received a special vote of thanks) on "Poison Cheese." We hope to give this paper a fuller notice at some future time.

The "Policy of Skimming Milk" for cheese making, was next discussed. In the opinion of some of the most experienced cheese makers, it was considered that any cream that rose to the surface should be skimmed, as it could not again be properly incorporated with the milk, and was lost or wasted in the cheese.

The remainder of the third day's session was chiefly occupied with financial matters not of general interest.

The last paper read was by Mr. Farrington on "Dairy Farming and Grain Raising in Connexion," in which he showed that the two sciences were but complementary of each other, and that no well regulated farm could be kept up to the highest standard unless these two branches received proper attention.

The Convention adjourned to meet in Utica on the second Tuesday in January, 1873.

New York State Dairymen's Convention.

The first annual meeting, or "convention," of the New York State Dairymen's Association, was held at Little Falls, on Tuesday, the 2nd of January, and following day. After the preliminary business of organization, the President, N. A. Willard, delivered the opening address, of which the following brief extract is given in the *Utica Herald*:

The history of organizations for the discussion of topics relating to the dairy goes back no further than January 6, 1864. The first convention, occurring at Rome, N. Y., was most remarkable in its result. Why, my friends, we have revolutionized the feeling in England, and forced that nation to admit that American cheese is quite equal to the best English manufacture, while the bulk of our exports is regarded as superior to the bulk of English make. The English people find it more and more difficult to compete with us in quality, and are now turning their attention to the factory system as a means of solving this difficulty. But by the better character of our cheese we have created an immense home market, which could not have been secured on the old quality of cheese.

The exports of cheese during the past year have been the largest ever made. According to official returns of the custom house, we exported from January 1 to December 24, 1871, 67,530,000 lbs., and for the same time in 1870, 61,451,500 lbs., showing an increase in 1871, over 1870, of 6,078,500 lbs. In 1870, we exported only 1,394,200 lbs. of butter; last year, 1871, our exports were 8,519,700 lbs., an increase for the past year of 6,125,505 lbs.

You need not be told that the average price of cheese has been low. The fact, doubtless, has been forcibly impressed upon your minds at every sale of cheese during the past season, and under the present system of marketing I can see no prospect of better prices in the future. There are several circumstances that have conspired to bring about a weak state of the market, such as the general decline in the price of all farm products, especially the low rates of bacon and pork; but the chief cause of low prices is the stupid manner in which our cheese is brought forward in hot weather and forced upon the markets.

I can not see how it is possible to sustain prices under such a condition of things. It is a forced sale from beginning to end, and the law of forced sales is that real values can not be realized. The remedy, it is obvious, lies in additional curing houses at the factory, so constructed that cheese may be held from time to time, as desired.

It is believed by many that the dairymen of the East are to get relief by the abandonment of dairying at the West, thereby reducing the general make of cheese. I do not

think we can look for any permanent benefit in this direction. The business will be developed from year to year in new localities, where lands are adapted to the dairy. You can not convince the West that more money is to be made in pork or grain raising than in dairying, even at present prices, because the facts are against any such assumption.

The cost of transportation eats out the profit on grain raising at the West. The cheese makers of Illinois are altogether better off this year than the grain raisers of that State, and so of Wisconsin and other States. We are not over-producing in dairy goods—that is not the matter; but we lack enterprise in opening up the home markets, and in supplying the kinds and qualities of cheese desired by our people.

After the address, the first paper read was on the subject of "Pork Making," by Abram Dieffendorf, advocating, as the prime requisites of success, liberal and regular feed, warmth, and shelter. Next followed a paper on the "Commercial Aspect of the Dairy," by J. W. Cronkhite.

Mr. Arnold, of Ithaca, was the next speaker, and, in the course of his remarks, said:—At the constant rate of increase of population in the United States, the year 1900 will find us with 100,000,000 of inhabitants. If we continue to consume cheese at no greater rate than at present, it will require two-and-a-half times the quantity we now consume, or 450,000,000 pounds of cheese, to supply the annual home consumption of that day. The shipping demand must also increase. Nothing but a war with England can prevent it. The English are a cheese-eating people. They are now using ten pounds per head per annum, or more than twice as much as we do. Nor is that rate of consumption likely to be abated. The strong necessity felt by the labouring classes, and especially by the English people, for animal food, must be supplied in some way; and it can be done in no way so well or so cheaply as by the use of cheese.

In the evening, the Hon. Harris Lewis delivered a very instructive address on the question "How shall we improve our Dairy Stock?" He showed that the dairy cattle of New York were not the best milking stock, and advocated a system of judicious breeding, with special reference to the locality and requirements of the farm, as the chief means for securing the desired improvement, in place of such expedients for the purpose of increasing the supply of milk as were too widely practised—namely, purchase, high feeding, and diluting with water. If the production of butter were the object, he would cross native cows with Devon or Jersey bulls; if a large supply of milk were desired, he would cross with an Ayrshire or Holstein bull, except on rich level pastures, where he would prefer using a male of Shorthorn breed from the best milking strain.

A paper on "Labour-saving Machines and Implements in Cheese Factories," was then read by Dr. L. L. Wight, which brought the first day's session to a close.

On the following day a number of papers were read by various gentlemen, and the annual address was delivered by L. Wetherell, Esq., of the *Boston Cultivator*, on "Dairy Stock and Food."

Among the other subjects presented to the meeting were "Dairying in Oswego County," "Marketing Dairy Produce," "The Chemistry of the Cow," "Cheese-making as a Science."

The attendance was very good, and the interest well sustained throughout.

Improving Dairy Stock.

The following is from the *Mark Lane Express*, and illustrates the English method of improving dairy stock. The principles apply to our dairy farming as well:

Every succeeding year finds farmers increasing their dairy stock, laying out their land so as to best suit its successful management, each year developing greater interest on the subject of the best breeds of cattle, and the most profitable modes of managing them, than its predecessor. With dairy stock it would almost appear as if there was no such thing as standing still. Unless improvement is aimed at constantly, by weeding out those members of the herd which are getting old, or which after sufficient trial are found to be inferior milkers, and by occasionally introducing fresh, and if possible, superior blood through the agency of the sire, there is great danger of retrogression.

It is neither profitable nor creditable to a farmer to have his stock decreasing in stamina, in lower condition, and the receipts from their produce less than during previous years; and yet unless the interest in their welfare and improvement is continually kept up, this is a contingency that is almost sure to become a certainty. No bad milker should have a permanent place in a herd which is kept not for show, nor for breeding purposes solely, but principally for the disposal of dairy produce. To keep such a cow is simply to lose money wilfully, her keep costing quite as much as the best milker in the stall, and the trouble she occasions just as much as that given by the animal which gives double her amount of produce.

It may be difficult to have every one first-rate, yet the herd may be so improved by judicious selection as to have good cows. In a stock of forty we shall suppose that there are at present ten bad, or at all events indifferent milkers. By testing the milk of these cows carefully, and ascertaining the amount of produce in butter to be under the average of what might be fairly expected from the care expended on each, there is nothing more easy than to keep the bull from them, dry off at the end of the season, stall feed, and get rid of them without any further loss. To fill their places, from twelve to twenty heifers can be sent to dairy, ample margin being thus left to afford a choice at the period of calving. By persisting for a few years in this course, the stock will not only become first-class milkers and increase the profits of their owners, but will gain a character and a reputation in the district for their good qualities.

Much can be done in a given time by holding over the offspring of those cows which have proved themselves first-class milkers, breeding, if possible, for all permanent stock from those only, and thus getting into a strain of milkers. It is just as likely as not that a heifer, whose mother was an excellent milker, may herself turn out to be scarcely worthy of house room; but when she is the

descendant of a celebrated line of pail-fillers, the probabilities are altogether in her favour that she will possess in a high degree the good qualities of her race. In a large herd there will, in spite of the most careful scrutiny, be an occasional bad milker. This no forethought can prevent, and whatever loss may result, it must only be accepted for the time being, and the removal of the animal causing it effected on the first favourable opportunity. With regard to the best breeds of cattle for dairy purposes, it may be taken as a very safe rule, that every district of country possesses a breed of cattle in every way suitable to its climate and soil, and that, with care, skill and capital combined, good specimens fit for general purposes may be obtained without going far from home. It is quite possible that cattle of a particular breed, extensively purchased and brought from great distances, may do very badly and lead to much disappointment and loss before becoming acclimatized, and even afterwards never going so well as the ordinary breeds to be found in the locality. With the bulls it is quite different—they must be got of pure blood, without a stain if possible, whatever the trouble or whatever the expense.

Fastening Cows in their Stable and Cleanly Milking.

Some days since I paid a visit to a large dairy of slop-fed cows, and the darvman did not get another customer in me; and reason good, for I never saw such a filthy mess for cows to exist in, and be expected to yield pure milk. Even if the milk were pure in its manufacture whilst within the cow, (which many people doubt, if made from distillery slop,) the moment it came to the end of her teats it became impure. Such a loathsome state of filth and manure as those cows' udders were in, and yet that milk was drunk by hundreds of delicate women and sickly children. There was only about two inches depression at the cows' heels for a drain, and even that had no fall endways, but was hollow in several places, and dammed back by the deposits of manure until the liquid portions in some places absolutely overflowed the stall itself. The cows' long tails, dragged in the mess, were every now and then switched about, thus distributing more fully the mess over each other, and covering the only clean portion of their bodies not already besmeared by lying down in the filth.

Now, all this was not only unnecessary as a result from feeding such sloppy stuff, but positively was injurious and distressing as much to the cows as the people in charge of them.

If cows must be fed on such watery food, they may be so arranged that their udders are perfectly dry and clean. For many years I kept cows, and having a distillery, of course they were fed on the slops, but they were always clean and dry. The drain at their heels was about six inches deep, with a rapid fall two ways from the centre. The cows' heads were always secured in a brake formed by two poles, one fastened and the other loosened at the top, whereby it could be slipped away from its fellow at the head by

drawing out a pin. The cow then had her head at liberty, and could lick herself as much as she liked. To prevent her getting loose, however, she had the ordinary chain and ring attached to the upright (or fastened) pole, on which it slides readily and easily up and down. When the animal is released from the confinement of the brake (which holds her neck), she has full power to turn her head, whether to lick herself or alter her position at pleasure, and at the same time the chain prevents her getting altogether loose. This relaxation of position I did not allow, except at intervals, and never at night, consequently the cows always lay down just at one length from their head, and were also always clean and dry. I rarely had occasion to wash their udders, as they were, with few exceptions, and those at rare intervals, as clean as if the cows were in a pasture field. When milking time came, there was no necessity for any change of the ordinary dress of the milkmaid; and as the walk-way at the rear of the drain behind the cows was always clean and dry, and quite wide, the slipper soles of the shoes worn by the women were not necessarily soiled. But to avoid any such slight annoyance, I always furnished the milkmaids with India rubber overshoes, and as the walk from the house to the cow there was made of planks, well laid down, stable was no difficulty about dirt or mud.

I think the cost of this meety of arrangement was repaid the first year by the increased yield consequent on the comfort of both cows, and men who looked after them, and the maids who milked. Another thing wherein great saving was effected. The cows being all under cover, and in warm shelter, the milking was never omitted on account of inclement weather; and on Sundays, especially Sunday evening, I had little difficulty in getting the milking done the same as during the week.

Before arranging the stables on this cleanly principle, the milkmaids would omit the afternoon milking if possible, as it spoiled their dresses; and no wonder they rebelled, for to be obliged to milk in good clothes, in a dirty stable, after being dressed, was certainly a vexatious job. But since the new arrangement, by simply using an overskirt, it was considered quite sufficient protection for the best clothes.

VECTIS.

English Dairy Statistics.

From a Governmental return, embracing the commerce of the United Kingdom for the last fifteen years, we are enabled to cull figures which indicate the immense progress made of late years in the cheese and butter trade. Thus, we find that in the year 1856, 513,382 cwts. of butter were imported into Great Britain: while in 1862, the amount imported had increased to 1,037,371; an augmentation which was supplemented by the importation of butter last year, which reached the enormous aggregate of 1,153,210 cwts. When it is mentioned that the estimated value of butter imported into this country in 1856, was 2,630,000 pounds, and in 1870, 6,793,000 pounds, it will be perceived by our readers how rapid has been the progress of this trade, and how important it has become as a branch of national commerce.

We next turn to the article of cheese. Here we discern equally astounding results. In 1856, the amount of cheese imported into England was only 513,392 cwts.; in 1861, 706,772 cwts.; and, in 1870, 1,041,281 cwts.; thus manifesting a sufficiently material augmentation. The value of the trade done in cheese is very considerable. In 1856, the estimated worth of the cheese imported was, in round numbers, 1,600,000 pounds; but last year this had increased to over three millions—an increase which is certainly most wonderful, considering the circumstances. Glancing over the statistics, representative of the exportation of butter and cheese, we fail to observe those remarkable features of progression which distinguish the importation, thus showing that the consumption of these commodities has concurrently increased with the augmentation of imports. In 1856, butter was exported from the United Kingdom to the amount of 139,543 cwts.; in 1859, 139,768 cwts.; and in 1870, 57,499 cwts.; the computed value being, in 1856, 693,000 pounds; in 1859, 713,000 pounds; and in 1870, 315,000. The export of cheese has been somewhat similar to that of butter. In 1856, the amount was 39,515 cwts.; and, in 1870, 25,208 cwts., the estimated value being, in 1856, 160,000 pounds; and, in 1870, 110,000 pounds.

Butter in Sacks

The dairymen of Washington Territory, for want of tubs and jars, have adopted a novel method of putting up and keeping butter. The packing is thus described:

All butter is packed in muslin sacks, made in such form that the package, when completed, is a cylinder three or four inches in diameter, and from half a foot to a foot in length. The butter goes from the churn, as soon as worked over, into the cylindrical bags made of fine bleached muslin. The packages are then put into large casks containing strong brine with a slight admixture of saltpetre, and by means of weights kept always below the surface. The cloth integument always protects the butter from any impurities that chance to come in contact with the package, and being always buried in brine that protects it from the action of the air, and it has been ascertained by trial that butter put up in this way will keep sweet longer than in any other way.

Besides, it is found easier and cheaper for the manufacturer than to pack either in jars or firkins. And for the retailer, there is no telling the advantage on the score of safety and convenience. These rolls of butter can lie on his counter as safe from injury, from dust or other contact, as bars of lead; can be rolled up for his customer in a sheet of paper with as much propriety as a bundle of matches. If the consumer, when he gets home, discovers specks of dust upon the outside of the sack, he can throw it into a pail of pure cold water and take it out clean and white. As he uses the butter from day to day, with a sharp knife he cuts it off from the end of the roll in slices of thickness suited to his want, and peels off the cloth from the end of the slice, leaving it in tidy form to place upon the table.—*Ex.*

Our Butter.

To the Editor.

SIR,—Any one accustomed to buying butter must have some idea of the vast quantity of inferior butter made by our farmers. The amount of butter, both good and bad, which is made, is enormous; but, unfortunately, a large proportion is unfit for use, and its production is a direct loss to the country. It would be far better if the producers of this abominable stuff employed their energies and resources in some other branch of industry, and left the production of butter to those who are both more skilled and more honourable. But they themselves doubtless take a different view of the matter, and find the sale of their poor manufacture profitable, for they, ostensibly at least, commonly receive as much for their butter as the best makers. The indiscriminate pricing of butter is what mainly perpetuates the mischief. If the price given were according to the quality, we should soon see a great improvement. Those who now make up a sort of dirty butter, which they may call butter, expecting to receive the same price for it as they do for the best, would then be careful by every means to improve both the appearance and the quality of the article taken to market. Shame alone would induce them to do so, because, if they knew their butter was to be inspected, criticised, and compared, they would scarcely have the hardihood to present for sale anything but what could be used as butter.

It would be a boon to consumers, and also legitimate producers, and a clear gain to the country, if some practicable way could be found of making butter liable to inspection and fixing its price according to quality. At present the majority of storekeepers will not take the responsibility of rejecting the bad or of discriminating in price, for fear of giving offence. It seems, then, that we must get some person to judge who is independent of public favour. I think this might be done by the merchants in any town or village joining together and choosing some person as inspector, to whose inspection all butter would be submitted before it would be received in the stores, and who would give to the owner of each lot a ticket stating, in private marks, its price, which would have to be produced in the stores. As a remuneration, the inspector might receive a per centage on the quantity inspected. Should this scheme prove impracticable or unsatisfactory, there might be a Legislative enactment providing for the appointment of inspectors, and making all butter liable to inspection. Of course this might be evaded to some extent, but I think most dealers would gladly avail themselves of the plea that the law required them to refuse uninspected butter. Evasion might be made more dangerous by requiring the inspector to keep an account of the butter sold in each store, and then at any time the amount in the book might be compared with the amount actually in store.

A. M.

Entomology.

Entomological Notes:

(From All the Year Round.)

In many parts of France the walks and alleys in parks and gardens are merely the natural loam beaten hard, sometimes mixed or coated over with road scrapings. In wet weather this forms a sticky, slippery surface, so inconvenient as to lead to the insertion of a line of small flags or stepping-stones along the principal walks, to render the passage along them possible after heavy rains. But in hot dry seasons they become hard and smooth, attaining the consistency of a compact stucco. In this state their only defect is a tendency to cracking; but as the cracks are never wide nor deep enough to serve as pitfalls to the smallest babe, the fault offends the eye rather than the foot of those who walk upon them.

Besides the cracks, these plaster-like walks are often perforated with holes, out of which earth has been thrown by some agent within. By watching a hole, you will see issuing from and entering it, a bee-like insect, of wild and innocent mien—it actually feeds itself on the pollen of flowers—but which provides a store of fresh insect-meat for its young, in a way which would make the late Mr. Burke hide his diminished head. A medical man, Doctor Leon Dufour, discovered the crime, but failed to detect the real secret of the creature's operations. He calls the culprit *Cerceris bupresticide*—*Cerceris*, the buprestis-slayer.

In July, 1840, while going his rounds, a patient suffering under some small ailment which few people die of, kept him waiting. To pass the time he went into the garden, and took his post in an alley on the lookout for something. But seeing no more than Sister Anne did at first, he searched the pathway for the habitations of burrowing hymenoptera. A tiny hill of sand, recently thrown out, caught his eye. It masked the orifice of a deep passage, which he traced by cautiously working with a spade. Soon he saw sparkling the brilliant wing-cases of a much-coveted buprestis; soon afterwards a whole buprestis; and then three and four entire buprestes delighted his gaze with their emeralds and gold. He could not believe his eyes. And that was only the beginning of his discoveries. Out of the ruins of the mine there crept a hymenopterous insect, which he captured as it tried to make its escape. In it he recognised the *Cerceris bupresticide*.

The entomologist's hot blood was up. It was not enough to have found the murderer and the victims; he must know who were the consumers of all this rare and valuable prey. It was as if he had found a human larder stocked with golden pheasants and birds of paradise. Having exhausted this first buprestiferous vein, which he had fol-

lowed to the depth of a foot, he tried other soundings. In less than an hour he disinterred three *Cerceris* dens, and his reward was fifteen whole buprestes, with the fragments of a still greater number. Here was a perspective to look forward to! In that locality he could catch in a few hours fifty or sixty female *Cerceris* on the blossoms of various species of garlic. Their nests must be in the neighbourhood, provisioned in the same luxurious style. In them he would find, by hundreds, rare buprestes of which he had never been able to catch a single individual during thirty long years of assiduous hunting. And this dream soon became a reality.

Some days afterwards, while visiting the estate of one of his friends, in the midst of forests of maritime pines, he set about another *Cerceris* hunt. Their dens were easily recognised. They were exclusively excavated in the principal alleys of the garden, where compact and well-trodden soil offered the necessary condition of solidity for the establishment of the insect's domicile. He examined, in the sweat of his brow, about twenty nests; for the work is not so easy as might be imagined. The treasures, and consequently the treasures, are never less than a foot underground. The best plan to effect the burglary is to thrust into the orifice of the mine a straw or a long stem of grass, to serve as a conducting clue, and then to esp round it with a garden spade, so as to lift out the central lump of earth in one or two pieces, and then break it up circumspectly on the ground.

Lively were the perspiring huntman's transports every time he exposed to view a fresh collection of beetles blazing with copper, emeralds, and gold, and which glittered all the brighter for the burning sunshine. Never, during his long career as a naturalist, had he gazed on such a spectacle, or enjoyed such a treat. He knew not which to admire most—the brilliant coleoptera, or the wonderful sagacity of the *Cerceris* who had put them in store. Incredible as it may seem, amongst more than four hundred individuals so warehoused, the closest investigation could not find the smallest fragment which did not belong to the genus *Buprestis*. The learned collectors, though simple hymenoptera, had not once committed the most trifling mistake.

The *Cerceris* show themselves to be no fools, by the way in which they shape and stock their subterranean nurseries. We have seen that they select hard, solid soil, well beaten, and exposed to sunshine. This choice implies an intelligence, or, if you prefer it, an instinct, which we might feel inclined to believe the result of experience. Light or sandy soils would undoubtedly be much easier to perforate, but they would be continually apt to give way and cave in. Our insect digs her gallery by means of her mandibles and her anterior tarsi, which, for this purpose, are garnished with teeth, like those of a rake. She makes the entrance wider than the diameter of her body, because it has to admit a prey of larger dimensions than herself. The gallery is not vertical,

which would make it liable to be filled up by the wind and other causes. Not far from its origin it makes a bend, which usually runs, for seven or eight inches from south to north, returning then to its first direction. Beyond the termination of this final gallery the careful mother places her progeny's cradles. These latter are five separate and independent cells, disposed in a sort of semicircle, hollowed into the form and size of an olive, polished and solid in their interior. Each cell is large enough to contain three puprestes, the ordinary ration allowed to each larva. It appears that the mother fly lays one egg in the midst of the three victims, and then closes the cell with earth in such a way that when the provisioning of the whole of the brood is concluded, all communication with the gallery ceases to exist.

When the cerceris returns from hunting with her quarry between her paws she alights at the door of her underground lodging, and deposits it there for half a moment. Entering the gallery backwards, she seizes the helpless victim in her jaws, and drags it to the very bottom. Her visits are not confined to the time of providing her family with food. About the middle of August, when the puprestes are devoured, and the larvæ are hermetically sealed in their cocoons, the cerceris is seen to enter her gallery without bringing anything with her. It is clear that the anxious mother wishes to make sure, by repeated visits, that no enemy or accident threatens to destroy her progeny.

But by what inconceivable impulse is the cerceris who feeds herself on nothing but the pollen of flowers, urged to procure, in spite of a thousand difficulties, a total different diet for descendants whom she will never behold, and to lie in wait on trees so dissimilar as oaks and pines, for the insects which are destined to become her prey? What entomological tact compels her strictly to confine herself, in the choice of her game, to one single generic group of insects of which she seems the born foe, and all the while capturing species which differ considerably amongst themselves in length, dimensions, and configuration?

The innate propensity which induces the cerceris to construct a nest for her young deep in the ground, manifests an instinct at once marvellous and sublime. That depth indicates that the tender larvæ will have to pass the winter snug in their burrows. Her maternal solicitude places them out of the reach of the inclemency of winter. And yet this careful mother will never see her offspring. Nor has experience given her the slightest hint that such things as winter and its frosts exist, since she came into the world during the great heats of summer, and after having provided for the future destinies of her family, she dies before the temperature is sensibly lowered. How can such facts be accounted for by any imaginable process of natural selection or progressive development? The phenomena are inexplicable, except by a belief in Divine Providence and Creative Wisdom.

The unearthing of the nests of the cerceris reveals a very singular fact. The buried puprestes, though showing no signs of life, are always perfectly fresh, as though killed that very day. Their colours are bright and life-like; their legs, antennæ, and the membranes which united the segments of their body are perfectly supple and flexible. It was at first supposed that their preservation was owing to the coolness of the soil, and the absence of light and air. But there must be some other cause of their incorruptibility, since twenty-four hours after the death of a beetle in summer its internal organs are either dried up or decomposed.

The female cerceris, like the great majority of the hymenoptera, is furnished with a sting and a poison-bag, and the guinea was natural that the subtle liquid which it injected death possessed antiseptic properties, preventing putrefaction. No one suspected that the captured and doomed puprestes were not really dead.

The real truth was discovered by M. Fabre, while observing the proceedings of the tuberculated cerceris, the largest European species, and divulged by him in the *Annales des Sciences Naturelles*. This cerceris excavates its burrows, and stores them with food during the last half of September. In stead of a flat footpath, it selects a vertical bank, but is not particular about the quality of the soil if it be but dry, and have a sunny aspect. The galleries are entirely the work of the females, who do not disdain to save themselves trouble by repairing burrows of the preceding year.

The victim selected by this cerceris is a large species of the weevil tribe, the *Gleonis ophthalmicus*. If the Pupresticide cerceris, without going beyond the limits of a genus, indiscriminately captures any of the species of that genus, the tuberculated cerceris, more exclusive, confines itself to a single species. One is curious to know the motives which influence so singular a decided choice. There may be differences of flavour and nutritious qualities in the respective game, which the larvæ doubtless appreciate, but the mother insect is probably guided by anatomical rather than gastronomical considerations.

After what M. Dufour has told us respecting the wonderful preservation of the insects destined to feed carnivorous larvæ, it is needless to add that the weevils deposited in the burrows or captive in the claws of their mortal enemy, although deprived forever of all power of motion, are as completely untaunted as when alive and active. Vivid hues, supple joints, healthy viscera, all conspire to make us doubt that the inert body lying before us is a veritable corpse, and we look at it with the expectation that we shall see the insect get up and walk away. In the presence of such facts, it is difficult to believe in the action of an antiseptic liquid. Life, we feel assured, must still be there, although latent and passive. Life only, still resisting the destructive invasion of chemical forces, can thus preserve an organism from decomposition. Life is still there, minus sensibility and motion. We have before us a marvel which neither ether nor chloroform are capable of effecting, and for whose cause we must refer to the mysterious laws of the nervous system.

The important point was to ascertain the way in which the murder was committed. With some difficulty, M. Fabre succeeded in surprising the assassin in the fact. The cerceris thrust her poisoned dart two or three times into the joint of the weevil's prothorax, between the first and second pair of legs. In the twinkling of an eye the deed was done. Without the slightest convulsive pang, without any of those twitchings of the limbs which accompany an animal's dying agony, the victim fell motionless for ever, as if struck by lightning. The stroke was terrible and admirable in its rapidity. Instantly the victor turned the vanquished on its back, seized it and flew off with it to her hidden den. By the effect of a microscopic puncture and an imperceptible drop of liquid, the weevil instantly lost all power of motion. But chemistry possesses no such subtle poison; consequently, we must enquire for the cause at the hands of anatomy and physiology. And to comprehend the mystery we must consider not so

much the subtlety of the inoculated venom as the importance of the wounded organs, which are precisely the thoracic ganglions, whence spring the nerves which preside over all the motions of the creature's wings and legs.

The cerceris who, with a single stroke, benumb the animal functions of their prey, select precisely those species in which this nervous centralisation is the most complete. The puprestes suit them, because the nervous centres of the mesothorax and the metathorax are confounded in one single mass; the weevil suits them, because the three thoracic ganglions lie very close together, the two last even touching each other. The grand puzzle still remains unsolved.—Who taught the assassin cerceris these refined secrets of anatomy?

The cerceris are not the only insects who display a like manifestation of marvellous foresight. The wasp family includes, besides the species which live in large communities and build complex nests, like the hornet and the common wasp, others which lead a solitary life. One of these, the *Odynerus spinipes*, performs its task between the end of May and the beginning of July. Its first operation is to excavate a burrow, in clayey soil or stiff loam, at the further end of which it fashions a cell, plastering it neatly with home-made mortar. Each cell receives one egg.

The *odynerus* is a jack-of-all-trades. After working as a mason, it now plays the sportsman, beating the lucerne fields for the larvæ of a weevil. As soon as caught, it inflicts on each a wound which, without killing, paralyzes them, arrests their growth, and retains them in the condition of living prey, incapable of resisting the worm which is to feed on them. At the bottom of each nest, close to the *odynerus's* egg, you will find a dozen green caterpillars rolled head and tail together, stuck by the back against the walls of the cell, without the possibility of moving.

The reason for this arrangement is clear. The *odynerus* lays only one egg in each cell. From that egg will issue a carnivorous worm who would disdain to eat stale or tainted meat. He must have fresh, tender, juicy, living game. His mother knows his peculiar tastes, and takes measures beforehand to indulge them. She fills the cell with animals which he will only have to devour one after the other, although their size enormously exceeds his own when he first comes forth from his egg. He eats the larva nearest at hand, without troubling himself about the future. He then proceeds to the second, then to the third, and so on till the twelfth course is eaten. Twelve caterpillars, one per day, neither more nor less, are his precise allowance. His mother, well aware of the required number, never exceeds it. Her entomological knowledge is still more surprising. She hunts after one single species of larvæ and, what is still more curious, selects them all of nearly the same age. Disdaining larvæ that are too small for her purpose, she spares herself no trouble to find up those who are old and strong enough to bear a fast without perishing. If they died in the nest, and putrefied there, the stench would render it unbearable. Thanks to the peculiar wound she inflicts, their vital functions are instantly suspended; but life exists in a degree sufficient to preserve them from decay until they have satisfied the wants of the young *odynerus*, who then undergoes his metamorphosis, tears open his chrysalis shell with his teeth, shakes, unfolds, and essays his wings, and then launches boldly into air and sunshine.

"What admirable maternal instinct!" some will exclaim. Others, looking further, will add, "What marvellous providential combination!"

Catching Curculio.

My mode of operation is simply this: I take five yards of ten cent cotton, cut the same in two, then sew the two pieces together for one-half the length, at one end fasten a long stick, at the other end two short sticks, and then the catcher is complete.

I have eighteen plum trees. Early in the morning and about sundown are the best times in which to catch them in fair weather, for they are certain to take wing if the trees are jarred in the middle of the day.

In 1869 I jarred my trees, and had a fair crop of plums. In 1870 I let the curculio have their way, and I had no plums. In 1871 I declared war against the enemy on the 21st day of May, and continued the contest until the 20th of June, after which time I had no trouble until the fruit began to change colour, when the plums and peaches began to rot. For some time I was baffled in my attempts to ascertain the cause, but by watching closely I at length found the cause without a doubt. I found a plum curculio taking his meal on a peach, and in three days the peach began to rot; next I found my enemy taking his meal on a plum. In two days after the plum began to show signs of rot.

The following is a memorandum of the results of my jarring on the several days mentioned during the season of 1871:

| | Morning. | Evening. |
|--------------|----------|----------|
| May 21 | 0 | 12 |
| " 22 | 1 | 0 |
| " 28 | 7 | 16 |
| " 29 | 1 | 33 |
| " 30 | 41 | 23 |
| " 31 | 85 | 59 |
| June 1 | 18 | 22 |
| " 2 | 21 | 28 |
| " 3 | 0 | 25 |
| " 4 | 23 | 38 |
| " 5 | 5 | 15 |
| " 6 | 9 | 2 |
| " 7 | 10 | 1 |
| " 8 | 5 | 5 |
| " 9 | 0 | 1 |
| " 10 | 2 | 3 |
| " 11 | 4 | 0 |
| " 12 | 0 | 3 |
| " 13 | 1 | 1 |
| " 14 | 0 | 4 |
| " 15 | 0 | 0 |
| " 19 | 0 | 3 |
| " 24 | 3 | 0 |

I am not an amateur, but a farmer, cultivating one hundred and twenty-six acres in Lot 31 of the 2nd concession, township of Humberstone; but as a member of the Fruit Growers' Association of Ontario, I am very happy to be able to say that I do not think any man can lay out his money to better advantage than to become a member of that Association.

If these few simple statements of my method of fighting the curculio and of the results, are of any value to the fruit-growing public, they are welcome to them.

JONAS NEFF.

Port Colborne, January, 1872.

Correspondence.

My Farm.

To the Editor.

SIR,—The practical work on "my farm" is much the same now as it was when I last wrote, but then we have passed through the holidays.

Now, Sir, I think the holidays are not unworthy of notice in your public paper. Some people think that farmers can have holidays at all times, and some farmers never take a holiday. But in truth a holiday is as essential to the farmer as to the business man, and I would have my brother farmers throw all work not absolutely necessary to the winds, and enter into the enjoyment of the relaxation and festivities of the season.

Depend upon it, a thorough rest and holiday are never thrown away, but that on the contrary the time spent is more than made up by the renewed zest and energy which a man brings to bear upon his business after he has revelled for a time in enjoyment.

All through the last holidays I observed a farmer, living not very far from me, working away as if he had to make a big payment on the 1st of January, and had only three days left to do it in. That man is worth as many dollars as I am quarters, and yet his face is always as long and as melancholy as a paid mute at an "old country" funeral, and it appears longer and "melancholier" by contrast with the merry faces that pass by him at the merry Christmas times.

This world is not so bad as it is painted, and I believe a man is made a better member of society and a truer Christian by taking advantage of the enjoyments of life as they crop out, so long as he does not abuse them.

I have done a little in the "reform" line, and I have banished wood from my sitting room and instituted coal. Some of my neighbours contend that I am extravagant, because I have on the property some thirty acres of good hardwood. I pay \$7 50 a ton for my coal, and my team which takes produce to market, and which would otherwise return empty, delivers it at my door.

My wood I can sell within half a mile of the bush at \$3 50 a cord clear profit, and as it would cost 50 cents a cord cutting and splitting at the door, I may say that it is worth \$4 a cord to me in hard cash. The wood stove that I have displaced burned a cord a month, and my ton of coal now lasts me six weeks, and keeps an even heat *night and day*; so I place my account with the two stoves thus:—

| COST OF HEATING FOR ONE MONTH. | |
|--|--------|
| Wood stove—1 cord hardwood | \$4 00 |
| Coal stove— $\frac{3}{4}$ of ton of coal | 5 00 |
| Making a cash balance in favour of wood of | 1 00 |

But I have to carry in three armfuls of wood to my wood stove every morning and evening, to cut kindling, and to light up in the mornings, and that altogether takes about fifteen minutes in every twenty-four hours. As the master of the farm, I consider my daily work worth as much as that of a good mechanic, or two dollars, and therefore fifteen minutes out of my working day is equal to one-fortieth of my daily worth, or five cents, and half a dime per day is equal to \$1 50 per month, giving me now 50 cents in favour of the coal stove. I will throw this fifty cents in for bringing in a scuttle full of coal, and shaking out the dead ashes twice a day; and then the coal stove has the clear advantage of keeping equally well alight night and day, of warming uniformly every corner of the room, and of giving the servant or the lady of the house not one moment of trouble during my absence about my daily avocations.

Your reader says, no doubt, that is pretty tight figuring; but, Sir, if a man does not wish to go blindfold about his cost of living, he has, in this age of competition and progress, to "figure up" close in all his undertakings, and by this process alone can he arrive at just conclusions concerning his daily profits or expenditures.

The other day a man in business, in some part of Canada, was told that he was spending in his business \$25 dollars a day, and receiving a return of \$15 per diem. He held up his hands in amazement. Somebody had "figured up" for him, and the result in its naked truth was appalling.

OLD-COUNTRY.

Ancaster, January, 1872.

II.

To the Editor.

SIR,—I bought a bull the other day; his pedigree is undeniable, his form perfect, and his condition sound. I was asked what price I intended to charge for his service. I said four dollars. I was told I could get no cows at such a rate.

Can it be possible that, in one of the oldest settled districts of Canada, farmers will prefer to take their cows to a coarse runt of a bull, whose calves constantly deteriorate in value, for the sake of saving three dollars?

I am afraid that many (of your readers, I had nearly said, but they are generally of the more intelligent class,) of our farmers do indeed believe they are practising economy when they use a dollar bull, or get his use for nothing upon the public road. They seem to forget the difference in value between a bull which fetches by auction from fifty to one hundred dollars as a calf, and a runt who was left a bull because his owner could not be bothered to alter him. They forget that the man who pays two hundred dollars for a really good young animal, cannot afford to serve his neighbours gratis.

Every farmer cannot raise thorough-bred stock; it would be very undesirable for the ordinary farmer to attempt it. Thorough-bred cattle do not pay as marketable produce; their profit is in the raising of unimpeachable male stock for the service of common cows.

The breeder of "pure blood" must be a man of capacity, for he cannot keep up the

purity of his stock unless he be in the habit of constantly importing to his establishment fresh strains of blood.

For us, the ordinary farmers, the most profitable class of cattle are good grades. The pure bred cow cannot be kept pure except at great expense. She is small in the bone, and altogether "fine." The common cow, unjustly dubbed "Canadian," is too much "bone," and altogether coarse. We have in the latter a large frame, but so much space is taken up by bone, and so much food required for bony formations, that we have no room left in which beef can be formed. But if we keep her size of frame, shorten her in the leg, and fine down her bone, we have the most profitable animal upon which to lay fat, and these points can only be attained by crossing the common cow with a pure bull. The cross from such a pair will be probably worth \$40 at two years old, while a common two-year old will fetch but \$25 or \$30.

If there be those who cannot believe in the rapid effect that the use of thorough-bred bulls has upon the stock of a neighbourhood, let them travel in the county of Wellington and look at their ordinary class of stock.

Short crops of fodder, of roots, and winter panic, are beginning to tell on the price of live stock. Already has the value of beef, mutton and pork gone up in the market, and at the first peep of pasture prices for live stock must rule very high.

OLD COUNTRY.

Ancaster, February, 1872.

Agricultural Matters about Trenton.

To the Editor.

SIR,—Our crops in this vicinity, during the past season, were pretty good, considering the protracted drought. Fall wheat yielded remarkably well, in many cases 40 bushels and upwards to the acre. The first crop of clover was, on the whole, thick and heavy, but the second deficient, so that very little clover seed will be in the market from hereabouts. I do not know how many of our farmers would do without the clover crop, yielding, as it does, uniformly good crops, and generally being safe before the drought sets in, its growth being stimulated by the liberal use of plaster. Barley, oats, and spring wheat did not yield very well; but wherever due attention and care were given to preparation of the soil, the difference could be seen. Peas yielded poorly, owing, I think, to the dry weather at the time of sowing. The vegetables and summer crops suffered most; our gardens were literally scorched. Potatoes were a short crop. Buckwheat grew so slowly that it did not have time to fill before frost came. It seems to me that it would be an experiment worth trying to plant potatoes in the fall before winter sets in; cover with straw, allow to remain all winter, and they would start very early in the spring. This might be done on a small scale. We often find potatoes that had escaped the digger growing up the following year in spite of frost. And why not if planted? But it would be safest to plant whole potatoes.

I think a good veterinary surgeon would

do well in Trenton and vicinity, as there is no competition, and a large field for practice around it. Many a fine animal, to my own knowledge, has been lost for want of skilful treatment.

Farmers are beginning to realize the utility of clubs for mutual improvement and social culture. Every neighbourhood should have one. How much could be done if farmers were united in the way of importing stock, experimenting, &c. But I would not limit the work of the club to discussing matters pertaining to farming alone. "All work and no play makes Jack a dull boy." Music and song could be introduced, nor should the presence of ladies be interdicted.

It is feared that the winter wheat will suffer from the lack of snow-covering and feebleness of growth to withstand severity of winter. In many places it is encased in ice. The advantage of well-drained land for this crop is manifest.

As the science of agriculture is receiving more attention from the "powers that be," it is to be hoped that some encouragement will be given to those teachers who strive to advance their pupils in it. Special prizes might be offered to proficientes. The custom of having some one deliver an agricultural address at our annual county fairs would perhaps add to the interest and utility of these gatherings. Agriculture is becoming "the most honourable of all professions." The less animal and laborious the calling and tastes of the farmer, the more will he become worthy of respect. The idea I wish to convey by the term laborious is that of excessive toil—drudgery perhaps expresses my meaning better. Steam and iron are supplying the place of the animal man.

JOHN S. BOUTILLIER.

Sidney, January, 1872.

Sawdust for Bedding and Manure.

A "Constant Reader" asks "whether the use of hemlock sawdust, as litter and bedding for cattle and horses, would be injurious to the land or crop upon which it is used, and whether the manure pile in spring would be in any way inferior in value to that made in the usual way by using straw?"

Hemlock sawdust has in itself no especially manurial quality; neither, when thoroughly mixed with animal manures, can it have any ill effects upon the land. One of the best absorbents of liquid and solid animal manure is undoubtedly straw; this is owing to its tubular form.

If our correspondent is only short of straw, we should advise him to use a very light bed of straw over a bed of hemlock sawdust. The sawdust will thus absorb the urinal part most effectually; while being mixed in the dunghill with some straw, it will form a more rapidly rotting compost, and will be more readily handled and distributed upon the land. If, however, our correspondent has no straw, we should say that sawdust used in the way he proposes would not be at all injurious to the land; but we would also advise the use of slight layers of lime through his manure heap. We have thus made composts with pine sawdust, and though we have not experimented as to the actual value in comparison with those in which straw has been used, we have perceived no ill effects upon the land in the application of the former. We have no hesitation, however, in expressing our opinion that the manure pile made in the way our correspondent proposes would be undoubtedly somewhat inferior to that made with straw as the absorbent.

Barns.

To the Editor.

SIR,—Every farmer in the Dominion should read the Hon. James Skead's agricultural address, delivered at the Provincial Exhibition at Kingston, 1871, and see what he says of farm buildings as they are now put up. He says that farm architecture does not receive the attention in Canada it should; that buildings are put up at hap-hazard, and everything as inconvenient as is possible to have it, when it should be the reverse. But he did not tell how the buildings should be put up to get the greatest amount of room and convenience for the least amount of money. That is the task that I have taken upon myself, and as I have given my undivided attention for three years, I think that I am now able to show farmers just the shape that their buildings should be to be the most convenient and cheapest. Farm buildings, as now put up, consist of a barn placed east and west, and two north and south, the three buildings forming three sides of a hollow square, which they call the barn-yard. I will now show you how I would place the same buildings to have the greatest amount of room and convenience, with an outlay of much less money. First, I would find a piece of ground (if I had any), with about 3 feet fall in 80 feet; I would plane and scrape the 80 feet level, carrying the earth to the upper side to make an approach to the barn floor; I would then put up a stone wall on the bank side, and as far on the ends of the barn as I should have my root cellar; the remainder of the 80 feet I would build with cedar posts, placing them every 10 feet, and all the cross walls in the same way; I would make the basement story 9 feet in the clear; for a good 100 acre farm, the foundation should be 56 by 80, the first story divided as follows: cellar, 56 by 14; cow stable, 56 by 18; 1 barn yard, 28 by 56; and another 20 by 56; the upper story barn, 40 by 56; horse stable, 20 by 56; a straw barn, 20 by 56. The above buildings will stable every animal, except the sheep and pigs, and hold all the grain and straw on the best 100 acres in Canada, and can be built for less money than the same amount of room can be had on the old plan.

I will now give you some of the advantages of this plan. 1. The root cellar is the whole length of the cow stable, which leaves the turnups handy for feeding. 2. The solid manure is thrown from the cow stable into the barn-yard stable, mixing it with the straw, the refuse of the cattle. 3. All the manure is under cote, which makes one load of it worth three that is washed with the snow and rain. 4. All your cattle are comfortably housed all winter, without the trouble of stabling, for they can have free ingress and egress from one of the barn-yard stables to the other as much as if they were out in the yard. 5. These barn-yard stables make convenient driving houses in summer for ploughs, harrows, waggons, &c. 6. All the chaff and grain thrown out by the machine is saved in the straw mow, and the feed always dry and clean for cattle. 7. You have only two gable

ends to make instead of six, if you put up the same amount of buildings on the old plan.

As I stated above, I have been three years studying the construction of farm buildings, and it was only two months ago that I thought of the above plan; and as changing the shape of a thing does not constitute an invention, I give the above plan free to the public.

J. D., Ont.

Farmers' Clubs.

To the Editor.

SIR,—As a man interested in a proper management of our municipal affairs, I duly attended the nomination of our councillors the other day.

I was struck with the amount of eloquence displayed, not so much by the candidates for municipal honours as by their proposers and seconders. They seemed well versed in political and township matters, and could speak well and intelligently about them, and the cross-questioning of the old councillors as to their former public conduct was close, searching, and very practical. A few days after I was at a township dinner, at which some of these men were present, and I was not a little surprised at the apathy displayed when an agricultural toast and speech were on the *tapis* , while they listened with eagerness to those having a political bearing.

Now, Sir, how is this? How is it that our farmers will drive ten or twenty miles to hear keen political discussion, whilst it is hard to budge them to attend an agricultural dinner or a farmers' debating society; they will read THE GLOBE column by column, but will scarcely look at an agricultural paper.

I believe it is all traceable to a want of confidence in and appreciation of the honour and advantages of their noble profession. Union is wanting amongst farmers, and consequently strength is denied to the agricultural community. Political conventions are attended well, while debating societies are left in the shade. Political cattle will always find a full complement by whom to be admired, while it is a hard matter to establish a monthly fair.

I believe, Sir, if farmers would only awake to the honourable position that they enjoy in the community, and would join hand in hand to interchange opinions and build up their own strength, we should have a fairer proportion of representation upon the floors of our Parliaments. If farmers would debate among themselves upon small matters, they would be better able to string a dozen words together in order to explain what they thoroughly understand when called upon in public.

I would like, Sir, to see a debating society in every village and in every township, there are so many agricultural opinions and so few ways of hearing them.

Perhaps some of your readers will take particular notice of these few remarks. If they are by these means led to join the nearest farmers' club, I shall not consider my words in vain, and if many of my neighbours join

our own club here, I shall require a vote of thanks.

Happily the Western fever has died out, or at any rate subsided. A friend who has just arrived from Wisconsin says he don't believe there is such splendid land in the world, but then he says the winter is far harder than in Canada, and what you make in six months is all taken up in keeping together body and soul for the next half year.

Canada is cold enough for me; if I emigrate, I should require a shorter winter. Another friend from the Western States, who has been employed as manager in a large knitting factory, allows that wages are higher in cash, but adds that he thinks mechanics are better off in the relative proportions of wages and cost of living in Canada to-day, than across the line. These, Sir, are statements from the mouths of men who have practical experience of these things.

OLD COUNTRY.

Ancaster

FEEDING STOCK.—In answer to "I. A. C.," we would say that the better plan is to feed the grain (chopped) with cut hay or straw. If, however, the grain be fed whole, it is better that it be soaked. Both of these preferences are founded upon the principle of giving food to the fattening beast in the form in which it is the most easy of digestion.

BEEF—"A Subscriber."—There is no legal or other difficulty in the way of our correspondent's disposing of his beef in any market. It is as wholesome if good in not as flavour as the best. He will have to be content with a price below that for dressed steers. We would not, under the circumstances, advise his incurring the risk, expense, and loss of time involved in the operation of "altering."

The Canada Farmer.

TORONTO, CANADA, FEB. 15, 1872.

Immigration

There is at present before the House of Representatives at Washington a very important measure, which proposes to deal effectively with the whole question of immigration and the treatment of immigrants. In the midst of our own present discussions on the subject it may be interesting to notice some of the difficulties our neighbours meet with in this connection, and the manner in which it is proposed to deal with them. The Yankees are wise enough to know the great value of those immigrants, and are resolved to give them every encouragement and protection that may be possible. Too long the land sharks that prowl about all the great shipping ports have had matters very much their own way in spite of all regulations to the contrary, but now it is proposed to bring such a state of things to an end, if any legislation can possibly effect it.

According to the measure now under discussion there is to be instituted a new bureau in the Treasury Department, which is to have charge of steerage passengers arriving from foreign ports not contiguous to the United States. The capitation tax is to be reduced to \$1, instead of \$2 as now levied in New York; and all moneys collected are to go directly into the Treasury of the United States, out of which all charges are to be defrayed. In short, if the bill passes, the whole control is to be taken from the different States and put under the Federal authorities. The emigrants are to be superintended by United States Consuls at the various ports of departure, and complaints for ill usage made after landing are to be tried summarily by United States Commissioners. The new head of this proposed bureau may, however, enter into contract with any State Commissioners on the subject and act in concert with them. This new Commissioner is to be appointed by the President with the consent of the Senate; is to hold his office for four years; and is to have no pecuniary interest, direct or indirect, in any steamboat company, railway, or land settlement society.

Emigration agents are to be stationed at Liverpool, Hamburg, or wherever forty thousand emigrants may embark annually; and are to examine every vessel, see that all the provisions of the law are carried out, and give all necessary information to emigrants. They are to give duplicate certificates that the regulations in the case of each ship have been complied with, one of which is to be lodged with the local States Consul and the other forwarded by post to the head of the Bureau. Wherever the emigration does not amount to 40,000 annually, the Consul is to perform the duties of agent, and receive an addition to his salary of not more than \$1,000 per annum.

At New York, four Inspectors are to be appointed, and they are to be acquainted, at least, with the German, French, and Swedish languages. They are to accompany the custom-house officers on board of every emigrant vessel; to muster the emigrants; ask if they have any complaints; have any such complaints reduced to writing if there appears probable ground for them; and report to the Collector of Customs and also to the head of the Bureau. The Immigration Superintendent, or if there is none, the Collector of Customs, is to prosecute on behalf of immigrants for personal damages before U. S. Commissioners, who shall have jurisdiction to try summarily all cases relating to ill-treatment on board

ship, insufficiency or badness of food, damage to baggage, swindling in exchange of money, overcharges, &c., and shall have power to inflict fines to the extent of \$100, and to commit till the judgment is satisfied.

A new landing depot is to be instituted at New York under the care of a superintendent, who is to give bonds for his conduct. It is to be the duty of this superintendent and his subordinates to provide suitable places for reception of immigrants on landing, superintend the disembarkations; take note of age, occupation, birth-place, etc., of each; protect from imposition; provide, at the expense of the vessel, for those who arrive destitute; give them all necessary directions about getting to their destinations; help them to make contracts with railway companies, etc., seeing that the cars shall be good and well-ventilated and that they travel at the rate of at least twenty miles an hour, and that the railway servants be bound to pay sufficient regard to the health and comfort of the passengers, etc. These superintendents may issue permits to respectable persons to convey parties from the vessels to the depot, and no one without such permits shall be allowed to solicit immigrant in one way or other.

Railroad companies that propose to carry immigrants are to give bonds in the hands of the chief of the Immigration Bureau, and are to provide for such passengers proper passenger cars, with a stove and fire when needed, clean water for drinking and washing, and proper water-closets and ventilation. When all this is done they shall be allowed to sell tickets, but not by circuitous routes. The steamboat companies to be treated in the same way, and when the terms are violated the permission to sell tickets is to be revoked. The frauds perpetrated on emigrants before leaving Europe, so frequent and so heartless, are to be dealt with very effectively.

Section 22nd of this proposed law provides that contracts made in a foreign country for the transportation of immigrant passengers to interior portions of the United States shall not be stamped by the Superintendent of Immigration unless they be to the advantage of the immigrant. If to his disadvantage, the Superintendent shall prosecute those who propose to act under them.

No criminals or such as have been in a State prison for an infamous crime are to be allowed to be landed.

Very stringent arrangements are also made for protection to the immigrants

when at sea. Food in quantity and quality must equal rations in American navy; due space to be allowed; proper ventilation, &c.; sexes properly separated; hospitals for male and female passengers, &c.; and every ship with a hundred or more passengers must carry a duly qualified surgeon.

As soon as a ship arrives in port the captain is to deliver the certificate received from the superintendent at the port of departure; and must report to the collector a great many particulars. For every adult death during the voyage there is to be paid a penalty of \$10.

All persons seeking to land passengers in contravention of this Act are to be liable to a fine of not more than \$5,000

Such is a general outline of this important proposal. Perhaps some of the provisions may be too stringent, but it is well to err on the safe side, and the side of stringency is the safe one. The amount of misery and wrong suffered by poor unfriended immigrants is beyond all estimate, and anything tending to lessen this large aggregate of suffering must be hailed with satisfaction. Let us at the same time not think that all this misery and wrong are on the other side of the lines. What a tale many who have come to Canada have also to tell and the sooner some remedy is applied here the better. Let us try, for instance, to estimate the misery on the Grand Trunk alone from Quebec to Sarnia in the course of every single season. It is notoriously frightful. Surely, when we are all talking so much about encouraging immigration, we ought at any rate to make the miseries of travel as moderate as possible.

Literary Notices.

THE BIRDS OF CANADA.—Dr. A. M. Ross, the author of this little work, has done good service by his recent contribution to the literature of Canadian Natural History. The book gives brief descriptions of upwards of three hundred birds—natives of the country, or regular or occasional visitors—with notices of their habits, food, nests, eggs, and a record of the times of arrival and departure of those who are not permanent residents; and these, as every Canadian knows, comprise nearly the whole number, for the feathered tribes are very scarce with us in winter, and even the birds we see at that season are mostly migrants. The work is well printed, on tinted paper, and contains numerous wood-cuts. Dr. Ross, we understand, has other works in preparation on some interesting branches of Canadian ornithology.

Canadian Horticulture.*

Canada has during the past few years made wonderful progress in developing her industrial resources, not only in the more substantial elements of a nation's wealth and productive skill, but also in those refined arts of life that accompany the highest civilization. This advancement has been especially manifest in the rapid growth, and present condition of Canadian horticulture. As evidence of this it is only necessary to call to mind the magnificent displays of fruit that have now for several years formed so conspicuous and attractive a feature in our Provincial Exhibitions, and which have elicited the admiration of all beholders. If such a collection of fruit could be shown in England, as a fair representative of the capabilities of our soil and climate, it would do more to make the country known and to attract hither a desirable class of immigrants than all the placards, pamphlets, or other agencies that have hitherto been tried. The change is also shown by the fact that whereas we used to be dependent upon our neighbours across the lines for our supply of nearly all kinds of fruit, we now not only raise sufficient of the hardier sorts to meet the demands of home consumption, but we annually ship large quantities of apples for the English market. The culture of the grape has also been prosecuted with most encouraging success, and is spreading rapidly. Still further proof of our progress in the same direction is furnished by the growth of the nursery business in this country. There is not a nurseryman in the Dominion, though their number and the extent of their transactions have greatly increased, who is not taxed to the very utmost to supply the demand for ornamental, shade and fruit trees; and the results are visible in the neat aspect of city garden plots, the charming grounds of suburban residences, and the improved appearance of farm homesteads.

A very large proportion of those whose prosperous circumstances have thus enabled them to gratify their tastes, are but amateurs in gardening, or wholly ignorant of the art, and are often entirely at a loss respecting the proper course to pursue, especially under the peculiar conditions of our trying climate. Hence the necessity of a good and reliable work on Canadian horticulture has been widely and strongly felt. There are not wanting, it is true, many excellent treatises on gardening, but these are foreign productions, not suited to the condition of this country. Most of the American publications on the subject, besides being applicable to a more southerly latitude, are moreover not sufficiently general in their scope, but are confined to some particular branch. Of this class are the works of Fuller, Meade, Elliott, Henderson and

* Canadian Fruit, Flower, and Kitchen Gardener, by D. W. Beadle, Esq. Published by Campbell & Son, Toronto.

others. What is needed amongst us is a comprehensive work adapted to the average cultivator, and specially written for Canadians. Such a book, we are glad to see, is now announced, and comes before the public with every promise of exactly supplying the want so generally felt.

The qualifications of the author are alone a sufficient guarantee for the value of the publication. It is written by one whose knowledge has not been derived from books only, or from the horticultural practice in other countries, or even from a limited experience in one locality on our own soil, but whose position has made him acquainted with the wants of his countrymen and the peculiarities of the Canadian climate over a wide range of the settled districts. The name of Mr. D. W. Beadle, Secretary of the Fruit Growers' Association, and editor of the horticultural department of the WEEKLY GLOBE and the CANADA FARMER, as the writer of the work in question, will stamp its character and insure for it a most favourable reception. Mr. Beadle brings to the task he has undertaken a life-long familiarity with the details of the subject, an enthusiastic love for the pursuit, and a thoroughly practical acquaintance with all its branches; and he is, moreover, endowed with those scholarly accomplishments which give him facility in imparting his ideas, and render him a pleasing and perspicuous writer. The work, advanced sheets of which we have had an opportunity of perusing, is now in press, and will very shortly be ready for delivery. It is entitled the "Canadian Fruit, Flower and Kitchen Gardener;" it forms a fair-sized octavo volume, and in all that regards its mechanical execution is got up in first-class style. Three beautiful coloured engravings, representative of the three principal departments, serve as an appropriate introduction to each, and the book is throughout profusely illustrated with well-executed wood-cuts giving portraits of plants or elucidating various horticultural operations.

The comprehensive scope of the work and the wide range of the subjects of which it treats may be gathered from the following brief summary of its contents:—In the first department—that of the "fruit garden"—are considered the propagation of fruit trees by the various methods of grafting, budding, &c., pruning, transplanting, mulching, treatment of young orchards, and the location of orchards; then follow notices of injurious insects and the best remedies against them, and a chapter on the production of new varieties of fruit by natural sporting and cross-fertilization or hybridizing. Each of the fruits adapted to the climate is then taken up separately, and a vast amount of practical information given respecting their varieties and culture. The standard fruits, apple and pear, come fully under review, and considerable space is also allotted to the grape and its cultivation, both in the open

air and under glass. Among the small fruits the strawberry and raspberry naturally occupy the chief place; but the currant, gooseberry, blackberry, cranberry, and huckleberry all receive due and full consideration.

The next department—the "kitchen garden"—contains a concise account of, and directions for growing all the ordinary vegetables that can be raised in Canada.

The third department—or "flower garden"—treats of the attractive branch of horticulture indicated by the title, under the following heads: hardy flowering shrubs, hardy climbing shrubs, hardy herbaceous flowers, bulbous-rooted flowers, bedding plants, annuals—and concludes with a charming chapter on roses.

The work is altogether deserving of the highest praise, and will add much to the well-earned reputation which the author already enjoys. The task of writing such a book could not have fallen into more competent hands. The volume will be welcomed by every Canadian cultivator, as it will furnish just the guidance and instruction that he needs. To the novice and amateur it will be indispensable; and even the experienced horticulturist will find in it a vast amount of reliable and well-arranged information that will render the work a most valuable addition to his library.

We have not space for any lengthened extracts, but are constrained to cite one paragraph on a subject of pressing and increasing interest to the whole community. Speaking of the location of orchards, Mr. Beadle says:—

"An aspect that is sheltered from the sweep of the prevailing winds by a belt of woodland, and particularly of evergreens, enjoys an immunity from extremes of cold which often prove injurious to more exposed orchards. As our forests fall before the axe, and the country is laid bare to the frost-laden winds of our Canadian winters, and the climate thereby becomes more harsh, the most successful fruit growers will be those who have sheltered their orchards by planting belts of evergreens, and, as strongly advised by Mr. Elliott, occasional evergreen trees, or clumps of them, scattered with judgment here and there through the orchard, and always so disposed that their ameliorating effect shall be most beneficially felt by the adjacent fruit trees. Much might be written on the value of such belts and clumps of trees to every farmer, on the great benefits accruing, not only to the orchard, but to the farm crops, to the stock, and to his own house, concerning their ameliorating influences on the temperature, on the purity and healthfulness of the atmosphere, on the electrical conditions favourable to animal and vegetable life, on the amount of rain and dew; but, alas, in this age of haste, an enlarged and enlightened policy, which takes into consideration the wants of a life-time, and plans with reference to the needs and

comforts of years yet in the distance, is almost wholly lost in thoughts of immediate advantage. 'Oh, I shall never live to reap the benefits of all this outlay and care,' is a sufficient answer to all such suggestions, just as though man lived for himself alone. Is it nothing to have left behind you the impress of your enlarged views upon the acres your children shall till? Is it nothing to have laid foundations broad and deep, upon which those who come after you may build, and bless the forethought and wisdom with which you provided for their comfort and health? Is there not a pleasure more rich and sweet than that which centres in self? But enough. Some coming generation may plant and plan with reference to the permanent value of farms and homesteads; we are too busy."

For particulars of the publication, price, &c., we refer the reader to the announcement of the work in our advertising columns.

Hold on to the Stock.

We observe that there is over the whole of America the same panic as to scarcity of food and difficulty of wintering stock, that has been apparent for some time in our own country. This fear was in part justified by the short crop of hay and consequent high price of the same. It is, nevertheless, a most shortsighted policy on the part of the farmer to sell off his stock and what food he has on hand, simply because stock are very low and fodder scarce and dear.

It is true the man was unwise who undertook to put up animals of any class to fatten in the early part of this winter, for so great was the rush into market of all kinds of meat that down it came in price, and the market being glutted, it has kept down until now past the middle of the month of January.

The most intelligent farmers are, however, holding on to every head of stock, and feeding with the most rigid economy, and, depend upon it, they will realize well for their caution.

Already we see a slight rise in market prices for meat, and this we take to be but the first indication that prices must rule high in the spring. Then the farmer who has fed his barley at 55 cents a bushel, has cut all his food, has kept his cattle thriving upon cooked turnips or steamed food, will at least realize as much money, and our own opinion is that he will receive more in cash than had he sacrificed his beasts in the early part of the winter, and sold all his hay at what he then considered a very paying price. We had several heifers that, not coming up to our taste as perfectly fit to breed from, we were about to fatten for Christmas beef; but when we saw meat rapidly depreciating in value, we changed our plan, and determined to winter them through, feeling assured that this panic would have its reaction in the ensuing season, and when we saw good beef sold at five cents by the quarter, we felt sure that we had been justified, and shall reap the benefit of our resolution.

Canadian Dairymen's Association.

The Fifth Annual Convention of this Association was held at Ingersoll on Wednesday, and Thursday, the 7th and 8th instant. There was a very large attendance, composed of dairymen from all parts of the Dominion. The meeting was addressed by X. A. Willard, Esq., of Herkimer Co., New York, and L. B. Arnold, Esq., of Ithica, New York. The address of the former was particularly devoted to the immense importance of thorough cleanliness in every department of dairying, from the first drawing of the milk from the cow to the placing of the cheese in the press. He endeavoured to impress his hearers with the necessity of clean pastures, free from foul weeds, and especially clear of all carrion, of pure running water, and the removal of all mud holes to which milking cows might gain access.

Mr. Arnold, of Ithica, in his address, scientifically demonstrated the ready susceptibility of milk to all deleterious influences, not only when in a state of fermentation in the vat, but even before it had been drawn from the udder. He showed that foul gases inhaled by the animal, while at pasture, stagnant water filled with decomposing vegetable matter, acted directly and immediately upon her milk—and were most assuredly fatal to the manufacture of a cheese that would keep "on flavour."

Discussions upon various questions affecting the dairy were taken part in by many eminent manufacturers and large buyers of cheese, amongst whom we observed Messrs. Farrin, Ballantyne, Bodwell, Craig, and Casw and were all directed to the importance of making a sweet cheese that would keep its flavour for the English market, and the necessity, to secure this point, of thorough and mutual cleanliness upon the part of the factory and of its patrons.

Action was taken by which the Executive Committee were authorised to secure the incorporation of the Society by special Act of Parliament.

A full report of the proceedings is necessarily postponed to another issue, in which also we hope to be able to include a considerable portion of Mr. Willard's valuable address.

Notes on the Weather.

The winter, so far, has passed pleasantly. The earlier part of January was exceptionally mild, but the comparatively steady cold of the latter part has brought down the average temperature to the usual standard. The special peculiarity of the present season, over a large part of Ontario at least, is the small amount of snow-fall. In consequence of this the ground will probably be frozen to a considerable depth, and some fears are en-

tertained that the wheat crop will suffer. But it is not so much the severity of the cold that injures this important cereal as the alternate thawing and freezing to which in this climate it is exposed towards the end of winter or in the beginning of spring. We do not think, therefore, that there is anything in the season, according to present appearances, to justify such apprehensions. The continued absence of moisture—for the rain fall, as well as the amount of snow, has been in unusually small amount—may seriously affect farming operations, unless the deficiency is made up before field work recommences.

The following is the meteorological report for January, compiled from the records of the Toronto Observatory:

Mean temperature 22°.4, being only 0°.6 below the average of the previous thirty-two years, and 0°.7 warmer than January 1871. The thermometer reached its highest point on the 11th, when it indicated 41°.8, and the lowest reading was -2.5, which occurred on Sunday, the 7th. The warmest day was the 11th, the mean temperature of which was 35°.9; and the coldest day the 29th—mean 6°.6.

The amount of cloud was considerably above the average—19 days being clouded, and 12 partially so.

The quantity of rain has only been about one-fifth of the usual rain-fall; the amount only reaching 0.22, against 1.23. As a consequence of this prolonged deficit of rain, the lake is at a lower elevation than any previous record.

There has also been a remarkable absence of snow, which although falling on 13 days; only shows a fall for the month of 3.9 inches, being 13.5 less than the average, and 40 inches less than January, 1871.

There has been a marked preponderance of W. and S. W. winds, very few of which showed any excessive violence, although the average velocity is slightly greater than usual; the highest being a gale on the 25th from the W. S. W., which showed an average velocity of 17.6 miles per hour.

"CANADA, MY HOME."—We are glad to welcome any creditable addition to the patriotic songs of our country. Such have always been held as among the most powerful means of kindling and fostering the patriotic spirit of any people; and we need such aid to counteract the alienating tendencies of the disappointed, restless, and discontented among us. The melody of this song, by a lady, is simple and pleasing, and the words, by the same author, are appropriate, and express a staunch attachment to the land we live in, and which, if not the place of our birth, has become the home of our adoption. The small sheet containing the music and words is published by A. Christie, Toronto.

Horticulture.

EDITOR—D. W. BEADLE,
CORRESPONDING MEMBER OF THE ROYAL HORTICULTURAL SOCIETY, ENGLAND.

Meeting of the Western New York Fruit Growers' Association.

The Fruit Growers of Western New York met in convention on the 10th and 11th of January, in the city of Rochester. There was a full attendance of gentlemen interested in the growing of fruit, several of them from beyond the territorial limits of the Association.

Our own Fruit Growers' Association of Ontario was ably represented on the occasion by its worthy President, who was received with every possible mark of courtesy, and requested to take a seat at the right hand of the President of the meeting.

From the report presented by the committee on native fruits, we learn that considerable interest is being created by the *Lawver* apple, one specimen of which was on exhibition at the meeting. It originated in Platte County, Missouri; is of large size, deep rich red colour, and said to have a firm white flesh, sometimes stained with red; juicy, rich acid flavour; in use from December to July. It is also said that it blooms late, and thus often by this means escapes late spring frosts. If the tree be sufficiently hardy to endure the winter of our northern localities, this habit of blooming late will be of very decided advantage. Attention was also called to the Hubbardston Nonsuch as a valuable winter apple for market.

The report also spoke of the *Beurre d'Anjou* pear as the best market variety, and of the *Doctor Reeder* as one of the best of recent introduction. The fruit of this variety is small, too small to be of value for market, but of delicious flavour, ripening in November. The tree is a vigorous grower, and an early and abundant bearer.

The *Croton* grape is highly spoken of on account of the purity, delicacy, and refined richness of its flavour. Diana Hamburgh produced splendid bunches, which were not fully ripened when the early frosts cut them off. *Eumelan* had borne well, and seemed healthy and hardy. It ripened with the Delaware, but is not equal to that variety in quality.

Herstine raspberry is mentioned as being vigorous and productive, the fruit large, of a bright red colour, and of good flavour.

Charles Downing strawberry produced a heavy crop of large and good-looking berries, of inferior quality.

Hale's Paper-shell hickory-nut is a promising new variety, measuring an inch and a quarter by an inch in thickness, the shell

very thin, from a fortieth to a fiftieth of an inch thick, breaking with great ease, and containing a very large kernel, about equal in sweetness to the common hickory nuts, and about three times the bulk.

The report of the committee on new and rare ornamental trees (for this Society does not confine its attention to fruits only), notices a number of interesting and valuable trees. Among those which will doubtless be valuable in Canada are two varieties of drooping birch. *Young's Weeping Birch* produces very slender and drooping branches, thus forming a handsome weeping tree, very desirable for cemeteries and small lawns. The *Elegant Pendulous Birch* differs from the other in its downward tendency; the long, slender and flexible branches being directed perpendicularly to the earth in lines parallel with the stem. It received a gold medal at the Paris Exposition in 1867.

The *Pyramidal Birch* grows very like the Lombardy poplar. The bark of the trunk is white. Its peculiar form gives it a very novel and striking appearance.

Leopold Maple is a new variety of the Sycamore maple, having the foliage marbled with purplish red, changing to rosy pink, while the green parts have a bronzy tint.

New Double Scarlet Thorn (Paul's), is no doubt the finest of all the double flowering thorns. The flowers are very double, and of a bright crimson colour; grouped with the double pink and double white, it produces an exquisite effect.

These seem to be among the most desirable of the new ornamental trees mentioned in the report for trial in our climate.

From the report on shrubs of recent introduction, we select the following as most likely to be desirable here:

Hydrangea Paniculata Gandiflora, is mentioned as being the finest flowering shrub of recent introduction, growing from eight to ten feet high, and producing white flowers, in large pyramidal panicles twelve to eighteen inches long. It remains a long time in bloom.

Viburnum Plicatum is spoken of as blooming in profusion in large white clusters, and as a beautiful shrub, destined to become very popular when better known.

Weigelia Hortensis Nivea, a variety of the well known Weigelia, but producing a great profusion of pure white flowers, which retain their purity during the whole time of flowering.

The report on foreign fruits mentioned the *Duchesse de Bordeaux* pear as having been fruited in several localities, and promising to be a good late pear, but one that requires good soil and a warm season to bring it to perfection.

The *Oblong Crab* is noticed as being the most beautiful of all the crab apples.

An interesting report was received from the Entomological Committee, but we found

nothing in it not already made known to our readers through the columns of the Entomological Department. An amusing pencil sketch was circulated among the members after the reading of the report, representing the Chairman of the Entomological Committee as a blind man, being very kindly led by some charitably disposed coleopterous insect in his search after the Codlin Moth.

Considerable discussion was had on the subject of drying fruit. Mr. Purdy had a fruit drying house that cost him about fifty dollars; it was about eight feet square, and would dry berries at the rate of fifty bushels per day. From 3,600 quarts of black raspberries he had obtained 1,200 pounds of dried fruit, which sold at thirty cents per pound.

A letter was read from Charles Alden, describing a method of drying fruit known as the Alden process. He stated that by this method the entire cost of preparing and evaporating the water from a bushel of apples (fifty pounds) is thirty cents, and the yield after drying is seven pounds from each bushel. The evaporated or dried apples sell readily at twenty cents per pound, which would make a bushel of apples worth one dollar and forty cents, less thirty cents for cost of drying, or one dollar and ten cents nett for the bushel of apples. Tomatoes evaporated would yield three pounds of the dried fruit from one bushel of fresh, which sold at seventy-five cents per pound, thus making the value of a bushel of tomatoes when dried to be two dollars and twenty-five cents. The cost of evaporating was put down at thirty-six cents a bushel, which made the bushel of tomatoes when dried to be worth one dollar and eighty-nine cents to the producer. If we put the fresh tomatoes at fifty cents per bushel, which is perhaps the average price during the tomato season, it would seem that there was a very handsome profit to be made from the drying of tomatoes, if these statements be correct.

A quart of canned tomatoes sells for twenty-five cents, and contains when evaporated only two ounces of dried tomato. Two ounces of dried tomato, according to the above figures, cost less than ten cents, and as any one can add the quart of water without cost, the evaporated tomato must eventually drive the canned out of the market. This subject is worthy of investigation by our enterprising fruit preservers, and if the statements made to this meeting are correct, there should be such an evaporator put up in our fine fruit producing country to utilize our surplus fruits and vegetables.

On the subject of grapes there was a short discussion, but nothing of importance was elicited. Some thought the Iona did better when grafted on the Isabella or some other strong growing stock, but there was a diversity of opinion on this point. It was generally considered that where the Isabella and Catawba will ripen well, they are still the best and most profitable market grapes, because they keep well and carry to market in good condition. The Concord was stated to be the leading grape in New England, and as the climate there very nearly resembles that of Ontario, we may infer that it is the sort that can be most generally ripened with us.

It does not always carry well to a distant market, owing to the delicacy and tenderness of the skin, and one speaker ventured the opinion that on this account the Concord would eventually be superseded by the Wilder.

Some conversation was had upon the subject of over-stocking the market with good fruits, and the general opinion seemed to prevail that as the supply of fruit increased there was the more need of care in putting up only first-class fruit, and offering it for sale in neat and attractive packages. Yet some complained that the price of good grapes had reached too low a point to admit of their being profitably cultivated, and one gentleman requested the meeting to show him how he could manage his Isabellas so as to make a profit from them at three cents per pound, as that was all he could get for them. Another stated that he had no experience in grapes, but that he was sure the market was not yet overstocked with good late pears, as he had this fall sold sixty-three barrels of Beurre d'Anjou at twenty dollars per barrel to a dealer, who afterwards sold them in smaller lots at an advance of ten dollars per barrel.

The President of the Fruit Growers' Association of Ontario was requested to give the meeting an account of the operations of our Association, which he did in a neat and brief address, which was listened to with marked attention. At its close he presented to the President a copy of the last report of our Association, which was accepted with many thanks by the Chairman, who suggested to his Society that a leaf might be taken out of our book to the great benefit of their own Association. The President acknowledged with thanks the encomiums passed upon the Ontario Association, and politely said that whatever may have been the progress made by us, we were indebted in many ways to their Society. He then introduced Mr. W. Saunders, Vice-President of the Canadian Entomological Society, who gave an account of the operations and publications of that Society, and presented the President of the meeting with a copy of the *Canadian Entomologist*. These fraternal salutations were very handsomely acknowledged by electing President Burnet and Vice-President Saunders honorary members of the Western New York Society.

There was not a very large display of fruit on exhibition, yet we noticed the collection of Ellwanger & Barry contained thirty-eight varieties of pear and fifty-six of apple. Some samples of Catawba, Iona, Othello, Canada, and Cornucopia grapes, were also exhibited.

Fruit at Glencoe.

No grape ripening later than the Delaware has ripened with me this last season. The bunches of a few Clintons and of all the Ionas were thinned by rot. The severe frost of the 19th and 20th September left much unripened wood. Of fifty-one varieties in cultivation, the Antuchon alone had the foliage mildewed, and that so badly that there is not a ripe bud on the vine.

The spotted *Pelidnota* and the *Wood Nymph* put in an appearance, but not in sufficient numbers to injure the vines.

The Israella grape vine sun scalds, and is a very slow grower. The Adirondac winter kills.

W. SUTHERLAND.
Roundhouse Vineyard, Jan., 1872.

Removal of Bark from Fruit Trees and Longitudinal Incision.

To the Secretary of the Fruit Growers' Association of Ontario and Horticultural Editor of THE CANADA FARMER:

SIR,—Under the head of "New Disease—Pear Blight," in an article on page 155 of the *Small Fruit Recorder* for December, the writer says: "I think that the disease is wholly in the bark, or at least is communicated through it, and that taking out a ring of bark stops the disease as effectually as cutting off the limb."

In my mind there is no doubt of the truth of this statement, and I wish to add a qualified statement, as the result of actual experience, confirmatory of this important discovery, for the benefit of all fruit growers.

I have pursued the practice for several years of taking out from the limbs and trunks of various fruit trees a ring of bark of about the sixteenth of an inch wide, during the month of June, when sap is in its greatest activity, and can soon repair the damage (if it can be so considered). An explanation of the object sought to be gained by such a practice is unnecessary in this connection. Let it be sufficient to say that I have watched the results developed by this practice with great curiosity, and that I have observed among some of the more important phenomena, that blight ceased its downward action at the ring, not only on the newly operated limb, but also at the place over which new bark had been formed, by the removal of bark, in a previous year's operation. Just here, however, arises a doubt, which in justice I am bound to state. Will it not be found inoperative when the chemical change, productive of blight, takes place below the ring, which it is as certain to do as above, when those favourable surrounding external conditions, heat, moisture, &c., are present, which so wondrously affect the irrepressible cambium tissue; for it is just here where the "protens" works its spells? And since this tissue is also the seat of growth by cell formation, and is situated between the indurated or collapsed cells of the outer bark and the more consolidated woody fibre, it becomes inoperative by taking away this ring and exposing a moist surface to the drying action of the atmosphere; and thus the motion of the sap, with its poisonous properties, finds a check at the ring. This remedy, however, is only local. When the cambium becomes generally implicated, death is inevitable.

Now, it is certain from these experiments that we have discovered the place where, and the particular tissue through which, the disease generates itself, and the means by which its extension may be checked in one direction, and provided it be only local on the limbs. But when the cambium surrounding the main trunk becomes implicated either by a spread of the constituents of blight or by an inflow from the limbs, or in its own

chemical change, brought about in the same manner as in the limbs—namely, by unusual conditions of light or heat and moisture changing the normal status of starch into sugar and fitment, and the albuminoids into binary compounds, colouring the diseased parts black, and setting free carbonic acid—then the disease seems beyond our control. This organic death, however, seizes upon that part of the tree which presents a smooth green absorbent bark, which is the more readily permeable to light and moisture, and extremely seldom where the tough, rough, hard, thick, dead bark overlies. It is important to have observed these conditions, and at the same time have them under our control, both on the main limbs and trunk. This can be done at a very early period in the life of a tree by simply making longitudinal cuts through the bark at several places along the trunk and limbs in June (not so deep, however, as to cause a woody callus). In this way I have succeeded in staying off blight for the last ten years; and I may remark that this practice has other desirable results to recommend it, because it will prevent cherry trees from splitting open when grown in good soil, plum trees from gumming, and aids in thickening the bark, and thus protects the more sensitive tissues within from sudden climatic change, as an extra coat does us, and it is further an effectual remedy for the black sunken patches or canker which frequently appears; it produces renewed vigour to the tree, and on the whole is a kind of godsend to bad cultivation; but it must be done skilfully and by a thinker.

W. H. MILLS.

The Blight in Pear Trees.

I had a very fine pear tree (Flemish Beauty) that became affected, first by blight in one limb, which I removed, and then another and another was affected in the same way, until I had removed a considerable portion of the top of the tree. Early next spring I resolved to try the application of scrap iron to the roots. I procured my iron, removed the soil from the roots carefully, deposited the iron between them, and replaced the earth. There was no further progress in the blight, the tree continued to grow that season, and the next leaves and blossoms came out vigorously, no black spots appeared on the leaves, and the tree bore finely, and no appearance of the disease was in the tree afterward. In subsequent conversation with friends I found that some of them had been informed on the same subject, and had tried the same remedy with perfect success. Some told me that they had procured turning and drilling chips from the machine shops and had used them, as they thought, with much advantage to their trees.—*Horticulturist*.

We also had a fine pear tree (Beurre Die) that became affected with the blight, and we too cut off a considerable portion of the top in the endeavour to remove the blight; and we succeeded in cutting it out, but we procured no iron, nor iron-slings, nor made any application of anything beyond a little charcoal to the soil. In this case also there was no further progress in the blight, and for fifteen years the tree continued to grow and bear fruit without any re-appearance of the blight.

Do we yet know any certain cure or preventive of this annoying malady of the pear tree? Is it scrap iron or no scrap iron?

Roses in North Douro.

It is very gratifying and somewhat encouraging to receive such a letter as that one on the rose, from the pen of the Rev. V. Clementi. It shows there are in Canada some who love the rose, and though the climate here is very different from that of England, and the cultivation of the Queen of Flowers needs to be modified to suit the peculiarities of our position, yet patient and intelligent industry, born of love, will grow fine roses even in North Douro. Not so easily as in the more favourable climate of England, it is true, and many varieties that will flourish there in the open grounds, must here be carefully housed during our tedious winters.

In the first place, it is an essential requisite that the rose borders be quite thoroughly underdrained. If the sub-soil be porous, nature will have done the work herself; but if it be retentive, the cultivator must put in tile or other underdrains sufficient to take off readily and rapidly all superabundant moisture. When this has been well done, the rose will ripen its wood thoroughly, and be able to resist the frosts of autumn before the snow falls, and in spring after the snow has disappeared. But if this drainage be not attended to, there will surely be that soft succulent growth which falls an easy prey to frost.

Then there must be a selection of the more hardy varieties. Probably not all of the Hybrid Bourbon, or even of Hybrid Perpetual roses, would endure the climate, yet one may hope to have good success with Coupe de Hebe and Bonne Prevost, to which might no doubt be added a good many of the later introductions. We should make trial of Charles Lawson, Kean, Madame Plantier, Persian Yellow, and Vivid, among those that make no pretensions to autumnal blooming; and from the Remontants we should select Boule de Neige, Charles Lefebvre, Doctor Lindley, Duke of Edinburgh, John Keynes, Lord Macaulay, Madame Victor Verdier, Madame Rival, Baronne de Rothschild, Prince Camille de Rohan, Senateur Vaisse, and Xavier Olibo, as being likely to do well.

If after thorough drainage of the sub-soil and the selection of varieties having good constitutions, the plants should still suffer from spring or autumn frosts, we should gather a few evergreen boughs, which are no doubt plenty in North Douro, and thrusting the butt into the ground among the rose trees, form a screen so as to protect them from the sun and wind. It will not be that the frost will injure them of itself alone, but that the plants being acted upon by the sun's rays or by severe winds when in a frozen state, become injured from the combined effects of these causes.

There is no reason why *budded* roses should not thrive in North Douro fully as well as those upon their own roots if properly

treated. Our correspondent is too old a rosarian evidently not to be fully aware that no sprouts or suckers should be allowed to grow up from the stock, and we allude to the matter here for the guidance of those who may not be acquainted with the difference between budded roses and those upon their own roots; yet it is important in our climate that the bud should be inserted as near to the ground as possible; and if the tree be afterwards transplanted, the place of union should be set two or three inches below the surface of the soil.

The Teas and other tender roses might be grown in the garden through the summer, and on the advent of freezing weather, carefully lifted, laid in by the heel in a box of soil, and stored in a cool cellar, one in which the thermometer would keep quite low, yet not falling much below freezing point.

We are in the habit of importing our Manetti stocks from France every year, and find them preferable to all others we have tried. Should our correspondents desire to obtain them, we could put them in the way of procuring them.

We hope Mr. Clementi will make trial of some of these roses, and give our readers the benefit of his experience, and for his encouragement extract a few lines from that most entertaining book about roses, written by the Rev. S. Reynolds Hole: "How often will the poor curate, with something more than a good gardener's wages, and something less than a good gardener's house, show what earnest love can do. Whenever I see at an exhibition a white tie behind a box of roses, I know that, almost as a rule, bright gems shine in that case. And oh! who but he can tell the refreshment, the rest, the peace, which he finds in his little garden, coming home from the sick and the sorrowful, and here reminded that for them and him there is an Eden, more beautiful than the first, a garden where summer shall never cease."

The Eumelan Grape in Danforth.

It may be remembered that in the spring of 1870 the Fruit Growers' Association of Ontario distributed to each of its then members a vine of the Eumelan grape, with the understanding that an annual report should be made to the Secretary for five years of the doings of the vine. Mr. Thomas Brownlie, of Danforth, writing to the Secretary on the 26th of December, 1871, makes the most flattering report that has yet been received. He says that the vine has made a very vigorous, healthy growth; the leaves were not injured by any insects, blight or mildew; the wood ripened up well and retained its foliage until late in the autumn. It set quite a number of bunches, but only four or five were allowed to remain. The fruit ripened about as early as the Hartford Prolific, and though the berries were rather smaller than was anticipated, yet he thinks it is the best black grape grown in the open air that he has ever tasted. The wood seems, he adds, to possess one valuable quality that he has never seen claimed for it, namely, that of extreme toughness, it being the toughest of twenty or more varieties growing on his place.

Most Profitable Apples in the County of Wellington.

To the Editor.

Sir,—Would you be good enough to give your advice to a novice about to plant out an orchard of 150 apple trees in this part of the country, where snow lies deep and long, and spring frosts are apt to be severe? The answer, no doubt, will be equally valuable to many a reader in the large elevated district of country embraced by North Wellington and South Grey, and adjacent townships removed from the genial influence of the lakes. What kinds would you recommend me to plant for profitable marketing or shipping, combined with hardiness? In what proportion would you distribute the 150 among the kinds recommended? I am aware that spring planting is generally advised; but I should like to know if fall planting, carefully done on land which has been summer fallowed, would result injuriously to the trees?

J. C. THOM, M.D.

Douglas, Co. Wellington.

REPLY.

Our correspondent has set us no easy task. If he really intends to go into the business of growing apples for market, he would do better to sell out his farm in Garrafraxa and remove to some more favourable part of the Province, where the Baldwin and R. I. Greening will flourish.

The four varieties of winter apples that have taken the front rank as the most profitable for market are the Baldwin, R. I. Greening, Golden Russet, and Rox. Russet. Of these, we presume that the Baldwin and Greening are too liable to injury from the severity of the winter to admit of being planted; but we are disposed to believe that the Golden Russet will be found sufficiently hardy to thrive well and bear good crops of fruit. Were we obliged to grow fruit for market in that locality, we should try the Ribston Pippin. This tree is more hardy than very many of our choice varieties; and if it can be planted on a soil abounding in lime, will yield fruit of fine size and appearance, and of the very highest quality. These apples will command the very highest price in the English market, considerably more than any other variety except the famous Newtown Pippin. They require to be gathered early in October, carefully packed and forwarded by steamer to England, but they pay well for the trouble.

In the markets of New York and Chicago, the Snow Apple, when in prime order, will command a good price and ready sale. If the fruit of this variety be not liable to the black spots which so often appear on the skin in what are generally considered to be the best apple districts, and which so seriously mar and disfigure the fruit, it would be very likely to prove a success. The tree would be perfectly hardy, and an abundant bearer. But before planting largely of it, some enquiry should be made of those who have fruited it for several years in that locality, to ascertain whether these black spots on the

skin appear there to any serious extent. Yet neither of these is a long keeper, and unless the Golden Russet will do well, there is not any variety known to be hardy, and at the same time to be productive and profitable which can be certainly recommended.

The Red Astracau would be hardy enough, but that is a summer apple; so would the Duchess of Oldenburgh or the Totofsky, but they ripen in September. The Pomme Grise also is hardy enough, and will keep all winter; but here it would not be considered a profitable market sort.

The truth is, we very much doubt whether apples can be grown in that part of the Province of Ontario with profit as compared with those counties lying south of the Great Western Railway. And if the grower in Wellington is at a serious disadvantage as compared with the fruit raiser in Elgin or Lincoln, we can only repeat the counsel already given, by advising him to change his locality.

Fall planting is *theoretically* the best. The winters are so severe in our climate, that, unless the roots are protected after planting, by throwing up a conical mound of earth over them, or covering the surface of the ground with a thick mulch, so that the frost cannot penetrate below the roots, the trees become partially dried by our cold winds, and sometimes this drying process is sufficient to destroy the life of the tree. The reason for this is, that the ground being frozen to a depth below the roots, they are unable to form a connection with the soil so as to draw up moisture from it to the tree, and thus supply the waste caused by evaporation. But if the frost be excluded from the roots, they are able to take up from the soil sufficient moisture to keep the tree supplied and prevent it from seasoning.]

This subject was quite thoroughly discussed at the winter meeting of the Fruit Growers' Association of Ontario in 1871, which discussion will appear in the report for that year, now in the hands of the printer, and there presents the views of the leading horticulturists of the Province on this subject.

Our Blackberry Crop.

The Dorchester, as usual, proves to be the earliest berry with us, being fully a week earlier than any other sort, and producing a fine crop of most delicious fruit. It is very similar to the best and largest specimens of the old-fashioned blackberry that we used to find in patches by making our way under the clumps of bushes. Next comes the early Wilson—a magnificent berry—but with us a very shy bearer, for some cause, which is a mystery to us, as it proves a splendid yielder in most other sections. We said next, but will modify this slightly, as we got a light picking of Kittatinny as early as the Wilson, but a few pickings of the Wilson's—when the

price is high—clean them, while the Kittatinny hangs on two weeks longer.

The Kittatinny is a magnificent berry, both for home use and market, being sweet as soon as it turns, and of excellent flavour, being hardy and a glossy black.

The new Rochelle or Lawton—what shall we say of it? We have picked from our plantation nearly two weeks, and yet, let a stranger go into it, and he would hardly say they had been touched. They are now literally a green, red, and black mass of fruit all over the plantation. We venture nothing in saying that they will yield *double* the amount of fruit of *any other sort* we have ever seen, and by not picking them *oftener* than every other day, and then using great care to have the *blackest* picked, we have no trouble in selling them quick at 12 to 15 cents per quart.

We have tried a number of new sorts, such as Wachusetta, Sable Queen, Snyder, Superior, Western Triumph, &c., and find them all very good sorts, but as their great merit and the claims of their originators are more especially as to their hardiness, and as all sorts went through our past winter unharmed, we can pass no judgment on them as to that point.

Some of these winters, when blackberries are tried and killed, we can then pass judgment as to hardiness of different sorts. We can only say of the Hance seedling, it sustains its character as to *deliciousness* and good bearing qualities, it being the most melting, delicious sort we have ever tasted.—*Small Fruit Recorder*.

The Dwarf Horse Chestnut.

The *Gardener's Monthly*, for December, calls attention to this small growing tree by presenting its readers with a coloured engraving of foliage and flower.

Although it cannot be called a novelty, being one of the oldest of cultivated trees, yet it is but little known and seldom seen in collections of trees. It is in bloom in midsummer, at which time the *Monthly* says "there is nothing either new or old that will compare with it in picturesque beauty. Mature plants reach a height of about ten feet, but six is the general average. It will succeed admirably on a single stem, when it makes a large umbrella-like head, which, when surmounted with its numerous panicles of bloom, is more attractive than when grown in any other way. It is a very useful plant in this, that while it grows best, as all things do, in rich soil in open places, it will also do pretty well in shade. Wild it grows in rather shady places in Kentucky, Georgia, and North Carolina; but it is probably hardy even in the coldest part of Canada.

"In nurseries, it is propagated chiefly by suckers. It may be grown from seed, but these sprout at once, sometimes before they drop from the trees, and when placed in the earth often rot. In their native places, the seed sprouts amongst the dead leaves, where it is just damp but never wet, and these conditions must be secured to raise the nuts in gardens."

New Double Fuchsias.

AVANCEE (C. Smith's).—This is the most noble Fuchsia in its class yet sent out. The tube and sepals are of a light carmine and pink, the latter short, though of good substance and well recurved; the corolla is pure white, exceedingly large, and very closely set with petals. The plant is of free growth, although the wood is thin and wiry, and it is a most profuse bloomer for a double variety.

CHAMPION OF THE WORLD.—This is by far the largest Fuchsia that we yet possess. The foot stalk is of unusual length and strength, so that the flowers stand out boldly. The tube is short, the sepals are very broad, and of great substance, well reflexed, and of a most beautiful coral red. The corolla is of immense size, and as it expands forms two-thirds of a perfect ball, its colour being of the most intense bright dark purple. The plant is of free growth, tall, and blooming abundantly, so that for conservatory decoration it is one of the most valuable Fuchsias yet sent out.—*Gardener's Chronicle*

Fruit in Lancaster.

We are much gratified to receive from our correspondent the further intelligence that, notwithstanding what we said on a former occasion is true of fruit growing in general, there are some determined lovers of fruit who have made successful efforts to procure and plant the best varieties of apples. One gentleman has planted nearly 1,000 trees of the best sorts within the past three years, and many smaller orchards have been planted more recently. A large number of trees were planted in Glengary in 1870, but many of these are not now living, whether from want of the requisite attention or because of the unsuitableness of many of the varieties to the climate, it might be difficult to say. There is a wide-spread desire to grow fruit, especially apples, but there is also great ignorance of what is necessary in order to succeed

Begonia Veitchii.

This new Begonia promises to be a truly valuable variety on account of its more than usually hardy character, and the large, showy, scarlet flowers it produces. Dr. Hooker says of it: "Of all the species of Begonia known, this is, I think, the finest. With the habit of *Saxifraga ciliata*, and producing immense flowers of a vivid vermilion cinnebar red, that no colourist can reproduce, it possesses the novel feature of being able to withstand a temperature of 25° Fahrenheit with absolute impunity." The *Gardener's Chronicle* says of it, that "it is difficult to imagine a more vivid colour than these flowers present, which are amongst the largest of the genus, being from two to two-and-a-half inches in diameter, and sweet scented."

Hothouse Grapes in New York Market.

The *Gardener's Monthly*, gives the following from one of its correspondents:

"Grape growing under glass as a source of profit is played out in New York. Up to three years ago I did very well, but since then so much rubbish has appeared in market that the price of good fruit has been ruinously low, and I have been obliged to abandon it."

The editor of the *Monthly* remarks that this cultivator, some years ago, made a heavy business of growing hothouse grapes for profit, and had a reputation all over the country for making very profitable returns.

The Culture of Mushrooms.

Many persons regard the culture of mushrooms as a great mystery. But it is not so. On the contrary, it is as simple as raising a crop of corn, or cultivating a grape-vine, or a bed of cabbages, and can be done in out-of-the-way places, taking up little room, and requiring little attention. Mushrooms, too, can be raised in winter, when no other crop can be, and a regular supply had for family use. Or, if conducted on a larger scale, with a view for disposal in our city markets, there is nothing to hinder, and a most profitable thing can be made of the business. All farmers keep horses and cattle, and have plenty of manure; and it may be mentioned that the quantity used in forming mushroom beds is not lost, for it can, when new beds are made, be returned to the manure-yard. It must be borne in mind, too, that there is no necessity to build a place to grow this vegetable. It can be grown almost anywhere in an enclosed place—even in the kitchen or sitting-room; but the best out-of-the-way places are a close horse-stable, which is regarded as the best of all; mild cellars, enclosed out-houses of almost every kind, where the soil in the beds can be kept from freezing.

Now, for the mode of growing. Take a box, say ten or twelve inches in depth, and as long and broad as the space will admit of or may be desired; pack it down with six inches of horse-droppings; on this put three inches of dry cow droppings, broken somewhat fine; moisten this (not wetting or deluging it) with a strong brine of nitre or saltpetre water. In this cow manure plant the spawn, which can be obtained at the best horticultural stores, in the form of a brick; break in good-sized pieces, say as large as a walnut, and set in triangular shape thus * * *, and cover with from an eighth to a quarter of an inch (not more than the latter) of fine dry soil. Cover the whole with old carpet or any heavy cloth, so that the light is completely excluded. Of course it needs no sun, but just the contrary, as perfect darkness is required.

Now, who can't raise mushrooms?—*Ex.*

A local paper says that a person who resides near Chatham, this year realised the handsome sum of \$700 from the sale of the hay and clover seed raised from fourteen acres of land.

The Orchard Worth Care.

That's a fine job Gilbert is doing—banking up the young orchard trees—as a protection against mice. His little conical pyramide around each tree, a foot in height, will prevent great depth of snow close to the trees, and hence mice will not work under and girdle trees close to the surface of the ground, and besides it covers up all grass and weeds close to the trees that mice are apt to find lodgment in.

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 an orchard now of 600 apple trees, covering a lot of 15 acres, that we would not have taken from our grounds for \$2,000.

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 3 to 4 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*

VICTORIA REGIA LEAVES.—Some recent experiments show that the leaves of this gigantic water lily are capable of sustaining a great weight if it be only evenly distributed over the surface. A leaf five feet and six inches in diameter was made to support a weight of gravel amounting to four hundred and thirty-six pounds.

LATE ROSE POTATO.—We observe that the Messrs. Shorburn have been giving very glowing opinions of this new child of the now well known Early Rose. They say it is of better quality than its parent, is white fleshed and fine grained, cooking very dry and mealy; that its yield is enormous, from 250 to 300 bushels per acre (all new varieties are said to be enormously productive), and that its keeping qualities are unsurpassed.

"A man fortunate enough to own one, or two, or five hundred acres of land," says the Lexington (Ky.) *Farmers' Home Journal*, "should not be so contracted in his views as to suppose that the chief end of his existence is to make money. With a family around him, secured against want or embarrassment, he should give a portion of his attention to beautifying his grounds, to rendering his home more cheerful, and the cultivation of an aesthetic taste which will bring to himself, his wife and children, a rich contentment that will endear the spot called home to the hearts of each one, and bind them together in a fonder and more endearing union."

Apiary.

Wintering Weak Swarms of Bees.

Mrs. E. S. Tupper, in a letter to the *Bee Keepers' Journal*, says that she has been corresponding with J. W. Hosmer, with a view to understanding fully his plan of wintering small instead of large colonies, and she endorses his theory. "Mr. H. finds that when colonies are wintered in a warm place, it is not necessary to have a large number of bees in it: a quart he says is amply sufficient for the safety of any queen. If such colonies have food, both honey and pollen (and we suppose, though he does not say it, water or moisture) they rear brood abundantly in the latter part of the season, and come out of winter quarters populous and in much better order than if they had been stronger in numbers in the fall. The theory is that the old bees that have consumed the honey all the winter die soon after they first fly in the spring, and have had their winter's board for nothing, while younger bees have a 'lease of life' before them, and form a more vigorous force for cherishing brood, which is about all that has to be done the first few weeks of spring."

Mrs. Tupper requests others to experiment in this matter, believing that the gain is great, if the plan is safe. Much less honey will be consumed, and twice as many working colonies be secured in the spring in good order.

Mr. Hosmer rears surplus queens in small boxes, and then about the season of the year that we are accustomed to unite our weak colonies to make all strong for winter, he divides his strong ones so that with each queen he has only a moderate supply of bees and honey in proportion.

Mrs. Tupper says this is contrary to our old ideas of safety for them, but the time is gone by when we can afford to reject a theory because it is new, or hold to any way of practice simply because it is the old way. "Prove all things!" "In this case we have the testimony of one who has been more successful than any other this year in obtaining surplus honey. He goes so far as to say he would reduce the numbers of all colonies, even if obliged to kill the bees, rather than winter large stocks."

Let those who try this remember that colonies after being reduced must be put out of the way of frost in some place, either buried, put in cellars that will not freeze, or in warm houses. Also that they must have all the honey they need or can use, for they will not rear brood without it.

"It would seem to us that diluted honey should be within reach of the cluster always. How bees can rear much brood or how young bees thrive without being able to fly to discharge fecal matter we do not understand,

but we are only scholars in this thing, and confess freely that had this theory come from any other quarter than one where success had been so perfect, it would not have attracted our attention. As it is, we mean to know all about it, and hope many others will experiment in a small way, and report success or failure."

She adds the testimony of another who told her that he had buried bees many times, and that his colonies always come out in much the best order and do much the best next season; and a friend who united his bees out of doors in double walled hives packed with chaff, reports that he has wintered two quarts in this way, and had them doubly strong in spring. These facts confirm Mr. Hosmer's theory.—*Ohio Farmer*.

NOTE.—It is quite possible that small colonies under certain conditions would winter even better than large ones, as above stated; but that small colonies will do so simply because they are small, I very much doubt; yet it would be well for those who can to experiment in that direction.

I am of the opinion, however, that small colonies of old bees will perish even in a warm place with an abundance of honey, unless they have been provided with a young and fertile queen; and even then I should have some doubts of their wintering. On the other hand, small colonies of young bees, with fertile queens, would, I have no doubt, winter as above stated.

It is natural for bees to cease breeding, if not entirely, to a great extent, about the first of October, except in cases of young and prolific queens; and having once ceased to breed, they are not likely to commence again until towards spring or about the first of February. Now, if a colony is small, say at the beginning of November, and the bees, or a large proportion of them, are old, and the queen has ceased to lay, the probability is that so many of the old bees will die before January or February that not enough will be left to induce breeding, and the colony will finally dwindle away and die. I am conscious, however, that we are yet somewhat in the dark as to all the conditions necessary for a colony to winter well.

J. H. THOMAS.

FEEDING BEES.—Two years ago we suggested the addition of glycerine to sugar syrup as a bee food, to prevent candying. We found it satisfactory on trial, and several correspondents used it with advantage. Adding half an ounce or one ounce of glycerine to a pint of the syrup while yet warm, makes a suitable mixture, though a larger proportion of the former may be employed where it can be procured cheap enough to make it an object. Pure inodorous glycerine is itself an excellent occasional bee food, but it is commonly too high in price for economical use; nor should we advise it to be used exclusively if that were not an objection. We have never tried cream of tartar to prevent candying, and incline to doubt its availability for that purpose.—*Am. Bee Journal*.

Wintering Bees in a Wood-shed or Outhouse.

Parties often write to us saying "We have put our bees in the wood-shed, barn, granary," or some other like place, and enquire if we think they will do well.

We would say, for the benefit of all, that bees will winter better out of doors on their summer stands than in such places. When the cold weather begins, the bees cluster together in as compact a form as possible, and when doing so they always carry into the cluster a certain amount of honey, enough to last them several days; and as often as the weather becomes warm enough they replenish this store; for it is quite impossible for them to obtain honey outside of the cluster when the cold is very severe. The vapour arising from the bees is congealed and frozen among the combs; hence the bees cannot get at the honey outside the cluster so long as the combs remain frosted.

When the combs remain frosted until all the honey in the cluster is consumed, the bees will soon die of starvation and cold, with honey all around them. It will be seen, then, that stocks in any outbuilding not sufficiently warm to keep out the frost, will in cold weather become frosted just the same as if standing on their summer stands; and when once frosted, are more likely to remain so than stocks that are exposed to the sun, hence the bees are more likely to die of cold and starvation.

Mexican Bees.

We take the following interesting extract from the *Bee Keepers' Journal*.

The bees of Mexico, like its climate, physical features, and all its forms of life, are closely allied to those of South America. On account of its more favourable location, however, we know more of the natural history of the former country than of the latter, and hence are enabled to present a more satisfactory account of its bees.

Immense quantities of wax are annually consumed in the ceremonies of the innumerable Catholic churches of that country, and on this account alone great attention is paid to the domestication and culture of bees. The honey is remarkably rich, and of a beautiful colour, and more recently, large quantities of it have been shipped to the New York market, where it meets with ready sale, at figures which enable it to compete successfully with that of home production.

There are many large apiaries in Yucatan, rivaling in numbers and profit the most celebrated of our own country. These all consist of the natural species, which have been subjected to domestication. Hernandez, in his account of New Spain, describes several kinds—one resembling our own, which is domesticated, and hived in the hollows of trees, by the natives. Another species is described as stingless, and so much smaller than ours as to be called the "winged ants."

Their nests resemble those of wasps, and are built in the rocks or suspended on the branches of trees. The honey is dark, but of good flavour. The cells are smaller than those of our species, and like the South American, contain brood only, the honey being contained in large vessels or cups. Hernandez states the natives regard the larvæ as a great delicacy, and when roasted and seasoned with salt, this dainty dish had the flavour of almonds. There are other species, small and stingless, that build underground, but their honey is of an inferior quality. The honey is thin in consistence, but of a very agreeable flavour, and gives out a rich aromatic perfume. The wax is coarse, and of a brownish yellow; propolis does not appear to be used.

It may be added that the honey of this species does not ferment readily, but remains sweet long after its importation to this country.

Foul Brood.

To the Editor.

SIR,—Seeing in a recent number of the CANADA FARMER a short article concerning foul brood in bees, and having a swarm which, I fear, is affected with the disease, I apply to you for information regarding the symptoms, causes, and cure (if any).

I keep my swarm in an outhouse, in a common box hive. About the middle of December I noticed that they began to die in great numbers, and whenever the weather was a little mild they would leave the hive, so I had to put a wire screen over the apertures to keep them in, the hive giving forth a very disagreeable smell. By examining it I found that the brood was all dead and in a state of decomposition. I then cut out all the combs containing brood I could find; but still they keep dying off daily, although they have plenty of honey.

Is there any hope of saving them, or would the honey be fit to use?

By answering the above questions in the CANADA FARMER, you will greatly oblige

A SUBSCRIBER

Arkona, Jan. 25, 1872.

NOTE.—There is little or no doubt but your stock is affected with foul brood. Patches of dead brood in a state of putrefaction, with a foul stench coming from the hive, are the signs of foul brood in its worst form. I have little or no faith in any of the remedies that have been tried, except that of driving out the bees into an empty box, and keeping them closely shut in for 36 hours, melting up all the combs in affected stocks and boiling all the honey. The hives also must be thoroughly boiled. The bees may then be returned and started anew. This course may prove a remedy; it can be done, however, only in the honey season, when the bees can fill up and replenish their hives. It will do no harm to let your stock remain until spring, and if they live until the honey harvest commences, drive them out and put them into a new clean live, after keeping them shut in an empty box for 36 hours. Strain all the honey that may be left in the hive, and bring it to a boil, then remove from the fire and skim it. When cool, you

can feed it to the bees. The honey is quite pure, and fit for domestic use after being boiled. Great care should be taken that not a morsel of comb or drop of honey is left where the bees can get to it. The hives also must be well boiled. I would advise, however, as a more certain remedy, where one has but one stock, and that is affected, an utter destruction of both bees and hive by fire; strain the honey, melt the combs, and commence anew.

J. H. T.

Bee-keeping in Peel County.

Mr. Hugh Lipsett, of Campbell's Cross, County of Peel, writes: "Last season was not a good season for bees here; it was too dry. I did not get much surplus honey in boxes, but quite a quantity of clear honey extracted with the honey extractor, and plenty of swarms. I sold several stocks, as I had seventy. I did not have time to attend to them. I am wintering fifty-six stocks, but intend selling some of them in the spring. I intend to keep only Italians in the future."

It is only a few years since Mr. Lipsett commenced bee-keeping. He has been very successful, though Chinguacousy, the township in which he resides, is by no means an extra township for bee culture. He commenced with frame hives (Thomas hives), and has been a constant reader of everything written on the subject of bee culture that came within reach, and also a regular contributor to the *Am Bee Journal*.

Mr. Lipsett is a well-to-do farmer, and most of his time has been given to the management of his farm; still he has found a few spare hours to devote to his bees, and has been well repaid. We wish there were many more that would devote a small portion of their time to this pursuit, making notes of their good or ill success, and report the same. Our bee-keeping brethren in the United States support four Bee journals; surely we in Ontario ought to be able to make the apiary department of this journal interesting and instructive.

J. H. THOMAS.

Brooklin, Ont.

A Challenge.

At the recent Convention of the North American Bee-keepers' Association, held in Cleveland, Ohio, the following challenge was made by Mr. Hosmer, of Janesville, Minnesota:—He has 115 stocks of bees, and offers to sell 108 at \$15 per stock on this condition: That if he does not succeed in obtaining 10,000 pounds of honey during the season of 1872 from the ten stocks retained by him, he will forfeit the price of the 108 stocks which he proposes to sell. Mr. Hosmer also stated that one stock brought in fifty-three pounds of honey in one day, gathered from the linden or basswood.

Profits of Bee-keeping.

At the recent Convention of the North American Bee-keepers' Association in Cleveland, Ohio, among other matters of interest, the honey crop of the past season, and the profits of the business, came under discussion.

Mr. Quimby said the yield of honey at his five apiaries, near St. Johnsville, N. Y., for the past season, was large. He had 350 swarms, and his surplus honey was about 12,000 pounds. His best yield from one swarm was 361 pounds, taken out with the extractor. They were black bees, and supplied with extra combs. The honey was gathered from white clover. His largest yield of box-honey from a single swarm he stated at over 200 pounds.

J. W. Hosmer, of Janesville, Minn., brought upon himself a host of questions from the members, because of statements he made which were generally pronounced startling. He said he took six tons of basswood-honey from 75 old swarms (and their increase) during the blossom of basswood, which ended about the 20th of July. These six tons were gathered from the blossoms, extracted from the hives, and all barreled up for market within 12 days' time. The facts of special interest which he stated are briefly these: He divides stocks only after the honey season is over. He builds up his stocks in the spring to the utmost, using two-story hives, until the basswood season is over, then he multiplies stocks. He reduces them down to a quart of bees to each swarm, and if there are more than a quart of bees when the time comes for wintering, he shakes off upon the snow to die all over one quart. He, of course, does not measure them, but rather than have over one quart he would have considerably less. He packs his stocks into the cellar under his house for the winter, and removes them to their summer stands the last of March. Protection is given to the weaker ones. He astonished all by saying that he had wintered a swarm of bees measuring less than half a pint. In Southern Minnesota he has had young swarms as early as the 12th of May. Combs are quite well filled with brood when the hives are set out in the spring. Ventilation of each hive is allowed only at the top. The cellar is dark, and ventilated simply as the members of the family go down into it for vegetables, &c. Mr. Hosmer created a sensation by offering the remarkable challenge which we record on the previous page.

Mr. Quimby read a paper showing the great profits of bee-keeping. Not quite a quarter million pounds of Northern honey are sold in New York city each year, but the improved methods will make it possible to raise 40,000,000 a year in New York State.

The goodness and flavour of the honey depend on the fragrance of the plants from which the bees collect it, and hence it is that the honey of different places is held in different degrees of estimation. That which is made early in the year is also preferred to what is collected in the latter part of the season. The colour also depends on the colour of the juices which the bees collect

Vigilance and neatness are for ever in requisition, and the care of bees, like all other profitable business, cannot be pursued to any advantage unless it receives daily and minute attention.

It is found that the larger the cakes of wax are, the better it keeps, and the higher price it brings. Also, that the more gently it has been boiled, the better it likewise is; for too hasty boiling renders it hard, and this increases the difficulty of bleaching it.

SUCCESSFUL BEE-KEEPING.—Mr. Abraham Ramey, of Brantford, Ont., writes that last season his apiary, consisting of 19 colonies, yielded him 500 lbs. of honey and 24 swarms. The swarms are all doing well. He is also much pleased with the honey extractor, which he used last season for the first time, extracting 70 lbs. of honey from some of the best stocks. We are pleased to learn that Mr. Ramey has been so successful, and have no doubt that he will yet become an enthusiastic bee-keeper. If others would write giving their experience, it would make the Apiary Department far more interesting and instructive.

Poetry.

The Burial of Love.

Two dark-eyed maids at close of day
Sat where a river rolled away,
With calm, sad brows and raven hair,
And one was pale, and both were fair

Bring flowers, they sang, bring flowers unblown,
Bring forest blooms of name unknown;
Bring budding sprays from wood and wild,
To strew the tier of Love, the child.

Come softly fondly, while ye weep,
His eyes that death may seem like sleep:
And fold his hands to sign of rest,
His waxen hands, across his breast.

And make his grave where violets hide,
Where star-flowers strew the rivulet's side,
And blue-birds to the misty spring
Of cloud-as skies and summer sing.

But we shall mourn him long, and miss
His ready smile, his ready kiss,
The patter of his little feet,
Sweet frowns and stammered phrases sweet.

And graver looks, serene and high,
A light of heaven in that young eye
All these shall haunt us till the heart
Shall ache and ache—and tears will start.

The bow, the hand, shall fall to dust,
The shining arrow waste with rust,
And all of Love that earth can claim
Be but a memory and a name.

Nor thus his nobler part shall dwell,
A prisoner in this narrow cell:
But he whom now we hide from men
In the dark ground, shall live again—

Shall break these cloes, a form of light,
With nobler men and purer sight;
And in the eternal glory stand,
Highest and nearest God's right hand.

—WILLIAM CULLEY BRANT.

Household.

Make Home Attractive.

There is, among the sons and daughters of farmers, a wide-spread eagerness to leave the old homestead in order to seek a better fortune in the over-crowded city. We do not say to young farmers, "Stay away from the city," "buy land," and such like advice, which is volunteered to them on all occasions, in season and out of season. If the son of a farmer has an aversion to agricultural labour, if he is continually trying to get away from it, he had better, by all means, be allowed to follow the bent of his inclination. But in many cases, this aversion to the labour of the farm arises from the shiftless, thriftless, unhappy surroundings of the homestead, rather than from any constitutional dislike to farming. It is more than probable that no efforts have been made to render home attractive as well as useful.

With the advantages of plenty of room, the farmer's home may be made a paradise to the eye, by the means of trees, shrubbery, walks, mounds, glens, and tastefully constructed and arranged farm buildings. Many a farm has the facilities of an artificial lake, a trout pond, or a cascade, that could be constructed at a very little expense of labour and money. All this would be pleasing to the eye, and would, in some measure, satisfy the longings for the beautiful, which exist in the minds of farmers' sons and daughters as in the minds of those who are city born and bred.

Another way of furnishing means of contentment to farmers' sons is to provide them with tools and facilities to do different kinds of work. Almost every boy has a natural inclination for using tools. If he has them at hand, he will speedily learn to do many a job of repairing, that would cost the farmer twice the price of the tools. In this way the rudiments of a good trade may be picked up at odd times, when, without the tools, the boy would be tempted to run away, or at least, squander his time in idleness.

Give all the children plenty of useful and entertaining reading, in the way of books and papers, and thus will their faculties be developed to the perfection of the whole being. The grand secret of keeping children at home and promoting home industry, is to make home attractive.—*National*.

Roots in the House Cellar.

We concur in the following from the *New England Farmer*:

Persons exposed to atmosphere tainted by decaying vegetables are generally supposed to be in more danger than if exposed to the odours of decaying animal matter.

A large collection of weeds, pulled from the fields and exposed during a damp and hot season, gives off a sickening odour that is intolerable.

Sink spouts that empty themselves into a rank growth of weeds at the back door,

where some portions of the weeds are constantly decaying, are supposed to give rise to some of the most virulent forms of fever. In some cases nearly every member of a family has been prostrate with typhus fever in its worst form, where the cause has been supposed to arise from such pollution about the house.

So, decaying vegetables in the cellar—turnips, cabbages, &c., may prove like "death in the pot." Their odour sometimes pervades the whole house, and is as disagreeable as it is pervading.

Our caution to all is, if vegetables must be in the cellar, to keep them in as low a temperature as possible and prevent freezing. Then give the cellar all the ventilation that can be had, and as frequently as the air can be safely admitted. At the earliest moment in the spring remove all vegetable matter, and cleanse the cellar as scrupulously as the good wife does her pantry.

Wherever there is a barn cellar, the cost would not be large to prepare room in one corner of it purposely for roots. This would probably be the cheapest course in the end.

Domestic Receipts.

POTATO CAKES—To a scant half peck of potatoes grated, add two eggs, salt, thicken with a little flour, and fry in a spider, or bake. Boiled grated potatoes may be used, but are not quite so nice.

TO KEEP EGGS DURING WINTER—For every three gallons of water put in one pint of fresh slacked lime; common coarse salt, one gill; mix well, and let the barrel be about half full of this liquid; then with a dish, let down your fresh eggs into it, tipping the dish after it fills so as not to crack the eggs. If you put fresh eggs in, you will take fresh eggs out. Or, take fresh-laid eggs, grease them completely with butter, and pack them in a box or barrel with salt. A layer of salt should be first put in the box, the eggs carefully imbedded in it, with large end down, so as not to touch one another; then a layer of salt and a layer of eggs alternately, till the barrel is full.

A GOOD WAY TO COOK MEAT—Is to seal it in a vessel hermetically tight. Cooked thus a long time in its own juices, it is rendered very tender, and has a peculiar appetizing flavour. Take an earthen jar that will stand heat, with a tight fitting cover. If beef is to be the dish for dinner, cut in convenient pieces, lay them in the jar, rub each piece with salt and pepper and a little sugar, put in a little water; lay on a piece of thick buttered paper, and press down the cover. If you think it will allow any steam to escape, mix short or rye meal with water to a paste; press strips of this all round the edge of the cover. Bake in a moderate oven four or five hours, according to tenderness of meat. Chickens or turkeys are excellent cooked in this way. The toughest old hen can be rendered toothsome by this process.

TO MAKE GOOD COFFEE.—The following is the recipe of Professor Blot, of culinary re-

nown:—"Grind the coffee rather fine than otherwise. I think it is usually ground too coarse. I use a coffee pot with a filter. You can get them at any tin store. Mixed coffee is best. I prefer a mixture of Java, Mocha, and Maracaiho. Soft or spring water is best. Proportions, one quart of water to three ounces of coffee. Of course it can be made stronger or weaker. Four teaspoonfuls make a quart of very good coffee for breakfast. In selecting a filter, choose one with a bottom of silvered gauze, instead of perforated tin, as the perforated bottom lets the finely-ground coffee through. When the water is boiling hot, put the coffee in the filter, and pour the water over it, and the coffee is made. If the water does not pass through fast enough, set the kettle on the fire again until the water in it boils, when pour it on again. If all the strength is not extracted at the first making, repeat the operation. The coffee may be dark, even black, when strong, but it must be clear. Each kind of coffee must be roasted separately, and it is better to roast it a day or two before using."

If potatoes are stored in the cellar, for winter use, it is very necessary to exclude the light, as this causes them to become strong, and often really poisonous.

The wheat crop moves rapidly westward. One generation suffices to exhaust the wheat-growing capacity of a new district; thereafter, it buys its bread of some newer, less abused region.

EFFECT OF KEEPING FLOUR IN BARRELS—As is well known, flour kept in barrels for a long time often acquires a peculiar odour, supposed to be derived from the barrel. Professor Poleck, of Silesia, has lately made a careful examination of such flour, and has ascertained that this smell actually indicates an incipient decomposition prejudicial to bread-making, the gluten of the flour having in part become changed into a soluble body. Thus, while sound flour preserved in sacks contained 11.06 per cent. of gluten and 1.44 per cent. of soluble albuminous matter, four other specimens of flour taken from different barrels were severally composed of 8.37 per cent. gluten to 2.14 per cent. soluble albumen; 7.40 per cent. to 6.90 per cent.; 7.23 per cent. to 4.44 per cent.; and 6.54 per cent. to 6.45 per cent. Two samples with more than 6 per cent. of soluble matter had an acid reaction, while the others were neutral. Professor Poleck believes this chemical change of the flour to be induced by the fact that the barrel prevents communication with the atmospheric air and the equalization of temperature. This view is confirmed by the oft-repeated observation that flour in sacks keeps fresh for a much longer time, and that the mustiness in barrels always develops first, and exists in the highest degree in the centre, viz.: that portion most remote from the outer air.

Poultry Yard.

Cheap and Warm Poultry Houses.

In answer to inquiries as to the construction of my hen houses, also my mode of feeding, I dug holes in a bank running through my place 8 by 7 feet, and 4 and 6 inches deep. I then set up scantling endwise for posts, and nailed boards to them from the bottom to the roof, which is 3 feet in front and 1 foot back, above the surface; then laid across scantling, and nailed boards across them for the roof, and banked up the sides and battened back to the roof. The front faces the south, with one window and door. The perches are at the back, 3 feet from the ground—the droppings falling in a box below with muck and lime, raked over often; under the window are the nesting boxes. The bottom is gravel and has a drain, so that it is perfectly free from moisture. I am not troubled with vermin, and my fowls are free from disease. In warm weather they run at large; in cold weather my houses are as warm as any cellar, and are well lighted, and this is what is wanted to get eggs in the winter.

I will give the cost of building: 2 days' work, \$2; 250 feet of lumber, \$1 50; 3 lbs. of nails at 6 cents, and 6 lights of glass at 5 cents; total, 48 cents; whole amount, \$3 95. The lumber was old, and I purchased it very cheap of a man who took down an old barn; but if I had purchased new, I should have had to pay \$12 per thousand, and consequently could not have built so cheap.

In regard to feeding, I keep grain by the fowls and let them help themselves, I feed mostly corn, buckwheat, barley and oats mixed, and in cold weather occasionally scalded meal, with Cayenne pepper pulverized, at the rate of one teaspoon to one dozen fowls, and occasionally some fresh meat, which I think promotes their laying. I generally make from \$1 to \$1 50 per head through the year, clear.—*Cor. Country Gentleman.*

CRYSTAL PALACE POULTRY SHOW.—The *Journal of Horticulture* says of the sales at this show that they were the largest ever made at Sydenham. The first premium Dark Brahma pullet, owned by Mrs. Arkwright, brought 30 guineas; Mr. Burgess' Brown-red cockerel, £20; Mr. Clark's Coloured Dorking pullets, £10; Mr. F. S. Turner's Dark Brahma cockerel, £10 10s.; Miss Hale's Light Brahma pullet, £12; Mr. Beldou's Golden Pencilled Hamburgs, £10 10s. The total sales of poultry amounted to £590 11s., and of pigeons £104 2s. The sales of pigeons were not numerous, the prices put upon the pens being so very high as to be perfectly prohibitory. One pair of Blue Dragons, owned by Mr. Tegetmeier, sold for 10 guineas, and some other pens, sold for £3, £4, and £5.

Agricultural Intelligence.

Hamilton Township Farmers' Club.

A meeting of the Township of Hamilton Farmers' Club was held at Cobourg on Saturday, the 20th of January, Peter Sidey, Esq., Coldsprings, President, in the chair.

The subject for discussion, viz: "The best method of preparing the land and planting an orchard," was introduced by Mr. Edward Dellerby. He said that in the first place, in regard to planting an orchard, he would consider it of the greatest importance to have the soil (would consider a deep rich loam the best soil) under a thorough state of cultivation previous to planting, either by a hoe crop or by a summer fallow. Secondly, in regard to depth of planting, much would depend upon the nature of the soil. If the land was damp, would plant nearer the surface than he would do on dry ground; would not approve of digging holes 18 or 20 inches deep, as some did; but would rather mark out the ground to be planted with the plough, depressing it a few inches deeper where the trees were to be planted. Thirdly, in regards to distance apart, would not approve of planting so close as some now advocated—that is, from 15 to 20 feet apart, but would consider 20 feet by 25 feet close enough, making the widest distance apart facing the sun.

Mr. F. Aitchison said that he was very much interested in the present discussion. He had very much at stake, as he intended to plant out an orchard in the spring. He did not approve of planting too far apart; had planted an orchard a number of years ago; he planted 30 feet apart each way; the trees did not do well; he had since then put another row of trees between each row of these trees one way. Now he was going to plant after a hoe crop; had ploughed his ground pretty deep into ridges 12 feet wide, leaving it in a rough state all winter; would plant a row of trees in each furrow, then plough the land back again, leaving an open furrow in the middle between each row of trees.

Mr. J. Pratt said he would have the land well prepared before planting, made clean, and well fenced; the trees should be planted 30 feet apart each way; would dig a hole large enough to hold all the roots of the young trees, and fill it up with some black mould, setting the trees carefully out, trimming off all damaged roots, spreading out the roots left nicely, and filling up with fine earth, well shaken in among the small roots; setting the plant about two inches deeper than it had stood in the nursery.

Mr. R. H. Ramsey said, with regard to planting, his experience had chiefly been with dwarfs, and not with standard trees. His business was more to supply trees for planting than to plant them. About six years ago he set out an orchard of dwarf

pears, about the ordinary depth. They did not do very well. He had been told by experienced fruit growers that he had not planted them deep enough; that the quince root, on which they were grafted, and which alone was in the ground, was not strong enough, nor threw out roots enough to grow pears well; he had been advised to bank the trees up with earth.

Mr. F. McEveis said he had generally ploughed his land twice in the fall, and then planted in the spring; would not cut off any roots from the young trees when planting, but would make the holes large enough to hold all the roots the plant had; thought the spring was the best time to plant; some said that when planted in the spring trees would only bear every other year; he did not think the time of planting made any difference for that; had not been very successful with the last trees he planted out; most of them died; he blamed the very dry season, and the dry ground on which he planted.

Mr. John McKinley said that some six years ago he bought about a dozen pear trees, and planted them carefully out, but they all died; he planted them much the same as he did apple trees, about fifteen inches deep; his was a rich sandy soil; he thought that pears did not do well on it, but that they did better on a clay soil.

Mr. J. Kendal said that he had planted a few years ago about fifty apple trees. He dug a hole about a foot deep, wide enough to hold all the roots easily; then he filled up with top soil, set his trees carefully; when filling up he tramped the earth well down among the roots with his feet, putting a pailful of water on the roots of each plant; they all grew well; he had not lost a single tree.

Mr. G. E. Nixon thought a proper soil and situation should be selected for an orchard. He preferred a rather light soil for apple trees; he had found no difficulty with trees growing on such land; he would keep the soil well stirred among the young trees the first season after planting out; he would also mulch them; he would not attempt to raise crops in an orchard; thought that ploughing an orchard hurt the trees; in planting, would cut off all the bruised roots, and would cut back the top in proportion.

Mr. G. Robertson thought that much of our land would be the better of draining before planting an orchard.

Mr. H. Lapp said that where he had planted the soil was very different from that in the neighbourhood of Cobourg. It was in Mariposa, where the soil was a very heavy clay. He thought the first thing to be done was to put a good fence round where they were going to plant an orchard, so as to keep everything out. The first orchard he planted, he worked the land well with the plough, and set out his trees, but they did not do well; he then made a drain about three feet deep, filling in with stones, below each row of trees, and also a drain round the top of his orchard, setting the young trees well, not too deep; then, after filling in the earth about the roots, he took flat stones and laid them around each tree, keeping the stones about two inches from the trunk, thus keeping the

roots firm, solid and moist, letting the stones lie two or three years, until the young trees had taken a good firm hold of the ground. In setting an orchard on a clay soil it must be drained. He did not approve of manuring trees on such soils after they were planted out; he did not wish to push them too fast at first; if highly manured at first, they made long shoots, and the wood did not ripen well in the fall; the sap was apt to freeze and kill, or greatly injure the young tree; he would leave very little top on a young tree when planted out; if more top was left than the roots could support, it must die. On the place where he now lived he was working in the orchard with oxen, and somehow drove them over one of the young trees, breaking nearly all the top off it; that same tree now yielded in some years thirty bushels of apples; it paid well; it was planted near the hog pen.

Mr. Alexander McDonald said that any one that intended to plant an orchard should first select the best place he had on his farm for one, with a south-east exposure if possible; if the ground was not naturally dry, it must be made so by draining; don't plant in a mud-hole; clean the ground, and manure it well; he was not afraid of making the land too rich for an orchard; would prefer to plant his trees rather thick, as he thought an orchard ought to be worth its room; that it was best to grow nothing else in it; would cover the roots of the young trees with stones if he had them convenient; if not, would mulch lightly with manure, not too heavy, for fear of the mice; would put and keep a good fence around it, letting nothing in except pigs; in cultivating, would be very careful not to touch the young trees; they had been forced in the nursery, and they wanted the best care when they came into our hands to make them grow well. He had planted 200 trees about three years ago; these trees were transplanted again about two weeks after they were first planted out; they were now doing well, and had borne some fruit this year. For an orchard, he would say that the land should be rich, clean and dry.

Mr. J. Russell said that he had had the experience of losing a good many trees, more than he had raised yet. If he intended growing other crops in his orchard, he would plant from 25 to 30 feet apart each way; if not, he would plant much closer. A good loam was the best soil to plant an orchard on; found the apple trees did not grow so well on gravel; in a gravelly strip in his orchard, the trees did not grow near so well, were stunted, and unthrifty, and many of them died. He thought that he planted his trees at first too deep.

Mr. P. Sidey said he was pleased to see so many present; the attendance this time was encouraging, and all were willing to take their part in the discussion. In briefly giving his opinion, he would say that he thought the best orchard soil was a loam. He would like to plant rather thick, so that the trees would shelter each other. An orchard wanted shelter; would plant the trees very much as they had stood in the nursery. The stones, he thought, would do well to steady them and retain moisture; but was afraid they would harbour mice, and that thistles and other weeds would be apt to grow among them; that stakes driven into the ground, and the young trees tied to them with hay ropes, with mulching, would be better. He had planted two orchards—one on loam, the other on sandy soil. Those on the sandy soil had done the best, but he had manured them the most; was afraid of forcing the young trees too much; found in some of his that the bark was splitting.

Brooke Agricultural Society—Annual Report.

We willingly give space for the publication of the following report of the Brooke Agricultural Society, because it brings prominently forward a subject which deserves to be well considered, and presents an example that might be followed with advantage by many township societies. The Association of Brooke, instead of frittering their funds in small prizes at shows, have very wisely expended them in introducing improved thorough-bred bulls for the use of the members. The Society has prospered, and the treasurer's account shows a balance in hand of over \$200.

The report, after adverting to the loss of three bulls during the past year, two from death, and one in consequence of proving unserviceable, proceeds as follows:—

The loss of so many of our best animals in so short a time will not only retard the beneficial operations of the society, and greatly embarrass us financially in replacing them; but what is perhaps much worse, it has tended to dishearten many of our members.

In undertaking the introduction and keeping of improved stock in the township, the society entered on a difficult branch of business. Many Agricultural Societies have from time to time attempted to carry it on, but after a short time have become discouraged, and have had to abandon it entirely. But feeling the urgent necessity that existed for something to be done to improve the live stock of the township, the officers of our society, at its formation, resolved to make the attempt, and wisely determined to apply all the resources at their command in the introduction and keeping for public service of pure-bred bulls; and for a period of six years, notwithstanding the difficult nature of the undertaking, its operations were constantly extending, and the number of its members steadily increasing, till in the year 1870 we had become one of the strongest township societies in Canada; so that in summing up the result of our seven years' operations it will be found that, notwithstanding our losses (and the disappointment and troubles caused to some few individuals), the Society has not existed in vain, nor have its officers spent their time and labour uselessly; for it must be admitted by all that the live stock of the township has been greatly improved; private enterprise has been stimulated; the people are becoming alive to the importance of possessing good stock, as shown by the willingness of many to expend their means in the purchase of improved stock for their own use, a thing almost unknown in the township before the Society commenced its operations. We would also direct public attention to another advantage arising from the introduction of our improved stock, and that is that the superior quality of the stock in some parts of the

township is becoming known to the dealers in different parts of the country, and in making up their droves for shipment, their attention is directed to the township, and our people are beginning to realize prices considerably in advance of those obtained in many other places.

We would therefore confidently appeal to the farmers of this township to stand by the Society, notwithstanding its heavy losses, and give the system of stock improvement a still further trial. Although we may be compelled to somewhat curtail our operations the coming season, we still stand in a good position. We are entirely free from debt, have three bulls for service the coming season, and a considerable amount of cash on hand.

Your Directors would also direct attention to the fact that several of the neighbouring Township Societies are beginning to adopt our system, after having tried the plan of holding shows for a number of years and expending considerable sums in the erection of buildings, &c. They have become convinced that the proper work of a Township Agricultural Society is the improvement of live stock, as they have facilities at their command, which, if properly used, will enable them to carry it on more effectively than can possibly be done by private individuals.

We regret that several of our bulls have not been so successful in getting stock as we could have wished, and in consequence considerable disappointment has been caused to some few individuals; but the difficulty appears to have been chiefly caused by the fact that the bulls have been overrun, as in some cases our bulls have had to serve from 100 to 120 cows in a single season. We would suggest that for the future some plan be devised for regulating the number of cows that each bull shall serve; and also to provide more efficiently for the proper keeping and feeding of the bulls; and thus by correcting some few errors in our system of management, we feel assured a prosperous future is before us, and that the operations of the Society (if properly sustained and encouraged by the farmers), will be a great advantage to the township.

South Riding of Wentworth Agricultural Society.

The annual meeting of the above Society took place upon Wednesday, the 17th Jan., at Hamilton, Wm. Calder, Esq., in the chair, when the following officers were duly elected for the current year:—President, Daniel Shaver; Vice Presidents, Messrs. Henry Hall and Jonathan Davis; Secretary-Treasurer, W. A. Cooley, he being unanimously elected for the sixteenth time; Directors, Messrs. Joseph Cline and Fred. Snider, from township of Ancaster; Alex. Young and Lewis Springer, from Barton; Wm. Brown, L. Lewis and A. E. Carpenter, from Saltfleet; John Renton and Wm. Calder, of Glanford; Auditors, Messrs. Joseph Rymal, M. P., and Charles E. Whitcombe.

The report of the Secretary and Treasurer, showing a balance in hand of \$42 69, was read and adopted by the meeting.

Mr. W. A. Cooley was nominated by acclamation to represent the Seventh District

in the Council of the Agriculture and Arts Association.

Messrs. W. A. Cooley and Wm. Calder were appointed delegates to represent this Society at the annual meeting of the Arts Association.

It was further resolved that this Society do take steps to amalgamate with the Provincial Association for the purpose of holding a successful exhibition in the city of Hamilton during the current year.

A vote of thanks was accorded to the retiring President, W. Calder, Esq., and the other officers of the past year.

Messrs. Renton and Joseph Rymal then addressed the meeting, informally, upon the advantages which would ensue from co-operation amongst the members of the Society, in the purchase of thoroughbred male stock, for the benefit of the members in particular, and of the county generally.

By unanimous vote, the Secretary was empowered to provide each member of the Society with a copy of a Canadian Agricultural Journal, upon payment of an additional subscription of half a dollar to the funds of the Society.

Of the twenty-nine members present, twenty-three placed their names down for the CANADA FARMER, being the total number that subscribed for any paper.

Emigration to Canada.

At the December meeting of the General Committee of the British and Colonial Emigration Society, held at the Mansion House, the Lord Mayor presided. There was also present Lord Alfred Churchill, Alderman Sir James Lawrence, M. P., the Hon. Arthur Kinnaird, M. P., the Hon. Reginald Capel, Mr. Philip Cazenove, Mr. Henry Kingscote, the Rev. Canon Brown, the Rev. J. F. Kitto, Mr. C. H. A'Court-Repington, Mr. Joseph Gibbs, and Mr. J. Standish Haly, the hon. secretary. The Lord Mayor, in opening the proceedings, said he accepted the office of President of the Society very willingly, for he had a sincere belief in the desirability of the object sought to be attained. He had for years sympathized with the working classes in their many discouragements, and he was firmly convinced that by emigration those classes would have a fair chance of using to advantage their natural energies, and producing for themselves and their families that which they ought to secure. Mr. Haly presented a report upon the results of his recent visit to Canada, whither he had proceeded at the instance of the committee to confer with the Government respecting the remission of the capitation tax due upon the emigrants last year. He stated in it that he learnt from the Hon. Mr. Dunkin, the Minister of Immigration, that the tax had been remitted on the emigrants sent in Government ships. He (Mr. Haly) then pointed out that the people sent in those vessels were of the

same class as the society's emigrants; that those sent in Her Majesty's ships *Serapis* and *Crocodile*, in 1869, were entirely assisted by the fund; that many of the employees of the Government had gone in the society's vessels, and that it was owing to the action of the committee that the British Government had devoted those transports for emigration purposes. He found, however, that nothing could be done before the meeting of the Canadian Parliament in February next. He had received suggestions from many official personages to the effect that the application might best be met by the Dominion Government making a money grant to the society sufficient to defray the amount due for the tax, and he therefore recommended that another appeal should be made with that view, and that it should be supported by letters to Lord Lisgar, the Governor-General, Sir John Macdonald, the Premier, Sir Francis Hincks, Sir George Cartier, and other Ministers. He attended a general conference on immigration, held at Ottawa on September 19, and submitted several proposals on behalf of the society—viz., the establishment of a larger, more active, and better situated head agency in London; the formation of active local agencies in those parts of the United Kingdom in which distress might prevail, or from which emigrants might be desired; the abolition of the capitation tax upon *bonâ fide* settlers in the Dominion; a scale of assistance for such suitable emigrants as might need aid; and the formation of agencies in Canada to receive emigrants, look after them, and collect the sums advanced in aid of their passages. He also submitted a plan to the effect that the Government of Ontario should assist selected and approved emigrants to the extent of £2 per statute adult during the coming season. There was no question, he said, that Canada was an excellent field for the hard-working, able-bodied man. In all districts he visited there was great demand for labour. At Ottawa, near which the Wiltshire labourers, assisted by Lord Edmond Fitzmaurice, M.P., and the Rev. Mr. Fletcher, were located, he heard from Mr. Wills, the Government agent, that those people were settled at excellent wages; that he could at any time collect from them the sums advanced by Mr. Fletcher for their passages, and that if he had 4,000 people of the same sort sent to him he would have no difficulty in settling them with farmers and others in that district, who were clamorous for such labourers. In the eastern townships there was the same cry. He concluded by expressing his deep thanks for the kind manner in which Mr. Durkin and the other authorities had received him. On the motion of Mr. Kinnaird, a cordial vote of thanks was passed to Mr. Haly for his interesting report, which the Lord Mayor said would be of great use to the society during the next season. A fresh appeal to the Canadian Government for a remission of the amount

(£1,047) paid for capitation tax last year was ordered to be drawn up and signed by the Lord Mayor on behalf of the society. It was mentioned incidentally that the society had, during the past three years, assisted more than 15,000 emigrants to reach Canada, and had expended upwards of £40,000. Nearly all the people were now at work with good wages, and a vast amount of labour was still required. The committee passed a hearty resolution of thanks to the late Lord Mayor (Sir Thomas Dakin) for the great assistance he had rendered the society during his year of office, and unanimously appointed him one of the vice-presidents. Lord Edmond Fitzmaurice, M.P., was elected a member of the committee, and the meeting concluded with a vote of thanks to the Lord Mayor.—*London Times*.

South Leeds Agricultural Society.

The annual meeting of the South Leeds Agricultural Society, held on January 19th, has caused intense excitement and confusion. Previous to the time of meeting, large sleigh loads kept continually coming in, until about 500 farmers and others from the country had arrived. The object of such a united effort was to change the place of holding the Society's annual exhibition from Gananoque to Delta, either by vote or force. The country in this action seems to have taken Gananoque by surprise; but Gananoque demanded a poll and at once set to work to receiving new members. On proceeding to the hall, the officials decided it was impossible to hold the meeting in the hall on account of such a large and disorderly crowd, and issued orders to proceed to the drill-shed, where the poll was at once opened and voting commenced, but the crowd speedily became uncontrollable, and the authorities at noon ordered out the volunteer company of foot artillery to protect the poll and restore order. A small force responded, and were on the ground in uniform about one o'clock under command of Capt. McKenzle, who promptly marched the men to the poll, and, after the usual preliminaries, dispersed the crowd at the point of the bayonet. Order having been restored in the drill-shed, voting again commenced by allowing voters to enter at one door and retire through another but was attended with much difficulty and intense excitement outside, and occasional fighting. The poll closed at 4 p.m., Gananoque being victorious. A committee of 30 Gananoquians brought in new members until they had a majority of 120. The following officers were elected:—President, Mr. John Legge; 1st Vice-President, Mr. Geo. Taylor, 2nd do., Mr. O. D. Cowan; Directors—Messrs A. Kyes, J. B. Haig, J. Dempster, Thos. Darling, John Waldie, Robert Brough, Wm. Byers, C. E. Britton, and E. O. Abbott.

The people of Stratford have decided upon holding monthly fairs in that town on the first Thursday of each month. A committee has been appointed to secure the cooperation of farmers, and to acquaint stock purchasers of the fact.

The Massachusetts Society for promoting agriculture will award, on the first of March next, two prizes of \$300 and \$200 respectively to the best establishments in the State for the culture of fishes for food.

Thousands of farms in France and Germany are divided one from another only by a narrow path. In the United States the cost of fences is estimated at \$300,000,000. Illinois is said to have ten times as much fence as Germany, and Dutchess county, N. Y., more than all France.

Land under irrigation in Spain sells for \$500 an acre, while lands lying alongside of it will scarcely bring \$50 per acre. An organized company at Madrid, with a capital \$1,500,000, has reclaimed 300,000 acres, and the investments of the company pays dividends equal to 18 per cent.

In relation to silk worms on Osage Orange, the U.S. Commissioner of Agriculture says full experiments have been made in rearing the silk worm (*Bombyx mori*) on the leaves of the Osage orange (*Machura orientaliaca*). The worms fed greedily, and were perfectly healthy, and spun large-sized cocoons of very fair silk.

The wheat crop in England in 1868 was 132,000,000 bushels; in 1869, 96,000,000; in 1870, 104,000,000. For these two seasons it has averaged 100,000,000 bushels. But in the past year there has been a great falling off, and it will amount to only 76,000,000 bushels. Thus some 24,000,000 bushels will be required to be imported from other countries in addition to the usual heavy demand.

"Protect me," is still the cry of the growers of New York, who recently met in convention at Syracuse, to protest against any alteration in the existing tariff. This tax upon the public for the advantage (?) of the few has not, it seems, roused the hostility of our misled and forbearing cousins across the lines. They like to pay dearly for what is made at home rather than procure the same or better goods more cheaply from abroad.

BURNING CORN.—A correspondent of the *Iowa State Register*, writing from Hardin Co., in that State, says:—"Farmers came twenty and thirty miles for coal, and often waited at the coal banks three days and nights for their turn to get coal, during which time their families were saved only by burning corn, and the conscientious scruples of almost any man against such a use of the great staple of food, would have mellowed down Corn at this market is only eighteen cents per bushel. Fifteen or twenty miles from the railroad, as it is worth six cents per bushel to haul it to market, reduces the price to twelve cents. At this price, it is cheaper fuel than coal at five dollars per ton. At this time, and it will continue all winter unless coal becomes plentier and cheaper, thousands, if not millions, of bushels of corn, will be used in Northern Iowa for fuel.

Miscellaneous.

History of a Canadian Farm.

NO. IV.

My stock soon began to make returns. Our dairy of twenty cows, under my wife's management, more than kept the house in all that had to be bought at the stores. I had now a large clearing of 120 acres, and 60 more falling into crop. This was the fourth and last contract, the crop of which at the following harvest did well, although it did not afford such an abundant yield as the three preceding contracts had done; still I was now quite forehanded. The mares had a foal each every year, and the stock of horses bid fair to equal the requirements of the farm in future.

As to young horned stock, of course we saved all the calves. Veal was worth little or nothing, and the month's use of the cow that was lost by her suckling a calf, was ill repaid by the two or three dollars obtained for the calf when fattened; these amounts being all that such calves were worth at that time; and, besides, my wife argued that the calves absolutely cost nothing the first summer, and at the end of it were worth at least \$6 each as store cattle; and as she always fed them well, they were always in better and more thriving condition than most of those belonging to our neighbours. They certainly thrived wonderfully well under her management. Now, also, our breed of Berkshire hogs began to tell. I previously remarked, you will remember, that I had derived so much benefit from these animals in comparison with those I had formerly kept, that I certainly should have been in pocket by having purchased the improved stock, if the original pair had cost one hundred dollars instead of the twenty that were paid for them. All my experience in farm stock goes to show the same fact, and proved the rule to apply throughout, viz., above all things keep no breed of animals about you that are not thrifty and well doing. My stock of dairy cows were half Devon and common Canadian breed, and although they were generally rather small than otherwise, they were always fat and hardy, and yielded a very large gross return of milk and butter.

I had procured with great difficulty a good grade Devon bull, probably nearly three-quarters bred, so the stock never depreciated in quality subsequently. This bull was bred from a famous milking cow, and my judgment in this selection was entirely guided by an account I had read of some improvements made by a stock breeder named Bakewell, whose experiments in the inheritance of peculiar properties of dam and sire were so carefully conducted and resulted so satisfactorily. According to his experience, if you save a heifer calf from an extra quality milking cow, in the expectation of ensuring the

mother's excellence in the daughter, you will often be greatly disappointed. The fact is, that when milking stock are particularly wished for, you must have the sire from a first-class milker; and this again bred to a cow of unmistakable milking powers, will nine times out of ten ensure the quality of the progeny. Bakewell says: "The sex usually follows the most vigorous of the parents, whilst the propensities, temper, &c., almost always cross; the female progeny almost always inheriting those of the male, whilst the male young inherits those of the female." I think there is a great deal of truth in these ideas, and believe them to form a most useful rule, as nearly reliable as practicable. One fact certainly bears out this opinion, namely, that many splendid mare colts are bred from excellent horses, out of poor miserable mothers; but much more rarely are good horse colts bred from the same class of females. Daily observations show this to be a fact. Certainly the rule sometimes is wrong, but not usually so, and generally it has been found quite correct.

My wife and daughter began to feel at home, and to take the greatest pride in our domestic arrangements. It was their home, and they all loved it. The young people know they each and all had a farm adjoining, when the day came for the "right man to ask at the right time;" and it was pleasing to see that the whole family loved the farm more and more every year. As a matter of home discipline, I am quite satisfied that it is useless to expect your children to take the interest in home matters we all so ardently desire they should, without some actual prospective right of possession; without, in fact, having to feel that until the death of one or both parents they can never enjoy what they have worked so hard to get. The idea that my death was requisite for the benefit of my children, was always a most painful one for me to feel; in fact, I never could bear to think of their wishing me dead, so as to enjoy my property. I loved my children, and they loved me, and revered their mother; but human nature is as it is, and ever will be. So after mature reflection I took a rather different course from that ordinarily pursued. I let each child know that, on his, or her—as the case may be—coming of age, their earnings were accumulating for their benefit, and their future home was gradually growing, day by day, into value. But it was also clearly understood, that although I should deed the land to them at that time, it was in trust only, in case of their death, for such of their children as should survive me and my wife; but at my death the trust fell in, and then they had full power over the freehold, to sell or do what they pleased with it. The legal part of this arrangement I got from my lawyer foreman, who had married my eldest daughter. He was prudent, and quite as careful as I was; and when giving me this opinion he based his argument on the fact that the farm, when thus

"tied up," was quite as likely to be taken good care of, and a great deal more safe from any chance difficulties or indebtedness that might befall my sons or sons-in-law, under this little homestead law of our own making, than if subject to all sorts of legal attacks from outside difficulties, with which I had nothing to do. No one was wronged by this prudent course; all knew the land, although deeded, was held in trust for the children, and could not be sold for debts; the use, however, remained with the occupant, and I argued that from this cause any honest man could just as well pay his debts, but may be somewhat more slowly, than if the farm was sold to do so and the family beggared; and another strong reason for this course was in the well known fact that young, sanguine, trusting men, are apt to be led away by older and more designing heads, to endorse notes or otherwise become answerable for debts not their own, and this was altogether avoided, as parties seeking for security to persons buying goods from them, would not accept or ask for my sons or sons-in-law to join, when it was well known that their property could not be touched to meet the debt in case the promiser failed to do so.

These legal points are really more necessary to a young farmer than at first sight would seem to be, and there is not a particle of dishonesty in it; it is only foresight and prudence; as every act of his binds the freehold of his farm, and either he should be extremely cautious, or his property should be so deeded, when given to him, as to be safe from all such acts of imprudence. In my opinion, endorsements of every kind are wrong, and should be avoided by the farmer. He has only certain means to rely on, and if these fail any one year, he certainly will have hard work enough to meet his own debts, without having also to pay those of designing or unfortunate friends. And another reason certainly is, that when an endorser or surety is required, it is most frequently because the purchaser is considered unable to pay, and in such cases the utility of an endorser is simply to enable the seller to obtain more for his goods than a solvent man will pay without an endorser. He thus runs a certain amount of risk to obtain this extra price, but the endorser, who has no interest whatever to induce him to become responsible, runs a far greater risk. C.

Ice Houses.

This being the season for storing ice, we would call attention to what is known as the "Stevens plan" for erecting a cheap house and storing ice, from *Hall's Journal of Health* for December:

"For one family, make a house twelve feet each way, by setting twelve posts in the ground, three on a side; board it up, eight feet high, on the inside, so that the weight of the ice shall not press the boards outward, dig out the dirt inside, six inches deep, and lay down twelve inches of sawdust; pack the ice in a pile nine feet each way, filling the space of eighteen inches between the ice and the boards with sawdust or tan bark, with the same thickness on top; make an old-fashioned board roof, leaving the space above the ice open for ventilation. Have a small entrance on the north side of the roof.

"If an ice house can be located on the north side of a hill, and a small stream of water introduced slowly through the roof, on a very cold day, so as to make its way between the pieces of ice, the whole mass will freeze solid; or a pile of snow could thus be made into solid ice, and would last from one winter to another."

Reminiscences of Early Bush Life.

I have an old friend named Ruloph, or rather I should say I had such a one, for my old amusing story teller was gathered to his fathers last year. Many a time I have sat long hours of an evening, listening to the tales of early bush life as experienced by the old copper-coloured hunter and trapper. These stories had one very great charm that many such tales want, namely, they were all perfectly true. The narrator never was known to tell an untruth or exaggerate in the smallest degree.

At the time I allude to, though still retaining his intense love for the deep backwoods, he had long since given up hunting. He was a very tolerable farmer, and liked clearing land very much, provided he was the only man in that section who was at it. When he found others flocking in and clearing nearly close to him, or, as he termed it, almost "under his very nose," he always sold out and moved away further into the woods. And this moving from clearing, "going on under his nose," always took place as soon as his nearest neighbour was within two or three miles of his farm. Such "civilization and destruction of timber," as he termed it, disturbed the game, and this he never could endure.

At the time I am now alluding to he was living in Belmont, then an excellent hunting country. He had partly given up repeatedly selling out, and instead had determined to go back into unsettled parts in the fall of the year, about the beginning of November, and hunt, carrying with him his rifle, ammunition, traps, and always accompanied by two little rough haired Scotch terriers, not thoroughbred, and two more miserable, rough, ugly, cross-bed dogs, it was never my fortune to meet. They were both from the same litter, and were brought up in the old man's one-roomed shanty. He always said unless dogs were so brought up they never were sufficiently attached to their master to make them reliable, so as to be sure to stick by him in hunger or thirst, in fair weather or foul. These dogs were named Cato and Socrates; "Cat" and "Soc" for short. Who furnished these learned names I had no means of ascertaining. I am quite sure the old man himself never had heard of the originals or read of them, as he could not read one word, and held learning in great contempt.

One fine day in November, about the year 1828, he left his home in Belmont, and, loaded with his accustomed pack of traps, and a small axe in addition, he journeyed back to that rocky country adjoining the small lakes, about thirty miles to the northward of civilization at that time. He reached his accustomed little shanty on the evening of the second day, and the next morning the house was put in thorough order—that is, it was scraped carefully out, and fresh surface earth alone exposed; fresh rice straw from

the nearest lake was procured and spread to dry, and a good stock of fire-wood laid in. He always cut up a quantity when leaving the previous season, so as to have it dry to begin with. All his cooking utensils were cleaned and rendered fit for use. As the old fellow always carried to the shanty every season one or two extra articles of house-keeping, which were left behind there when he returned in the spring to the settlements, he had quite a stock. After a day or two spent in this manner, he prepared in earnest to hunt. He always said he required to sleep two or three nights in one place before he established, in his own mind, such a complete "polarity" or knowledge of his whereabouts, that he could tell where his shanty lay, and how far off, and could strike a "bee line" for home at any hour of the day he chose. This faculty is very wonderful; his memory never forget any turning or direction he had made during the day; not that he distinctly remembered them all individually, but he knew intuitively from first to last each turn that he had taken, so far as to give him a certain knowledge of the general direction and distance he had travelled, and his way back at night was easily found.

The evening of the third day he determined to resort to "still hunting" near a salt lick about two miles from the hill on which his shanty was built. He arrived on the ground about sunset, and sitting down under a tree, waited with patience for the deer to come to drink and lick salt. The wind was favourable, and blew nearly directly towards him from both paths that led to the lick. He sat like a stone statue, on a spot commanding a range of fifty yards up each avenue. These two roads or runs approached the salt spring in the form of a half moon or crescent, with a third in the centre. This particular form of exit and egress having been used for many years to enable the timid deer to avoid by flight in either direction a wolf or panther which might be lying in wait for an evening meal. Wolves were plenty enough, but panthers were only rarely seen; in fact, hardly an authentic instance had come within old Ruloph's knowledge. Before taking his station the old man had observed some traces of large and strange feet, but in the dusk he could not distinguish what animal had made them.

In an hour or so it had become quite dark; in fact, so dark as to be absolutely impenetrable, and Ruloph began to regret his absence alone so far from home in the night; but he consoled himself with the knowledge that the moon was momentarily expected to rise, when he could easily find his way back to the shanty. Several times he heard a noise as of falling pieces of bark, and supposed it proceeded from squirrels or "coons," but the noise increasing, accompanied by a peculiar scratching sound, caused the old fellow to direct his attention more particularly to the spot. He soon became certain that

some large animal was descending a neighbouring tree, and Ruloph's heart jumped into his mouth, as nearly as such an iron-nerved man's could, at the sight that met his view. Within thirty feet of where he sat were two immense round greenish phosphorescent eyes fixed steadily on him. He knew it was a panther, and from certain small whining noises and motion amongst the branches, proceeding from the same tree from which the great beast has just descended, he became aware that it was a female, and that there were one or two cubs in the tree moving about.

For a few moments he felt unmanned, but quickly recovering himself, he raised his rifle, levelled it, and pulled the trigger. No explosion followed; he had omitted to cock the piece. Again he raised it, this time cocked, and certain not to miss fire; but the eyes were gone, in his trepidation he had not noticed which way. Carefully and slowly he allowed his vision to travel round about, searching in vain for the eyes, and hoping to see them. He well knew that unless he could shoot the panther she would certainly kill him first or last.

A female panther with young ones never takes fright and leaves the district, as a male animal is well known to do occasionally. Our old hunter watched for some hours, and was preparing to leave for home. The moon had risen, but the light was much obscured by clouds, and only a glimmering could be seen now and then.

The moment the circle of the crescent-shaped run opened to his advanced position, there he saw again the two great eyes, and they had been crouched just out of sight, but watching him. Now they were accompanied by four moving smaller ones. Ruloph became aware that the young ones had joined the mother, and that his danger was now terrible. If he retreated, it was certain the panther would follow and spring on him. If he stood his ground and fired, unless he killed her on the spot, he was himself sure to be killed. Whilst considering what to do, he became sensible of a sort of movement amongst the leaves, and felt sure it was the animal swinging her tail and creeping forward step by step, until, when within springing distance, one tremendous leap would seal his doom.

The unerring rifle was again raised to his shoulder, and taking aim directly between the two fiery green globes, he drew the trigger and fired. At the same instant of the report, or a thought later, the animal had sprung, but the bullet had pierced her brain, and she fell dead within two feet of the hunter. The young ones vanished up a tree, and Ruloph was too much discomposed to attempt their capture at that time, but he knew they would hover round their dead mother, as he suspected she was yet suckling them. He had no apprehension therefore about ultimately losing them, but he had great uneasiness as to the whereabouts of the panther's mate. No doubt he was somewhere in the neighbourhood, probably at home in his den, and when he missed the return of his "wife and family," he would certainly come to seek them. It was therefore kill or be killed, and Ruloph ascended a small tree near by, that stood by itself, and fastened himself to a projecting branch. He chose a small tree,

as the panther could not ascend one of that size as quickly as a larger one.

Morning broke without any more disturbance, and the old hunter went home, leaving the dead panther where she lay. The young, however, were nowhere to be seen. After getting something to eat, and releasing his two dogs, he again left the shanty, determined to hunt up the old he panther and kill the young ones. The bounty was high, and if he could destroy all four he would make an excellent winter's work.

The dogs took up the scent of some animal, and Kuloph followed after them as fast as he could. They soon arrived at an immense old oak that had stood the storms of ages, and laid along one of its topmost branches was the panther they had been hunting for. Both young ones were with him, and the abrasion and wear about a large opening in the side of the tree, clearly pointed out the probable retreat of the whole family.

Directly the dogs were seen and the hunter observed to look up into the tree, the animal raised its back like a cat when about to spit, and showed its teeth, snarling, and lashing its tail. In two moments he would have been on the ground, but now old Kuloph had daylight, and was in full possession of his iron nerves. The rifle was raised, and with the report the immense brute was seen to stagger somewhat and roll sideways on the limb of the oak. For a moment it seemed impossible for him to recover himself, but the next he had caught at a smaller branch, and was again on the larger bough. But now he was slowly retreating towards the hole. To lead again and put another ball into his side was the work of a moment, when down came the beautiful beast to the ground, dead or dying. The blow stunned him, but still he raised himself and prepared to spring; too late, however, for with an impotent snarl he rolled over dead. Afterwards the cubs were shot, but they had retreated to the den, and it was some days before they were starved out.

The scalps and skins made a handsome winter's work. One of those skins I have seen; it was that of the female; the others had been sold long before I heard the story. It was the largest and handsomest panther's skin ever seen in those parts, and went home to England to be stuffed, as it was saved for that purpose, and may to this day ornament some gentleman's glass-case in his hall.

OLD SETTLER.

To Preserve Eggs.

The *New York Observer* says:—"The most convenient and satisfactory way to keep eggs fresh that we have ever tried is to punch numerous holes in a tin pail, fill it with fresh eggs, lower the pail with the eggs into a kettle of melted tallow, which is as hot as can be without burning one's fingers when thrust into the liquid; then lift the pail out quickly and the melted tallow will flow out, leaving a thin coating over every egg. Let the eggs be removed as soon as possible from the pail and be placed on the ends in a keg or barrel, which should be kept in a cool cellar until wanted for use. We have kept eggs in this manner more than six months, so fresh that expert judges supposed they were just laid. As the eggs are so much colder than the melted tallow, a thin pellicle of cold tallow will be formed almost instantly, which will render the shell impervious to air."

Advantage of the Roller.

The *Mirror and Farmer* thinks it strange that so few cultivators use this labour-saving instrument. The roller has long been favourably thought of in Great Britain, and considered very necessary in an improved state of husbandry. It cannot be used to advantage except on lands that are free from stumps and stones on the surface. They are useful in breaking the lumps of baked earth in a clayey soil, and for passing over newly sown land that is to be laid down to grass, and the farmer will find he can mow or rake much easier on lands that have been rolled down. On dry land it presses down the soil and makes it less dry. A wooden roller should be about six feet long and about twenty inches in diameter, round, and of uniform surface. It is sometimes made of stone, and when once made will last an age. The spiky roller is much recommended by some English writers for mellowing clayey soils. It is also said to act beneficially in passing over old meadows that are grass bound, for the purpose of making the grass more thrifty. The spiky roller is merely a wooden roller with iron teeth or spikes driven into it. They are about seven inches long, driven three inches into the wood, set four inches apart in diagonal rows round the roller; the outer ends to be sharp and square.

Ammonia in the Household.

Ammonia is valuable for many practical purposes in the economy of the household. Chemists are profound concerning the native article in its all-important services in the economy of nature; but farmers' wives throughout the country really know but very little of the manifold uses that can be made of a pint of spirits kept in the house, bottled and labelled. The following are among these:—For washing paint, put a tablespoonful in a quart of moderately hot water, dip in a flannel cloth, and with it simply wipe off the woodwork; no scrubbing will be necessary. For taking greasespots from any fabric, use the ammonia nearly pure, then lay white blotting paper over the spot, and iron it lightly. In washing laces, put about 12 drops in a pint of warm suds. To clean silver, mix two teaspoonfuls of ammonia in a quart of hot soap suds, put in your silverware and wash it, using an old nail brush or tooth brush for the purpose. For cleaning hair brushes, &c., simply shake the brushes up and down in a mixture of one teaspoonful of ammonia to a pint of hot water; when they are cleansed, rinse them in cold water, and stand them in the window or in a hot place to dry. For washing finger marks from looking glasses or windows, put a few drops of ammonia on a moist rag and make quick work of it. If you wish your house plants to flourish, put a few drops of spirits of ammonia in every pint of water used in watering. A teaspoonful in a basin of cold water will add much to the refreshing effects of a bath. Nothing is better than ammonia-water for cleansing the hair. In every case rinse the ammonia with clear water.—*Western Rural*.

Management of Belts.

A leather belt, in order to run steadily and with the best effect, should have but one laced joint; and in making this the two ends should be cut at right angles with the sides. The holes will have less tendency to diminish the strength of the belt in the cross section if they are cut with an oval punch. The laces should not be crossed on the inside; and care must be taken to put them in evenly and of equal strength at the two edges of the belt.

In case rivets are employed, the heads should be let in on the inside surface of the belt, so as to leave no obstructing points to come in contact with the pulley, the washers being placed on the outer surface. Waxed ends used in connecting beveled and lapped ends should also be carefully confined within the surface on the inside of the belt, as they will work mischief by wearing if allowed to project.

The more nearly an equal thickness and perfect straightness are secured in the belt throughout its whole length, the better it will perform its work. Dust, grease and lubricating oils, should on no account be allowed to accumulate either on the belt or the pulley. If the motion is to be very rapid, the belt should if possible be endless—that is, it should have none but permanent joints, and it is especially desirable that the density and dimensions should be uniform throughout, all unevenness of texture being carefully avoided. If properly treated, no appliance for transmission of power possesses more valuable advantages than the belt—its simplicity, smoothness, and facility of working, being scarcely attainable by any other means; but it also demands the most vigilant attention to maintain a good working condition and secure the greatest economy of power.—*American Manufacturers' Review*.

Canada versus Kansas.

To the Editor.

SIR,—Some dissatisfied Canadians have during the last few years turned their attention to Kansas—"the poor man's Paradise"—"the free and glorious West!" Answers to questions, it is true, have arisen in respect to the lawlessness of the inhabitants, especially on the Colorado frontier. Mention has been made of periodical drought, and other little disturbances of the unmixed prosperity that some farmers think only denied to them in Canada. But what of taxation? Did it ever strike the most enthusiastic patriot that the best argument he could use against an irrational flight of his countrymen to "ills they knew not of" was the low price of farm produce, and the frugal severity of the taxation! Who would anticipate the latter scourge in the Far West, the country of the antelope and buffalo, Pottowattamies and—land for the asking? Lest my story should

seem incredible, Mr. Editor, I send you herewith, "not necessarily for publication, but as an evidence of my good faith," a tax receipt for 212 acres in Riley County, Kansas, a spot claiming to be the exact centre between the Pacific and Atlantic Oceans! Far enough off for freedom, but freedom that is very dear at the price! A summary of this extraordinary document, which is under the hand of the County Treasurer, may be given—212 acres; value, \$2,000; taxes, \$79 50, or four per cent on the valuation—a tidy rental in some parts of England that I know.

In our metropolitan county of York the total tax on farm lands is 1 1/2 mill in the dollar. In the city of Toronto the taxation is only 1/2 cent in the dollar. But out there on the boundless prairie of Riley county, Kansas, four cents in the dollar. No doubt, Mr. Editor, we are a slow, stupid, unprogressive people, but Canada has its merits, and it is a pity that the dissatisfied have to go so far to find them out. Luckily in these railroad days they can get back again easily, and so they do; but the misrepresentations that took them away should be oftener exposed. I might add to the above that my agent farmed those 212 acres "on shares." His share was 296 bushels of corn, which sold for 22 cents a bushel; taxes, \$79 50; total crop, say \$200, for division between landlord and tenant. I have no reason to doubt the honesty of any of the persons concerned, all of whom I know, as I also do the property in question.

If this sort of place can be made attractive to British capitalists, and to farm labourers from all parts of the world, what could not be done for Ontario, if only the right means were used in making her resources known to the small farmers and ill-paid labourers of Great Britain and other European countries?

Toronto, Jan. 13, 1872.

IMMENSE CONSUMPTION OF TIMBER.—It has been estimated that seventy-five million dollars' worth of fuel is burned every year in the United States. Locomotives consume over eight million cords of wood annually, and over a hundred million dollars' worth of sawed lumber is yearly employed in building and in manufactures. Four million acres of forest disappear every year before the axe, to supply all these demands.

LARGE FARMS.—A writer in the *Country Gentleman* gives the following, among other arguments, to prove that large farms are relatively more profitable than small ones. It is estimated that five per cent. of the wear of mowing machines in New England comes from turning corners, ten per cent from natural decay, and ten per cent from lack of skill, experience and care in the operators and teams—all of which would be largely obviated by increasing the size of the farms so as to employ the machine, the team and the operator constantly from the beginning to the end of the season. There is also economy in housing and feeding large herds of animals over smaller ones; and in fact, the arguments, theoretically, are almost all in favour of the large farm.

In relation to irrigation in Italy, it is said: In Lombardy water is sold at the rate of 500,000 gallons per season per acre, (equal to a single overflow of 22 inches deep), as follows: absolute purchase, about \$9 per acre; annual rent in perpetuity, about \$2 50 per acre. Water is also rented by the season, when there is a surplus, at somewhat lower rates; but in such case the land-owner is liable to be deprived entirely in times of drought, when it is most wanted. The perpetual owner or leaseholder must be first supplied.

Advertisements.



HAVING been the first to introduce to the public the Hubbard Squash, American Turbin Squash, Marblehead Mammoth Cabbage, Mexican Sweet Corn, Finney's Water Melon, Brown's New Dwarf Marrowfat Pea, Boston Curled Lettuce, and other

New and Valuable Vegetables,

with the return of another season I am again prepared to supply the public with Vegetable and Flower Seeds of the purest quality. My Annual Catalogue is now ready, and will be sent free to all. It has not only all novelties, but the standard vegetables of the farm and garden, (over one hundred of which are of my own growing), and a carefully selected list of Flower Seeds. On the cover of my Catalogue will be found copies of letters received from farmers and gardeners residing in over thirty different states and territories, who have used my seed from one to ten years. I warrant,—1st: That all money sent shall reach me. 2d: That all seed ordered shall reach the purchaser. 3d: That my seeds shall be fresh, and true to name. Catalogues free to all.
v4-1-4] JAMES J. H. GREGORY, Marblehead, Mass.

TREES,
FRUIT AND ORNAMENTAL
For SPRING of 1872.

We invite the attention of Planters and Dealers to our large and complete stock of
Standard and Dwarf Fruit Trees.
Grape Vines, Small Fruits.
Ornamental Trees, Shrubs, Roses.
New & Rare Fruit and Ornamental Trees
Evergreens and New Plants.
Prompt attention given to all enquiries.
Descriptive and Illustrated priced Catalogues sent free paid on receipt of stamps, as follows:
No 1—Fruits 10c. No 2—Ornamental Trees 10c.
No. 3—Green-house, 10c. No. 4—Wholesale, Free.
Address
Established 1840 **ELLWANGER & BARRY,**
v4-2-3] Mount Hope Nurseries, ROCHESTER, N. Y.

CHEESE VATS AND HEATERS

Of a superior quality; also
Cans, Hoops, Presses,
And all kinds of cheese factory utensils, manufactured and sold by
HATCH & COMPANY,
Oshawa, Ontario.
References: Hon George Brown, Bow Park, Bradford; Hon. David Reesor, Markham; Gleason Striker, Esq., Picton; James Elliott, Esq., Peterborough; Messrs. Phillips Bros., Newmarket; Brook Cheese Factory Co., Belleville; etc., etc.
Send for Circular and Price List. v4-2-1

VEGETABLE PULMONARY BALSAM
USED AND RECOMMENDED BY THE MOST EMINENT PHYSICIANS IN NEW ENGLAND FOR THE LAST 45 YEARS.
"NOTHING BETTER."
CUTLER BROS. & CO., BOSTON.
Sold by the Druggists
FOR COUGHS, COLDS & CONSUMPTION.
L. H. ELLIOTT & Co., Toronto Agents. 11-61.

To Farmers and Gardeners.

I invite all who have been in the habit of buying their garden seed from boxes left at the stores, to give my seed a trial side by side, and mark the difference in their germinating, and in the purity and quality of the vegetables raised from them. I have made it my mission for several years past to drive bad seed from the market, and so save farmers and gardeners the future loss they annually suffer from the purchase of it.
The public have well appreciated my efforts, and I have now fifty thousand customers in the United States and Canada. I sell no seed I do not warrant, and what is the real pith of the matter, I stand by my warranty; to enable me to do this I grow myself a large proportion of the seed I sell. Catalogue sent free to any applicant.
JAMES J. H. GREGORY, Marblehead, Mass.
v3-12-11.

Apple Trees Wanted.

THE FRUIT GROWERS' ASSOCIATION OF ONTARIO, having determined to distribute among the members a tree of the **SWAYZIE POLME GRISE** Apple in the spring of 1875, request from nurserymen and others, stating the number of trees they can furnish of this variety in the spring of 1875, their age, quality, and price. All such tenders to be sent to the Secretary at St. Catharines on or before the first day of October, 1872; the Association reserving the right to decline accepting any tender.
v4-2-11 By order. D. W. BRADLE, Secretary.

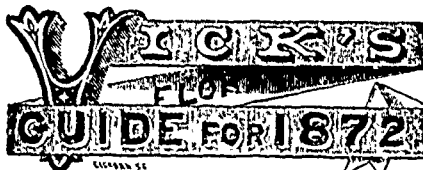
THE YORKSHIRE
CATTLE FEEDER



FOR fattening and bringing into condition
Horses, Cows, Sheep, Pigs, &c.
It is highly recommended by the Professors of the Veterinary Colleges of Great Britain. It is possessed of purely vegetable extracts in a condensed form. It regulates and keeps the stomach in a healthy condition. It is held in high reputation by first-class breeders of stock throughout Europe and Canada. Stock fed with the Yorkshire Cattle Feeder have in every instance wherever exhibited taken first prizes. It has been awarded congratulatory recommendations from agricultural societies for the great benefit they have derived from its use in the raising of stock. It fattens in one fourth the usual time. A dollar box contains 200 feeds.
Sold everywhere.
v4-2-2] **HUGH MILLER & CO.,** Proprietors,
167 King Street East, Toronto.

500 AGENTS WANTED, Male and Female, to sell two new articles, as suitable as Flour, and needed in every family. Samples sent free by mail with terms to clear \$5 to \$10 per day. This is no gift enterprise or humbug, but they are new articles of real merit. Reader, if you want profitable and honorable employment, send on your name and post-office address, and receive full particulars with sample free, by return mail. Address
v4-2-11 N. H. WHITE, Newark, New Jersey.

Rochester Commercial Nurseries.
(Established 1830.)
SEND for our New Circular of Prices per Doz. \$ per 100, or per 1,000—embracing all best HARDY TREES and PLANTS—both Fruit and Ornamental—besides a select list of Specialties and Novelties. Address
v4-2-11 **W. S. LITTLE,** Rochester, N. Y.



OVER ONE HUNDRED PAGES—printed in Two Colors, on superb TINTED PAPER.—Four Hundred Engravings of Flowers, Plants and Vegetables, with Descriptions, and TWO COLORED PLATES.—Directions and Plans for making Walks, Lawns, Gardens, &c.—The handsomest and best FLORAL GUIDE in the World.—All for FIFTY CENTS, to those who think of buying Seeds.—Not a quarter the cost.—200,000 sold of 1871. Address

JAMES VICK, Rochester, N. Y. v4-12-31.

THE CANADIAN Fruit, Flower, & Kitchen Gardener, By D. W. BEADLE.

THIS WORK is now in press, and will be issued by JAMES CAMPBELL & SON, Toronto. It makes a very handsome volume of four hundred pages, beautifully illustrated with colored plates and numerous engravings, in three several styles of binding: cloth, green and gold, at two dollars and fifty cents; cloth, with red leather back and corners, at three dollars; half calf at four dollars. Canvassers wanted in every county. References required. Address v4-1-11] GEO. CRAWFORD, TORONTO.

NEW AND RARE VEGETABLES.

I make the seed of New and Rare Vegetables a speciality. Besides raising all the common varieties. On the cover of my Catalogue will be found extracts from letters received from farmers and gardeners residing in over thirty different states and territories, who have used my seed from one to ten years. Catalogues sent free to all. I grow over one hundred varieties. Get your seed directly from the grower. v4-1-4] JAMES J. H. GREGORY, Marblehead, Mass

Gooseberry Plants Wanted.

THE FRUIT GROWERS' ASSOCIATION OF ONTARIO, having decided to distribute among the members a plant of the DOWNING Gooseberry in the spring of 1872, request from nurserymen tenders, stating the number of plants which they can furnish of this variety, in the spring of 1872, their age, quality, and price.

All tenders to be sent to the Secretary at St. Catharines on or before the first day of October, 1872; the Association reserving the right to decline accepting any tender. By order. D. W. BEADLE, Secretary. v4-2-11

SMALL FRUIT INSTRUCTOR.

SIXTY-FOUR PAGES, price 25 cts., postpaid. Tells how to plant and grow all kinds of Small Fruit successfully, both for market and home garden. John J. Thomas, Henry Ward Beecher, Judge I. S. Harris, of Ga., and others, say it is one of the most complete and practical works ever printed. Price List of Plants, retail or wholesale. Free to all applicants. Address A. M. PURDY & HANCE, Palmyra, N. Y.

Or PURDY & HANCE, South Bend, Ind. P. S.—Specimen copies of the Fruit Recorder and Cottage Gardener, a dollar monthly, (A. M. Purdy, Editor.) Free to all applicants. It speaks for itself. To see a copy is equivalent to subscribing. v4-2-31

The Fruit Growers' Association OF ONTARIO.

EVERY MEMBER will be allowed to choose any two of the following articles, viz.: Wagener Apple Tree, Bourne Château Pear, McLaughlin Plum, Hale's Early Peach, Othello Grape. Members will inform the Secretary, D. W. BEADLE, St. Catharines, on or before March 1st, 1872, which two of the above they desire to receive. Any person can become a member by transmitting one dollar to the Secretary before the first of March next.

R. BURNET, President.

v4-2-11

Apple Trees Wanted

THE FRUIT GROWERS' ASSOCIATION OF ONTARIO, having determined to distribute among the members a tree of the TETOFKY Apple in the spring of 1872, request from nurserymen tenders, stating the number of trees they can furnish of this variety in the spring of 1872, their age, quality, and price. All tenders to be sent to the Secretary at St. Catharines on or before the first day of October, 1872; the Association reserving the right to decline accepting any tender. By order.

v4-2-11 D. W. BEADLE, Secretary.

Markets.

Toronto Markets.

"CANADA FARMER" Office, Feb. 12, 1872.

The Produce Market generally remains steady without much activity.

In this city the wholesale prices are as follows:--

FLOUR AND MEAL.

Flour—Superfine, \$5 30; Spring Wheat, extra, \$5 40 to \$5 50; Fancy, \$5 50 to \$5 55; Extra, \$5 70 to \$5 75. Superior Extra, \$8 00.

Oatmeal—\$4 70 to \$4 75.

Cornmeal—\$3 40 to \$3 50.

Brwn, in car lots, \$17.

GRAIN.

Wheat—Soules, \$1 28 to \$1 30; Treadwell, \$1 25 to \$1 28, Spring, \$1 18 to \$1 22; Do Midge Proof, \$1 15 to \$1 20.

Barley—No. 1, 60c. to 67c.; No. 2, 60c. to 61c.

Oats—41c.

Peas—63c to 72c.

Rye—65c to 70c.

HAY AND STRAW.

Hay, in fair supply, at \$16 to \$22.

Straw, scarce, at \$9 to \$15.

PROVISIONS.

Beef, by the side, 5c to 6c.

Mutton, by the carcass, 5c to 6c.

Apples, per brl., \$1 50 to \$3 00.

Potatoes—per bag, 90c to \$1.

Poultry—Turkeys, 75c to \$1; Chickens, per pair, 40c to 60c; Ducks, per pair, 60c to 80c; Geese, 50c to 70c.

Pork—Mess, \$15.

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

Hams—Salted, 8 1/2c to 9 1/2c; Smoked, 10c to 10 1/2c.

Lard—9 1/2c to 10c.

Butter—Dairy, choice, 18c to 19c.

Eggs—Packed, 16c to 15c.

Cheese—10c to 11 1/2c; Recor's Stilton, 18c, Royal, 17c.

Dried Apples—8 1/2c to 9c.

Salt—Godenich, \$1 10 to \$1 25, Liverpool, per bag, \$1 to \$1 10.

Dressed Hogs—\$5 20 to \$5 30.

Live Hogs—\$3 50 to \$4 12.

HIDES AND SKINS.

Hides—No. 1, cured and inspected, per lb 9 1/2c to 9 1/2c; No. 1, inspected, green, 9c; No. 2, inspected, green, 7 1/2c to 8c.

Sheepskins—1st class, green, \$2 50 to \$2 75; Dry, 50c to \$2 50.

Lambskins—\$2 50 to \$2 60.

Calfskins—green, per lb, 12c.

Wool—Fleece, 44c to 45c; Pulled, 44c to 45c.

THE CATTLE MARKET.

Beeves (live weight) \$3 00 to \$4 75 per cwt.

Sheep—\$4 00 to \$7.

Culves—\$3 to \$7.

Lamb—\$3 50 to \$5 50.

PROVINCIAL MARKETS.

London, Feb. 7.—Fall wheat, \$1 18 to \$1 23; spring wheat, \$1 18 to \$1 21. Barley, 55c to 60c. Peas, 58c to 62c. Oats, 35 1/2c to 36c. Beef, \$4 to \$6 50. Mutton, \$6 to \$7. Dressed Hogs, \$5 to \$5 50. Hides, 5c to 9c. Sheepskins (green), \$1 30 to \$2 50. Wool, 45c. Butter (roll), 20c to 22c; do (keg), 12 1/2c to 15c. Eggs, 22c to 25c. Cheese, 9c to 10c. Hay, \$13 to \$14. Potatoes, 40c to 45c. Corn, 60c to 61c.

Quebec, Feb. 7.—Flour, No 1 super, \$5 Fall Wheat, \$1 23 to \$1 25, Spring do., \$1 15 to \$1 16; Barley, 60c. to 63c. Peas, 65c. to 70c. Oats, 40c. to 42c. Cattle, live weight, 2 1/2c to 4c. Beef, 4c to 5c. Dressed Hogs, \$6 to \$5 30. Hides, 7 1/2c to 8c. Sheepskins, \$1 50 to \$2. Butter, 13c to 16c. Eggs, 17c. Cheese, 11c to 12c. Hay, 16c to 18c. Potatoes, 75c to 90c. Corn, 60c.

Brantford, Feb. 7.—Flour, No 1 super, \$5 75 to \$6. Fall Wheat \$1 20 to \$1 25, Spring Do. \$1 20. Barley, 55c to 60c. Peas, 55c to 60c. Oats, 35c to 40c. Cattle, live weight, \$4 to \$5. Beef, \$4 50 to \$6 00. Mutton, \$6 50 to \$7. Dressed Hogs, \$5 to \$5 25. Hides, \$7 to \$7 50. Sheepskins, \$1 75 to \$2. Wool, 50c to 45c. Butter, 16c to 18c. Eggs, 16c to 20c. Cheese, 10c to 11c. Hay, \$12 to \$17. Potatoes, per bag, 75c to \$1. Corn, 56c to 60c.

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