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VOL. III. No. 8.

TORONTO, CANADA, AUGUST 15, 1871.

NEW SERIES.

The Field.

Experiments on Pasture Land.

Some people suppose that any "management" of pasture land is quite superfluous; that all there is to do to get what is called a pasture lot is either to sow grass seed of some kind or other, or to allow weeds and natural grasses to grow, and then in future to feed it off to the very heart and below, almost in fact in many cases into the ground itself, and few farmers doubt that this treatment is sufficiently good for pasture land. Nothing can be further from the truth. Pasture land at best, and under the most approved management, is an appropriation of more land, and for less return, than if crops were grown on it and the soiling principle carried fully out. Even under the best and most skilful treatment, it is very questionable whether other descriptions of management would not prove more profitable. This point, however, has long been under discussion, and probably will continue to be so until all circumstances are equal under which the various trials and comparisons are made by the different parties making them.

Such pastures as those above referred to are simply dead waste of land, and usually two to three acres of such feed would be required to keep a cow; whereas many people have kept one cow all the summer (or rather two cows half the summer) on half an acre, by growing the most approved crops and soiling them in the stable.

Many years since, a gentleman in the south of England (Sir John Sinclair) published a most instructive pamphlet on pasture land, beginning with and describing the first sowing the seed, its after management, till the final attainment of sufficient dignity to be worthily ranked amongst "what he and all others in the south of England consider worth the name of pasture land."

Amongst other means of producing such a meadow, Sir John recommended and actually

practised the sowing or planting small pieces of turf of about two inches square all over the field prepared to receive it. These pieces of turf were planted on a very rich and heavily manured piece of land, at about twelve inches square apart, and in one year the turf would completely touch, and the whole space so left be entirely closed up. Of course no cattle were allowed on the land so planted, nor was hay made. The growth was really wonderful, and a meadow of great value was thus obtained.

The great principle evolved was to grow such grasses as were proved by actual experience of an adjoining field to have done the best for a series of years in meadows, and as best suited to such land.

The argument used was, that where a number of various kinds of grass seed were sown, and where after many years some one or more of the grasses throve best, and had succeeded in appropriating the chief part of the soil to itself, this fact was proof positive of such grasses being the best adapted for that particular soil, considering the treatment they had been subject to.

Sir John was not content with these experiments on natural and self-sown grasses, but extended the trials to turf produced by artificially seeded varieties, such as Meadow Fescue, Large Fescue, Cock's-foot or Orchard Grass, Blue Grass, Herd's Grass (which never did well transplanted), Ribbon Grass, and a host of others. The result served to elucidate and confirm his principle; and the practice which he finally adopted was to sow a plot of mixed grasses, and after allowing sufficient time for the hardier and best adapted varieties to establish themselves, at the expense, so to speak, of the weaker and less suitable kinds, to form his permanent meadow by transplanting small pieces of turf from the plot thus previously prepared and tested.

In some old leases in England it is no uncommon clause to have inserted "that the meadows are not to be ploughed up under heavy penalties of money fines or forfeiture

of lease," and that they shall not be allowed to "carry," as it is called, more cattle than will at any time consume the natural "rug" of grass roots within two inches of the earth, and never under any circumstance to cut it bare down. Such treatment as too hard pasturing was supposed injurious, and was most truly so. A friend of mine, a few years since, let a long pasture farm to a grazier; the season was dry at first, but very wet at the latter end of the fall, and the cattle did more mischief by poaching the land with their feet in the last two weeks of October and first week of November than could well be estimated except by the comparative loss of the following year's grass, when shown side by side with that which had not been so poached and eaten down. Nothing tends so much to injure pasture land as the poaching of cattle feet when the fields are insufficiently drained, and the injury is much more apparent where the natural protection of the thick rug of grass roots and tops are destroyed by too close cropping. In England a meadow, when once it attains the true thick sward, so much thought of, is never renewed or ploughed up. Manure is often put on, and unless the land is constantly pastured, manure of some kind is absolutely requisite to preserve the thick mat that characterizes some good meadows at home. Here in Canada too little land, or too much stock, no soiling fodder, and consequently too many cattle for a meadow to support, is the rule and not the exception; consequently a pasture field on Canadian farms is usually a bare, unsightly eaten down object; whilst in England, where all things are well attended to, the meadow is proverbially green, grassy, and beautiful.

C.

A more bountiful crop of fall wheat has not been reaped for years in the county of Huron. Spring crops of every description, especially oats and peas, never looked better, and the hay crop is not much below an average.

Talk with Farmers.

TURNIPS, THISTLES, ETC.

"And how soon do you mean to go?"

"I can't go till I have sown my turnips."

"What sort of soil is yours?"

"Well, you know Pickering. At my place the soil is good and pretty sharp; not sand, but lightish."

"Have you been afraid of the fly?"

"No, but I was afraid of the drought; and I determined not to sow till we had rain; then the ground would be damp enough to bring them up, and there would be no fear of their doing well."

"How do you sow them?"

"In drills; and I always plough the manure in the ridge. I find the turnips do better."

On my saying that my county of Wellington friends preferred manuring in the fall, he replied:

"No doubt that plan does well in their land, but we want the manure right under the turnip; we get a better crop, and they are heavier in the ground."

I remarked "Is it not strange that the turnip seed will not lie in the ground like charlock and wild mustard, and come up when the soil is favourable?"

He replied: "I have often wondered at that fact myself; the seeds are alike, and the plants are the same nature, and are both oily seeds, and yet the charlock will lie in the ground any number of years, and grow when a favourable opportunity occurs; whilst the turnip seed must grow or rot; and if it once grows, and cannot come on well, it perishes and is lost. On one occasion (he continued) I found it advisable to put the plough down a couple of inches more than it used to be done, and I had such a crop of charlock as I never saw before; and yet, on inquiry, I could not learn that any charlock had been known to grow on that field before in the memory of any one, so that you see it must have lain in the soil, ready to come as soon as the proper moment arrived."

We discussed the vitality of seeds for some time, and I mentioned that within a few years past the site of an old Roman fort in England had been turned up by searchers after antiquarian matters, and although the ground had been in rough hill pasture for centuries, yet the turning up of the soil produced a plentiful crop of oats. He wondered greatly at this, but supposed they must have been the wild oats, the extent of the vitality of the seed of which is unknown; "and that is the reason," said he, "that I don't like your western country; they have such a lot of wild oats there, and I am real feared of them. I don't mind Canada thistles, but I am afraid of wild oats."

I told him that a man who did not fear Canada thistles need not fear wild oats, that I

was well used to them, and that we dreaded the thistles much more. "But," I remarked, "what way do you go to work with the thistles?"

"Now, I'll tell you," he replied. "When I took my present farm in Pickering (I have had it over twelve years), I found it greatly impoverished, and dreadfully overrun with thistles. There was no straw or hay on the place, and not a single load of manure, for all had been sold that could be sold. It was a poor look-out for me, for the rent had to be paid at any rate. There was one field of sixteen acres that was as full of thistles as it could be. I had determined to summer fallow it, but on account of the thistles put the ploughing off until the thistles were well grown and just balling for flower. They were so thick that the horses could not face them—neither could I—and I had to get the whole field mowed from one side to the other. I kept a man going before the plough, and in the afternoon, when the horses were off, I went in myself with the man with the scythe, and together we kept room for the plough, but with hard work. The ground was very dry, and I could only plough shallow, but I turned in all I could, and the thistles were so weakened with growth that they did not spring quick, and so I finished the whole sixteen acres. Well, this was my only hope for fall wheat, so, as I felt sure all the top soil was worn out, I determined to rip it up deeply, and I therefore went to the saw mill and got a piece of elm scantling, and made a doubletree for three horses. I put three heavy horses on the plough, and tore up the land to fully a foot deep. It was a dry time, and the thistles perished fast on being exposed. After a while I gave it another ploughing, just in time for fall wheat, but I kept the plough shallow, so that I put the freshly moved bottom soil back into the middle of the newly ploughed ground. I had a good time for the wheat; it did well, and I had so large a crop that all the neighbours came to see it; the like had not been seen on that farm for many a year, and I had a noble crop. I seeded the wheat down with clover, cut the clover the next year, and that is the last I have seen of the Canada thistles in that field. That land, with good management, has done well ever since, and I have had no poor crops from it. On the other part of the farm I was troubled in the same way with thistles, but where I could not do with them as I did with the first, I summer fallowed them. I took one crop, seeded it down, then mowed the grass the following year, and again summer fallowed, and that finished all the thistles. This is why I am not afraid of them."

"Do you sow many turnips?"

"Yes, all I can get in and manage. I am on a rented farm, recollect, and if I had no turnips I could neither pay rent nor live. As it is, during the twelve years I have paid over three thousand five hundred dollars in

rent, and have done well besides. I have paid in rent more than the price of the land. I grew last year more than ten acres of turnips."

"Well," I said, "but some of our farmers tell me that they can't grow turnips, that labour is too high, and the crop too expensive."

"That all is nonsense," he said; "I make more off six acres of turnips than I could off fifty-six acres of grain, and were it not for them I should have neither manure nor fertility."

"Whet cattle do you prefer, and how many do you fatten?"

"I prefer the grade Durhams, and always breed mine myself. I get them so that I fatten them at from two to three years old, and I can fatten one beast to an acre of turnips, besides keeping all my stock. I always give each beast, however, about five bushels of grain, and this and chopped hay and straw I strew over the chopped up turnips."

"Do you ever pulp the turnips?"

"No, I have never seen them used in that way; but I hear great accounts of it, and I shall try it soon; but I want to get a farm of my own; I am tired of paying rent."

"What sort of a job would you make among the stumps and roots?" I asked. "I fear that in clearing new land it would break your heart to see things go on as they must go on a new farm. You understand old cleared land, and can do well on it. Why should you not stick to it? If you want a farm, buy a cleared one; there are plenty who want to sell."

But still he seemed to want to battle with the forest and the stumps. Like Alexander, he wanted new worlds to conquer.

Now, this man's story is a most instructive one. He was sober and industrious, and intelligent. He rented a farm that was apparently worn out and covered with every kind of noxious weed. He had but little capital. He found no manure on the farm, no straw, no hay, and nothing but old worn-out pasture, and yet, by the exercise of his native talents and care and judgment he had (out of the worn-out land itself) been able, not only to pay a good rent, keep his family respectably, and acquire a considerable capital, but he had brought the farm into good tillage, had improved it in every respect, and it was to-day in a far better state of fertility than it ever was before. My friend was a Scotchman, of course, but he is a bright example of what can be done, and how old and worn out land can be rendered productive. What will sneerers at the farmer say to all this?

WORN-OUT FARMS.

"Why should you want to sell your farm and move to a new one? I know it is a good one, and in a fine situation."

"Yes, it is; but I have a large family, five boys and four girls, and the farm is not big enough to employ them all. I would

rather get new land, and I want it in the western part of Canada."

"What is the matter with your land in Cartwright? I know that when the land there was first cleared up you used to get three and often four crops of wheat one after the other, merely harvesting one crop, burning the stubble, and sowing fall wheat again."

"Yes, we used to do so; but now all the muck seems to be gone out of the clay, and it leaves it stiff and hard, and we cannot be certain of more than from six to ten bushels per acre, where we used to get forty at least at first, and thirty bushels afterwards."

"Is it the season, do you think, or the seed?"

"No, it is not the season nor the seed; for where we can clear up new land we can get as good crops as ever; so it can be neither seed nor season." [This can only apply to Cartwright, and land in that neighbourhood, for elsewhere all over the Province the new land has been represented to me as failing in crop, as bad as the old land.]

"What is the principal cause of the bad crops you now suffer from?"

"Winter killing. We have cut down all the woods, and the snow won't lie on the wheat, and the fall wheat kills out almost every season."

"Are you sure that is the cause of winter killing?"

"Oh, yes; for where we clear a new bit out of the forest, and where we sow the fall wheat in fields close to the woods, it does not winter kill."

"Won't spring wheat do well with you?"

"No, not for certain; we get only very poor crops of spring wheat now: It is not like the old time of the Siberian wheat, when we were sure of 30 bushels per acre; or like the first few years of the Fife wheat (which we call the Scotch wheat), and which gave us good crops, but which now fails as bad as the other. The Siberian is gone altogether, and we now sow a spring wheat we have got from the States. It is very clear and bright in the straw, and never rusts, and is very stiff in the straw as well."

"Ah, but the spring wheat never rusted, did it?"

"It did not at first, nor for many years; but of late it has rusted more or less on the lower stem and some of the leaves. The Fife is not nearly as bright straw as the new Yankee wheat."

"Do you grow turnips?"

"No, it costs too much in labour and expense. We can't afford the time and expense."

This settled the matter in my mind, and proved to me that my friend, although an old settler and a highly respectable man in his way, was no farmer in the real sense of the term. Like thousands of others, he could work industriously, though without

judgment; save and scrape together, without true economy; and take all out of the land so long as it would bear it, yet think expense and trouble ill bestowed in renovating the soil and restoring the missing elements. He could not count cost either, nor believe that one-half the expense of cost of removal, change of life, and the loss attendant on from one to two seasons without produce, while he was bringing his new farm into a state of semi-production from the forest, would have rendered his old farm like a garden, doubled his receipts, and made him wealthy, for his land is really good. There is such fertility about the soil of Cartwright and the neighbourhood of the little lakes, that it only wants a very slight renewal to come back to a state of normal fruitfulness; that three or even four grain crops might (though improperly) be raised one after the other, on occasions of extraordinary prices or other anomalous circumstances. Although the CANADA FARMER would ordinarily be the last to advocate such a course, yet there may be circumstances which would palliate, if not justify, so heavy an agricultural offence. The writer is well acquainted with the fact that hundreds of farms in the most fertile parts of the Province have been used in the same way, and have been reduced from the height of fertility to very medium and often poor state of productiveness. These places only want the hand and sense of the true farmer, the man who understands his business, to have their elements restored, and to become most remunerative.

This naturally brings the question to the mind: What is the element that has been removed from the soil? Modern discoveries and the researches of Dr. Voelcker have shown, that however useful as an indication of the constituents chemical analysis is, yet it cannot be depended on as a means of pointing out the missing element of fertility in a soil. In the case of the injured farm, it cannot be the phosphates and other mineral constituents, for we daily see people take hold of the most exhausted farms (and those which were the most exhausted were generally originally the best), and in the course of three years, by ordinary means and apparently with no extraordinary amount of labour, the fertility of the land is restored, and the occupant is not only able to pay rent for what would not before pay expenses, but to become wealthy. The writer has known scores of farmers (worthy the name) who, would they enter the land where the Canada thistles, although they could be reckoned by millions and where nothing else green could be seen, but where even the thistles would only grow from six to ten inches high, yet in three or four years, with *only the means on the land*, and with their own skill, such farmers would raise remunerative crops, and would keep the soil in an increasing state of fertility.

Unfortunately these people do not seem to be able to impart the knowledge they pos-

sess; and our best agricultural writers, and our most deeply read agricultural philosophers, are too often at fault when they come to the actual practice.

Our friend "Harris," formerly of the *Genessee Farmer*, and now of the *American Agriculturist*, and a student under James & Gilbert, of England, the most scientific farmers in the world, and who are two of the greatest farming philosophers of the present age, is in this situation. He is now on a large farm, and is bringing all his scientific knowledge to bear upon it; yet even he pleads guilty to want of success, and allows that there are hundreds of people scarcely removed by education and literary attainments from the ranks of the labourer, yet who can restore fertility, manage economically, and eliminate all the elements of success out of the most worn-out soils, that are foul with weeds, and apparently all but unmanageable; and in a few years these people will be the most successful men of the neighbourhood. Could our Agricultural College men "open this oyster," and make these dark places plain, they would indeed be benefactors to the species.

VECTIS.

Turnips as a Manure.

To the Editor.

At the request of the writer of the article on "Turnip Crops for Manure," in your issue of the 15th June, I would beg to give my experience, although not on a very large scale, still I had observed that when my turnips had been frozen in the ground in 1868 and 1869, I had a very heavy crop of grain.

I had two acres of turnips frozen in, and another acre of ground on which I had grown corn for fodder. On these three acres I sowed what is called mixed grain—that is, one-half oats, and a quarter each peas and barley; this is grown and used for provender. From these three acres I harvested three hundred and three bushels; and this without any further manuring than that given to the crop the previous year.

The acre where the corn grew was not nearly so stout as that where the turnips had been; the straw being shorter, and the heads not nearly so well filled nor as long.

The yield of this mixed grain is usually fifty to sixty bushels per acre, sometimes seventy-five; consequently you can see that I had an extraordinary crop on the turnips grown—from one hundred and fifteen to one hundred and twenty bushels per acre.

I mentioned this crop to my neighbours, but as only a few had any turnips, and fewer still had lost them, they had not had the opportunity of witnessing the result produced by a turnip crop frozen in and used as a manure.

A. B. BALL.

Stanstead, June 28.

Notes on Turnip Culture.

A Carlisle paper, in a series of articles on modern farming in Cumberland, has the following remarks on the turnip crops of a well managed farm :

With respect to the culture of turnips, we can say that it is simply faultless, and no better proof of this need be quoted than the fact that Mr Gibbons has repeatedly won the East Cumberland Agricultural Society's prize for the best green crop, having been successful the present season (1870) against several competitors. The land intended for the turnip crop is ploughed over with a deep furrow across the lea furrows, as early as the stubbles are cleared, and it is left in that state until thoroughly dry and fit for working in the following spring.

The land for turnips is then cross-ploughed and tilled with the grubber, harrow and roller, until a sufficiently fine tilth is obtained, it is then ridged up, and a heavy manuring of well made dung is applied, with a quantity of artificial manure sown by hand. The ridges are then split, and immediately followed by the turnip drill sowing from three to four lbs. of seed per acre. From five to seven acres can be got over in this way in a day, the several operations going on simultaneously. As soon as the plants can be fairly distinguished in the rows, the horse-hoes and drill harrows are kept constantly going, and this mode of cleansing and tritulating the soil is continued through the season, until the tops of the plants are quite closed. "*Sow rank and single early,*" is a time-honoured maxim, which carries with it a great deal of weight, and on farms where we have seen the best crops we have always been diligent to enquire whether a heavy seeding was given. The latter part of the saying, which has now good claim to the name of proverb, should be strictly observed, or the plants will be sure to "*spindle,*" by which their vitality is much impaired; all the singling and hand hoeing is done by the day. The topping and tailing in autumn is done by piece-work, at the rate of a penny for five score or seven score yards, according to the crop. The whole of the turnip crop upon Burnfoot farm is taken up and pitted, and the roots are used wholly in byres and courts; but at Bush farm quite one-half of the entire crop is consumed by sheep folded on the land.

A Used-up Field.

The other day I was looking at about the *hardest, dirtiest* piece of land I have seen for a long time; it was full of couch, shepherds' purse, red root, pig weed, Canada thistles, and as many others, as would almost exhaust a work on the botany of noxious weeds. A few days after, this piece was by the help of three horses, a jointer plough, and a heavy chain reversed, I was going to say ploughed down, but some of the weeds were ploughed down

and a good many more left up. The soil shown was the yellowest of yellow soils. The next day the owner of this noxious paradise was sowing, and I was naturally curious to know what in the name of fortune he was putting in.

"What are you putting in there?" I said. "Buckwheat," was the answer.

"That's good; I suppose you will plough it down green, next, to a summer fallow; that's about the best thing you can do."

"Plough it down," said he. "Do you think I'm such a fool as to go and put in a crop, and never get no return for it? Not I. I'm going to let that go to a crop, and it will choke down all these plaguey weeds."

I mildly suggested again the advantage of ploughing his crop under green, and putting a clearing crop on it next year; but this drew down another violent attack.

"What! put my taters and roots on a dirty piece of land like this 'ere. A nice job I'd have a hoeing; I allays put my taters on the cleanest piece of land I've got, and then I don't have no trouble hoeing and horse-hoeing all through the summer."

I said that we generally put roots on dirty ground for the purpose of cleansing such, but as this remark only gave him doubts of the speaker's sanity, I dropped the discussion upon that point, and took up a new line.

"How did that land get so dirty?"

"Well, you see, this was a fine field of meadow once, and so I kept it down to Timothy as long as I could; but of late years the Timothy was getting pretty well played out, so I broke it up and put in oats. Well, that's many years ago; and then I put in oats again, 'cause you know oats always does best the second year on sod. Well, then I put in fall wheat on the oat stubbles. It looked very good in fall and spring; but when it come to thrashing, why it turned out bad. I find that's most the way with my grain; when we have a good growing spring it looks thick and high."

"What colour does it generally look?"

"Well, pretty paleish, but when it comes to thrashing, somehow it never turns out good; there aint no berry, and the heads aint well filled, and there's always summat the matter. Well, I seeded that fall wheat down; some of the clover I brushed up from the hay mow, and just run it over the fans, and considering that grass seeds were very high that year, I got the rest of mine pretty cheap, about 25 cents a bushel less than market price."

"How did the seed look?"

"Well, it didn't look just as fresh as I like, but then if we get a good season, any will grow; and if we don't, why the best aint no good. Well, I thought that seed took pretty well. I put it on about a bushel of Timothy and clover mixed to ten acres, but what with the good growing season, and the weeds getting such a start, and the grain didn't stand

very thick, so the land got pretty well baked towards July; that clover wasn't worth cutting down next year, so I ploughed it right straight down in the spring, and planted corn. Well, hands were awful scarce, and I couldn't tend to that corn, so the weeds just got right ahead of me, and I guess that's what made the field so dirty."

The reader may well say is it possible that such men own farms? It is certainly the case, and there are many such men in the country, and farms treated thus are left a legacy to the children. Is it any wonder that so many say "farming don't pay?"

If a field is "run out" it must be renovated. If we try to go on cropping, we lose all the labour put upon it. If we rest it, and crop it to plough down, we lose only the present use, and that loss will be repaid in a future year.

In Canada, clover is our great renovator. Never let grass stand more than three years, and more important, let the land be seeded again before the decayed vegetable matter of the last turned down sod can no longer be seen in the soil. Go without grain seed rather than run short of clover seed. As to the risk of clover taking, if the land be in good heart and clean, there will be no more chance of clover not taking than of fall wheat or spring grain failing to come up.

C. E. W.

The Management of Clover Hay.

Clover should be mowed as soon as it is well in blossom. There is no necessity to wait for a brown head; there will be plenty to be seen before the crop is well down. Cut when the dew is off, and allow to dry until afternoon, when it should be shaken up and turned before the dew falls. If a tedder is employed, its constant use will fit the clover to be put in cocks the same day. If turned by hand, it may lie until the noon of next day, when it may be put in cocks, made as high and narrow as possible; they will shed rain better in this shape, and, if caps are used, a yard square will be sufficiently large to cover them. Caps are to be strongly recommended, and the above size is sufficient, as the top only needs protection. Put up, and thus protected, the hay may stay in the field until it is all made, when it may be hauled together. If any cock should be damp inside, spread for a few minutes; it will dry rapidly. Clover cured in the cock is much more valuable than that dried in the sun, and wastes less in handling. Put away the *first cut hay* by itself, in a place convenient for use in the spring. Cows coming in early in the spring will thrive on this hay; the milk will be largely increased in quantity, and be richer in quality, while the butter will come easily, be free from white curdy specks, and in colour will not be far behind that from June grass.—*American Agriculturist.*

What Kind of Wheat Shall I Sow?

To the Editor.

SIR,—This is a question often asked by farmers in this locality, and one of considerable importance—as the question “which will yield the largest profit?” is involved.

Before the appearance of the midge and Hessian fly, the varieties of fall wheat raised in this locality were limited to two kinds, viz., the China and the Soules, which usually produced profitable results. Both kinds appeared well adapted to this soil and climate; but during the prevalence of these pests it was frequently a difficult matter to raise five bushels per acre, and in some instances the yield was often as low as three and even two bushels. The result was that these two varieties were entirely abandoned, and many new and untried varieties were introduced. Some of them were less injured by these insects; but none of them have, so far as I have observed, ever produced such abundant crops as the varieties already referred to. Now, what is the cause of this? The principal varieties raised in this section at present are the following:—Mediterranean, Midges Proof, Treadwell, Deihl, Golden Drop, Hack, Boyer, and Soules. But although we sometimes see a good crop, we do not find such universal good crops as formerly. The China variety is almost entirely unknown. Have we so exhausted the fertility of our soil by constant cropping that it cannot produce “old-fashioned crops?” I hardly think so, for we raise as large spring crops as ever. I also think we generally take as much pains as formerly to prepare our ground, although there is yet, and always has been, room for improvement in this respect. If you, or any of your readers, can give any information which will assist us in settling our doubts in this matter, it will confer a favour on many others in this locality as well as

Welland County, July, 1871. FARMER.

Cutting and Securing Wheat.

Wheat harvest is almost always accompanied by showery weather, which is apt to cause the farmer no little trouble in securing the newly out grain. In fact, we have seen a good deal of loss from sprouting and moulding, for the want of proper precaution in guarding against the rain. The frequent practice of setting up the sheaves in dozens and leaving them to dry out without being capped, is not to be commended. We respectfully suggest to farmers to make perfect work as they go on. If the wheat is dry enough at the time of cutting, which is sometimes the case, it may be put up in hand stacks at once of a size to contain say three to three-and-a-half bushels. If not sufficiently dry, it is set up in dozens. Now, these dozens ought to be compactly made, well pointed, and wide enough at the base to give them stability. But the most important point is

to crown each one with a cap. This will amply suffice to cast the rain for any reasonable length of time.

Without the caps, these dozens will take in all the water, little or much, that chances to fall upon them; and if the weather is hot and showery for two or three days, no small proportion of the grain will sprout. The best policy at harvest time is to make haste slowly. If the weather proves favourable, the extra pains recommended will not have involved any serious expense; while under other circumstances the damage to the crop may be no light matter. In a series of years the saving will far overbalance the cost and trouble.

If any crop is worth making, it is certainly worth saving; and yet we have often witnessed the greatest negligence when it has reached that point. We have reason to believe that much of the inferior wheat brought to market is due to this cause.

Besides finishing off the dozens so as to resist the weather temporarily, the construction of the field stack to make it stand safely for several months, requires no small amount of experience and skill. There are certain persons who make this their business, and such should be sought out and employed in every harvest field, with the necessary attendants. In fact, the whole work should proceed in a systematic manner.—*Farmer's Home Journal*.

Mulching.

Most farmers have some idea of the advantages that may be derived from mulching. There are few who have not observed the improved condition of the soil where a pile of stone, old rails, or other rubbish, has lain a long time; they may not stop to inquire whence the improvement is derived—the fact that it can be plainly seen is sufficient. Still it is rather surprising that so few make any use of this fact, or practice mulching in any form. Thousands have more or less old straw and other litter in barns, sheds or stack bottoms, that must be removed to make room for new crops; and yet very few think of applying this refuse as a mulch. Other thousands could gather leaves in the woods, coarse wild grass and flags on low lands, and weeds everywhere, that could be used in this way to good advantage. The very few farmers who do practise mulching with straw, leaves, or other materials, very generally find the results largely exceed previous expectations.

“Some time since a farmer gave me an instance in which he tried involuntary mulching, with unexpected and really surprising results. Some years ago he had a heavy piece of grass cut and spread out to dry, when a very wet time set in and the hay was lost; he was not able to get it dry until it was so badly damaged that it was left on the land. It lay thus spread out until the next

spring, when it was ploughed under and the land planted to corn. This gave, he said, the best crop he ever raised; the yield was not far from 100 bushels of shelled corn per acre. Now it cannot be expected that the small amount of fertilizers that, when rotted, this spoiled hay could yield, would produce such results—results never before or since reached by this farmer, and such as good farmers very seldom reach by heavy manuring. I say the mere fertilizers could not have produced these results; and, as there is but one other way in which it could prove beneficial, it necessarily follows that it was mainly as a mulch that the surprising effect of this forced dressing was realized.

Now the point of especial practical value, for which these facts are brought up, is to show that a large portion of the beneficial results of surface manuring is due to the mulching thus secured. Not only are all the fertilizers of properly fermented manure, saved, applied and washed into the soil, just where they are wanted for the use of plants, but a valuable mulching is secured besides. Hence it is seen that when the manure is thus saved in the soil, and the valuable effects of a good mulching are realized also, a double use of the manure is secured.

This two-fold effect, in thus securing larger results, is what puzzles many farmers who have never tried surface manuring, but judge this practice by the returns secured by ploughing under manure. Believing that when fresh manure is well ploughed under all is saved, they cannot see how any greater or better results can be obtained. Now there are three reasons why farmers naturally fall into this mistake. One is, they don't consider the advantage of securing more ammonia by fermentation and suitable absorbents in the compost heap; another is the more perfect diffusion of all fertilizing matters through the soil, than is possible when manure is ploughed under; and the third is, the use and effect of the manure on the surface as a mulch is not considered at all, when in fact this mulching, if well managed, may nearly equal—perhaps in some cases exceed the fertilizing effects that could be secured if the manure was ploughed under.

For these reasons it is probable that the sooner the manure can be fermented and applied, the better. If the nitrogen is not changed to ammonia, it will be mostly set free and lost, as the manure slowly rots, whether on the surface or ploughed under, while the ammonia formed in the manure pile will be retained by the absorbents until it is washed into the soil. Now it is probable that the principal changes in fermentation take place inside of six weeks; so the manure piled in the spring will be ready to spread on meadows as soon as the hay is out of the way, or on pastures after the best run of grass is fed off. This manure will induce a much larger and better aftergrowth, which will still further add to the effects of the manure as a mulch.—*Country Gentleman*.

Sowing and Curing Corn Fodder.

Corn, planted after the first week in June, is likely to be caught by an early frost and injured. Rather than plant later than this period, it would be much better to sow it for fodder. One acre sown with three bushels of corn, in drills three feet apart, and kept well cultivated, will yield as much feed on land of equal quality as three acres of clover or grass. We have heard of nine tons of cured fodder being taken from a single acre. Of course this must have been on exceedingly rich land; but why could not any farmer make one or two acres rich enough to do this for himself? We have cut at the rate of four tons per acre, and the crop did not look well enough to satisfy us. If the seed is dropped at the rate of twelve grams to the foot, and twelve cured stalks weigh a pound, which they should do if five or six feet high, and as thick as one's little finger, the crop would yield nearly seven tons per acre. A little care, and plenty of manure, would secure this result. As soon as the blossom appears, the stalks should be cut up or cradled, and permitted to lie for a couple of days to wilt; they may then be gathered into small bundles, tied up, and shocked, well spread, and opened at the butts for the admission of the air. This is an important point. Corn-stalks, thus grown, will contain much sugar, and need to be perfectly well cured, or fermentation will set in and sourness and mould occur. When sufficiently cured, the stalks may be stacked or put away in the barn. They will need a ventilator in the shape of three rails, with short pieces of boards a foot long nailed to them, to keep them apart and make a sort of pipe. This must be set up in the centre of the stack, and the stalks placed round it, butts outward. If they should be put away in a mow, two such ventilators must be provided. The top must be kept open, or only lightly covered, as much damp air will escape. Such fodder will be found equal to ordinary hay; in fact, better than most hay. Cut up with a stalk-cutter, wetted, and sprinkled with a handful of meal—or corn and oats ground together—for each head of cows and calves, and a bushel basket of the mixture given at each feed, it will carry such stock through the winter in excellent condition.—*American Agriculturist*.

Ventilators for Stacks and Mows.

It will be of little advantage to make a hole or two near the middle of a stack or hay mow unless it is open at the bottom for the influx of fresh air, and open at the top also for the efflux of foul air. When a ventilator is made in a stack, there should be an air passage from the outside of the stack to the bottom of the ventilator. Then at the top of the stack a wooden tube—round or square, having a hole two or three inches in

diameter through it—should be set in the hay when the stack is being topped off. Two or three inch holes, or a square hole in the floor of a mow, should be made at the bottom of each ventilator. By this means a current of cool air will be kept in motion until there is no more warm or impure air to be carried out of the mow or stack.

The most convenient way to make a ventilator in a hay mow is to prepare a square box about five or six feet long, and sixteen or eighteen inches square, of thin boards, and place it where a flue is to be made in a stack or mow, and draw it up as the stack is built. When within five or six feet of the top, remove the box and have a wooden tube ready to set over the top of the flue.

In a mow the top of the ventilator should be left open. The tube may be kept from dropping into the flue by nailing a piece of board on one side of it near the bottom. Then pile hay around it until it will stand alone. By this means an efficient ventilator will be formed. It is an excellent practice to put ventilators into long stacks and long mows about every ten feet. In a square or round stack, not more than twenty feet in diameter, two flues would be sufficient. A flue in a stack that is covered over with hay at the top, will not pay for the trouble of making. But if there is no more than a two inch hole open at the top, several barrels of foul air will escape per minute through it. By thus letting cool air into the middle of a mow or stack, hay that would otherwise "mow-burn," will be kept cool and will save well. A barrel is sometimes employed for making a ventilating flue. The barrel must be drawn up a few inches at once as the hay is stored around it.—*Pomeroy's Democrat*.

Wooden Drains.

Strange as it may seem, after all our experimenting with wood and the tile draining material, we are likely to come back again to wooden drains of some sort under peculiar circumstances. They are pronounced to be on good authority superior to, as they are far cheaper than, tile-drains, where the wood is subjected to the vapour of carbolic acid. But even without this preparation, wooden water pipes, made in the best manner, will last two or three generations under ground. But as it regards the so-called Robbins process, it is not applied to logs, but boards, so that the logs of any perishable woods sawed into boards, and the boards subjected to carbolic acid, formed into square conductors and used as drains upon farms, will last, it is claimed, "forever," at a cost of not over a fourth or a fifth of that for tile, a heavy article and expensive to farmers living at a distance from a manufactory. Should this process turn out to be all that is claimed for it, the farmers of the country will find in it a means of rejuvenating their lands by draining, which, while it will cost but little, will nearly double their productive capacity.—*German-town Telegraph*.

Stock Department.

Management of Colts.

Colts are apt to be left to shift for themselves after weaning. This is wrong. A year's gain in the usefulness of a horse may easily be made by care and attention during the first few months of its life. The mare, while nursing its foal, should not be overworked, and good pasture or green feed in the stable will keep her in fair condition, and furnish sufficient nourishment for the foal. When weaned, and pasture becomes short, neglect is hurtful; then care should be exercised to keep it growing. During the fall months some of the best early cut hay should be given to it; and when the horses are stabled, let it have a loose box or stall adjoining them, where it can see and become used to the discipline of the stable. Everything around it should be well secured, lest in rubbing itself it might get something loose. A habit of breaking things and getting loose is easily and invariably formed at this time, and should be guarded against. During winter, feed your colts as you feed your horses. Give them a share of what is served out, oats, corn, or ground feed, as it may be. They cannot grow or fare well otherwise. "Stinginess" don't pay in rearing young animals. An addition of twenty-five or forty dollars to its value may result in the winter's feeding and care of one colt. Generosity here (of course exercised with judgment) is only wise foresight, and will pay good interest on the investment. Colts are better kept up than allowed to run around. They will become more docile and tractable, and will learn fewer tricks. Take them out only for exercise, except when at pasture, and then be sure to have a secure fence, or they will inevitably learn to rub it down or jump over it. Train your colt to walk, and keep it walking. Farmers don't want fast trotting horses—as yet—we have need so far of fast-walking horses, great need, we may say, for they are far too scarce. Therefore, train colts to walk at the rate of four miles an hour at least. The time will come when a horse that can walk his mile in twelve minutes will take a prize at an agricultural fair, equal in value to the best trotter. A team of such horses could plough an acre of ground, with a furrow six inches wide, in five hours, allowing time for turnings round. This is above the quantity ploughed on the average now, in a day of ten hours. Horses of such capacity would be worth a large price, and it should be our endeavour to produce them. We have a breed that can transmit trotting capacity to its descendants; why could we not raise up a breed of walking horses? Some one might make a name and fortune in this.—*American Agriculturist*.

Harnessing a Horse Correctly.

When harnessed correctly, a strong horse is a powerful animal; but by an imperfect adjustment of the gearing, many strong teams are shorn of half their strength; and many are often worried more by an improper fit of the harness, or by a decidedly bad attachment to the vehicle they are drawing, than by all the service they perform. But few teamsters have ever been taught how to harness a horse correctly, and fewer still have learned that there is a right way and a wrong way to hitch a team to a carriage. When a harness is taken from the shop, every part should be adjusted to fit the horse that is to wear it. The backband should be let out or buckled up until it will be neither too long nor too short when the animal is drawing a load. Many a good horse has had a large sore made on his back simply because the backband of the harness was buckled up too far.

The breeching should also be adjusted properly, so that the horse will not seem like a man in a boy's coat, nor like a colt wearing the harness of a full-grown horse. The collar should fit as neatly to the animal's neck as an easy pair of shoes set on one's feet. The collar should never be so long that a man can thrust his arm easily between the neck of the animal and the lower end of the collar. Many horses, especially old ones, when thin in flesh, require collars so small that they cannot be put over the heads of the horses that wear them. It is of eminent importance that the proprietors of teams should see to such minor points, and provide collars that are open at the top or bottom. Every horse should have his own collar and harness, as much as every man his own boots and coat.

The lines are often adjusted in such a manner that the heads of both horses are hauled away from each other so far that the team cannot travel easily. At other times their heads are drawn too far inward toward each other. The lines should be adjusted so that the heads may be held just as far apart as the length of the double whiffletree. When a team is attached to a carriage or lumber wagon, the breast-straps, stay-chains, or neck-yoke should be so adjusted that the pole or tongue cannot strike either horse. The tongue is often allowed to have so much play that it whangs the arms or shoulders of the team with terrible force when the vehicle is being drawn over rough ways. The neck-yoke, straps or tongue-chains should be drawn up so as to elevate the tongue between the shoulders, where the lateral jerking or thrusting will be received by the gearing on the necks of the animals rather than against the unprotected arms or shoulders of the team.—*Practical Farmer.*

Mr. R. Adams, of East Zorra, recently sold to Mr. Scott, for exportation to Kansas, a yearling bull "Orphan Boy," a bull calf "Young Duke of Oxford," and a four year old cow "May Queen."

Water the Stock.

We need scarcely remind our readers of the imperative necessity of providing stock with abundance of water at this season of the year, to which animals can have access at frequent intervals, if not all the time. And yet we know that there is scarcely any necessary duty of farm life which is neglected with more frequency than this. Stock of no description can thrive without ample supplies of water; and in the restlessness and suffering occasioned by a neglect to make suitable provision in this respect, the results of the most careful feeding and the benefits of the richest pasturage are oftentimes entirely dissipated. Pastures should be located where they can have the benefits of running water or suitable lakes, for the quality of the water at this season of the year is a matter of prime importance. Between a stagnant pool and no water at all, the former would be gladly accepted by either man or beast. But as between stagnant water and pure, there is little question but the health and vigor of both man and beast will be better subserved by the latter. Persons who think that the contents of any swamp hole are good enough for their stock, commit a grave mistake. The stock may drink it and live, and so may a man, but it tells to a certain degree upon the physical condition of both. And during the hot months, when vegetable decomposition is most rapid, and when stagnant water is undergoing active chemical change, no effort should be spared to provide stock with water that is reasonably pure. We know it will involve considerable labour to draw water in the ordinary manner, from a well where a large number of animals are confined in a single enclosure, or to bring the necessary water from adjacent streams. But where the matter does not admit of compromise by driving the stock to pure water two or three times daily, we believe it better economy to draw by hand what water they require, or to rig a wind-mill for the purpose, than to force them to drink from stagnant and fermenting pools.—*Live Stock Journal.*

BERKSHIRE PIGS.—Mr. John Forsyth, of Toronto, has recently made the following sales of improved Berkshire pigs:—To J. Roach, Toronto, 1 boar and 1 sow; to — Scoville, York township, 1 sow; to C. Whitlaw, Paris, 1 boar; and to Alfred Arnster, Stirling, 1 boar.

IMPORTED LINCOLN SHEEP.—We had an opportunity recently of inspecting some very well bred Lincoln sheep, just imported from England by Mr. Wm. Chappel. The lot consisted of a tup, ewe and lamb. All were from Mr. Battersby's prize stock, and were purchased by the present owner at the annual sale last April. The tup was bred by Mr. Garfitt, of Scothirn, near Lincoln. The ram, 14 months old, has just been sheared the fleece weighed over 24 lbs.

Veterinary Department.

Digestive Organs of Cattle—Diseases of the Rumen or Paunch.

INDIGESTIBLE SUBSTANCES.

The rumen, although not possessed of any great degree of sensibility, is nevertheless liable to many disorders. A peculiar and not uncommon occurrence is to find indigestible and foreign substances lodged within that compartment. Every practitioner meets with cases frequently, and many are recorded to show the number and variety of substances that are occasionally found therein. In the Veterinary Museum at Alfort there is a calculus that was taken from the rumen of an ox, the nucleus of which proved to be a woman's neckerchief, without one laceration in it. In other cases, are found pieces of leather, iron, nails, and many such articles too numerous to mention, showing that the cow is a very greedy animal, and frequently devours very strange materials.

The presence of foreign substances in the rumen to any great extent soon produces a considerable amount of local irritation, and as a result the proper function of the stomach is impaired. When these substances present a sharp point, they may penetrate the walls of the stomach and also the abdominal walls, giving rise to great pain and suffering, and now and again a foreign substance is found within the pericardium or covering of the heart, having made its way from the rumen and penetrating diaphragm.

It is a difficult matter to diagnose the presence of these irritants, but they may be suspected when the symptoms are of a chronic character; the animal falls off in condition, and has an unthrifty appearance, and is liable to slight attacks of tympanitis. Medical skill in such cases is of little avail, as little relief can be given.

TYMPANITIS.

The most frequent complaint of the rumen is tympanitis or hoven, or distension from gas, which is produced from the substances taken undergoing the process of fermentation. This severe and alarming affection may primarily proceed from various causes. It may appear as a sequel of choking, or from chronic indigestion, a constipated state of the bowels, or as an accompaniment of parturient fever; or it may be associated with chronic disease of the liver or of the lungs. But the most frequent cause is a sudden change of food; for when an animal is taken from poor or less nutritive food, and put upon a rich succulent diet, such as clover and turnips, and it generally eats so greedily and so largely that the rumen ceases to act, the food does not circulate through its cavities, and from the combined action of heat and moisture gas is extracted from the fermentation of its contents. During the

autumn and winter months it is occasionally brought on by injudiciously giving either frosted turnips or potatoes.

The symptoms of hoven are of a very alarming and distressing nature; the paunch is blown up like a bladder, distending the left flank, which will stand prominent above the backbone. When tapped with the hand, a resonant sound is produced; the poor animal suffers intense agony; the breathing is increased almost to suffocation, caused by the distended parts compressing the lungs; he moans heavily, and evinces pain by striking his belly with his feet; the brain becomes affected; he has a stupid look, and will stagger round for a little, and then fall violently; and death may take place either from rupture of the rumen or of the diaphragm, or from asphyxia.

In order to save the animal, the first object to be accomplished is to liberate the gas, and the measures that may be taken for this end must be regulated according to the severity of the attack. It may be got rid of by giving a good dose of turpentine and raw linseed oil, in the proportion of two ounces of the former to one pint of the latter, or the preparations of ammonia may be used instead. When the symptoms are deadly severe, recourse must be had at once to puncturing the rumen, which is best done by a trochar and canula, which every farmer should have in his possession. The operation, in case of necessity, may be performed with a common pocket knife. The place to puncture is the left flank, about equal distances from the last rib, the backbone, and the point of the haunch. Make an incision through the skin, and then insert the trochar and canula, and withdraw the trochar and allow the canula to remain. The gas will rush out with great force, and give immediate relief. After your object is obtained in the liberation of the gas, remove the canula, and apply to the wound daily a little cold water. A mild laxative should also be given, such as a pint to a quart of linseed oil; or six or eight ounces of Epsom salts, and the food given for some time must be such as is easy of digestion.

This fatal disease might often be prevented by exercising a little care and attention when it is necessary to change the food.

Horse Disease at Goderich:

At the request of the Commissioner of Agriculture, we proceeded on the 14th of July to Goderich, to examine as to the nature of the disease that had attacked a number of horses in that locality, and which has proved to be of an alarming and very fatal character.

So far the disease has been entirely confined to horses belonging to one establishment, and in all ten have been affected, five of whom have died. The disease is of unusual character, and appears to be a fever of a putrid nature.

The first noticeable symptom is a shivering and irregularity in the temperature of the body, speedily followed by great prostration. The horse walks with an unsteady, reeling action; there is an increase of saliva from the mouth, and a difficulty in swallowing, and this distressing symptom rapidly increases. The horse appears very thirsty, but is unable to swallow. He will attempt to take in the water, and continue to do so for a long time, without swallowing a drop. The great difficulty in the process of deglutition is caused by the loss of power of the muscles which perform that function, and not the result of any obstruction in the throat. The temperature of the body changes quickly—at one time feeling quite warm, whilst shortly afterwards it is exceedingly cold, the coldness increasing as the disease advances. The mouth is hot, and the eye dull-looking and watery; the mucous membrane of the nostrils is of a dull leaden colour, the breathing in some cases increased, and there is slight congestion of the lungs; the secretion of urine is partially arrested, and the feces are very dark in colour. Occasionally the patient will exhibit abdominal pains, which are aggravated by pressure on the abdominal walls. The weakness increases, and the horse lies down, and in most cases is unable to rise. There he lies with his head upon the ground, and every now and then moving his fore feet violently. The ears and legs become deathly cold, a frothy spume issues from the nostrils and mouth, the pulse is almost imperceptible at the jaw, and death occurs in from three to twenty hours after lying down.

We had an opportunity of making a *post mortem* examination, and the abnormal appearances presented were as follows: The stomach was perfectly empty, and its villous coat showed signs of slight inflammation. The small intestines were inflamed at different parts throughout their entire length, and near to the opening of the biliary and pancreatic ducts were several ulcerated patches. The same appearances also existed near to the termination of the ilium.

The large intestines contained a small quantity of feces, and in several parts showed signs of recent inflammatory action. The small colon in several parts presented ecchymosed spots.

Passing from the stomach to the throat, the inflammatory signs were still visible; the pharynx and surrounding parts were decidedly affected. The back of the nasal passages and larynx also, and the lungs, were slightly congested. The kidneys appeared in a normal condition, but the mucous membrane of the bladder presented a number of ecchymosed spots.

The symptoms and *post mortem* appearances show the disease to be a putrid fever produced by a blood poison, and resulting from some local and debilitating influence of an exceedingly fatal character. The sanitary measures that have been adopted—em-

bracing principally removal to fresh quarters, attention to ventilation and cleanliness—are likely to arrest the spread of the disease. Every attention has been given to the cases by Mr. Churchill, V.S., of Goderich.

Castrating Pigs.

A correspondent of the *Country Gentleman* makes the following remarks on the effects of castration, concluding with a description of the best method of performing the operation on the pig:

I have castrated and spayed every domestic animal except the mare, and have found the results uniformly the same—increase in bulk especially; increase in the fineness of the meat when dressed; docility of temper in intercourse with man, being the more easily managed; general improvement in appearance, being sleeker and finer-coated always; less prone to wander from home if at large, and much more quiet if pent up in any form, thus being much less destructive to fences and other property within reach; and lastly, the are much more free from damage themselves for the reason stated.

Let us examine the facts. First on the list is the horse. Who does not know what a stag is? With his thick head and neck, he lacks in the hind quarters so much, as to look, as he really is, out of all shape, and inherits and persistently retains to the last whatever vices his progenitors possessed; while if he had been castrated when quite young, he would have been more fully developed, and free from the vices spoken of. Again the bovine stag; is it not with him as with the horse? Is he not generally as vicious, and as most as restless as when a bull, and much harder to feed? The same principles and general results attach to the ram, and also to the dog. In fact, everything with which I am acquainted, male or female, with regard to castration or spaying, seems to be the same—they go to fat and general bulk, their quiet passiveness being one great cause thereof, and of course the results of early castration. Why caponize chickens, but for the results above spoken of?

Finally, the pig. The best time is not younger than four weeks, nor over five weeks, for castration, I would sooner warrant a six or seven year old horse under the operation of castration than a hog of a year old. I have had a number of horses die on the sixth and seventh days after castration, but do not remember, of the thousand I have cut young, when sucking, to have lost any. Of course, some may have died of which I have not heard; but not many, for the farmers are very apt to let me know if anything of the kind happens.

The best method in castrating the pig is to cut with a very sharp knife into the scrotum; carefully cut from the testicles the skin attached to them; twist around quite a number of times; then draw away the testes with the right hand, holding the artery with the left; when both are removed, fill up with common salt, and it is done.

Cracked Heels.

Cracked heels almost invariably result from some form of stable mismanagement. Sometimes the horse is being too freely supplied with beans or oats, and has not sufficient work or exercise. More often the irritability and sores are induced from wet and filth. The horse, on his return from work, has his legs washed liberally without being properly dried, or he is permitted to stand amongst rotten straw and acrid urine. The hind-heels being most frequently exposed to these noisome causes of irritation, accounts in great part for their being cracked more commonly than the fore-heels. Endeavour, if possible, to ascertain the exact causes which have induced and keep up the mischief. Without this, treatment can obviously be of little avail. If there is much thickening of the skin, pain, and tenderness, it will be well to give the animal half a dose of physic; order mashes, roots, or green food, and forbid beans and peas; keep the stable scrupulously clean; avoid wetting the heels as much as possible; but if they require cleaning after work, use tepid water, and be particular as to thorough drying; moisten the cracks daily with a little carbolic-acid lotion made with one part of carbolic acid to six of linseed oil; and to prevent as much as possible the access of dirt smear the heels with some oxide-of-zinc ointment before the horse goes to work.—*North British Agriculturist*.

CONSTIPATION, &c.—“The Glen by Delhi P.O.”—We do not think the disease that proved fatal to your ox was of an infectious character.

INJURY TO THE HIND LEG OF A HORSE.—A “subscriber,” Stafford.—Judging from your description of the symptoms, we believe the joint is diseased, and it will therefore take a long time before a cure can be effected. The horse should be kept in a box, and the joint bathed three times a day with cold water; the bathing to be continued for ten days, after which apply a blister composed of powdered cantharides one part, to six parts of lard, the ointment to be well rubbed into the parts.

SARCOCELE.—A correspondent from Platts-ville writes as follows:—“As one of my neighbours has a couple of geldings, which have the appearance of rupture—one of them more so than the other—he had the worst of the two examined, but only found the bag filled with water, which was let out; but as it healed up, became as large as ever.” In cold weather it is a great deal less; but in warm weather, and when the horse is heated, the bag is quite large. Would you be kind enough to tell us through your valuable paper the cause, and also a remedy?” This is a case of effusion of water in the covering of the cord—a sort of drop y—the result, probably, of some previous inflammation. It is not usually serious, and is best left without treatment.

The Dairy.

Breaking Heifers to Milking.

A correspondent writes as follows to the *Leicester Journal* on this important subject:

“All domestic animals require some sort of training or education. The steer may require more training than the heifer, because the uses are varied to which he has to become accustomed to make his labour “skilled and practicable. While the cow may not need to be schooled in these higher branches of *practical studies*, she should be taught that to stand quietly while being milked, and to “hoist” the right foot and place it back of the other, are virtues to be commended and rewarded (by kindness, at least). No animal should ever be allowed to pass their first winter without being thoroughly “halter broke,” so they can be led by the horn, or with a rope around the neck, gently and peaceably. Doing this when they are young and easily handled, it saves a vast amount of subsequent hard work and perplexity, and, may be, the animals many kicks and blows. *Train while young*, should be the motto of the barnyard.

“First teach *all* your animals to love rather than fear you. Teach them to welcome your coming by presents of a nubbin of corn, an apple, a little salt, &c., on all occasions when practicable. Handle them freely, and get them accustomed to your touch by rubbing and scratching them. Heifers thus accustomed to being handled will soon come to seemingly like the operation of milking. I once had a heifer that from having exceedingly sore teats contracted the habit of running away from me, when milked in the yard, before the milk was half down. All my endeavours to break up the habit failed till, as a last resort, when she started away from me, I caught up the pail with one hand and seized one hind leg with the other, and held on firmly. After hopping a few steps, and some pretty severe kicks and jerks to free herself were made all to no purpose, she “accepted the situation,” and calmly submitted to the process till milked clean. Two or three such lessons cured her entirely. Such usage would probably have frightened her, and made the habit worse had she been unaccustomed to being petted and handled. But a few lessons gave her an understanding of what was required, and subsequently any attempt of a repetition of the misdemeanour would be suddenly checked by merely placing my hand gently upon her leg.

“It is very important that cows of any age be milked clean; but more especially should this be practised with heifers. One of the secrets of butter-making lies just here. I need not tell those that are used to the care of cows and dairying that the last drawn gill is nearly all cream, and when one of these little measures of milk is left in the udders of

several cows, as a careless milker will often do, no insignificant quantity of the richest milk is lost every day.

“But this is not all or perhaps the greatest loss. Leaving milk in the cow's bag has a most deleterious effect upon the cow. Undoubtedly many cases of garget might be traced to this neglect. And the habit, if persisted in any length of time, will cause a gradual falling off in the milk, and the cow will be very unlikely to regain her full milking powers again. This matter is worth more than a casual thought. Heifers, the first year of their coming into the dairy, should be entrusted to no inexperienced or careless milker. A good milker will draw the milk in silence and quickly. Never allow yourself to leave a cow half milked, and then return and finish, thinking to get the full complement that the cow would give. This habit is nearly as bad as the one spoken of above, and its practice brings about the same results. By such means heifers often contract the habit of withholding their milk—a most perplexing habit, and often not easily cured. A good milker will attend to his work, and draw the milk clean as quickly as possible, and establish the habit of giving down freely—a valuable item in a young cow.”—*Prairie Farmer*.

England's Supply of Butter.

It seems likely that considerable American butter will be wanted in England the present season, not because the yield there is not good, but for the reason that little will be received from the favoured old districts on the continent. On this point, the *London Milk Journal* says:—“East and north-east of Rouen the number of cows is so small that they cannot supply the neighbouring towns without drawing cows from districts not visited by the Germans; by this means production may be equalized, but not increased. Frenchmen who have means of knowing are of opinion that it will be three years before they can export as much as they have done, and that, as order is restored in Paris, it may become apparent that they will have very little to export, and that, to conciliate the towns, it may be again prohibited, or subjected to a heavy tax. Should this contingency arise, we may see the season a dear one. Some notice has been directed to Sweden and its factory dairies; no doubt these will yearly increase, and improve in quality; it will, however, be some years before it can take even a tenth rate position in this market.”

DRYING COWS.—A correspondent asks “what means are the best to dry a cow of her milk?” Give a dose of purgative medicine, such as one pound of Epsom salts dissolved in two or three quarts of water, and bathe the udder with vinegar and water daily. The milking should be discontinued as rapidly as possible, short of producing inflammation of the udder from over distension.

Horticulture.

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

Summer Meeting of the Fruit Growers' Association of Ontario.

The regular summer meeting was convened at Hamilton, on Tuesday, July 4th. There was only a moderate attendance at the morning session, in consequence of the rain, but fresh accessions were made to the number during the day, so that there was on the whole a very creditable attendance and fine display of fruit.

It is very much to be regretted that there is not to be found in the city of Hamilton a suitable and convenient room for the holding of such a meeting. This is now the third time that the meeting of the Association has been disturbed by the necessity of adjourning from the room in which it was convened to some other place. These things are not only disagreeable, but they are a serious interruption and a waste of much valuable time. In truth there should be two rooms at the disposal of the society for the day, one in which the meeting for discussions is held, and the other in which the fruit is placed. By this arrangement the committees appointed to examine and report upon the fruits, can make their examinations without disturbing the deliberations of the meeting.

The meeting was called to order by the Vice-President, J. C. Rykert, Esq., M.P., and, after the transaction of some routine business, the discussion of the subjects for the day was commenced.

STRAWBERRIES.

The best six varieties of strawberries for the table was first considered. Mr. Rykert could not find six varieties that he would care to cultivate, after having tried several scores of sorts, but would name in the order in which they stood in his estimation—Triomphe de Gand, Chas. Downing, Russell, and Early Scarlet. He had found the Chas. Downing to withstand the drought remarkably well, and Russell to be of large size and very productive. The Agriculturist had proved with him to be a shy bearer, and not high flavoured. He had tried the President Wilder, but it had wholly failed in productiveness, and he had been compelled to cast it out as quite unsuitable to his grounds. He had also tried the Marguerite, which was shown at the meeting in Galt, and astonished every one by its enormous size; but he had been wholly unable to raise anything more than berries of medium size. Mr. Rykert's soil is a porous gravelly loam, and he cultivates all his strawberries in hills, keeping the runners pulled off. He thinks this the best and most convenient system of cultivation,

yielding the largest returns, and obviating the necessity of planting new beds every two or three years.

Rev. Mr. Bell had succeeded only with the Wilson, which was hardy and very productive.

Mr. A. B. Bennett placed Lenig's White at the head of the list, as being the finest in flavour of them all, and with him it had been quite productive. After this he would name Cushing, Wilson, Green Prolific, Monroe Scarlett, and Fillmore. Mr. Bennett's soil was wholly a made soil; it had originally been low and wet, but had been filled up, and was very deep and rich. Dr. L. Cross named the Triomphe de Gand, Trollope's Victoria, Early Scarlet, Hooker, Hovey, and Jucunda. His soil is a clayey loam. He cultivates the Triomphe and Jucunda in hills. The Wilson yields by far the largest crop. After taking two crops, he renews by planting new beds and destroying the old ones.

Mr. W. H. Mills could name only the Triomphe de Gand and Wilson.

Mr. Saunders named only three: Jucunda, Green Prolific, and Downing.

Mr. Laing, of St. Thomas, named the Wilson and the Hooker. Had given Bishop's Canada a careful trial, but it was not productive, and he had dropped the cultivation of that sort altogether.

Mr. Linus Woolverton cultivated the Jucunda for table, which he esteemed as the best.

Mr. Arnold thought that this question should be considered as one of quality, that the six varieties having the finest flavour and most desirable to be placed on a gentleman's table should be named, irrespective of the cost of production. Taking this view, he would name the Bishop's Canada as the most delicious strawberry he had ever grown, and place it first on the list of the six best table sorts. It was indeed a very unproductive variety, but when they could be had they were of the very highest quality. Next to this he would place the Hooker, as a very high flavoured berry, then the (American) President Wilder, Charles Downing, Jucunda, and Trollope's Victoria.

Mr. Holton could not view the subject quite in the same light as Mr. Arnold. He thought cost of production should enter into the estimate of the qualities of a variety even for amateur culture. He named Early Scarlet, Wilson, Triomphe de Gand, Macavoy's Superior, Jucunda, and Hovey.

Mr. Lewis named only the Wilson.

President Burnet was not able to give the names of six varieties that he would advise amateurs to plant for the table, for with him, and he thought with most planters, the productiveness of a variety had much to do with its desirableness. When he had a good berry he liked to have plenty of it; and as many amateurs, probably the most, had only small gardens, it was an object with them to

get as much as possible from a small piece of ground. He therefore named the following as in his view being the best: Wilson (the most productive of all), Triomphe de Gand, Jucunda, and Nicanor. This last named sort had endured the drought remarkably well.

The question of the six varieties of strawberries best suited for market purposes was then discussed.

Mr. Rykert named only one variety that he considered at all profitable as a market variety. This was the Wilson. He practised and strongly recommended the cultivation of the strawberry in hills and keeping the runners cut off, and believed it to be the most profitable method. His soil is a light dry, gravelly loam.

Rev. Mr. Bell knew of no variety as suitable as the Wilson.

Mr. Bennett spoke of carrot tops as a most excellent winter covering for the strawberry plants, and which, being suffered to decay on the ground, enriched the soil and brought no seeds of grain or weeds. He could name no variety at all comparable to the Wilson for market.

Dr. Cross was fully of the opinion that in the present state of our markets, when berries sold at a rate not averaging higher than ten cents per quart, there was no profit in growing any other variety than the Wilson.

Mr. L. Woolverton has tried many kinds, but none of them can equal the Wilson.

Mr. Arnold thought it was desirable to take as much advantage as possible of the higher prices which ruled in the opening of the strawberry season, and therefore would plant a few of Metcalf's Early and a few of Nicanor, because these are earlier than the Wilson. Also the Nicanor stands dry weather very well, and in such seasons has on this account some advantages; but for the bulk of his crop he should rely on the Wilson. He plants in rows four feet apart, and the plants one foot apart in the row; keeps clean with cultivator and hoe, and after taking two crops turns under with the plough.

The President had found a liberal dressing of leached ashes to be a very beneficial application.

At the opening of the afternoon session the President read a very interesting paper, which had been sent in by Mr. James Dougall, of Windsor, on the subject of cheap glass structures for growing Exotic grapes, and their management. The paper was received with thanks, and referred to the Printing Committee.

RASPBERRIES.

Which are the best six varieties of raspberries for the table? was then announced as the subject for discussion.

Mr. Morse had tried the Red Antwerp and Franconia with but poor success, and much preferred some of the Black-caps.

Dr. Cross esteemed Brinckle's Orange very highly, and gave that the preference. He also thought favourably of the Philadelphia.

Mr. Woolverton named in connection with Brinckle's Orange the Red Antwerp.

Mr. Rykert could not recommend six sorts, but would plant in addition to Brinckle's Orange, Lum's Ever-bearing, which is an autumn bearing variety of the black-cap, and exceedingly productive; Golden Thornless, which is a handsome yellow fruit, the cane without spines, and exceedingly productive, though the flavour was not high; and the Belle de Fontenay. Perhaps, to make out the six, some would add the Franconia and Davison's Thornless.

Mr. Bell was much pleased with the Red Antwerp as a fruit, but the canes were very liable to be injured by the winter.

In discussing the subject of the best six varieties for market,

Mr. Woolverton named the Mammoth Cluster and Doolittle, both of black-caps, and both hardy and productive.

Mr. Rykert thought that the black-caps would bear transportation so much better than the other sorts, that they would be found on that account the most valuable for market. He cultivates his raspberry plants in single stools, six feet apart each way.

Mr. Lister had recently planted Brinckle's Orange, Franconia, Philadelphia, Davison's Thornless, Doolittle, Mammoth Cluster and Golden Thornless, but could not yet speak of their respective merits.

Rev. Mr. Bell admired the black-cap varieties.

CURRENTS.

Which are the best six varieties of currants?

Mr. Hyslop had cultivated with success the Red and White Dutch and White Grape. They were prolific, and he had been able to keep down the worms by the use of hellebore.

Mr. Brooking preferred the old Red and White Dutch, especially for market. He had also grown the White Grape and the Cherry, and Black Naples. He had found the use of white hellebore of great benefit, and had succeeded in completely routing the currant worms.

Mr. Morse grew the Red and White Dutch, the Cherry Currant, and the Black Naples. He thought the Red and White Dutch the best for market, being hardy, productive, and meeting with a ready sale. For flavour he prefers the White Grape. The insect enemies he is able to keep in entire subjection by the use of white hellebore.

Mr. Bell prefers the White Grape for flavour, but for culinary purposes finds the Red Dutch to be the best. Had found the Black Naples prolific and good.

Mr. Saunders is much pleased with the Cherry and White Grape sorts, to which he would add the Prince Albert on account of its ripening later, and so prolonging the currant season.

Mr. Woolverton named the Cherry, White Grape, and White Dutch.

Mr. Laing prefers the old Red and White Dutch; the Cherry variety, though larger, was not as good.

Mr. Rykert preferred the White Grape and the Cherry, though he did not esteem the fruit as one of any great value. He doubted whether the cultivation of this fruit for market would ever be profitable.

Mr. W. H. Mills thought very highly of the currant, grew the White Grape, the Cherry, Red and White Dutch. He could not get too much of this fruit for market. The Cherry currants brought 20 cents a quart, the Red Dutch only 10 cents; and he therefore thought that the Cherry currant was the best sort to grow for market, and that it was also profitable. He thought the fruit was conducive to health. In point of flavour he gave the preference to the White Grape.

Mr. Laing said that currant jellies were largely imported from Scotland, and that we might just as well supply this demand with a home product, if the proper attention were given to the matter.

The President spoke very approvingly of fresh currants on the tea-table, with sugar and cream, as being both delicious and wholesome.

Mr. Bennett would as soon do without his strawberries, and had observed that buyers from Buffalo came to Brantford, and paid good prices for them. In some places, according to President Wilder, as much as thirteen hundred dollars had been taken from an acre of currants.

Mr. Morse had people come to his place for them, and give good prices. Mr. Brooking had not been able to supply the demand for them at Dundas, and Mr. Saunders remarked that at London they have always a ready sale; and Mr. Rowe, of Paris, had sold his crop while they were in blossom. He had found the Cherry variety to be very prolific. White hellebore was a perfect cure for the saw-fly or currant worm.

Rev. Geo. Bell had not found the Cherry as prolific as the Red Dutch: were it only as good a bearer, he would prefer the Cherry. He regarded the Black Naples as a very valuable sort, although very little was said about it. It made a most excellent jam, which was useful in many ways, and made very wholesome and refreshing drinks.

Mr. Arnold had grown a number of so-called varieties of Black Currants, such as the Black English, Black Grape, Black Bang-up, but could not see enough of difference to make a distinction. The Red Dutch had been badly injured by the currant borer of late, and was inferior when compared with others. The Cherry was tart, but the White Grape was of fine flavour, first-class.

Mr. Freed remarked that the Black English and Black Naples differed in time of ripening. The Black Missouri is a very poor

affair. The White Grape is the finest flavoured, but the Red Cherry is the best for jelly. The Champagne made a very handsome jelly.

The President exhibited some samples of the Champagne variety, which were of a beautiful bright pink colour, and intimated that any member of the Association could have cuttings from his plants, as he had several of them.

Mr. Holton considered the Cherry as the best for market, and for jellies the Red Dutch when well grown. Cultivation makes a great difference in both flavour and size of the Red Dutch, being very much improved in both by liberal supplies of manure, clean cultivation, and judicious pruning. The currant worm is easily destroyed by timely and persistent use of hellebore, in the proportion of one ounce to a pail of water. The moths of the currant (stem) borer can be destroyed by the use of dishes of sweetened water or poisoned cloths. The enemies of the black currants are not so numerous or so serious those of the other sorts.

Mr. MacCallum had found the several sorts of currants to be quite prolific. He grew the Champagne, Cherry, and Red and White Dutch.

The President called the attention of Mr. Saunders, who is the Entomologist of the Association, to the existence of a small insect found feeding on the black aphids, and in this way rendering a valuable service. He thought it might be the same as the insect known in Scotland as the "Grave Digger."

Mr. Saunders stated that it was not the "Grave Digger," but was the larva of one of the Lady-birds, and very much resembled the "Grave Digger." He exhibited several of them, which he had with him in a small box. They were about three-sixteenths of an inch in length, dark purplish colour, with yellow dots. He also stated that there was a gauze-winged fly, which was doing its share in the destruction of these aphids, with which it was desirable all fruit growers should be familiar and recognize it as a friend. Its expanded wings measured about three-quarters of an inch; it had bright fiery eyes, and, when handled, emitted a disagreeable smell.

GOOSEBERRIES.

The next question discussed related to gooseberries—which are the best six varieties?

Mr. Hyslop had been successful in growing the gooseberry. The Houghton succeeded the best; but he had also raised fine fruit of the Whitesmith, Ironmonger, &c. He had succeeded in preventing the mildew by mulching.

Mr. Brooking had been troubled some with the mildew on a clay loam soil. The Whitesmith always mildewed, and so did the Warrington. He had raised a couple of seedlings, the one dark green, the other a dark variety. The caterpillar did not feed on the foliage of

the dark green one. Had found the Houghton's Seedling to be one of the best for market.

Mr. John Freed remarked that the White-smith does not mildew on the Hamilton clay. Has planted Downing's Seedling, a good light green variety.

Mr. Morse grows for his own use the Houghton's Seedling. This is free from mildew, but Downing's Seedling mildews.

Mr. Osborne had been much pleased with Warrington, Jolly Angler, and Hardy's Red. He trims close, plants six apart, on a light gravel soil. There is a berry in Mr. Kerr's garden at Beamsville, which never mildews, it has a tuft upon it.

Mr. Saunders said that all the foreign sorts mildewed badly about London. The Downing mildews and bears poorly when the plants become old. Houghton does not mildew.

Mr. Woolverton named only the Houghton.

Mr. W. H. Mills is of opinion that by growing the gooseberry well up from the ground, and by mulching with cut grass and giving the mulch an occasional sprinkling with water, in which a little salt has been dissolved, the mildew may be prevented. The Houghton is a good variety, being much inclined to over-bear.

Mr. Arnold remarked that if confined to one variety he should choose the Downing's Seedling. Mr. Downing raised two seedlings; only one of these has he thought worthy of a place in his great work on the Fruits and Fruit Trees of America. This is the one there described under the name of Downing, and is a light green fruit. The other, known as his number two, is a red one, and that one he (Mr. Arnold) would choose as the second. Mr. Hart, of Paris, has some promising seedlings.

Mr. Cranfield raises gooseberries; his do not mildew.

Mr. Rowe, of Paris, said he came to the meeting on purpose to speak a friendly word for gooseberries. He has cultivated them very successfully for seven or eight years. Has grown Ploughboy, Roaring Lion, and Conquering Hero, and kept them from the mildew. He applied water, salt and ashes, and this preserved them from the mildew. He uses unleached ashes, sprinkling them on the bushes. His soil is kept in a high state of cultivation.

Mr. Rykert had been informed that abundant mulching with grass would prevent the mildew. He had tried several of the English varieties, but was obliged to fall back on Houghton.

Mr. Barnes had tried the plan of letting the plants take care of themselves, and they always mildewed.

Mr. Lister has failed with the best gooseberries.

Rev. Mr. Bell thinks something besides mulching is needed, and that is a more uniform temperature. He has found good gooseberries at Guclph, on the Speed, raised but little above its level.

Mr. Lowry inquired what was the cause of mildew.

Mr. Mills said he thought it was a parasitic plant, which grew upon weak or sickly gooseberry trees, but could not thrive upon those that are in perfect health.

Mr. Arnold thought that mildew was a parasitic plant.

The President thought we were trying to grow the gooseberry in an unfavourable climate, and hence our great want of success.

Mr. Saunders stated that sulphur is a remedy for the mildew.

Mr. McCallum thought that our sudden and extreme changes of temperature brought about those conditions which were favourable to the growth of these parasitic fungi.

Professor Buckland thought that the climatic conditions of the west and south of England, Cheshire and Lancashire, and parts of Scotland, and most of Ireland, were favourable to the growth of the gooseberry. Wherever the vine flourished the gooseberry failed. He spoke of the recent examinations into the subject of mildew by the Rev. Mr. Buckley, of England, who ascertained that the spores of these fungi exist in the atmosphere, and when they found a suitable place for development with favouring conditions, there they grew, and produced the appearances we term mildew. Our climate does not favour the growth of the gooseberries, and Canadian cultivators of this fruit will always find themselves beset with difficulties arising from the varying conditions of the atmosphere, and especially its very variable and extreme hygrometric conditions.

CHERRIES.

The best ten varieties of cherries to give a succession.

Mr. Freed said that the earliest useful cherry was the Mayduke, then came the Governor Wood, Belle d'Orleans, Knight's Early Black, Black Tartarian, American Heart, Bigarreau or Yellow Spanish, Napoleon Bigarreau, Tradescant's Black Heart or Elkhorn, Monstreuse de Mezel, Reine Hortense, and Late Duke. These were all good sorts, and would keep up a good succession. He had noticed that the Governor Wood Cherry, when grown on the Canada Wild Plum as a stock, ripened its fruit five or six days earlier than when grown on the Common Magyard Cherry stock.

Mr. Lowry remarked that he had been in the habit of working the finer varieties of cherry on the common Kentish cherry.

Mr. Morse had never tried the Reine Hortense, and would therefore substitute for that variety in Mr. Freed's list the Coe's Transparent. It is a fine cherry, better flavoured on high lands, and ripens earlier than when grown on low lands.

Mr. L. Woolverton named the following as keeping up a good succession, namely—Governor Wood, Reine Hortense, Knight's Early Black, Elton, Black Tartarian, Belle de Choisy, Napoleon Bigarreau, Black Eagle, and Elkhorn.

Mr. Barnes stated that he had a variety which ripens three weeks after any other cherry; is tart, and excellent for canning.

Mr. Saunders and Mr. Mills thought that the lists proposed were excellent, and made no suggestions.

Mr. Rykert thought the following four old varieties were the best, namely, American Heart, Elkhorn, Mayduke, and Black Tartarian.

Mr. Lowry thought there were not enough acid cherries mentioned in the lists given. He esteemed the Mayduke among the first of cherries, and thought the Kentish for canning, and all cooking purposes was one of the best that is grown.

The discussion having terminated, the Report of the Committee on Seedling Fruits was read and accepted. It is as follows:—

Cherries—No. 1, a seedling from Mr. Jas. Dougall, Windsor, medium size, jet black, flesh tender, luscious, very good.

Seedling No. 2, from Mr. James Dougall, large, dark, clouded red, firm flesh, not high flavoured.

A seedling cherry from Mr. Hatt, large, lively red, fine flavour, closely resembles the Mayduke in its best state.

Seedling cherry, from Mr. Freed, glossy black, large, juicy, good flavour, promising sort, called "Stevon's black heart."

Seedling cherry from Mr. Freed, medium or less pale red, semi-transparent, slightly bitter, pleasant flavour.

Seedling gooseberry from Mr. Hart, Paris, large oblong, smooth, yellow, said to be free from mildew, promising sort.

The Association adjourned, to meet again at Goderich at the call of the President. The meeting at Goderich will be held in the autumn, at a day to be named hereafter, and of which due notice will be given.

On Gooseberries.

There are very few places in Canada where the English varieties of this delicious fruit can be grown with success. In many gardens, however, a stunted, gnarly, almost leafless specimen may be seen in a state of bare existence, almost totally devoid of fruit. Upon these bushes probably more care and labour have been bestowed than it would take to cultivate fifty times the number of bushes of any other variety of fruit, and yet the proprietor has as yet barely had his first gooseberry tart. Now, I say to such an one take comfort, for as there was "corn in Egypt," so also may there be "gooseberries in Canada," and I will give my experience. A friend of mine, in the spring of 1869, gave me nine American seedling gooseberry suckers, with the smallest amount of roots on them. These he took from a hedge sixty feet long and five feet wide, a dense tangled mass, so thick that no one could get his hand into it, chiefly, however, on account of the

prickles. I saw at once this was not the true method for their culture, but more of this presently. Absence from home on the part of my friend during that summer proved almost fatal to his bushes. The currant worm took every leaf off, and the next year there was no fruit. These little animals may be easily checked in their depredations by two ounces of helibore in a pailful of water, applied either with a syringe or a watering pot. My nine slips did well the first year, and made an excellent growth that season. In 1870 the wood grown in 1869 was literally covered with fruit, and a great lot of suckers were thrown up. These I laid down in July and August, in little trenches, and covered with soil. This variety of gooseberry takes root wherever it touches the ground. By the autumn I had two hundred and fifty-five rooted layers. These I separated from the parent plant, and planted in rows as soon as the leaves fell off, and they might many of them now be layered again if more bushes were required. I kept the suckers off my original plants this spring, and they have kept the family in gooseberry tarts and stewed gooseberries, and there are still a great many left to ripen. My method of training them is to drive a stout stake firmly into the ground, leaving it six feet high, and tying a leading shoot to it, keeping down all suckers unless required for propagation. As the main stem increases in length, side branches are thrown out, and the bush may be trained in any desired direction; but when grown in the pyramid form, the side branches should be pinched so as to induce the main stem to lengthen. The branches are very thin at first, and almost vine-like in their growth. The berry is small when compared with those grown in England; but I am convinced that propagation from seed in well enriched soil would increase the size of the fruit, as this gooseberry is derived from a very superior wild kind to that which is found in the British isles, and from which the English gooseberry originated.

There are two kinds of gooseberries in Canada—the prickly one, is found in high ground, in almost all our woods and clearings, and the smooth kind, which grows in most of the low alluvial deposits along creeks and in marshy places. The American gooseberry is derived from this swamp or smooth variety, and it partakes greatly after its parent, both in the appearance of its berry and the trailing nature of its branches. The bush now grown might in a few years be still further advanced by high cultivation of plants raised from seed. The main thing to guard against will be making it too tender for our climate, which I believe is the cause of disease in the English high-bred sorts.

The time for layering is from the beginning of July until the end of August, but the earlier the better, as they make stronger roots, and consequently stronger plants. The way to proceed is to have the ground round the bush thoroughly loose and pulverized,

and if not rich, mix with it some well rotted manure leaf mould from the woods or swamp muck. Make little trenches three inches deep in this soil; into these stake down with little skewers or split shingle shoots of this year's growth (four or five may be put into each trench); bend up the top end of the layers so that it will stand as nearly upright as possible, and fix it in that position with a little loose earth pressed firmly against it. There is no difficulty, as I have before stated; they root with perfect ease.

Allow me to give another piece of advice gratis. Let all who are partial to this fruit, and who have the old country sorts in the state first described, root them out and order the "American Seedling" or the "Houghton" from the nearest nursery man. A dozen bushes will do to start with, as they are easily increased.

P. E. BUCKE.

Ottawa, July, 1871.

Among the Strawberries.

The present season has been a very trying one upon strawberries in the vicinity of New York city. We had several late frosts, which did considerable damage to the early flowering sorts, and these were succeeded by a severe drought which, in some localities, annihilated the entire crop. The unfavourableness of the season should be taken into consideration in estimating the value of sorts, and this we have done in the following notes upon a few of the old and new varieties in our grounds. They are all growing in the same kind of soil and in one plot. Each variety is planted in a separate bed, with three rows in each; therefore, the conditions under which they are placed are the same.

Agriculturist.—Not more than one-third of a crop, and the berries small.

Jucunda.—This is a complete failure; but this is no new feature, for in our grounds it has never been worth cultivating.

Hovey.—Two years since we procured some genuine plants, direct from Boston, of this old and once very popular sort, for the purpose of comparison with some of the newer varieties. We have a fair show of fruit, but must confess that it is not quite up to the modern standard of excellence.

Kentucky.—This was sent out as a very late sort, which was to prolong our strawberry season at least two weeks; but it is on time, and fully up to time with many of our old favourites. It is, however, a very promising variety. The berries are large, conical, bright deep scarlet, and the flesh firm. It is very productive, and we think will make an excellent berry for market as well as home use. Its quality is very much the same as the old Jersey Scarlet; therefore may be called good.

Michigan.—We confess to be a little disappointed with this new variety. The plant is a vigorous grower; leaves large, deep, glossy

green; the fruit abundant; but only of medium size, rather soft, and not first-rate in quality.

Boyle's No. 30.—A complete failure this season. The plants bloomed splendidly, but they bear no fruit. Why, we cannot tell.

Green Prolific.—A heavy crop of handsome fruit, although the bed is within eight feet of the Boyden's No. 30, and the plants in each are equally vigorous and healthy. In productiveness the Green Prolific will rank with the Wilson. The fruit is of much lighter and better colour, but not quite so firm.

Lenning's White.—A fine show of flowers, but very little fruit. This, however, is its general character in favourable seasons.

Napoleon III.—Far better and more productive than we have ever known it before. The drought seems to have improved its bearing qualities wonderfully. The brilliant light scarlet colour of the berries, and their large size, are certainly attractive qualities, but the shape is indescribable, being a kind of a cross between a coxcomb and a club-footed cabbage.

Barnes' Mammoth.—Scarcely any fruit, and what there is is not very good or large.

Nicanor.—Early, small and abundant.

Triomphe de Gand.—A fair crop, and berries of good size. The most reliable and valuable foreign sort ever imported.

President Wilder.—A new and very handsome sort, but from present indications will be too soft for market, and we fear not of first-rate flavour. It resembles the *Hovey*, and we should think it a seedling therefrom, without cross fertilization.

Wilson.—This is the ever reliable among strawberries. Frosts, drought, or deluge have no considerable effect upon this variety. Our plants are as well loaded, and the berries nearly as large, as in the most favourable season. The late frosts destroyed thousands of the early flowers, but more came, and the fruit is abundant.—*Rural New Yorker*.

When to Apply Fertilizers.

The best time to apply any kind of fertilizers is before the soil becomes utterly impoverished, before the crops suffers for the want of it, and the season of the year or particular time with reference to the crop or growth to be immediately affected by it should be early enough to allow of the seasonable ripening of whatever is influenced by it. Plaster, ashes, lime, composted manure or uncomposted, guano or anything else of this kind, should be applied either the fall or winter preceding the season you expect its first benefit.

When applied late, the growth is carried on out of season, at a time when the ripening process alone should be going on. Late manuring brings a train of disadvantages, for all know it is far easier to keep up a plot of ground than to raise it when exhausted, and more profitable; and as to the part of the year when

fertilizing should be attended to, there can be no doubt in the minds of thoughtful fruit growers, that if they expect their trees and vines to stand the cold of winter, come into fruit-bearing, healthy growth the best possible, the young shoots and canes must be ripe, hard, and the buds developed, and not soft, spongy, green and half matured, half developed. More depends upon the perfect ripening of grape vines for good maturing and bearing than many have been in the habit of thinking. Late manuring, late summer cultivating, overmanuring with coarse raw manure, too short pruning and over cropping, are among the causes that produce this state of things.—*Pleasant Valley Fruit and Wine Reporter.*

Fruit in the Vicinity of Montreal.

NO. 2.

In consequence of the over-stimulating method of cultivation mentioned in the previous letter, the pear trees which looked so promising in the fall are perfectly hideous in the spring following, and if not killed outright, the half ripened wood speedily decays, and the trees die of old age before they are out of their "teens." I have no hesitation in asserting that in this northern climate ninety per cent. of all the pear trees which are planted *and grow*, die from manuring alone; whereas, by planting in well drained ground, which has only been enriched by the rain, snow, decayed foliage, and air, pear trees will grow slowly, but they will be sound and healthy, and when they arrive at bearing condition, by top dressing them every fall with a compost of lime, wood ashes, and bone dust, increasing the quantity as the trees bear more profusely, the varieties suitable for the climate will be sure to do well. With such cultivation as this the trees will make a short stocky growth; they will ripen their wood, and *bear* and bear fruit that any one may be proud of. In a word, successful pear growing in this northern part of the Dominion requires clean and early culture, so as to start the tree into growth, and have the wood matured as early in the season as possible, in ground sufficiently good to grow a moderate crop of potatoes. No manure (except as top dressing), pinching off the ends of all rampant growing shoots, so as to equalize the growth as much as possible, and bring the trees early into bearing. I believe such culture as this will be good for the pear tree anywhere, but in this climate it is a matter of life or death.

The following varieties, selected from upwards of three hundred, which have been procured from the best sources in Europe and America during the last twenty-five years, and tried in my grounds, have succeeded well, viz., St. Ghislain, Flemish Beauty, Oswego Beurre, White Doyenne, Oshand's Summer, Napoleon, Tyson, Gansel's Bergamot, Comte de Lamy, Belle Lucrative.

Doyenne d'Ete, Sieulle, Lawrence, Easter Beurre, Glout Moreceau, Onondaga, Beurre d'Amalis, Brown Beurre, Beurre Langelier, Wilkinson, Doyenne Defais, Beurre Defais, Baronne de Mello, Poire de Fer, Beurre Hardy, Beurre Robin, Duchesse d'Orleans, Parsonage, Frederika Bremer, Beurre d'Anjou, Passe Coimar, Louise Bonne de Jersey, Howell, Grasslin, Jalousie de Fontenay, Supreme de Quimper, Henkel, Dana's America, Augustus Dana, Dana's Hovey, Adams, Fondante, Charmeuse, Mollet's Guernsey Beurre, Eliza d'Heyst, Vezouziere, Walker, Hacon's Incomparable, Bezy de Montigny, Summer Bon Chretien, Inconnu Van Mons, Rosticzer, Ananas, Winter Nelis, Dr. Trousseau, Beurre Bennert, Urbaniste, St. Michael Archange, Poire de Neige, and a few others not identified; also, Heathcot, Steinmetz, Ne Plus Mensris, Capiamont.

Of those that are unsuitable, after having been tried two or three times both as dwarfs and standards, are the following, viz., Seckel, Sheldon, Buflam, Stevens' Genessee, Brandywine, Jargonelle, Winter Orange, Cattillac, Omar Pacha, Beurre Duhaume, Chaumontel, Beurre Giffard, Poire d'Avril, Belle de Noel, Dummore, Prince's St. Germain, Conseiller de la Cour, Beurre Gris d'Hiver, Delices d'Hardenpont of Belgium, Triomphe de Jodoigne, Beurre Superfin, Bezi de la Motte, Bergamotte d'Esperen, and a number of foreign varieties very little known in this country, of which not a vestige is left.

Of those which have partially succeeded under very favourable circumstances, may be mentioned:—Beurre Diel, Columbia, Soldat d'Esperin, Bartlett, Beurre Clairgeau, Deux Soeurs, Duchesse d'Angouleme, Catinka, Surpasse, Virgalieu, Pratt, Petrie, Nouveau Poiteau, Kingsessing, Dana's Excelsior, Abbot's Shawmut, Dana's Admirable, Jones' Lodge, Shepherd, Gansel, Seckel, Doyenne Boussock, Williams' Early, Pound, Beurre d'Arenberg, Marie Louise, Dearborn's Seedling, Paradis d'Automne, Doyenne Dillen, Niles, Abbe Mongein, Benoist, Belle Epine Dumas, Beurre Kennes, River's Winter Beurre, Beurre Goubault, Beurre Bretonneau, Bezi des Veterans, Bishop's Thumb, Blanc Perne of Zangelier, Bloodgood, Bon Chretien Fondante, Calchasse Tongard, Gansel's Late Bergamot, Saon du France, Catharine Gardette, Forelle, Wilhelmina, De Louvain, Dix, Fondate de Malines, DeBavay, Swan's Egg, Philadelphia, Josephine de Malines, Beurre Bose, Beurre Montgeron, Beurre Moire, Crawford, Knight's Monarch, Croft Castle, Doyenne d'Alencon, Doyenne D'Hiver, Fondante du Comice, General Lamoriciere, Jersey Gratioli, Juminette, Madame Eliza, Paquency, Louise de Prusse, Prevost, Rouselle, Stuttgart, Laure des Glymes, Thompson's Van Assche, Vicomte de Spoelberch, Vicar of Winkfield, Willermoz, Zepherin Gregoire, Beurre Burnier. I have no doubt whatever that most of the varieties in this latter list would do well with you if cul-

tivated in the manner before mentioned. The pear tree is such a gross feeder when once its roots are fairly established, that unless some such treatment is adopted the wood will not ripen perfectly, and the tree, instead of bearing fruit for a century, will die of mere rotteness in a quarter of that time.

These notes on pear culture have, I am afraid, exhausted your patience, and I will make my remarks on the other fruits as brief as possible. The cultivated plum succeeds very well here, and some varieties flourish far north of Quebec city. The ravages of the curculio are, however, very great, and more recently black-knot has become very prevalent, and is now doing immense damage. Notwithstanding the assertions of Downing that black-knot prevails where the curculio is unknown, and that the curculio has done great damage without any signs of black-knot, my own observations, added to all the information I can obtain from others, goes to prove that although other insects may be found in these excrescences, black-knot is caused by the curculio alone. In my own garden black-knot made its appearance several years after the curculio had become common. The first signs of it appeared in the year succeeding a great plum crop, and there being no plums, the apples and pears were badly bitten by the curculio. The same season small tumors began to appear on the plum trees, which next year broke into black-knots, and they have been increasing in size and numbers ever since. It seems certain that the larva remains in the tree all winter, as young plum trees taken up in the fall and removed to a distant locality where fruit trees had never been grown, were affected with tumors the following spring. Fresh tumors may also be seen extending from knots of the previous year. I have also frequently cut open these tumors very early in the spring, and found large well developed larvæ in them, larger than any I ever found in fallen plums, when the larva was evidently just about to enter the ground. The instinct of the insect seems to be modified by this change in its habits, and it will now just as naturally seek to deposit its eggs in the young wood of the plum tree as in the the plums that grow thereon. In fact, we now find that when we are without plums for two or three consecutive seasons the black-knot goes on increasing just the same, and the apples and pears suffer from the curculio very severely; the only complete exemptions are the seasons when plums are plentiful.

Formidable as this curculio pest has now become, I believe that with our present knowledge of the insect it may be successfully combated and overcome. In the first place, the frothy succulent growth of the plum tree, as at present cultivated, renders it very liable to attacks from the curculio. The tree should be so cultivated as to make a short stocky growth, and have its wood well ripened; next, all the plum trees should

be grown in clay soil if possible, and by themselves, away from other fruit trees, and have all the entire surface of the ground rolled hard; then, besides paring the trees, gathering the fallen fruit, or turning in pigs. I have gathered from four to five hundred in a morning by laying strips of cloth or canvas on the ground, or slightly raising the ends of bricks; the insects will creep under these things for safety and shelter during the night, and may be caught early in the morning.

Most of the hardy kinds, especially the slow growing kinds, will do well here if cultivated in the manner recommended for the pear tree. I may mention Green Gage, Blue Gage, Corse's Nota Bene, Admiral and Field Marshal, Diapree Rouge, Huling's Superb, Coe's Golden Drop, Reine Claude de Navay, Bleecker's Gage, Imperial Gage, Yellow Gage, Smith's Orleans, Purple Favourite, Pond's Seedling, Sharp's Emperor, Guthrie's Topaz, Guthrie's Apricot, Washington, Columbia, Red Gage, and some few seedlings raised here of great merit—one especially, rather larger than Green Gage, and considered by all who have compared them to be even superior if possible to that standard of excellence.

All the Morello cherries do well here. The Dukes will live, and occasionally give a little fruit. The other kinds are useless here.

Peaches cannot be grown except against a wall or under glass. I have grown them very successfully in boxes or pots of a cubic foot capacity; have half a dozen holes in the bottom of the box about 1½ inches diameter, cover the bottom with broken crockery or flower pots, and plant two year old trees there in good soil; in the spring plant them out in a border of rich soil, sinking the boxes about half their depth. In the autumn, cut away with a sharp knife all the roots outside the bottom of the box, and place the box in a shed or cellar for the winter, and in the spring plant out as before. They will bear the second season, and plentifully thereafter. Peaches may be kept in the same boxes for a dozen years under this treatment, and bear enormous quantities of splendid fruit. The only precaution needed is to have the border they are planted in of good rich soil, and properly watered.

Quinces cannot be grown here.

Apricots and nectarines can be grown in pots in the same way as peaches, but are more liable to attacks of the Curculio.

Strawberries do well here. The kinds mostly grown here are Wilson's Albany and Triomphe de Gand. The enormous quantities brought here from Ontario have almost put a stop to strawberry growing here for profit.

Raspberries do well here, especially on high ground. The canes remain without protection all winter. White and Red Antwerp, Franconia, Fastolf, and Brinkie's Orange, but the latter is not so good here as White Antwerp.

Gooseberries do passably well here. Thorough pruning, clean cultivation, and rich soil, are the best remedies for mildew. The English varieties, such as Crown Bob, Red Ironmonger, Sulphur, and Warrington, do well; I have tried Houghton, but find no advantage in it to make up for its small size. All the kinds are very much eaten by the currant worm.

Currants.—Red, white and black, do well everywhere. The kinds mostly grown are Cherry, Victoria, White Grape, White Dutch, and Black Naples.

Blackberries.—The Rochelle or Lawton, has been extensively tried here, but is not satisfactory; the fruit is too acid.

Grapes.—I have tried all the prominent varieties of out-of-door grapes, but except in very favourable seasons they do not ripen sufficiently to be worth eating; the only exception being Delaware, which is uniformly good; occasionally Rebecca and Diana are fine; the Adirondack promises well, as it ripens early, but it has not a high flavour.

A friend has commenced a vineyard a few miles from Montreal. When in a condition to warrant my giving you the result of the experiment, I shall be happy to furnish you with any particulars of interest respecting the same.

J. H. S.

Montreal, June 22, 1871.

P. S.—With reference to Dwarf pear trees, the only kinds that do any good on quince stocks are Louise Bonne de Jersey, White Doyenne, St. Ghislain, and Urbanist. Many others will succeed with care and good culture, but no other kinds are worth growing as Dwarfs.

Blighted Apple Trees.

To the Editor.

STR,—I send you a twig of one of my apple trees, which has withered, apparently, from the working of something in the inside of the stem. A great number of my fruit trees have suffered in a similar manner, and the young wood of this year's growth has withered like the specimen which I enclose. All the orchards in this neighbourhood have this malady, and you would very much oblige a number of your readers in this locality by letting us know the cause and the remedy.

ROBERT BARR.

Duart.

We have for many years noticed this withering of the young twigs in June and July, occurring not every year, but in occasional seasons, and now and then with unusual severity. This summer the apple trees in many places are a good deal affected in this way. In the orchard of the writer the Sweet Bough is suffering more than any of the others. It is not known what is the cause of it, or what remedy or preventive can be applied with any certainty of curing or preventing the evil. It has been supposed by some to be of a similar nature to the fire-blight in the pear. We have made many

examinations of these withered and withering shoots, but have not been able to detect the presence of any insect to which these appearances could be attributed. We do hope that some of the members of the Fruit Growers' Association will give their attention to this blight or disease of the young shoots of the apple, and give the public the results of their observations and experiments. At present the horticultural world is wholly unable to say anything positively, other than that these dying and dead twigs do appear upon the apple trees.

Sun Scald in Apple Trees.

To the Editor.

STR,—In an orchard in the township of Lobo, belonging to Mr. W. Oliver, I observed the other day an apple tree with about the one-half of its leaves turned yellow, and beginning to fall. None of the other trees showed any signs of blight, and, on examining this tree carefully, no insects or grubs could be found, but it was observed that on each leaf that had either faded or began to fall there was one or two dark blotches, as if they had been poisoned with something. Not being able to clear up the mystery of this fruit tree in "the scar and yellow leaf" in June, I herewith enclose a few leaves for examination, feeling assured that your enlarged experience will be able to give some light which may be of use to the public generally.

J. M.

We presume from the appearance of these leaves that there is something wrong at the root of the tree. Either the mice or rabbits have girdled it, or excess of water has caused a decay of the roots, or some other cause has impeded the circulation or very materially lessened the quantity of sap flowing from the root to the leaves. From some such cause they are now turning yellow and falling off. We have seen newly transplanted trees lose all their leaves in midsummer, because the economical planter would raise some very fine barley in his young orchard. The barley drank up all the moisture; the trees, unable to get a supply, resigned themselves to "manifest destiny," and died.

These spots on the leaves are caused by the sun. Unable to obtain enough of moisture to keep the leaves fresh, the hot sunshine has scalded them. Perhaps a slight shower has fallen, followed by a bright mid-day sun, and the drops of water [have been just so many lenses, concentrating the sun's rays to a focus, and because the vitality of the leaf was impaired, and there being no evaporation, or insufficient evaporation, from the surface to counteract the power of the sun, the spot was literally scalded, the tissues destroyed, and the colour of the part changed

DUCHESS OF OLDENBURGH.—The Wisconsin Horticultural Society report that this variety is the most hardy apple in cultivation in that State. They find next to it the Red Astrachan, Talman Sweet, and Snow Apple.

Plumbago Capensis.

Allow me to say a few words about a special favourite of mine, the well-known half-hardy plant, *Plumbago capensis*.

I wonder why it is not more freely used in the decking of gardens, for it will prosper out of doors, at least during the three summer months, and its delicate beauty, which I think, I may call unique, more than compensates for the trouble of sheltering it before the advent of cold weather.

So zealous an advocate am I of my favourite that I would fain, perhaps in unconscious defiance of botany, transfer to it the name *Agathaea celestis*, which is bestowed on a plant with fewer characteristics (as it seems to me), suggestive of the country where nothing ever fades. All flowers are heavenly, all are endowed, either collectively or individually, with the dignity of symbolism. The fragrance of one, the purity of another, the grace of a third; the endurance, perseverance, unobtrusiveness, or majesty of many more, are palpably indicative of high and holy things; but I think no flower is gifted with loftier or more varied eloquence than the gentle *Plumbago capensis*. It seems the flower of truth pre-eminently. Mark its delicate transparency, its wide-open innocence, the exquisitely clear purity of its colour, pale as if in condemnation of all things exaggerated, but deepening its own sweet tint in pencilings that stream out lightwards from the flower's heart. In virtue of its long-tubed throat, the *Plumbago capensis* (I repeat its second name to distinguish it from *P. Larpentæ*), may rank among the up-springing plants, as the sweet flowers of the west wind, and all the *Amaryllis* and *Crocus* tribes; and this habit of darting upward, emulating in chastity of hue "the Sheehinah of the Blue" beyond the clouds, is additionally typical of "things that are not seen." Again, the fragility of this plant's physique proclaims it to the fanciful mind a stranger in a world of storms. Among such blossoms, immortalised, we feel our beloved in the church triumphant, might fitly dwell.

The *Plumbago capensis* is, in point of scent, negative; but with the loyalty of an enthusiastic partizan, I declare it to be on that very account the better fitted for the work-table, the sick room, and the various circumstances of everyday in-door life. In common with many others, I suffer physically from the near neighbourhood in rooms of the *Hyacinth*, *Lilac*, *Syringa*, and many of the *Lily* tribe. The *Plumbago* ministers, but never oppresses—never "makes faint with too much sweet," those who permit its presence.

My little flower garden is not much more than 20 yards square, and my greenhouse correspondingly unpretending; but I could not over-rate the joy they give me. I believe I speak the sense of all lady gardeners when I say that none who have not personally wooed flowers can guess how gratefully they respond, nor with what full measure soothing, elevating, and delighting their cultivators. Calmly faithful always, they brighten through life our gardens, and in death our graves.—*Cor. in Cottage Gardener.*

Brantford Horticultural Society.

The Summer Exhibition of this Society was held on Monday, the 3rd of July, in the large drill shed, and showed that the society was a live one by the great improvement on all former exhibitions—the number of entries being larger and the articles shown being finer than at any previous Summer Exhibition.

In the Floral department were good plants of the new double geraniums; also the new double pelargonium "Prince of Novelties," some choice stocks and balsams in pots, very fine baskets of cut flowers, floral ornaments, cut blooms of verbenas, annuals, and herbaceous plants; a very choice lot of roses shown by Mr. Spencer. A very noticeable feature of this table was the fact of the amateurs exhibiting all the best things.

In the Fruit Department, Mr. W. A. Smith showed fine samples of cherries, taking all the prizes with Napoleon Bigarreau, Cleveland Bigarreau, Black Tartarian, Yellow Spanish, and Black Eagle; the three first named being especially large and fine. In strawberries, some very fine plates of Agriculturist, Wilson, Seth Boyden, Charles Downing, Nicanor, and other sorts, were shown by Mr. J. T. Charlton, who also took all the prizes offered. Mr. R. Russell showed a fine Sweet-water grape vine, in pot, with 15 bunches of fruit on it, which was very much admired, and was awarded an extra premium. The show of fruit by the amateurs was large and fine, especially of cherries. In grape wine there was a larger number of entries than usual; Mr. J. Rowe receiving several prizes in this class.

The display of vegetables was very fine, and showed in a greater degree than anything else the marked increase and improvement made by the society during the last few years. The table contained very fine samples of beets, peas, potatoes, onions, cabbage, lettuce, &c. The new Egyptian beet was well represented, and was especially fine. Early Rose potatoes were exhibited in large quantities. The prize for new variety of potatoes was awarded "Early Prince," exhibited by Mr. Peachie.

A collection of cottage plants, shown by Mr. Hart, and a box of cottage window plants by Mr. Jackson, were very fine, and specially admired; as also a fine collection of dahlias from the last named gentleman.

The attendance during the afternoon and evening was very large, and the playing of the Grand Trunk Band added very much to the attractions of the exhibition.

The judges were Messrs. Mitchell and Barron, from London; Mr. Nicholas, of Caledonia, and Mr. Goodall, from Ingersoll, who were well pleased with the exhibition, and in a note of commendation appended to their book gave very flattering remarks thereon, finishing with the statement that the show was "second to none in the Dominion."

Girdling Fruit Trees.

To the Editor.

STR,—I noticed some time ago a letter in your agricultural pages (from some gentleman near St. Mary's, I think,) asking what was the best plan to make apple trees which ran too much to wood, blossom and bear fruit. You recommended the seeding down of the orchard, that the trees might receive a check. I venture to give the result of some observations which I have taken upon the subject, and which show that a "check" acts beneficially. Mr. T. Brown, Treasurer of Egremont, tied a tree to a stake to prevent its being shaken by the wind. The tying cut the tree severely, and the next year the portion of the tree affected blossomed, and I believe bore fruit abundantly, though it had never blossomed before. Experiments based upon this fact were tried last summer by Mr. Wakefield, late reeve of Egremont, and have come under my personal observation, and were so striking that I now venture to give them, in case they may be new and useful, as they appear to me to be. He selected several trees last summer which *had never blossomed*, and girdled a limb or two on each by running a sharp knife round in two places, about one-eighth of an inch apart, and removing the bark between the cuts. The bark in every case re-united after a time, and this spring *every limb so treated had blossoms upon it*. One tree was full of blossoms all over; one had a few all over, while the girdled limbs were a perfect show; one tree had a few bunches of blossom on the limb so treated, and on all the other trees the girdled limbs were remarkably full of blossom, while none were to be seen on the rest of the tree, making a rather striking appearance. All the limbs but one or two have fruit coming on finely; and if it had not been for the frosts late in spring, I think it very probable that all would have brought fruit to perfection. I have examined the trees myself shortly after they were girdled, and again last Thursday, and can testify to the facts above stated.

WM. B. EVANS,

Incumbent Trinity Church, Durham.

Bark Splitting in Apple Trees.

We have in our garden what we consider a singular instance of an apple tree bearing a full quantity of fruit and foliage, without any bark on the stem.

In the early part of last February one of our choice summer apple trees had its bark all split from the ground to the branches, and at the same time it parted all round the stem of the tree. We bound it up, but it soon became apparent without any benefit, as the bark all died, and becoming brown and rotten, was removed. This did not seem to injure the growth of the tree or its bearing, and it now has a full crop of summer

apples, all nearly ripe, although without any bark from the ground to the lower branches. We value the tree exceedingly. It is, we believe, a seedling; but the fruit is remarkably early, maturing in July, and of a large size and splendid flavour. The only difference we see at present is that the ripening of the fruit is somewhat delayed. We have some ripe enough to eat now; but last year, at this time, they were fully ripe. Can the Horticultural Editor give any remedy for this instance of bark splitting? Has any preventive been devised or cause assigned for this bark splitting in apple trees? Ours are young, only about five years planted, but are all bearing more or less, and have done so a year or two back. This one has borne apples three years, this crop is, however, more plentiful than any preceding one. If the cause were certain, the remedy might be made equally certain. C.

Remedy for the Peach Borer.

Mr. B. Batcham, in *Ohio Farmer*, says:

I have found a cheaper and better remedy for the peach borer than the one mentioned in last week's *Ohio Farmer*, or in any other publication that I have seen in my thirty years of horticultural reading. I have used it the past two years on my three thousand bearing peach trees with complete success, and with great saving of labour as well as of trees. I have no doubt it will be found equally effective for the apple tree borer, and thus prove of immense value to the orchardists generally. It is as follows:

Take a five-pound can of carbolic soap (cost two dollars); dissolve in ten or twelve gallons of hot water, stirring it freely if to be used immediately, or let stand over night; then add about twenty gallons of cold water, making a barrelful of the liquid, which is sufficient for one thousand trees. The soap can be had in one-pound cans, for those who want small quantities.

Now take a hoe and clear away the weeds or rubbish close around the base of the trees, removing also a little of the loose earth just around the bank, say for an inch in depth. Then take a bucket of the liquid, and with a paint brush apply it freely to the bark of the base of the trees for six to ten inches from the ground, taking care to have it enter the crevices (where the eggs are most likely to be deposited), and let a little flow down so as to moisten a little ring of soil just at the base.

I make this application about the middle of July, when the parent insect (*Egeria*) has about finished depositing her eggs, and if any young worms are hatched, they will not have penetrated beyond the reach of the liquid. I am convinced that it also prevents any further depositing of the eggs for the season, unless heavy rains speedily occur, in which case a second application may be necessary where the borers are very plenty.

For young trees, where tender roots are liable to be reached by the liquid, it will be safer to use it weaker—say ten gallons of water to the pound of soap. I am experimenting with this article for preventing other insect ravages.

The Fruit Growers' Association of Ontario.

AUTUMN MEETING.

It has been decided to hold this meeting on the 15th day of September, 1871, at Goderich, and we notice that the Directors have decided to offer premiums for best samples of fruit to be exhibited at the meeting. Competition is open to all members, and to all who may become members; and as any one may become a member by sending the sum of one dollar to the Secretary, D. W. Beadle, St. Catharines, it might be said that the prizes are open to all.

Arrangements are made whereby any one who may not be able to be present at the meeting may compete for the prizes. Two of the Directors, Messrs. A. M. Ross and W. H. Mills, have been appointed a committee to receive and place on the tables any fruit that may be sent to the exhibition, and see that it is properly arranged and classified. Any boxes of fruit intended for exhibition may be sent, charges prepaid, to A. M. Ross, Esq., Goderich.

The prizes are three in each class—eight, six, and four dollars, for first, second and third prizes. In apples and pears there must be twenty varieties, named, three specimens of each variety; in peaches, plums and crab apples, there must be ten varieties, named, and six specimens of each sort; and in grapes there must be ten varieties, grown in open air, three bunches of each variety, named.

A very distinctive feature of this prize list is the large number of prizes offered for Canadian seedling fruit. In order to be worthy of a prize, it is very correctly required that the fruit shall be equal to the varieties of the same kind and season now in cultivation. The prize offered is FIVE DOLLARS each, for the best Canadian seedling apple, pear, peach, plum and grape; six bunches of the grape, and a dozen specimens of each of the other fruits.

There are also two prizes of five and three dollars for the first and second best Canadian hybrid grape, three clusters of each, not before exhibited.

There are also prizes of two dollars each for the best quart of uncultivated Canadian wild plum, the best three clusters of uncultivated Canadian wild grape, the best twelve quinces, the best quart of autumn bearing raspberries, and of autumn bearing strawberries.

In apples, pears, plums, peaches, grapes and crab apples, not seedlings, exhibitors can only take one of the three prizes offered under the head of each fruit.

We notice also that it is required that all the fruit receiving a prize shall be the property of the Association. The object of this is to enable the society to avail themselves of this opportunity to send samples of some of our best fruit for examination and comparison by kindred societies in the sister pro-

vinces and other places, so that a correct knowledge of the fruit growing capabilities of the country may be as widely disseminated as possible.

Copies of the prize list will be at once mailed to all members of the Association, and any others desiring any further information on the subject can obtain it by writing to the Secretary.

At the last meeting of the Directors it was ordered that all persons who have paid their membership fee for 1871, and had not received the pear tree and small fruits distributed in the spring, should be supplied with them in the fall. Such members would do well to notify the Secretary of their having failed to receive their tree, &c., so that none shall fail of getting them in the autumn.

We learn also that the Directors have appointed several committees to examine personally different parts of the country, and inquire into the fruit growing capacities of the several sections, and make a report in writing of the peculiar advantages and disadvantages found to exist, and the present condition of fruit culture therein. We most earnestly ask of the farmers and fruit growers of these sections that they will give to the gentlemen of these committees every facility for prosecuting their inquiries that may be in their power, for such investigations as these will largely contribute to the spread of much needed information in regard to the culture of fruit in this Province.

The sections of country that it is intended to visit this season are—1st, that part lying adjacent to the Detroit River and the North Shore of Lake Erie, extending from Windsor to Amherstburgh and Morpeth; 2nd, the county of Elgin; 3rd, the county of Brant; 4th, so much as lies within a radius of fifteen miles around the city of Toronto.

Another step has been taken by the Directors which seems likely to be of great benefit to the country, and that is that they will furnish without charge to any member residing in the colder sections of the country scions of any of our fruits, on condition that they will have them grafted and cared for and make a report to the Secretary of their adaptation to the climate. We hope very many gentlemen will avail themselves of this opportunity to obtain scions of our most desirable fruits, and of ascertaining whether they will succeed in their localities.

In addition to the prizes for seedling fruits already offered, the Association has also authorized the committee on seedling fruits to grant an award not exceeding ten dollars to the person exhibiting the best seedling fruit of its kind during the year. This fruit need not necessarily be exhibited at any meeting of the Association, but may be sent at any time to the President, Rev. R. Burnet, Hamilton, who will summon the Fruit Committee to examine it, and their examination will be a sufficient exhibition.

Mignonette Culture for Exhibition.

Sow two seeds in a 3-inch pot, placing them about half an inch apart, and cover them with fine soil about one-eighth of an inch deep. The soil should consist of light fibrous loam two parts, and one part of leaf soil, with half a part of silver sand, and the same proportion of charcoal not larger than a pea, the whole well mixed. Water gently, and place the pots in a hot-bed of about 70°, shading until the seedlings appear, and then remove the shading, and elevate the pots so that the plants may not be nearer the glass than 3 inches, nor farther than 6 inches from it. Keep the soil just moist, sprinkle overhead every afternoon about 4 p.m., and close the frame, for I presume it is convenient to have them in such for a time, and when the plants are an inch high remove them to a cold frame, setting them on inverted flower pots, so as to bring them about 6 inches from the glass, calculating from the tops of the plants. The lights should be drawn down about 6 inches by 7 a.m. in clear weather; at 4 p.m. water, if required, and sprinkle overhead, shutting up for the day. If the weather is cloudy and showery, draw off the lights altogether, and employ them only in case of very heavy rains, and then tilted at the back and front so as to admit abundance of air.

When the roots are slightly matted round the sides of the pot, shift into 4½ inch pots, not placing the plants deeper in the soil at this nor any subsequent potting than they were at first. The soil at this potting may consist of light loam from turf not more than 1½ inch thick laid up for six months, or failing such, fresh turf will do. If it is fresh, place it in an oven for half an hour, turning it over once, so as to get rid of wire-worms and other vermin. It should be a good, rich, light loam. Of that two parts chopped up in pieces about half an inch square, brown sandy peat one part, old cow dung, served the same as the loam to get rid of grubs, one part (old dry hot-bed manure will do), one part charcoal, in pieces from the size of a pea to that of a hazel nut, and one part silver sand, the whole mixed well and incorporated. Drain the pots well, but not excessively, and place about half an inch deep of half-inch bones over the crocks. This will suit the plants in all after-pottings. Make choice of the best plant—the strongest, most sturdy, and close-jointed; cut away the others when they are about 2 inches high, pot in from 4½-inch to 7-inch pots when the roots reach the sides of the pots, and continue the sprinkling overhead every evening, and at this stage early in the morning as well. The watering should be moderate, not giving any water until the soil is dry, but a good supply before the leaves flag. In the case of the plants, from growing, getting too close to the glass, withdraw the pots they are set on, and place them on coal ashes, rough rather than fine, and when they grow

too tall for the frame, raise the frame by means of bricks under the corners, and this will admit plenty of air without withdrawing the lights in showery weather. In very bright hot weather keep on the lights and afford a slight shade from bright sun.

The last shift should be given as soon as the roots reach the sides of the 7-inch pots, shifting the plants into those 9 inches in diameter, and give this time about an inch of half-inch bones. The plants should have the first flower-spike pinched out as soon as it appears, and a neat stick put in to keep it erect. Train up a shoot as leader, and do not stop the side shoots until they show flower, and then take out the bloom wherever it appears until a month before the time at which you wish to have it in flower. The side shoots may be tied out, or rather down, and brought in the direction of vacancies, so as to form a close symmetrical plant well furnished to the pot. About a fortnight after the last potting liquid manure may be given twice a week, but it must not be strong. A peck of sheep's droppings to thirty gallons of water, well stirred up before use, is the best we know. The tyings should be done neatly, and with thread, using no stick except for the central shoot or main stem. In tying, be careful not to break the shoots. To bring the shoots down you will need to place a wire or string beneath the rim of the pot, which, with the strings used for a time to give the side shoots the required direction, may be removed when that is effected. *Cot-*

Don't Sow too Early.

BY PETER HENRIKSON.

A decision was rendered recently in one of the Philadelphia courts against the claim for damages made by Jacob Kessler, a market-gardener, who brought suit against Mr. Dreer, the well-known seedsman of Philadelphia, for having sold him early York cabbage seed that "run to seed." The seedsman of the whole country are indebted to Mr. Dreer, and no doubt will tender him their hearty thanks, for the grit he showed in standing a suit rather than compromise, as the chances were more than even against him, the sympathies of the jury being most likely to be with the complainant in such a case. The ventilation of such a matter is exceedingly instructive to those engaged in gardening operations, as was shown by the facts elicited on the trial the gist of which was that Mr. Kessler had sown the cabbage seed on the 5th of September instead of the 15th, and that error, combined with an unusually mild and growing fall, practically lengthened the season, so that the cabbage plants became "annuals" running to seed within the year of sowing rather than forming heads and acting as "biennials," as was expected of them. Now, just here an excellent lesson comes in

with another vegetable. Most of our so-called scientific gardeners are English, Scotch, Irish, or Germans; they come here, most of them, with a thorough contempt for our rougher style of doing things (a practical style born of our necessities in the higher cost of labour); and it is next to impossible to convince one in a dozen of them that there is anything in horticultural matters here that he needs to be informed of. Accordingly, if he wishes to raise celery, he starts his seed in a hot-bed in February, just as he would have done in England, and is astonished to find in July that, instead of forming a thick and solid stalk, as it would have done there, it spindles and runs to seed. If his knowledge of the art had been based on common sense, instead of the blind routine practice attained in a colder climate, he would have known our season from April 1st to July 1st—would sum up nearly the same mean of temperature here as it would there, from February 1st to July 1st; and hence it was not only unnecessary here, but dangerous to the welfare of the crop, to sow such biennial plants as celery in any other place but in the open ground, and that not before April. It was just such an error that the market-gardener made who sued Mr. Dreer. He had been following likely in the English or German method, and paid the penalty not only of losing his crop, but losing his law-suit, by not adapting his practice to our conditions of temperature. As the matter of sowing the seeds of cabbage, cauliflower, and lettuce, to make plants to winter over in cold-frames, is one in which there is a widespread interest, I may here state that the time of sowing in fall, in a country having such an area and difference of latitude as ours, is somewhat difficult to gauge; but taking the latitude of New York as a basis, the safest time we have found to sow is from the 10th to the 15th of September. Of late years we have inclined rather more to the latter date, and have even sown as late as the 30th of September, with excellent success, in warm, well-sheltered positions, in a rich, well-prepared soil. In connection with this subject, I would refer to the evils arising from the too common practice of many of our agricultural and horticultural journals, of selecting from English papers articles that often seriously mislead. For example, a Boston magazine not long ago copied a long article from the English *Journal of Horticulture*, telling us, in a very patronizing way, how to propagate the golden tricolour-leaved geranium. The writer laid great stress on having a sharp knife, and cutting the slip in a particular manner, then to insert it in silver sand, and a lot of other nonsense, that any boy of six months' practice here would have known was absurd, but, above all, the operation was to be performed in July! He might have got the sharpest knife that was ever made, and the purest silver sand that ever lay on the seashore, but he would have utterly failed in our climate, if he attempted the work in July. This is only one of scores of such absurd selections as we see yearly in some of our horticultural journals. If the conductors of such have not original matter to fill up with, better far that they leave their pages blank than to show their utter ignorance of what is suitable to our climate.

Peaches in Cold Climates.

The *Western Pomologist* contains a statement from G. Warne, Buchanan county, that he never fails to have good crops of peaches every year, by the simple process of protection which he employs. He cuts off the young tree sixteen inches from the ground, and allows the limbs to shoot out on each side below like the rods of an umbrella. By weights or stakes he keeps them down in a horizontal position, so that the stump is like the hub and the limbs like the spokes of a waggon wheel lying on the ground.

About the middle of August he cuts back one-third or one-half of the new wood with a pair of pruning shears, and late in fall covers the whole with corn stalks; uncovers early in the spring. The fruit buds are saved. One tree gave a bushel and a half of peaches. The *Country Gentleman* adds, from his own experience, that the great protection consists in bringing the limbs down in contact with the earth from which the heat is derived. We have tried many experiments with different kinds of protecting substances applied to the limbs in the air with little efficacy or success; but when the fruit branches were brought down in contact or proximity to the earth even with a moderate covering, the desired protection was attained.

PANSIES AND DAISIES should be set in a shady and moist place—not under the shade of trees, as the roots of these dry the soil too much.—*The Gardener's Monthly*.

A correspondent of the *St. Louis Journal of Horticulture* makes the statement that a handful of sawdust, placed around the root of a plant, will effectually protect it from cut worms. His experimenting was on a pretty large scale, and in not a single instance was here a failure. He does not state what kind of wood the sawdust was from.

ENGLISH WATER CRESS GROWN IN A HOT-BED.—“Permit me to recommend, through your valuable *Monthly*, the most wholesome and most productive of all salads grown in winter and in spring, and yet the cultivation of which is little known, and almost entirely neglected by those who do know. This water cress is a native of Great Britain, and is found in the small streams more or less through the whole country, and is cultivated on a large scale around London. Although this cress is considered amphibious, it thrives better in an ordinary hot-bed, from October until April, and requires no re-planting. I whitewash the glass, and give very little air except when raining, which saves watering, which it requires at least once a week. A full crop can be cut every three weeks. I generally cut one-third of a sash each time, so always get a succession. About the first of April a quantity of plants should be transferred to some cool, wet place, where they will live during summer, and be ready for the hot-bed in the fall.”—*Gardener's Monthly*.

Poultry Yard.

Imported Eggs for Hatching.

Some time ago we called attention to a statement in a contemporary journal in reference to a practice said to prevail among some poultry fanciers in Britain, of killing eggs before sending them off to customers. Our esteemed correspondent, Col. Hassard, thinks the charge altogether too sweeping, misapprehending, apparently, our object, which was simply to warn Canadians against such fraudulent dealers, and advise them, as we did, to transact business only with men of approved reputation. Col. Hassard very justly observes that the fault is often entirely owing to accidents of transit; that eggs, even when most carefully packed, are liable to be injured in the rough handling they receive from porters, and the jarring and shocks to which they are exposed on railroads. He knows several poultry fanciers who, to provide against such contingency, not only pack with extra care in shipping to a distance, but put in sixteen eggs for a dozen; yet, with all their liberality and their precaution, it sometimes happens that only a few will hatch after a rough voyage and a still rougher land journey over such roads as the Grand Trunk. The wonder is, not that many failures occur, but that any transatlantic eggs ever hatch out on this side the ocean. The best security Canadian breeders can have is, as we said before, to confine their dealings to those whom they know, or in whom they have good reason to place confidence.

Non-Sitting Breeds of Fowls.

In cases where many fowls are kept, it is desirable to have the greater part consist of some breed of non-sitters. By having a few that are first-rate mothers, to fill the hatching department, and the rest, say three-quarters of the whole, made up of a breed that never offers to sit, a great deal is saved in the labour of attendance. In this country, labour is so high, that it is worth while to save the time of man, woman, or child capable of managing poultry. It is as easy to take care of two hundred non-sitting hens through the laying season as one hundred of a sitting variety. Suppose the former are kept in eight yards, each containing twenty-five layers, with no trouble from fussy, obstinate clucking hens; also, the latter in four yards, of twenty-five each. It being agreed among poultry managers that fowls must be kept tranquil to do well, and therefore not mixed with strangers, the sitters from a yard must be confined in a particular gaol-pen to cure their incubating propensities, and afterwards returned to their own friends in the same yard. Now four yards each, with its gaol-pen, make eight in all to be furnished with

food, fresh water, and dust-bath, and to be cleaned regularly, as well as whitewashed or treated with carbolic acid, the labour being about equal to that required by the eight yards of non-sitters in the former case, and if we consider the time spent in detecting and removing sitters—no small item where there is a considerable number of fowls—the sitting breeds compare at a still greater disadvantage.

A well-bred race of non-sitters will not give one confirmed case of sitting among fifty birds, though there are sometimes feints lasting perhaps a few hours, or a day, when they sit, but leave off without needing any corrective measures. They commonly have periods lasting two or three days, or a week, when they stop laying, without taking to the nest at all. These spells correspond to the sitting fever of the incubating breeds.

The non-sitters include all the different varieties of Leghorns, Spanish Hamburgs, and Polands, together with some of the French breeds. The eradication of an instinct which is so persistent in wild birds, and necessary to their very existence, has been effected by keepers who have culled to lay eggs for hatching the least constant sitters for many generations. It is a remarkable instance of what may be brought about by the breeder's art, and is as valuable as it is curious. The principle of division of labour operating as economically in the poultry-yard as in human society.

The instances which occur rarely of fowls sitting steadily, though belonging to a strain of thorough non-sitters, show reversion to the primitive type when incubation was universal. To keep your stock fully up to the mark, do not breed from such. A cross between two non-sitting races brings, strange though it may appear, a progeny that sit with as much regularity and persistence as any fowl. Some crosses between breeds are very desirable, but the non-sitters should be kept pure, or the trait which makes them specially valuable is lost.—*Hearth and Home*.

GAME HENS.—There are few fowls more prolific than Game; and, where there is a good wide range of any kind, no fowls will prove more profitable, the Black-breasted Red variety being the best. They eat little in proportion to other larger fowls, and are very good layers, but they cannot be kept in close confinement, on account of their fighting propensities.—*Canadian Poultry Chronicle*.

DUCK RAISING.—No fancier that can find suitable place in his poultry yard but should have a few ducks. Their appetite is such that almost any kind of food will supply them; they pick up the waste food left by other fowls, and grow fat on it. In the barn-yard, in gardens, and in pasture land, they are alike useful and beneficial. There are three kinds which now stand high among breeders, namely: the Aylesbury, which is pure white; the Rouen, which in colour resembles the wild Mallard, and the Cayuga, which are pure black except occasional white spots on the breast.—*Canadian Poultry Chronicle*.

Correspondence.

Two Pictures.

I. POOR FARMING.

To the Editor.

SIR,—Believing that if farmers would more frequently present to their brethren in the same calling, out of the large and varied volume of their individual experience, a page now and then for thoughtful contemplation and comparison, it would be greatly to their mutual benefit, I venture to submit to your readers a few leaves from my own observation, hoping that the perusal may not be altogether uninteresting or un instructive.

There are two styles of farming which come under my notice. One is a system to impoverish the soil and owner; the other is a course of husbandry that will enrich both. Let me then endeavour to describe these two opposite systems, and present them as pictures, not for the eye, but for the mind.

The first picture then that I would draw is that system of farming which is every year leaving the soil and farms poorer than before. How foolish would it seem if a farmer, possessing a pair of horses naturally strong and rugged, should work them, and yet so neglect the feeding of them that they became, after a short time, too weak even to rise to their feet. And is the farmer more wise who treats his land in a similar manner, and neglects to feed it? True, in the latter he may plead it is not cruelty to dumb animals, as in the former; but can he wash his hands in innocence and say there is not a shadow of cruelty in it, to his wife and children, who might possess many a comfort if an opposite course in the treatment of land were pursued?

The first and foremost idea in carrying out the system of impoverishing land is for the farmer to rest as much as possible all winter; allow the cattle to shelter themselves as best they can beside a rail fence, or on the side of a snow drift; all that is necessary is to let them run to a straw stack. By no means put a fence around the stack; it would cause too much labour to cut it down and feed it in equal proportions every day; and the straw stack is best to be built so that the rain may run through it pretty well, for frozen and musty straw will last longer than bright dry straw will. Never care if the straw stack is undermined, and falls and kills a few cattle. All they would fetch alive is about what their hides would. Weak stock is not worth taking care of, so the strongest may as well be allowed the best bite. If snow is on the ground, no need to drive the cattle to water or pump water for them. It takes less fodder for cattle in the winter, when they get no water. Just as well to let the cows dry off in winter; they give very little milk at the best, and there is as little butter in

the milk. When cows are fed on snow and musty straw, it takes a long time to churn and fetch butter, and the butter when made is difficult to sell; it may perhaps command a shade above the lowest market price. It will be best to fat the strongest calves and sell to the butcher; the weakest will not pay to fat; save few calves.

Feed most of the grain to the horses that you drive in winter time to visit your friends, and so kill time, as it is a dull business to lounge round home, especially when you have so well trained your stock to take care of themselves; and when spring work comes on, if the grain is all fed, a little pick of new grass will so weaken your team that your legs will not get tired walking fast after the plough. Never mind if the ewes run with the cattle; they will receive many a sharp hook, killing, it may be, a few lambs that would be more trouble to raise than they would be worth. Draw no more fire-wood than will last from one week to another, even in harvest time. The women folks will burn less wood when put on a stinted allowance. Draw no fence timber; some one will be along with a patent right before spring, to fix cattle so that they cannot even get over a poor fence; and if such should not turn up, the cattle will be so weak at any rate till after harvest that they can't jump.

Keep no account of money matters, and your debts will never trouble you, especially if you are forehanded enough to have a good excuse framed and in readiness for a visitor who means to dun you. Never mind your fruit trees; Nature ought to do all that for you. Never repair any tools or implements; they will break pretty soon again; leave them all out of doors, for before they are rotted others will be along with great improvements. It is little use to sow clover or grass seeds; cattle will find some to pick on the roads. There is so much blue grass roots, and so much pigeon weed and Canada thistles, it gets the start of clover now; besides, the frost nips it, the grasshoppers eat it all up, and the drought kills it.

There is little use in being particular about seed. Spend all the time you choose in studying how the moon affects the crops; find out the best time in the moon to sow the different crops, as also to harvest, and to cut thistles and other pests on the farm; and be careful also to ascertain the best time in the moon to cut buckwheat. There is no use for a team to take a day to plough one acre, when by a broad furrow three or four acres can be ploughed; and if the plough does not cut broad enough, never mind if it does cut and cover a little. Rolling land and picking stones are also useless; stones keep the ground moist. Sometimes late sown crops are best, so do not be in great haste, even if the ground is dry and weather favourable. Never use the cultivator too soon in your hoed crops; the weeds will shelter the turnips, potatoes and corn, from the

scorching sun. If you hoe your young corn, you may destroy the roots; and, besides, hoeing any crop is of doubtful utility. Some plants will never be anything if you hoe them, and others good enough without hoeing. The hoe was an instrument invented by somebody to tire a man's back. Believe always that the best farmers are those who have wits enough to take it the easiest. Should a high wind blow down your fence, there is no need to put it up; there will soon be another down, and a dry pine rail now and then is good to make the green wood burn. When you wash sheep, keep their heads under water long enough to take all the kick out of them; and in shearing do not be particular whether the shears cut them or not; they deserve it for not standing still. Never pull pigeon weed, Canada thistles, or any noxious weeds; it won't pay. Let the women folks attend to the garden. Garden stuff is not worth much for a man to work on, and the hens always take the best share out of the garden at any rate. Never speculate in buying cattle or anything else; a farmer has no right to be a business or commercial man, and will lose money if he attempts it.

Never cut your clover before two-thirds of the heads are dead and the leaves all gone off the stalks; there is little danger then of your hay heating in the barn, or of its putting much flesh on your stock. Always let your grain wait till the heads begin to curl down, and the straw will be so much lighter to handle. Do not touch your fallow too soon, for fear it should not be rotted enough. Never put out any manure; it is of no use; its component parts are only straw and water. Just clear a little spot in your barnyard, enough to set the horse-power for thrashing. Never rake your stubble; that would starve the hogs. Take a good rest after the wheat is sown. Corn can be drawn to the barn and husked any wet day. Potatoes are better left to rot in the ground than in the cellar. A January thaw might do to get turnips in. Hoed crops are too much work, and hard on the back. It is too much trouble to separate the lambs from the ewes. Let the butcher come into the flock and pick out the best lamb and sheep. -It don't pay to keep that kind of stock that fetches a good price; they would all be poor enough by spring at any rate. Spend a good deal of money made from sales of stock and produce to find a country and climate where stock needs no foddering the year round, and where the farmers make money as fast as they want without labour. Farming in Canada is played out now; it takes all a man makes in the summer, and more too, to live on in winter. Always talk against farming in the hearing of your children, that the boys, with such bright intellects, may try something else, and the girls never marry farmers.

R. EADIE, JUNR. 7

Oakland.

Hydraulic Rams.

"A 16-years subscriber," Duart P.O., Ont., asks us several questions in re a "Hydraulic Ram."

There are several in use in Canada. We know of one in the grounds of the Hon. E. B. Wood, Brantford; also of one in the township of Ancaster, and near the village of the same name. The latter is owned by a gentleman who tells us that he has had it in use for several years, and that it has given perfect satisfaction. It throws a stream of water over a distance of nearly a thousand feet at an elevation of over one hundred feet. Our friend says be sure and put in an iron or leaden discharge pipe, for composition pipes are corroded by the action of the soil. He had a composition pipe, and it had to be removed in two years, being eaten through by the corrosive action of the land in which it was placed. His was obtained through Wm. Farmer, plumber, of Hamilton, Ont., from a Mr. Douglas, Middleport, in the State of Connecticut.

We believe that Messrs. Waterous & Co., of Brantford, will give our correspondent all the information that he may require.

Sheep Feeding.

"A Subscriber," Benmiller P. O., County Huron, asks, "What amount of land would it require to pasture 300 hundred sheep, with their lambs, and what kind of land is the most suitable—flat or rolling? What amount of feed would it require to winter 300 hundred sheep after their lambs have been sold, and what kind of feed do such require?"

The lands best suited to sheep pasture are such as lie high and dry. It would be impossible to say how much old pasture land or cleared unbroken land would be requisite for our correspondent's flock, for such land varies from the richest to the most meagre. Such as is full of white clover will carry more sheep per acre than any other kind.

Our correspondent is not sufficiently definite. Are his sheep to be fed upon natural or artificial pastures. If upon natural, for the reason stated above, we are unable to give him reliable information unless we know the nature of his grasses. If upon red clover, we can arrive at some idea. To feed sheep in large quantities upon clover, the run should if possible be divided into several fields, and the sheep changed often from field to field.

Sheep eat grass very close, and yet will not touch long, coarse grass. They should then be allowed to crop close, and be taken off until the clover has taken a good start. Thus managing a pasture of artificial grass, we may allow five sheep and their lambs to the acre throughout the season. Under the ordinary management of Canadian farmers, three sheep per acre is the usual allowance. Alsike clover will, however, carry more, and

by folding we do not doubt but that six or seven sheep per acre might be fed throughout the season upon Alsike.

Sheep are best fed in winter upon clover hay and turnips, with a modicum of chopped grain. Pea straw, if well cured, is perhaps a better feed for ewes with lamb until within a month or so of lambing time, than any other fodder. When lambing time approaches, clover or timothy hay may be fed with advantage.

The smaller kinds of sheep may be well sustained on two pounds of hay and one gill of oats per head per day; and if we also feed them succulent food, as turnips, at the rate of 4 lbs. per head per day, they will thrive better. The larger sheep will require about 4 lbs. of hay.

With these data our correspondent can figure out the amount required for the whole flock. We scarcely understand his numbers, and are doubtful whether he means three hundred, or, as he has put it, thirty thousand. Such a flock would doubtless pay upon an Australian sheep run, but in a Canadian homestead it is a very different matter.

TRAPPING.—A "subscriber" wishes to know "where would be the best place or places in Canada to trap for fur."

STINGS OF INSECTS.—An Indiana correspondent writes thus to the *Germantown Telegraph*:—Tell your readers that a few drops of coal oil dropped on parts stung by bees, wasps or hornets, will give instant relief.

The Canada Farmer.

TORONTO, CANADA, AUGUST 15, 1871.

The Weather and the Crops.

Another month of somewhat exceptional character has passed with almost a repetition of the early drought of the summer, and alternate hot and cold weather, the latter occurring to a degree unusual for the season. Nevertheless, the reports of the harvest and crops are on the whole very favourable throughout the Province. The yield of hay, though short, has turned out better than was expected. Fall wheat is nearly everywhere above the average, and in common with other grain, has been secured in excellent condition. Barley is somewhat light, and short in the straw, but is of excellent quality and colour. Peas and oats are both above the average. Root crops appear to want rain, but there is time enough yet for a good growth in all of them. There is every indication of the harvest being secured very early. Pastures are suffering from the continuance of dry weather.

A similar favourable report comes from most of the United States. Timely showers

have followed the early drought, and brought all crops wonderfully forward after the previous trying ordeal. Grain has been secured very much earlier than usual, of good quality, and in quite an average quantity. Corn in most places is looking well. Considerable amount of damage, however, appears to have been done by insects of various kinds.

The weather report for the past month, from the Toronto Observatory, is as follows:

Mean temperature 66°.0, being 1°.3 below the average, and 2°.8 colder than July, 1870. The warmest day was the 13th, 75°.4, and the coldest the 19th, 57°.6. The highest temperature occurred on the 9th, when the reading was 88°.4; the lowest temperature occurred on the 24th, 47°.8.

The amount of cloud has been slightly below the usual quantity, and may be divided as 4 clear days, 2 entirely clouded, and 25 more or less so.

The amount of rain is the smallest recorded in the month of July, with the exception of 1856 and 1868, which were respectively 1.12 and 0.51. The amount of rain for the past month is 1.25 inches, being fully 2 inches less than the average. The absence of the copious dews so generally experienced at this season has tended to enhance the evil in this section.

The wind has been generally westerly, and accompanied by a velocity exceeding the average.

Thunder or lightning occurred on eleven occasions, in some districts causing much damage to property and growing crops.

Provide for Scarcity of Fodder.

Reports from all parts of the Province represent the hay crop as likely to be very poor. It is to be hoped that those who have but a small area in meadow and are likely to suffer by a shortness of fodder, have prepared for such a contingency. Amongst the best substitutes for hay is Hungarian grass, and there is plenty of time up to the 1st week of July in which to sow.

The land should be well tilled and the seed sown from one to two pecks per acre. It is a rapid grower, and will be ready to cut after harvest. Horses relish it highly, and it is a better and stronger hay for spring work than clover or Timothy.

Farmers who have put in a large breadth of turnips will be repaid for their forethought. Swedes may be safely sown upon the lighter lands, even up to the 1st of July, although of course from the 15th to 20th of June is preferable. The white turnip may be sown in the early part of July, and will feed during the early part of the winter, and thus save the Swedes. Plant all turnips in succession, so that all thinning does not fall upon the same week; it is very important to thin turnips exactly at the right time.

Cabbages also are a profitable crop in scarce seasons. The labour is nothing after once

setting out, and they are the most valuable winter feed for milch cows that we can raise

Corn may be sown as late as any kind of feed for a forage crop. The land should be finely tilled, and if possible clean; if we can mark out shallow with a very wide sheared plough (shovel plough is the best), we may make the rows of corn wide, not wide apart, but wide themselves. Let the rows be three feet apart from centre to centre, and let them be themselves a foot wide. All the working can then be done by horse-hoe.

Millet, as a forage, is also a very valuable annual forage crop, and may be sown even in the early part of July.

Farmers should save their straw carefully by planting a larger area of roots this year. There will in all probability, be scarcity of feed next winter.

Is the Colorado Beetle Poisonous?

At one time many persons were frightened to handle the tomato, for all had heard of apparently reliable cases of poison by the tomato worm. Certainly that animal's look does not inspire much confidence, and it is little wonder that the repulsive feeling, caused by his form should have degenerated into a positive fear. And yet, when the matter was fairly investigated by our entomologists, it was found that even these authenticated cases were open to the gravest doubts, and in several instances it was proved to parties who actually believed themselves bitten by the tomato worm, that they were mistaken, and the attack was traced to a perfectly different cause. Experience with this malignant insect leads naturally to grave doubts, if not positive disbelief, in current statements of the poisonous nature of the Colorado Beetle.

We can readily conceive of a person employed in killing off these animals from plants that had been dusted with Paris green being poisoned by a contact of some sore or cut on the hand or arm with this poison, or even by incautiously handling animals dead or half dead, be they larvæ or the full-fledged beetle, that had been subjected to a dusting. Whatever opinion may be entertained on this point, parties working among the insects with Paris green, or where this energetic poison has been used, cannot be too cautious.

The insect itself, however harmless directly he may be to animals, seems to actually poison the potato leaf, for its damage seems to be more effectually performed in the shrivelling up of every leaf upon which he feeds than in the amount that he devours.

FALL SHOWS.—Secretaries of Agricultural Societies, or others correctly informed on the matter, are requested to send us early notice of the times and localities fixed for the coming County and Township Agricultural Exhibitions, that we may be able to publish, as heretofore, a list of shows for the information of farmers and manufacturers throughout the country.

Advantages and Profits of Agriculture.

The importance of an enlightened system of agriculture to all the most substantial interests of mankind has been so frequently brought before the public, that it may seem almost unnecessary to dwell further upon the subject, or to insist yet once more on the fact that to those nations who have most closely and carefully improved their agricultural status, Providence has awarded the highest prosperity; and yet so frequent are the grumbings that reach our ears of the toil, the slavery, and the indignities of a farmer's life, that it is well ever to keep before our readers the great advantages and the noble ends which may be attained by a consistent and honourable life upon a farm.

Our cities are this day crowded with young men who have thrown up excellent chances of a successful life as farmers, with all the attendant advantages of an influential and honourable position in the counties from which they severally hail. Much valuable time is spent by this class in seeking out situations, the competition for which is enormous. A berth is found, may be; but, in the majority of cases, at such a salary as will barely keep the occupant decent. There are many such men, who, after years of drudgery at the stool or behind the counter, at the age of thirty, are drawing no higher salary than \$600 or \$800 a year.

The occupations of trade and manufacture, the pursuits of literature and of arts, or the hazardous career of the speculator, have frequently been made the means of amassing a colossal fortune—fortunes such as would buy up whole townships of our Canadian farms; and yet the devotee of agriculture, in his happy life, has other advantages so many and great, that he is a fool to be dissatisfied with Fortune because she has not made him as rich as Croesus.

The enjoyment of good health is the first consideration in the life of man. We farmers are in a position in which we can obtain those two grand secrets of a healthy body—fresh air and constant exercise. A life in the country, with its light cares and its freedom of habits, bringing us up by constant communion with Nature nearer to God, should elevate our views and ennoble our minds. The farmer has constantly at his very door all the more substantial luxuries of life. In his byres, in his fields, in his orchard, and in his dairy, may be found that which will satisfy all animal wants; his business is carried on not in dingy chambers, but under the blue canopy of heaven; he is not confined within four walls, but roams at will over his broad acres.

Doubtless we have toils and troubles and cares, but our toil is that of assisting Nature to produce more beautifully; our troubles are no more than assail all men; and our cares are few compared with those that harass and annoy the business man.

Of all the feelings implanted in the human breast, there is none which we cherish so

carefully or prize so highly, as that of independence. No man dependent upon the public for his daily bread can be said to enjoy this feeling equally with the farmer. Business men, as well as professional men, live in a constant turmoil of excitement, ever striving against one another, and dependent to a great extent upon the favour of the world for their success in life.

The farmer fears no competition, and need be put to none of those endless shifts in which the trader so often deals in order to over-reach or undersell.

The farmer's business, though subject to more casualties than any other, is yet so divided among many risks that he need hardly fear total failure. The weather that may affect injuriously one crop is often very beneficial to another, and a "hard" year, or extra difficult season, serves to open up new ideas; the continued failure of a crop frequently brings to the farmer a new and often lucrative kind of produce. Pitt, in his survey of Leicestershire, says: "In twenty-four years' experience upon a considerable scale, I always made the most money in difficult seasons."

The farmer is not wearied by the dull sameness of the ever-repeated round of duties by which his brother of the town is worn. Each morning brings some new sight to look upon, some new work to be performed; from seed time to harvest, from ingathering to planting, the farmer's work is one of constant change. In his labour there is no monotony.

That a fortune can be realized upon a farm, none who have seen the prosperity of our Canadian farmers, their substantial houses and comfortable properties, dare doubt.

Whilst banks are closing, merchants are failing, speculators are ruined, and tradesmen are becoming bankrupts, the farmer is plodding slowly on, and independent of all, is gradually and steadily accumulating that fortune which shall educate his children and keep him in comfort in the days of his old age.

Statute Labour.

The eyes of the farming community of Canada are at length being opened to the fact that our roads generally are a crying disgrace to this young and rapidly improving country. We must have good roads to market; we must no longer depend entirely upon our periodical snows to give us ready access to the larger towns and commercial centres. We, as farmers, are every year becoming better educated in the science and practice of our profession; and as our averages of crop increase, and our beef, mutton and general produce are improved, we must provide such roads as we can depend upon at all seasons. When first any part of Canada becomes settled in the primeval woods, all that we raise can be moved in the winter, and we

can reckon upon plenty of good sleighing. But as the country becomes cleared, the swamps drained off, and our population and produce is augmented, the snow falls with less regularity, and we are often disappointed in our expectations of early snow tracks.

The first warning notes have been already sounded of a popular outcry against our metalled and gravelled main roads. Something will shortly have to be done to remove these from the power of private companies, and to put a stop to that private fraud and stock-jobbing which has so frequently been felt in the management of many of our main roads.

Our present object, however, is not to review this phase of the subject, but to call the farmers' attention to the state of our country roads, and the miserable "humbug" dignified by the name of *statute labour*.

Doubtless, all our readers know full well how this labour is put in; but we propose, after shortly reviewing the ways in which this working tax operates, to show that the same amount of taxation called for in money, would, when properly applied under responsible and capable management, do much towards the desired effect, of making our side roads and concession lines not only barely passable, but good wheeling, at all seasons of the year.

A few summers ago we had occasion to travel over a great part of Ontario, and came across several gangs of men working on the roads. We had hitherto thought that there could not be the same amount of sham and illness in the performance of statute labour in other parts of the Province as we had always observed in our own section. Travelling experience, however, taught us that the days put in for this purpose are days of loafing, during which the majority of those employed do not perform a sufficient amount of labour to fairly earn a quarter of a dollar; and this fact we find to be patent throughout the whole Province. We once saw a man come on to the road with a small garden hoe.

One of our townships (Ancaster) was assessed to the amount of 3,498 days statute labour upon the roads for the current year; add to this 500 days as a poll tax upon those inhabitants who have no property to assess, and we have a total of close upon 4,000 days of labour to be devoted to the purposes of repairing the road. As every man's day is valued at this work at half a dollar, we might thus, by calling in the money instead of the actual labour, devote \$2,000 to the purpose of keeping our roads in order.

Last year, the township which we have taken for particular illustration appropriated \$540 in cash to special repairs of roads and bridges, thus still further increasing the total tax levied to the sum of \$2,540.

Now, how is this tax expended? In the spring of the year, a gang of men and teams being levied under the supervision of a path-master, who knows no more about the principles of road-making than the dullest of

those under him, and who generally is afraid to make his gang work, start to repair the roads. A hill is ploughed and cut down, and scraped to the hollow below. In all probability the dirt is taken evenly from the whole breadth of the road at this hill. A cutting is thus formed, with no ditch under its banks; the first heavy storm rushes down from each bank into the very centre of the road, and thence with great velocity the volume of the water washing down the banks in its course, and making for itself a ditch in the middle of the road, is dammed in the hollow below, there to form a sticking point for the first loaded waggon that should venture to pass.

How often have we seen the would-be scientific pathmaster, who has read and believes in the efficacy of ditches, set his men to dig a fine drain along the outsides of the road, and instruct them to throw out the earth upon the inside of the ditch, and thus form a fine barrier between the road and the ditch.

Ask him why he does not throw the soil out of the ditch to the centre of the road, and he will tell you that the dirt will settle where it is. Go to the road shortly after, and the next rain will settle the question by rushing where it finds its easiest channel along the centre, and elbowing as it hurries along this natural barrier into our path-master's ditch again.

But allowing that here and there an overseer is struck upon that does try to do his duty, where is the use of repairing a piece of road which is to be left for twelve months exposed to storm and snow and frost and floods?

A newly made piece of road is peculiarly susceptible of damage by storm. Repairs can seldom be permanent unless looked to at intervals for some time after they are made. A whole year's exposure to our weather will more or less undo the best piece of roadwork ever performed in Canada.

Again, a culvert gives way; it is harvest time; a grant is made by the Council for its repair; the path-master cannot leave his haying or his wheat. He gets hands to repair it at extravagant wages, or a tender is sent in, and as it is public money to be got, why the more superficial the job the more profit—says he who tenders.

Or perhaps it is a small culvert; it is patched up, and where one plank would have sufficed for its repair by next spring, it will require new planks and sleepers.

Or it may be the broken bridge is left, and a waggon track made down in the hollow by its side. Before next statute labour time the bridge and all the road contiguous are washed away.

We might fill a volume with facts illustrative of the shortsighted policy of the present system of statute labour.

The principle was well enough when the population was very scattered, when there

was much wild land to pass through, and when we depended upon the snow to take our produce to market. Now we want good roads at all times, but we shall never obtain them until some different system is adopted.

Let us now see what constant labour we could put upon the road by adopting the money taxation at the same rate as now paid in labour—namely, fifty cents per day.

We have shown that in the township of Ancaster, as an example, this taxation would amount (including such special appropriations as are usually made) to about \$2,500 per year. Good men could be obtained for the seven months during which the roads would be workable, at the rate of \$25 per month, or \$175 for the seven months; and a horse and cart could be kept by the township at the same rate. During the remainder of the year the horses should be made self-supporting by teaming. Thus the township could employ during seven months of the year:—

| | |
|--------------------------------------|---------|
| Nine men at \$175..... | \$1,575 |
| Three horses and carts at \$175..... | 525 |
| | \$2,100 |
| For bridging materials..... | 400 |
| | \$2,500 |

As regards the amount of labour to be done—by the number of side lines, concession roads, and given roads, in this township, we have approximated the total length of road at 125 miles. This, evenly divided, would give 14 miles to each man, and 42 miles to each horse and cart. Make the number of working days for each month 20 days (that is, taking out 6 wet days in each month, which we think would not practically be found; besides, they could be drawing material on most of such days,) we have 140 days' work, or an average of one-tenth of a mile, or 176 yards, for each man, and 528 yards, or a little over a quarter of a mile, for each horse per day.

When we consider that a man can, upon most soils, carefully dig 85 yards of ditching (3 feet wide at the top, and 6 inches at the bottom, by 2½ feet deep,) in a day, and that a pair of horses in one day's ploughing will travel over 22 miles, exclusive of time lost in turning, we cannot look upon the above estimate of 176 yards per day to each man, and 528 yards per day to each horse, as very formidable. Besides, at least one-half of the road would be in a condition in which it could be left over for the next year, and we may thus further reduce the average daily job of the man to 88 yards.

The supervision of these men might easily be taken by the councillors, each of whom might take a district of the township.

Again, let us look at the amount assessed—fifty cents per day. Does it pay a farmer at a busy season, for the whole summer is a thronging time, to send his man and a team of horses on to the road for a day's labour, at one dollar and a half per day? Would it not

be far cheaper for him to pay the sum in cash, especially when we consider that even in winter he can hire out his man and team at \$2 50 or \$3 per day?

Farmers, we beg you to take hold of this question; figure it out in application to your own particular townships, and we feel assured that you will come to the conclusion that a system such as this should as soon as possible be made to supersede the miserable sham of statute labour as now performed, a system which has become a by-word and laughing-stock even to those who put in their work in accordance with the existing law.

Editorial Notes.

A run through the northern, north-western, and western portions of the Province, shows conclusively that as a general thing the crops will certainly reach the average, if not exceed it. Oats and peas are usually very good. Barley looks occasionally thin, but often very good. Fall wheat is generally very good, though of course there are some exceptions. Spring wheat, according to present appearance, will be rather under average, but there is still time for it to mend. Hay will, as a rule, be less than last year, although there are some splendid looking clover and timothy fields. The dry weather and subsequent cold nights must shorten the supply, and consequently hay will probably be higher in price next year than it has been during the present and past years.

We noticed several patches of sugar beet, some of many acres in extent. Mangels and turnips are sown in considerable quantities. The sugar beet interest is as yet in its infancy; but the fact of so many people planting beets in place of mangels shows a considerably increased interest in this branch of agriculture. One man, a farmer, living beyond Stratford, has made good coarse sugar, in considerable quantities, from beet from last year's crop. This is very satisfactory, so far, as showing that there are actual crystals of sugar in our beet—a fact that has been for some time past denied by clever men who have previously been engaged in other countries in this manufacture.

It was gratifying also to notice that several parties have gone heartily into draining, and one and all decide that the great mass of our Canadian lands are immensely benefited by so doing. One intelligent farmer declared that where he and his brother had drained their land (although very few drains had been put in, and these far apart, and only through the wet places,) there was amendment sufficient to repay them the outlay the first crop. They could get on the land at least ten days sooner, and the crop was so much advanced by this and subsequent assistance that it had escaped the midge, and the yield on the drained portion had been 35 bushels per acre; whereas that on the underdrained, although better land, had not exceeded 15 to 20 bushels. The drains used

in this case were hemlock boards, one 5 and one 6 inches wide, and 1½ inches thick, and placed like inverted letter V in a narrow drain, no bottom piece being used or found necessary. A drain so constructed is of an area nearly double that of a tile drain, at the same cost, and if laid on a level will be very enduring, the art being to endeavour *always* to have the drain full of water, and consequently the boards always *under* water.

The northern and north-western sections were this season visited by more than ordinary severe frost, that on the 30th June being most severe. Some fields of fall wheat, just about in the milk, will no doubt be killed, or prove a total failure, so far as yield to any extent is concerned. One farmer said he had lost 20 acres so as to be hardly worth cutting. These frosts have been very partial, some fields on the farm being quite exempt from damage.

Stock Running at Large.

Several townships have recently made a move in the right direction by forbidding the running of hogs at large upon the public highways. The regulation should, however, by all means be extended to other classes of stock. If a man has not room to keep his private stock at home, he has no right to own them, and the sooner he sells them to some one who will keep them off the public highway the better. Many a serious accident has arisen from this public nuisance, and many a dollar's worth of crop has been destroyed, the owner's only fault having been that his pasture was bordered by the road. It is observable that these road animals are as a class the most active jumpers and the best of breachers. They carry no extra weight, and road pigs can jam themselves through a remarkably narrow place in a fence, from the road, but it is very hard for them to get out again. The reason is probably that, starved before getting in, they bloat themselves when upon a good piece of feeding ground, so that they grow too big for the hole of entrance.

We hope that all the more settled parts of the Province will follow the lead taken already by a few townships, and not rest content until all live stock are banished the pasturage of the road.

SWINE EXHIBITION.—The exhibition of swine, to be held in Chicago, under the auspices of the Illinois Swine Breeders Association, is definitely fixed for the 19th, 20th, and 21st of September, and is confidently expected to be the largest and best show of this class of stock yet seen on this continent. The competition is open to all, and the prizes are on a very liberal scale, from a sweep-stakes of \$1,000 to \$15, the lowest premium offered. Intending exhibitors or visitors can obtain all requisite information by applying to the Secretary of the Association, Charles Snow, Joliet, Illinois. See advertisement.

Architecture.

Design for a Country House.

Once more we present our readers with a plan and perspective view of a small house partaking of the Italian style of architecture.

This design could be carried out in frame work, if no bricks or stone could be readily procured. Of course, a brick or stone house is much to be preferred in every way over wood. If properly built, it is much warmer in winter, and cooler in summer; it is much more durable, and requires less repairing; it looks much better; will be insured at a more reasonable rate; and sell at a larger price in proportion to its age. A wooden house requires painting every four years or so; and plaster houses, unless much better done than usual, require constant repairs to make them look at all respectable. Our own opinion, taking all these things into consideration, is that it is more economical in the end to build in brick or stone.

Should any one build from the accompanying design, let the foundation walls be at least eighteen inches thick, if built of field stone; if built with flat stone, sixteen inches would do, with good mortar made with fresh burnt lime, and sharp, clean sand, properly tempered.

The walls up to the underside of the wall plates could be 9-inch brick-work, care being taken to build in strips half an inch thick, say every three feet in height, on which to nail the strapping for lathing the walls, and for fastening the trimmings of the doors and windows.

Air gratings of iron should be built between the joists of the ground floor, to air the timbers where there is no cellar. Unless this is attended to, dry rot will soon set in, and destroy the floor and joists.

The roof should be either slated or covered with good shingles laid in mortar.

The interior of the building could be fitted up to suit the taste and requirements of the proprietor.

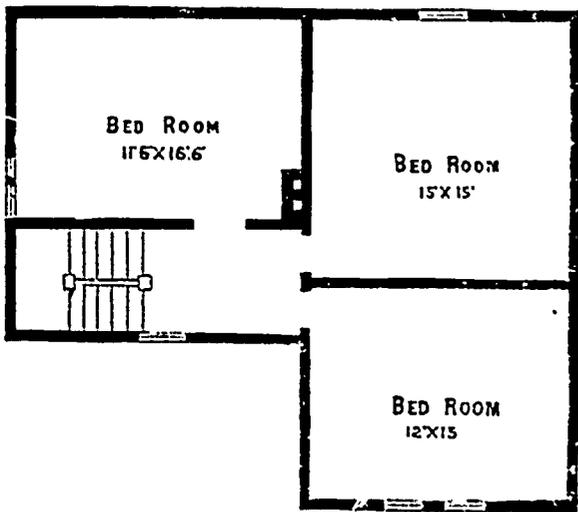
Nothing need be said by way of explaining the plans; they are clearly drawn out, and the size of the rooms are all figured.

A neat and inexpensive verandah protects the front door; the cornices are relieved from plainness with ornamental brackets; and the two windows in the front gable are screened with a projecting hood. These things, though inexpensive, add much to the effectiveness of the building. The wood sheds, &c., are left out of the design, as they can be put up to suit the position of the building. Care should be taken to make them neat and in harmony with the house.

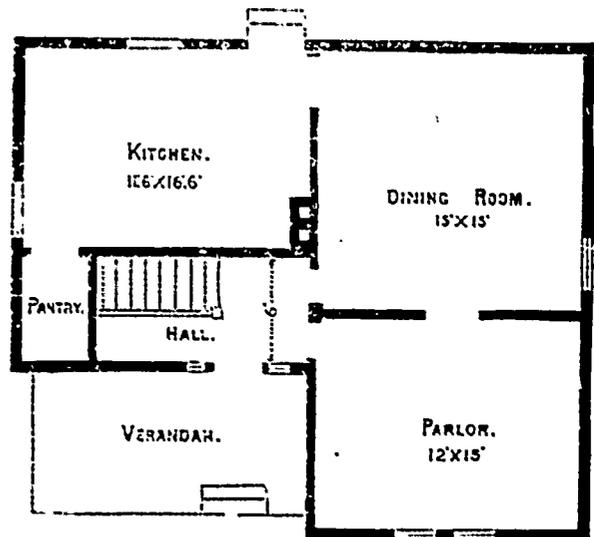
LEAKS AROUND CHIMNEYS.—These may be stopped by applying a paste made of tar, and dry, sifted road dust. The paste should be lapped over the shingles to form a collar.



PERSPECTIVE VIEW.



FIRST FLOOR PLAN.



GROUND PLAN.

Economy in the Use of Building Timber.

In many instances the trees of which the sills or plates of a barn are to be made are of sufficient size to make two, and sometimes four pieces each, provided the logs could be sawed through the middle. If two sills are desired for a barn, for example, let the tree be scored and hewed to a square form—say one foot square. After a stick of timber has been squared, it can be loaded on wheels with little difficulty. If the highway is not rough and rutty, a long stick of timber can readily

be chained beneath the axle-tree of a common lumber wagon, by attaching a reach or coupling to both parts of the vehicle, and lashing the free ends of the reaches to the timber. Then, if a saw-mill is not more than four or five miles distant, it will pay to transport such timber to a mill where a squared stick can be sawed in two parts. Sticks twice as long as the saw-mill carriage may readily be split in two, by allowing one end to project beyond the head block. We have frequently assisted in sawing timber fifty feet in length, on a carriage only twenty-two feet long.

There is another consideration of eminent importance in sawing a stick of timber through the heart of the tree, which is this: When the heart is near the centre of a hewed or sawed beam, post or sill, the timber will often crack badly during the process of seasoning from the heart to the outer surface. Such cracks are an excellent refuge for vermin, or a receptacle for water which will promote the speedy decay of the timber. But when a tree is sawed through the heart, the pieces when being seasoned never crack. If, for example, a builder has a stick of timber

ten inches square, for sills, that stick will make two pieces of timber by sawing it in two parts, which will be sufficiently large for any barn or dwelling house that rests on a suitable foundation. Basswood trees, which will usually crack badly while seasoning, are often selected for making plates for barns and houses. By sawing the tree through the heart the plates never crack.—*Technologist.*

Barn Building.

There is a principle which should enter into the construction of every barn, that its size should be in its height, whilst its height should not necessarily increase the amount of labour requisite for its use; for it will be readily perceived how much the weight of the grain itself must contribute to the capacity of the mow which holds it. A few feet of additional frame in height adds but little to the original cost; whilst to extend the frame horizontally costs the same, and requires additional roofing, and the advantage of weight is comparatively lost. This height of barn, and economy of labour in using it, is attained by constructing the inner frame with two sets of floors, one above the other, using the upper one to drive into, thus reaching with the loaded waggon the height of the middle of the mow, instead of the bottom of it, and thus, too, superseding the necessity of pitching grain to any great height. And here it must be observed that the frame across the barn, which is between the floor and the mow, must be so constructed as that there shall be no cross timber in the way of the free use of the horse-power fork.

In barns heretofore built, this principle has not been observed, whereby it has been necessary to raise hay over these cross-timber to a height which requires much more time and necessary labour than is otherwise required. The hay-fork should be used with a double pulley, and the horse walking on the opposite floor, can raise, without any extraordinary exertion, as much as the fork can take; in fact, with a mow thus constructed, a horse will, when the waggon is full, throw off almost one-fourth of the load at the first draught; the bottom of the mow being about nine feet below, the hay passes off without the immediate necessity of a man in the mow to dispose of it.—*Ohio Farmer.*

HOW TO CLEAN SMOKE-STAINED WALLS.—A New Bedford correspondent writes to tell us of his success in cleaning walls that had been badly smoke-stained. After trying various experiments, he used a strong solution of common washing soda, purchased at the corner grocery-store; and although the smoke had struck through the "hard finish," he says he soon had the satisfaction of restoring the walls to perfect whiteness. The soda-wash can be successfully applied, he adds, either before or after whitewashing.—*Heart's and Home.*

Entomology.

The Potato Pest and Paris Green.

Prof. H. E. Colton presented the following paper in regard to Paris green. It is an unfortunate fact that nothing has yet been discovered which will destroy the Colorado potato bug, except Paris green. I think it unfortunate, as that substance is one of the most poisonous known to science, and consequently very dangerous to handle. At the same time it is necessary that farmers who are troubled with this pest should get a good article, and be told how to use it; also, that they should be shown how to get it at the lowest prices. It usually sells wholesale at 25 cents per pound; now it is 40 cents to 50 cents. The high price is caused by the demand and the necessity of making it in summer, when it is very dangerous. I am told by Messrs. C. T. Reynolds & Co., the largest manufacturers in this country, that they would rather make it and sell it at 25 cents in winter than to make it now and sell it at 40 cents. Men cannot work at it continuously more than a week; and every one in the factory, even to the partner who visits there, is obliged to take an antidote against its effects. You can judge of the amount used when I tell you that this firm made and sold last week 21,000 pounds entirely to the West. It is made of arsenic, potassa, and copper, and is chemically an arsenite of copper. The potash is used merely to aid the solution of the arsenic. It causes sores in the nostrils, in the arm-pits, and groin, and, in fact, all the tender parts of the body.

If a little gets under the nails it gives great trouble. No child should ever be allowed to go near it, and the cloth or sieve used in sifting it on the plants should be destroyed as soon as the season for using it is over. In using, the mouth and nose should be covered with a sponge or cloth, the hands with gloves, and the eyes with glasses or goggles. These precautions are necessary, as it is one of the finest powders known. It is to be regretted that no other material will destroy these bugs; but if care is used no hurt will result from Paris green. A gentleman in Missouri writes that he has tried everything, and that Paris green alone does the work. The bugs would not touch pure white arsenic or corrosive sublimate. I present you two samples: one is pure Paris green, the other a mixture of lime and copper. The first does the work for the bug, the other is worthless. But large quantities of it have been sold by parties who have not a care for their reputation, and much loss has accrued to the farmers. No Paris green is of any value unless it will show a test of arsenic. Farmers who expect the bug had best buy in winter, as it must take a considerable quantity, and there is at least fifteen cents difference in the price. I am informed that the

bug is travelling eastward, at the rate of 150 miles a year. Perhaps some Western man can tell us more as to that. If this be so, it becomes the farmers of New York to find some means of preventing its approach rather than depend on killing them when they do come. One word more, and perhaps the most important part. The antidote for Paris green poison is hydrated sesqui-oxide of iron. Nearly every druggist keeps it always on hand. If it cannot be bought, it may be prepared thus: Dissolve copperas in hot water, keep warm, and add nitric acid until the solution becomes yellow. Then pour in ammonia water—common hartshorn—or a solution of carbonate of ammonia, until a brown precipitate falls. Keep this precipitate moist, and in a tightly corked bottle. A few spoonfuls taken soon after even a bad case of poisoning with Paris green or arsenic is a perfect remedy. Every farmer who uses Paris green for the bugs should keep this medicine always in his house.—*New York Farmers' Institute.*

The Colorado Beetle.

REPORT OF MESSRS. W. SAUNDERS AND E. B. REED.

The following report on the Colorado Potato Beetle, and its ravages in this country, has been prepared at the request of the Commissioner of Agriculture by two members of the Entomological Society, and contains valuable information and important suggestions, which we would, even at the risk of frequent repetition, commend to the earnest attention of farmers and others interested in Canadian agriculture and the welfare of the country.

REPORT.

LONDON, Ont., June, 1871.

To the Hon. John Carling, Commissioner of Agriculture and Public Works, for the Province of Ontario.

SIR,—In compliance with instructions from your Department, dated June 10th, 1871, "to visit, without delay, as many of the localities, on the western frontier of this Province, as are most affected by the ravages of the Colorado Potato Beetle; to examine the nature and extent of the attack; to make such experiments with a view to the cure or arrest of the malady as our observations and judgment might suggest, and to report to your Department the result of our labours, that the same might be submitted to the public forthwith, for general information;" we beg leave to submit the following report:—

LOCALITIES.

We have visited a large portion of the western frontier of the Province, and have also procured reliable information from many other localities throughout western Ontario, and are thus enabled to form a tolerably accurate estimate of the spread of the insect, and also of the present state of the potato crop in these regions now infested by this pest.

NECESSITY FOR INVESTIGATION.

We are fully satisfied, from personal observation, that the current newspaper reports respecting the enormous numbers of these insects which have crossed into Canada from the State of Michigan, are but little, if at all exaggerated; and that the evils resulting from this invasion are already of sufficient magnitude to excite serious alarm respecting the safety of a crop which is so indispensable to all classes of the community: and we apprehend that, before the close of the season, the natural increase of the insect will have extended the mischief throughout the greater portion of Ontario. The prompt action, however, of the Department, in endeavouring to acquaint the agriculturists of the Province with the best remedial measures to be used in this instance, will, we trust, result in effecting a saving of a material portion of the crop, even in the badly affected districts. In making this report, we have endeavoured to condense it as much as is compatible with the objects we have in view; and to lose no time in placing it in your hands, in a plain and popular form. It is intended, in the next annual report of the Entomological Society of Ontario, to give a complete history of the Colorado Potato Beetle from its earliest appearance, with a more detailed account of the mischief it has caused throughout the country; and also to treat at large of the various other insects injurious to the potato. * * *

[Here follows a description, with cuts, of the true Colorado Beetle, and also of the three-lined Potato Beetle, so often mistaken for it. They are now so familiar to our readers that it is unnecessary to reproduce this portion of the report.]

EXTENT OF DAMAGE.

We found that the districts most affected by the insect were those portions of the Province situated on the frontier, between Sarnia and Amherstburgh, and extending inland from twenty to forty miles; but we have obtained undoubted evidence of the fact that in smaller but rapidly increasing numbers this pest has spread over a very large portion of the Province, embracing Bayfield to the north, the neighbourhood of Toronto to the east, and over almost the entire portion of the western section of the country. It must be remembered, however, that those insects we have seen, are of the first brood only, and as the season advances, we shall, without doubt, receive reports of great injury sustained in many districts by the succeeding broods. Already several instances have come under our notice of parties who have been so discouraged by the utter destruction of their potato vines, that they have ploughed up entire fields and sown other crops in their place. We anticipate that the large amount of shipping daily passing down the Detroit river, and the continual movement of railway cars from affected districts, both in Ontario and the United States, to the eastern

portions of the Provinces, will, by affording shelter and means of transport to the beetle, distribute this insect shortly over the entire coast line, and portions of the country through which the railways pass.

ITS PROBABLE CONTINUANCE.

From all the information we have been able to obtain from competent observers in those Western States which first suffered from the depredations of this foe, we deem it highly probable that we shall have to contend with it for many years to come. In the course of three or four summers our agriculturists may expect that the insect enemies of this beetle, of which we already know some nine or ten to exist in Canada, and which prey upon the eggs and larvæ, will, in the natural order of things, so multiply as materially to check the further increase of the Colorado Beetle.

IS IT POISONOUS?

As many stories are current relating to the supposed poisonous character of this insect, we made it a special point to obtain all the information possible on this head, and we were unable to find the slightest evidence to sustain this popular belief, although we conversed with many persons who had handled and destroyed many thousands of the insects in their different stages, and also handled them freely ourselves with impunity. We do not know of any insect belonging to the family *Chrysomelidae*, of which this beetle is a member, possessing poisonous properties, hence we deemed it highly improbable from the first that there was any truth in the stories so widely circulated, and which have created so much unnecessary alarm.

ARTIFICIAL REMEDIES—PARIS GREEN.

The many entomologists and agriculturists who have experimented on this insect, with various poisonous and other substances, in those portions of the United States where it has been so destructive for some years past, concur in recommending the use of *Paris Green*, diluted with flour, ashes, or air-slacked lime, as the best remedy known for destroying the insect, both in its larva and beetle state, without injuring the plant. The result of our experiments and investigations confirm this opinion, and this remedy is, no doubt, a reliable one, provided the *Paris Green* be of good quality. Our experience has also satisfied us that flour is a much better substance to mix the green with than either ashes or lime, as the insects eat it more readily, and, at the same time, it adheres more tenaciously to the surface of the plant, and hence it is not so easily washed off by rain. We found good effects from a mixture of one part, by weight, of *Paris Green*, with 10 or 12 parts of flour, dusted lightly on the vines early in the morning, when the dew is on the foliage.

HOW BEST APPLIED.

Where only a small patch is cultivated, the mixture can be readily applied by means of an ordinary flour dredger; but where

larger quantities are grown, we would suggest the use of a round tin box, about nine or ten inches in diameter, and four or five inches in depth, with a tightly fitting lid, and with a bottom perforated either with small holes, or covered with fine wire gauze. This should be attached, by means of a hollow handle, to a stick of any convenient length. With such an instrument, which may be obtained at a very trifling cost, a large piece of ground can be gone over in a short time, and the mixture applied almost as fast as the operator can walk.

QUANTITIES REQUIRED, AND PROBABLE COST PER ACRE.

After a careful estimate, we consider that three pounds of the *Paris Green*, mixed with its due proportion of flour (30 to 36 pounds), will, if economically used, be found sufficient for one acre of potatoes. Assuming 50 cents to be the ordinary retail price per pound of *Paris Green*, every application of the mixture would cost from two to three dollars per acre, exclusive of the labour. If the insect is very abundant, two or more applications may be required, as exposure to wind and rain will eventually remove the powder entirely from the leaves, rendering them liable to further attacks. Some discretion should be exercised in selecting a suitable time for using the mixture, which should not be applied during high winds, or immediately before a rain storm.

NOT DANGEROUS IF CAREFULLY USED.

As this mixture is of a poisonous character, ordinary care should be used in handling it, to avoid inhaling much of the dust when applying it, to wash the hands after each application, to keep it out of the reach of children, and to exclude live stock of all kinds from fields where the poison is used. With these precautions no danger need be apprehended, it does not injure the leaves to any appreciable extent, unless very heavily applied, and cannot possibly affect the potato itself. We make these remarks because we have met with several individuals who entertain a foolish prejudice against the use of this mixture, for fear that it might injure the potatoes.

OTHER REMEDIES TRIED.

We did not content ourselves with the use of *Paris Green* only, but experimented with as many other substances as the limited time at our disposal would admit of; and, although we would not have the results here given to be considered as final in reference to the materials used, we trust they will be of value as indicating the most promising remedies for further trial.

ARSENIOUS ACID (Arsenic).—This chemical being much cheaper than *Paris Green*, and more uniform in its composition, we hoped it would have proved a practical and safe remedy. We tried it in the proportions of half ounce, one ounce, and two ounces to a pound of flour, and while we are not prepared, from the few trials we have made, to

entirely disapprove of its use, the results we have obtained point to the conclusion that where it has been used in sufficiently large proportions to destroy the insect, it has caused more or less injury to the leaves. In cases where *Paris Green* is not obtainable, this might be used as a substitute, in the proportion of one ounce to one pound of flour, which should always be coloured with some black powder, such as charcoal or black antimony, so as to lessen the risk of accident from its use.

Another arsenical compound was also tested, known in commerce as *Powdered Cobalt* or *Fly Poison*. This was used in the same proportions as the last mentioned, and with similar results, but owing to its higher price we do not recommend it for general use.

SULPHATE OF COPPER (Blue Stone).—A strong solution of this salt was tried in the proportion of two ounces to one gallon of water, and showered on the vines with a watering pot, without damage to either the insect or the plant.

BICHROMATE OF POTASH—This is a poisonous substance largely used in dyeing, and one which has attracted some attention in France of late, as a remedy for insects. We used it dissolved in water in the proportion of two ounces to three gallons of water. This killed the insects effectually, but at the same time destroyed the plants. Whether, in a more diluted form, this remedy could be effectively used without injury to the foliage, we are unable at present to say, but shall experiment further with it.

POWDERED HELLBORF—This powerful irritant, which is so effectual as a remedy for the *Currant Worm*, we tried without perceptible effect, both in powder and also mixed with water, in the proportion of one ounce to the gallon of water. Several other poisonous substances were also used with like results.

CARBOLATE OF LIME—There are several preparations sold under this name, which we found to vary much in composition and character, and equally so in effect. We tried an article known as *Dougall's*, without any good result, but succeeded better with one prepared by *Lyman Bros.*, of Toronto, a black powder manufactured, we understand, from coal tar. This destroyed a large proportion of the larvæ, but we doubt whether it would kill the perfect insect: it is, moreover, used in an undiluted form, which would render its cost greater than that of the *Paris Green* mixture, so we see no advantage in using it, although the fact of its being less poisonous may induce some to try it who are prejudiced against *Paris Green*.

ASHES and AIR-SLACKED LIME, we found, had been extensively used by many of the farmers on the frontier districts; but, as far as we could see or learn, without any perceptible results.

HAND-PICKING.

This has been, thus far, the chief means employed in lessening the numbers of the beetle, and where perseveringly followed, has proved very successful; but it needs to be almost daily repeated, and is therefore exceedingly troublesome, and quite impracticable where a large quantity of potatoes are under cultivation. The usual method is to knock the insects off the plant with a piece of shingle, into a dish or small pail containing a little water; as they readily fall when struck, both larva and beetle may thus be collected in large numbers.

ARE ALL POTATOES ALIKE LIABLE TO ATTACK?

During the course of our inspection we frequently met with gardens and fields containing two or more kinds of potatoes, and observed that in many instances one sort was very much more affected by the insect than the others. The *Meshannok* is particularly liable to attack, while the *Early Rose* and *Peach Blow* are less so; but where the latter are the only varieties planted, the insects do not hesitate to devour them. The only practical suggestion we can make in reference to this point is, that it might be well to plant a few of such sorts as are most liable to be injured, so as to attract the larger proportion of the insects to one spot, and thus enable the cultivator to destroy them with less labour and expense.

NATURAL REMEDIES.

American entomologists enumerate fourteen insects which prey upon the Colorado Potato Beetle in some one or other of its stages. Eight of these we know to be common in Canada, and probably some of the others will also be found here. Of the insects we are now about to describe, the first four feed on the eggs and larvæ, the fifth upon the larvæ only, and the last two on both the larvæ and perfect beetle.

LADY-BIRDS.—The commonest of these is called the nine-spotted Lady-Bird (*Coccinella 9 notata*, Herbst.) It is a small, round beetle, of a brick-red colour, with nine black spots on the wing cases, and may be found in almost every part of Canada.

Hippodamia maculata (DeGeer).—The spotted Lady-Bird. This is a small, pinkish beetle, marked with large black blotches.

Hippodamia 13 punctata (Linn).—The thirteen dotted Lady-Bird is somewhat larger than either of the preceding species, and has thirteen black spots on a brick-red ground.

Hippodamia convergens (Guer).—The convergent Lady-Bird, whose colour is orange red, marked with black and white, is said to have been of immense service in checking the ravages of the Colorado beetle in some of the Western States. The larvæ of all these species are very fierce, and feed on both the eggs and young larvæ of both the Colorado and three-lined potato beetle.

The next insect belongs to the order *Hemiptera* (half wings), the true bug family. It is the rapacious Soldier Bug *Reduvius raptatorius* (Say). Its colour is light brown, and it attacks the larvæ only of the Colorado beetle.

We have detected another insect friend belonging to this family in the act of extracting the juices from the body of a young Colorado larva, into which it had thrust the long rostrum, or beak, with which all the members of this family are furnished. Its name has not yet been determined by us.

The next two friendly insects are known as *Carabidae*, or Carnivorous Ground Beetles.

Calosoma calidum (Fabr).—The glowing alcosoma is so called from the appearance of its wing-cases, which are shining black, with six rows of sunken coppery spots. This beetle is easily found under stones or logs, in moist weather in May and June. It is exceedingly active in its movements, and a valuable friend to the agriculturist.

The murky ground beetle *Harpalus caliginosus* (Say)—is the last one on our list. It is of a dull dark colour, and may be readily recognized from the drawing. All the insects belonging to this family are carnivorous in their habits, and we shall doubtless find among them some other species attacking the Colorado Beetle.

POULTRY.

There is a great diversity of opinion as to whether poultry will, or will not, eat the larvæ of the potato beetle, and if they do eat it, whether any injurious effects will follow. We obtained much contradictory evidence on this point. A few people asserted that some of their poultry had suddenly sickened and died, after eating freely of the insect, while others stated that their turkeys, ducks, and fowls, had eaten the larvæ greedily, and with perfect impunity. The evidence is so evenly balanced that we are unable to give any decided opinion. We hope some further experiments will shortly be made, and a definite conclusion arrived at.

SUGGESTIONS.

Paris Green, which we regard as the most practical and efficient remedy for this insect pest, is, unfortunately, as found in commerce, a substance most variable in its composition. It is an arsenite of copper, and the best qualities contain about 60 per cent. of arsenic, on which its activity depends; but the inferior grades contain a much smaller percentage, and are proportionately less effective and sometimes almost worthless for this purpose. It is highly important that the public be supplied with a good quality of this useful material, and at as low a price as possible, as an encouragement to its use; and we would strongly urge on the Department the expediency of making such arrangements with the wholesale dealers in Toronto as will enable farmers and others to obtain a reliable preparation at a stated uniform price. We

would further suggest that, for convenience sake, the *Paris Green* be made up in packages containing one pound each, with pinned directions for its use, and cautions regarding its poisonous qualities.

We would also recommend the Department to strongly urge upon farmers to plant in future only such quantities of potatoes as they can well look after. One acre carefully cultivated and watched over, will probably yield more gross results than four or five acres if neglected; indeed, wherever the beetle is numerous, negligence will be sure to be repaid by the utter destruction of the crop.

ACKNOWLEDGMENTS.

We cannot conclude our report without acknowledging the valuable assistance we received, during our tour of inspection, from many persons to whom we applied for information. Much anxiety appeared to be felt for the safety of the potato crop, and great satisfaction was expressed at the action of the Department in causing an investigation to be made. The officers of the various agricultural societies in the districts we visited were most obliging, and did all in their power to aid us. In our annual report, to which we have before alluded, we purpose to acknowledge more in detail the individual services which were rendered. We would, however, here especially, express our thanks to W. Wallace, Esq., Assistant Superintendent G. W. R. R., for his kindness in obtaining much useful information for us from the various station masters on the line.

We have the honour to be, Sir,

Your obedient servants,

WILLIAM SAUNDERS.

Vice President Entomological Society
of Ontario.

EDMUND BAYNES REED.

Secy. Treas. Entomological Society,
Ontario.

NOTE.—Seeing the importance of taking immediate action in carrying out the suggestions made in the above report, the Department has effected such arrangements with a wholesale drug house in the city of Toronto, as will enable farmers and others to obtain a reliable quality of *Paris Green* there, at 30 cents per pound. It will be put up in one pound packages, as suggested, with full directions for use, and may be purchased in quantities of not less than ten pounds, by remitting the amount of its cost to Messrs. Lyman Bros. & Co., of Toronto

The Hessian Fly.

The wheat crops of this Province have been so remarkably free, on the whole, from insect enemies during the last few years, that we had begun to indulge the hope that the old days of loss and trouble were over. It was a disappointment, then, to receive some samples of wheat stalks from Mr. C. E. Whitcombe, of Ancaster, and to find on examination that they are affected by our old enemy,

the Hessian Fly. He states that this pest is doing much damage to the fall wheat in his neighborhood, as the stalk falls down, and sometimes even breaks off at the point where it is attacked by the insect.

It is now some time since we have paid much attention to this insect, or noticed it in our columns; we trust, then, that the following outline of its natural history will not be uninteresting to our readers, even though it may be to many "a twice told tale."

The Hessian Fly (*Cecidomyia destructor*, Say,) like the majority of our worst insect enemies, is an importation from the old world, and is believed to have been accidentally brought into America in straw by some Hessian soldiers about a century ago. It has two broods in the year, the fly appearing both in spring and autumn. The eggs of one generation are deposited early in September in the young fall wheat, in a crease of the leaf; twenty or thirty eggs are laid by a single fly, and these hatch out in about four days if the weather is warm. "The little wrinkled maggot, or larva, creeps out of its delicate membranous egg skin, crawls down the leaf, enters the sheath, and proceeds along the stalk usually as far as the next joint below. Here it fastens lengthwise, and head downwards, to the tender stalk, and lives upon the sap. It does not gnaw the stalk, nor does it enter the central cavity thereof; but, as the larva increases in size, it gradually becomes embedded in the substance of the stalk. After taking its station the larva moves no more, gradually loses its reddish colour and wrinkled appearance, becomes plump and torpid, is at first semi-transparent, and then more and more clouded, with internal white spots; and when near maturity, the middle of the intestinal part is of a greenish colour. In five or six weeks (varying with the season) the larva begins to turn brown, and soon becomes of a bright chestnut colour, bearing some resemblance to a flax-seed" (Herrick.) Two or three larvae thus embedded in a stalk serve to weaken the plant, and cause it to wither and often to die. In the case of the autumnal brood, the insect remains through the winter in the "flax-seed" condition, and comes out as a tiny winged fly early in the spring. Another batch of eggs is now laid, another brood is soon hatched, the work of destruction goes on, and late in summer the second generation of flies comes forth. The larvae of the summer brood are found almost always under the sheath of the leaf just above the first joint; their suction of the juices at that point weakens the stalk so much that a high wind very soon bends it down, and even breaks it off when the straw approaches ripeness. Of course the size and value of the grain is also immensely lessened by the absorption of the sap, which ought to go to filling out the ear. The winter brood attack the young plant lower down, and injure it at the root, frequently killing it outright.

The Hessian Fly has many insect enemies, to whose attacks upon it we, no doubt, owe our present comparative immunity from serious loss. It has been computed that these parasites destroy nine-tenths of every generation of the Hessian fly. Artificial remedies are often attempted, but seldom with thoroughly satisfactory results. The best precaution to take where the insect has shown itself in numbers, is to sow the next crop of fall wheat as late as can be done with safety in the autumn—say the middle of September. This course prevents the parent flies from obtaining any young wheat upon which to lay their eggs, and destroys their prospects of another generation. Deep ploughing of an infested field in the autumn, or early spring, is also recommended as a means of preventing the transformation of the pupæ into flies.

Migration of the Colorado Beetle.

To the Editor.

SIR,—As anything relating to the Colorado Potato Beetle is now of great interest to the people of Ontario, and, it is to be feared, will soon be to all parts of the Dominion, I do not hesitate to ask space in your columns for the following curious facts bearing on the migratory habits of the insect referred to.

About two weeks since, a fisherman crossing Lake Erie from this Island to the Canadian shore (a distance of 15 miles), when about half way over was becalmed, and whilst lying lazily rolling in the old dead sea, he noticed near him a piece of board floating towards him. Reaching out his oar, he drew it to him, and found, to his great surprise, some fifteen or twenty full grown potato beetles on it, very placidly pursuing their way across the lake. Afterwards he noticed several other pieces of wood, and each of these primitive passenger ships had greater or lesser numbers of the potato-loving bugs upon them. The wind had been light and from the westward for two days before; and the question arises: Did these insects instinctively take passage on these pieces of driftwood from the American shore at the west end of the lake (40 miles distant), or did they, becoming weary by their long flight over the waters, light upon them for a temporary resting place?

All our islands have them—this one among the rest, though it is full twenty miles from the nearest point of the American shore, from whence it is presumed this pest has come.

F. B. McCORMICK, M.D.

Southport, Pelee Island, June 25, 1871.

PARASITE OF THE COLORADO BEETLE.—

There is little doubt but that the black caterpillar, the worm of the Lady Bird, eats the eggs of the Colorado Beetle. Mr. Bruce, seedsman, of Hamilton, told us recently that he had observed this insect in the act of devouring the Colorado eggs. Well may we join the hop-growers in the protection of the Lady Bird.

Apiary.

On the Introduction of Young Queens to Colonies that are Queenless.

Some ten years ago I was led to suspect that the ordinary statements of Huber and other eminent apiarians, with regard to the antipathy of bees, under all circumstances, to change queens, was incorrect. Eminent writers have supposed that it would not be safe to introduce even a queen cell to a colony until twenty-four hours had elapsed after the old queen had been removed.

In experimenting with Italian bees, shortly after their introduction to this country, I soon ascertained that this was an entire mistake, and that queen cells could be safely introduced, under ordinary circumstances, immediately after the removal of the queen. This led me to experiment further in the same direction. Supposing that perhaps the hatching of a young queen in the colony might reconcile them at once to her presence, I introduced to queenless colonies cells, the lids of which were being gnawed open by the young queen. In some instances these queens hatched in less than five minutes after the cells were inserted, and I found them to be unmolested, although the hive had been unqueened but a few moments before their introduction.

I now began to suspect that there might be something in the young queens themselves, either in their actions, or in their odour, or their voice, or want of voice, which made the bees indisposed to disturb them. Therefore, after unqueening the hive, I introduced just hatched queens at once, and found them almost invariably well received. The bees would occasionally seem to manifest some surprise at their presence, and probably, if they could have spoken their feelings in words, would have said inquiringly "Does your mother know you are out?"

If the queens were too young, they were sometimes dragged out of the hive, just as imperfect bees are removed by workers. I next discovered that, in many instances, these young queens could be put upon the very comb where the old mother was, and yet be undisturbed by the bees. In order to test this matter more thoroughly, after introducing a just hatched queen and finding her well received, I would place upon the same comb an unfertile queen several days old. The bees would at once attack her furiously, confine, and speedily destroy her. It would seem therefore, that under ordinary circumstances, young queens which have not yet attained their proper colour, and perhaps the power of piping, may be introduced at once to queenless colonies. I have availed myself of this discovery largely in breeding Italian queens: it being a common practice with me, as soon as the queen of a nucleus has laid a suitable number of eggs to test her purity, to

cage her, and at once introduce a queen not more than five or six hours old. It may be that it would be safe to introduce queens even a day old, but my practice has been to select for this purpose such as had very recently hatched. When the young queen thus introduced becomes fertile, and has laid a proper number of eggs, I cage her in turn and introduce still another. And thus I am able, with one nucleus, to accomplish in queen raising, as much as is ordinarily done with two or three.

Occasionally I have known the workers to destroy these young queens, if not immediately, still within a few hours after their introduction. I do not, therefore, recommend the practice above described to those who have very few queens, nor would I risk a young queen which I value very highly. But, as under ordinary circumstances, the breeder has often more queens than he knows what to do with, he can easily dispose of them in the way above described.

In order, at times, to secure a suitable number of queens for this purpose, I have been accustomed to condense into one colony a very large number of queen cells of about the same age, inspecting the colony about ever hour in the day, and removing queens as fast as they hatched, and before they had an opportunity to destroy each other or the other queen cells. These same combs may be returned at night to their proper nuclei.

The expert will know how to avail himself of the plans which I have suggested, and how to modify them to suit his circumstances. —L. L. LANGSTROTH, in *American Bee Journal*.

* Instead of the circumlocution of saying - removing a queen from a hive, or giving a queen to a hive - I propose to use as more definite terms, the words, *unqueening a hive, or queening a hive.*

Late Swarms.

Every bee-keeper who allows his bees to swarm naturally will have more or less late swarms swarms that will not gather sufficient honey to winter on. If such swarms are hived and not run back into the parent stocks, they will of course make several cards of comb, gather a small amount of honey, and the queen will lay more or less eggs. Hence in the fall there will be some brood in the combs, some honey, and all the requirements on a small scale for the building up of a good colony; but the honey harvest being past, they cannot labour, and must all perish during winter. The question is—what is the best way to dispose of these late swarms? Some will say they should always be run back into the parent stocks; but it is not always done. The bee-keeper has been exceedingly busy, and has found it less trouble to put them into an empty hive, and when fall comes he has several stocks in the condition described above. Others would advise the taking up of such stocks and using the honey, but the small amount of honey will not pay for the waste of comb. Others again would drive out the bees, and put them into some other stock that is weak in numbers, and save the hive and comb for next season's use; but the combs being more or less filled with young brood, which will in that case

die in the combs and putrefy, they are at a loss how to dispose of it. No doubt this last is decidedly the best plan, and where frame hives are used, the brood may all be got rid of without difficulty. All that is necessary is to take away the queen, and leave the bees queenless for twenty days. The brood will then all hatch out, when the bees may be driven out and put into some stock having plenty of honey, and the hive and combs placed in some outhouse where it is perfectly dry and cold, where the combs will become frozen during winter, which will destroy any eggs or larvae of the moth that might be in them, and next season the combs will be of great help to new swarms, and of far more value than all the honey and wax that could be got out of them. Even common hives may be served in the same way by driving out the bees, capturing and killing the queen; then return the bees, and wait as before. It is not absolutely necessary to wait twenty days, as most of the brood will have hatched in twelve or fifteen days, so that it would be safe to remove the bees and put the hives away for next season's use.

J. H. THOMAS.

Hiving Italian Bees.

Several parties have written to me saying they find it more difficult to hive Italian than black bees, and wish to know why it is so. The reason I would give is this: They are naturally more lively, more energetic, and when aroused and in a state of excitement, the excitement is more intense. Hence the disturbance caused by swarming or issuing from the hive does not so readily abate as with the black bees; they are consequently longer in clustering, and when clustered, the heat generated is far greater; they do not, therefore, cluster compactly, but the cluster is larger or more spread about than with black bees. Thus it happens that when one attempts to hive them immediately after they cluster, they are sure to take wing in large numbers; when they are shaken down, and when turned out of the hiving dish or cloth spread to receive them, they spread out over a large surface, and, like hot ashes, are very difficult to handle. This is nothing against them, however, as it proves their more energetic disposition. It is well to allow the cluster to become well settled, and if convenient sprinkle with cold water. Where artificial swarming is practised, this trifling difficulty does not appear. When not under a state of excitement, they are more easily managed, as their labours seem to wholly engross their attention, and a card of comb may be lifted from the hive and not a dozen bees leave it, and the queen will often continue laying as if nothing had occurred.

J. H. THOMAS.

Natural History.

A Chapter on Snakes.

MILK SNAKE IN THE DAIRY.

Amongst the curious incidents that occur in bush life was that of an adventure with an enormous milk snake. A young wife of my acquaintance lived in a log house newly erected in a limestone district in Western Canada. There were several large fissures and caverns in the rock very near the spot chosen for the locality of the farm house. It was well known that snakes of considerable size were occasionally seen in that township, but they were generally (with the exception of the Puff adder and rattle-snake) harmless. My young friend with her baby was churning butter in the dairy, built close to a small marshy swamp, where a beautiful spring gushed from amongst the rocks. It had always been the custom when the lady's husband was wanted in a hurry, or on any important business, for a large dinner horn to be blown in a particular manner. She was very young and nervous, (only about 17 years of age), and had no servant or female friend with her, and hence, to quiet her fears, her husband had shown her how to blow the horn in this peculiar manner, always promising that he and any one about the farm, when they heard the peculiar sound, should hurry home as fast as possible. The baby lay in her cradle, in the mild autumn sunshine, just within the dairy house door. The mother's attention was directed to a rustling noise outside the cradle. She made a step forward, and was paralyzed with fear and horror at seeing a huge snake about ten feet long, and larger than a fork handle, passing slowly behind the cradle, its head erected about eighteen inches, and, as she imagined, looking into it as it slowly passed onward. In a moment it was past, and all danger to the baby over. The snake crawled slowly along, and appeared to be seeking for some mode of ingress to the dairy well known to itself. At the corner there was a board nailed up against the logs to keep out the cats. The reptile put its head into a cavity formed by the board and a protruding log, and gradually disappeared under the board and between the log buildings. The young wife for the moment became almost fascinated with terror, but still retained perfect consciousness and power of mind and body.

The noise of crawling behind the board continued, and in a few moments the head and about a foot of the snake appeared over the board and within the dairy. It was evidently bent on going in, as it probably had often, although unseen, done before. A pitchfork stood by the door, and directly over that hung the dinner horn. The young wife seized the fork with one hand, and the horn with the other, and with one plunge the sharp steel tines of the fork were driven through the neck of the snake, and deeply

into a soft charnt log that formed part of the building. Then commenced a violent thrashing and squirming behind the board. There was upwards of a foot of the tail projecting beneath, the board being about seven feet high. This extremity of the reptile then became greatly agitated, working and twisting and thrashing about in a most decided manner. The stab with the fork held the snake's head fast, but his struggles were so fierce that our heroine was momentarily afraid it would get loose, and assuredly it would have done harm had she let go her hold. So she seized the horn, and blew the alarm note with all her might again and again. The husband hearing it, and the continued repetition, called the attention of the man and boy, and they all ran homeward at top speed, and as they rushed into the yard the sight of the lady holding the great brute of a snake, with the fork through its neck, the tail thrashing about, the baby awakened by the horn, screaming with might and main, combined with the calls of the young wife to "hurry on," formed an exciting picture.

Of course, a few moments saw the snake beheaded, pulled out, and laid in the yard, and there being now breathing time, all was related that we have written. The mother, although at first dreadfully frightened, had now got her "blood up;" and unlike some city dames who probably would have wanted half a dozen people to recover her from fainting fits, she soon became calm, and but little appearance of the skirmish remained except the heightened colour and bright sparkle of her eye. She confessed when she saw the head of the snake within one foot of the face of her baby, and above it, looking into the cradle, all the blood in her body seemed to rush to her heart; but the moment it passed harmlessly by, and she had an opportunity of going into action with the pitchfork, the relief was instantaneous, and her courage returned, as the snake found to its cost. Afterwards, by placing a pan of milk near a particular place amongst the rocks, three others were killed, very large, but nothing like the old patriarch, the thief in the dairy, who measured ten feet six inches in length, and almost as large in the body as a man's wrist. Forty years since there were plenty of these snakes, some very large, but of late they have all met the fate of our big one above. I have often seen black snakes near my farm in a marsh six to seven feet long, and some much larger.

A NEST OF BLACK SNAKES.

I was once, many years since, rafting some timber in a marshy piece of land, that abounded with black snakes. After work was done, we were racing home, at sundown, and our way lay over an arm of this marsh. I was ahead, and had no shoes or stockings on, or, to tell the truth, trousers either, having been in the warm pond water all day rafting. To cut off a corner I jumped hop, step and jump, from tussock to tussock, over this piece of marsh, and about the

middle I saw what I took to be a bundle of black roots coiled together, and partly raised. It took a longer leap than common, and pitched both naked feet into what proved to be a bunch of black snakes, that certainly covered eighteen inches to two feet square, and must have contained at least twenty. The horrid feeling of moving reptiles sent me flying, and it also sent many a snake into the water, swimming about 12 to 15 inches out of it, and with great rapidity. My little English terrier went after them, but of course could not catch them. When on shore I had often seen her kill a four or five foot black snake in a moment, but now the heads alone were visible above the water, and she would never touch the head part, but always caught it by the tail, and shook it all to pieces. It was quite amusing to witness this combat, and I have seen it a hundred times.

The active little thing, always searching about for something to hunt, would bark in a peculiar manner. We all knew "Mus" had found a black snake. Directly the snake moved off to the water, "Mustard" would catch it by the tail, about twelve inches from the end, and by shaking it violently, would soon have it in pieces, but no urging could induce her to hold the snake in her mouth without shaking it all the time. She could not be made to understand it could not hurt her.

RATTLESNAKE.

Many years since the township of Adelaide was infested near the river by rattlesnakes. There were hundreds of them on my friend Mr. H.'s farm. One particular natural meadow could not be cut with safety. One year, however, hay had been \$15 a ton, and very scarce, and this identical meadow had as usual a large heavy crop on it.

Mr. H. and his friend the doctor were amateur farmers; and as labour was scarce, and money to pay them with scarce, they undertook to cut and carry the hay in this case themselves. It was duly cut, made, and for the most part carried, but a few cocks were left quite near the rocky portion, where a ledge of limestone rocks projected all along the bank at that place, about six feet high, and facing the south. Several of the hay cocks had been left out a long time, and autumn's cold nights began to be felt. The waggon was about loaded with hay, and the doctor putting his fork into one of the oldest cocks of hay, suddenly raised it, or a portion of it, over his head and upwards towards the load, when, horror of horrors, a bunch of small rattlesnakes, coiled up to about as large as your doubled fist, fell directly into the open bosom of the shirt. The weather was hot during the day, and the doctor wore no flannel. He stood like one paralysed; his eyes distended, and without any apparent vision. The snakes rapidly uncoiled, and crept round and round on the waistband of the trousers. The doctor at first had no power to move. His friend on the waggon thought him in a fit, and leaped off, calling out to him to say what was the matter. At last the doctor gasped out, "Snakes in my shirt bosom!" "Rattlesnakes," he roared. With great caution, Mr. H. gently lifted the shirt until it came above the band of the trousers, when twelve rattlesnakes, about eight to twelve inches long, fell out, and were at once killed. Mr. H. preserved the whole twelve in whiskey; but the doctor, whom I have often made relate the story, could never look at them without shuddering. He left that part totally unfit to practice his profession for many months. C.

Household.

To Preserve Hams and Bacon.

After the ham or bacon is well cured and smoked, it will keep any reasonable length of time, provided it can be kept altogether free from the bane of this class of provision, the skipper fly. This little insect will puncture anything that is not as hard or impenetrable as leather, and if its ovipositor is long enough, will lay a perfect nest of eggs in the meat enclosed in the covering. When this fact is once ascertained and acknowledged, we can readily contend with its ravages.

To do this with certainty, take thick brown paper and envelope the meat entirely, covering every part so completely that no one portion is exposed; tie it on firmly with twine; then slip the ham or piece of bacon into a factory cotton bag, and hang it up in a cool, dry place. The fly will be "round" very shortly, and would deposit its eggs in the ham, although enveloped in cotton; but the substratum of strong brown paper prevents it from doing so, the ovipositor is not long enough to reach through cotton and paper, especially when the paper is inside the cotton. The insect, however, would soon remedy this difficulty by finding out an interstice in the paper, through which it could crawl, and in which it could do any amount of mischief; but the cotton bag prevents it, as it cannot possibly crawl through any of its interstices, consequently the meat enveloped in the paper inside is quite safe. Many recommend whitewashing the bag, or sewing hams up in cotton cloth, and whitewashing each completely. This is effectual enough if there are no cracks in the plaster or the slightest opening in the bag, through which the ovipositor can be passed and the bacon reached. Generally, however, there are plenty of such cracks or openings, and the insect will readily hunt for and find them. There being no defence *inside* of this bag as the paper above recommended, therefore there exists no difficulty in reaching the meat, and the first thing we know is that our hams are spoiled, and also the cotton in which the ham was sewn up, for they cannot, after being whitewashed, be again used. In the former case, where paper is used, the

Raspberry Vinegar.

Put a pound of very fine ripe raspberries in a bowl, bruise them well, and pour upon them a quart of the best white wine vinegar; next day strain the liquor on a pound of fresh ripe raspberries, bruise them also, and the following day do the same, but do not squeeze the fruit or it will make it ferment, only drain the liquor as dry as you can from it. The last time pass it through a canvas bag previously wet with the vinegar, to prevent waste. Put the juice into a stone jar, with a pound of sugar to every pint of juice; the sugar must be broken into lumps; stir it, and when melted, put the jar into a pan of water; let it simmer, and then skim it; when cold, bottle it. It will be fine and thick when cold, and a most excellent syrup for making a wholesome drink.—*Germantown Telegraph.*

Poetry.

The Guiding Star.

The following poem was published many years ago, but may be new to many of our readers. It was suggested by a seal, representing a man at sea in a small boat, looking up at a guiding star, with the motto, "Si je te perds, je suis perdu"—If I lose thee, I'm lost:

Shine on thou bright beacon,
Unclouded and free,
From thy high place of calmness
O'er life's troubled sea;
Its morning of promise,
Its smooth seas are gone,
And the billows rave wildly,—
Then bright one, shine on.

The wings of the tempest
May rush o'er thy ray,
But tranquil thou stillest,
Undimmed by its sway:
High, high o'er the worlds
Where the storms are unknown,
Thou dwellest all glorious,
And beautiful, alone.

From the midnight of darkness
The lightning flash leaps—
O'er the bark of my fortune
Each mad billow sweeps:
From the port of her safety
By warning winds driven,
And no light o'er her course
But yon lone one of heaven.

But fear not, thou frail one,
The day may be near
When thy own sunny headlands
Far off may appear:
When the voice of the storm
Shall be silent and past,
In some island of heaven
We may anchor at last.

But, bark of eternity,
Where art thou now?
The tempest wave shrieks
O'er each plunge of thy prow:—
On the earth's dreary ocean
Thus shattered and tossed,—
Thou lone one, shine on;
If I lose thee, I'm lost.

Nothing But Leaves.

Nothing but leaves! The Spirit grieves
Over a wasted life:
O'er sins committed while conscience slept;
Promises made but never kept;
Folly, and shame, and strife:
Nothing but leaves.

Nothing but leaves. No gathered sheaves
Of life's fair ripening grain;
We sow our seeds, lo! tares and weeds,
Words, idle words, for earnest deeds;
We reap with toil and pain,
Nothing but leaves.

Nothing but leaves! Sad memory weaves
No veil to hide the past;
And as we trace our weary way,
Counting each lost and misspent day,
Sadly we find at last
Nothing but leaves.

Ah! who shall thus the Master meet,
Bearing but withered leaves?
Ah! who shall at the Saviour's feet,
Before the awful judgment seat,
Lay down for golden sheaves
Nothing but leaves?

Agricultural Intelligence.

Provincial Association—Trial of Implements.

FIRST DAY.

The competitive trial of agricultural implements began on Wednesday, July 19th, on the farms of Messrs. Hiram and Horace Capron, in the vicinity of Paris. The last trial of a similar nature in this Province was held in 1864, in the neighbourhood of Hamilton. A comparison of the two exhibitions shows very gratifying progress in this class of manufactures within Ontario. Then the Province was, to a considerable extent, dependent upon the skill and enterprise of the neighbouring States. Now very few agricultural machines are imported. Nor is this manufacture by any means confined to our cities. Large manufacturing establishments flourish in most of the towns and villages throughout the Province, which supply to the farmers of this country implements and machinery inferior to none in the world. For the development of this important branch of business is not more remarkable than the improvement in the machines themselves. The ingenuity of mankind, ever active, has been especially so in the service of the husbandman. Experience suggests improvements, and year by year changes have been made in order to adapt the machines more perfectly to the purposes for which they are intended. The exceedingly keen competition throughout the province in this business has had the very best results. Manufacturers are ever on the alert for improvements, and the result was shown in the superior class of machines that entered the lists at Paris.

RULES AND REGULATIONS.

As on former similar occasions the trial was under the auspices of the Agricultural and Arts Association of Ontario. The Directors of that body issued a circular some time ago announcing the trial and laying down the rules and regulations under which it would be held. These were, as far as practicable, the same as those relating to the Provincial Exhibition. In all the departments competition was open to exhibitors from any part of the world without reservation. An entry of one dollar was charged to each competitor, and it was provided that entries for the trial would constitute membership of the Association for the current year. All entries were made in the names of the producers or manufacturers only. It was announced that the decision of the judges would be based on the combination of quality, style and price, and the adaptation of the article to the purpose for which it was intended. The usual arrangements were made with the railway companies for return tickets for passengers and freight at reduced rates. One provi-

sion in the regulations requires all the successful competitors to exhibit the articles for which they are awarded prizes, at the trial at the Provincial Exhibition in September, and their premiums will not be paid them till then.

THE LOCALITY.

A more suitable locality could not perhaps be found in the Province; conveniently reached by rail, and the centre of a capital agricultural as well as manufacturing country, Paris affords excellent advantages for a trial which is intended for the benefit of farmers and machine-makers alike. Aside from these practical advantages are others, acceptable to all, but particularly pleasing to sight-seers. The scenery, though not grand, is picturesque, and, with a slight exercise of the imagination, might even in some places be called romantic. Nestling down under two lofty banks, between which, in meandering form, flows the Grand River, Paris, like many another pretty Canadian town, is a place one will turn aside to see with pleasure. On the hills above the town a splendid prospect meets the view—hill and valley in endless diversity, well-tilled farms, elegant farm-houses, orchards laden with fruit, and golden fields of grain just ready for the sickle—if one may be allowed the anachronism. The farms on which the trial took place are situated between the railway station and the town, and extend from the line of the Grand Trunk pretty well down towards the town. The situation is somewhat elevated, and commands a view of the country for miles around. So much for the locality and the region round about.

Tuesday evening's train brought a number of visitors and exhibitors from a distance, as well as implements and machines in great variety. The majority, however, came in Tuesday morning. Before nine o'clock the road which runs between the farms of Mr. Hiram Capron and Mr. Horace Capron began to fill up, and by ten o'clock most of the machines intended for competition were on the ground and ready for work. Most of the machine-makers in the province from Whitby and Newcastle west were represented. Of machines for haymaking and harvesting there were 83; 29 for preparing products for use; and 47 implements for tilling the ground. There was considerable delay in getting started, much to the annoyance of the farmers, most of whom had left their own harvest fields to witness the trial. None of the directors of the Provincial Association were on hand, and until some of them arrived to take control of affairs, of course very little could be done. However, Mr. Dickson, the secretary of the North Brant Agricultural Society, and other officers of that body, did what they could in the way of preparation, and by half-past ten Mr. Thompson, secretary of the Provincial Association, Mr. Rykert, and other directors, arrived and

at once set to work, giving out cards to the competitors and arranging the work of the Judges. Mr. Graham, treasurer of the Association, also arrived shortly after. Notwithstanding the busy season, there was a large attendance of farmers from the neighbouring counties. The interest taken in the exhibition and the opportunity it afforded of showing the strength of the country in the manufacture of agricultural machinery also attracted a number of people from various parts of the Province. Among the distinguished visitors present during the day were Mr. Baxter, son of the eminent member for Dundee, Secretary-Treasurer in the Imperial Government, and Mr. Dunlop, son of the late Mr. Murray Dunlop, M. P. for Greenock, who are paying a visit to this country. The Hon. George Brown, Prof. Buckland, Mr. Rymal, M. P., and Mr. Stirton, M. P., were also on the grounds.

THE TRIAL.

Owing to the delay in making the preliminary arrangements, it was one o'clock before the actual trial of any of the machines commenced. The first called out were the single mowers: 8 of these, the only ones out of 20 entries that were on the ground, were ranged in a line along one side of the field at 30 feet apart, and were required to cut a strip of that width and 260 yards long, the distance to the opposite side of the field. The crop was of mixed timothy and clover, very light, and, as was to be expected at this late season for haying, over-ripe, but otherwise in good order, affording indeed but an inadequate test of the efficiency of any mower. The ground was somewhat hilly and rolling, but not rough. The following were the competitors:—Messrs. Brown & Patterson, of Whitby, with a Cayuga Chief mower; Mr. Massey, of Newcastle, with a Wood's patent; Noxon Brothers, of Ingersoll, with an Ohio Buckeye; Mr. J. Watson, of Ayr, with a small compact machine, altogether of iron, which he names the Humming-bird, and another more powerful, called the Clipper; Maxwell & Whitelaw, with a light and very compact mower called the Sprague Mower; Bell & Son, of St. George, with a Buckeye; and L. D. Sawyer, of Hamilton, with a Wood's patent. These eight machines started pretty well together at a signal, and presented an animated spectacle as they cut their way across the field, levelling the grass in excellent style, as might be expected. There was considerable competition in speed as well as in quality of work, though the former is a matter more, perhaps, dependent on the horse and the driver than on the machine, except so far as lightness of draft and facility of working may affect the pace. On the present occasion, the first machine to complete the allotted task was Mr. Noxon's, which cut its strip of about half an acre in eighteen minutes; the rest were not much behind, and this part of the trial was over

in about half an hour. The judges then submitted each machine separately to the test of the dynamometer, driving it for that purpose once across the field, and cutting a single swathe, one of the judges himself acting as driver, carefully noting the working of the machine as well as the indications of the instrument for measuring the draft. This test gave the following results:—The average draft of the Brown & Patterson, single mower was 180 lbs., the width of cut 4 feet; Massey's draft 190 lbs., width of cut 4 feet 2 inches; Noxon's draft 193½ lbs., cut 4 feet; Watson's draft of Humming Bird 165 lbs., cut 4 feet; Watson's draft of Clipper 175 lbs., cut 4 feet 6 inches; Maxwell & Whitelaw, draft 145 lbs., cut 4 feet; Sawyer, draft 233½, cut 3 feet 10 inches; Bell & Son, draft 200, width of cut 4 feet 2 inches. In the case of the three highest figures above given something may have been due to the change of ground, as the machines were in different parts of the field and one portion of their course was up a pretty steep incline, which showed a perceptible influence in increasing the draft. This careful testing of each individual machine necessarily occupied some time, and it was nearly 6 o'clock before the trial was over. The judges who acted in this class of implements were Messrs. A. E. Goodfellow, of Guelph, James Anderson, Redaersville, and W. Bell, Rodgerville. The testing the draft of single mowers was suspended for a time to give the combined machines, which, to the number of 14, were placed in a line beyond them, an opportunity of cutting a similar strip of the field. The competitors in this section were:—E. Eastwood, of Ingersoll, with two machines, differing chiefly in the rake to which they were adapted; Noxon Bros., also with two machines, one a Buckeye, the other a Standard; J. H. Grant, of Grimsby, with an Ohio Buckeye; Massey, with a Hubbard mower; D. L. Sawyer with a Ball's, Ohio; J. Bingham, of Burford, with two machines, both Ohio Buckeye, but one with Johnston self-raker attached, and the other with the Dodge rake; Harris & Son, of Beamsville, with a Kirby mower; J. Forsyth, of Hamilton, with an Ohio Improved; J. Watson, with his Clipper; and Oswald and Patterson, of Woodstock, with an Ohio Buckeye. These machines started at three o'clock, and like the single mowers did good work, cutting the grass low, clear, and leaving it evenly spread on the ground. There was little or no clogging with any of the machines; though, indeed, the lightness of the crop, standing well up as it did, was but little apt to give rise to this trouble. These combined machines, like the single machines, were subjected, after having cut their allotted strip, to the test of the dynamometer, three extra judges having been appointed for the purpose to expedite the trial. The gentlemen who acted in this capacity were Messrs. Rymal, Stirton and

Dawson. The drafts of the respective implements were as follows: A. Harris & Son, width of cut 4 feet 8 inches, draft 205 lbs.; Oswald & Patterson, cut 4 feet 3 inches, draft 275 lbs.; Bingham, both machines cut 4 feet 3 inches, draft 250 lbs.; Grant, cut 4 feet 3 inches, draft 240 lbs.; Noxon, Standard, cut 4 feet 6 inches, draft 230 lbs.; Noxon, Buckeye, cut 4 feet 3 inches, draft 220 lbs.; Watson, Clipper, cut 4 feet 4½ inches, draft 225 lbs.; L. D. Sawyer, cut 4 feet 8 inches, draft 280 lbs.; Forsyth, Buckeye, cut 4 feet 3 inches, draft 225 lbs.; Forsyth, Ohio, cut 4 feet 3 inches, draft 210 lbs.; Massey, Hubbard, cut 4 feet 6 inches, draft 275 lbs.; Eastwood, Buckeye, cut 4 feet 3 inches, draft 250 lbs.; Eastwood Ohio, cut 4 feet 3 inches, draft 250 lbs.

It was quite a late hour and growing dark before this part of the trial was completed.

PLOUGHING.

Towards the latter part of the afternoon a commencement was made with the trial of ploughs. The ground selected for this purpose was a cleared portion of the same field in which the mowers had been competing. Strips of land, 12 feet wide and about 30 rods in length, were staked out for the separate implements to plough each a land. Only a few had been set to work when the coming on of evening put a stop to the proceedings.

The ground was very unfavourable for the purpose, being not only rough, hilly, hard and dry, but very stony. It was almost impossible, therefore, to exhibit really good work. The following competitors started with their ploughs:—Watson, with a plough with a wrought-iron beam, steel mould-board and east landside; Morley, of Thorold, with his well-known iron plough, so well adapted in ordinary cases for sod; Chisholm, of Paris, with an iron plough; Wilkinson, of Gornley; and Gray, of Edinburgh, Scotland, with an iron plough. The principal interest of this part of the trial centred in Gray's double furrow plough. This implement was seen at great disadvantage on account of the nature of the ground, besides being started without being properly adjusted. The latter error was remedied after a few furrows had been ploughed, and the work was much improved by the alteration. The plough was drawn by three splendid and powerful grey horses, who, under the adverse circumstances, scarcely worked with the ease which better ground would have allowed. Notwithstanding these drawbacks, the performance of the double plough elicited much admiration. The trial will be resumed to-morrow. Besides the three greys already mentioned, a number of the teams on the ground were very splendid animals. The team which drew Mr. Harris' combined mower, and was selected to draw all the implements of the same class in the trial of drafts, was especially noticeable and was a truly noble-looking pair of well-matched and powerful animals.

After the day's work a dinner was given to the judges and other visitors, by the officers of the Brant Agricultural Society, at Sinclair's Gore Hotel.

SECOND DAY.

The trial of Agricultural Implements was resumed next day under the favourable influence of splendid weather. The day was all that could be wished, nice, without being sultry, and indeed just the temperature to suit both visitors and competitors. The crowd was not so great as on the previous day, for many who had come from a distance had been compelled to return home to attend to harvest work or other pressing business. To those who were able to remain this was an advantage, as there was less crowding about the machines at work, and less running over the fields. Many, however, were no doubt disappointed in being obliged to forego the principal attraction of the competition, namely, the testing of reapers, which the threatening state of the weather on the previous day and the want of preparation had postponed till the second day of the trial. Even then it was not till an advanced hour of the morning that this part of the competition was fairly under weigh.

TRIAL OF HORSE RAKES.

The first part of the day's proceedings was the trial of horse rakes. In this class, the number of entries as usual exceeded the actual number of competitors on the field. Four machines were started to work. These were all sulky rakes with steel teeth, and were exhibited respectively by Massey, of Newcastle, Watson, of Ayr; Davis, of Guelph; and J. Soutar, of Chatham. All the machines made clean work, and were managed by the driver with ease; but the lightness of the crop scarcely admitted of a fair test. Indeed, in the case of these steel-teeth implements, the slight resistance of the hay to be gathered caused the teeth to press somewhat too much on the ground and bring up roots and earth to some extent. This could have been remedied had the lightness of the crop been foreseen and the pressure adjusted, as the machine of Soutar, for instance, allows, by using lighter springs and raising the teeth higher. This exhibitor also laboured under the disadvantage of employing a driver unaccustomed to his machine. The result of the competition, as regards the award of prizes, will be seen in the premium list appended to this report.

PLOUGHS.

Early in the forenoon the ploughs that were on the ground and which had on the previous day been at work on their strips of land, only one of which, however, was completed—were submitted to the test of the dynamometer, with the following results:—Gray's champion iron single-furrow plough, a strong and excellent implement manufactured in Scotland and exhibited by the im-

porter and agent, Mr. Rennie, of Toronto, showed an average draft of 500 lbs. The weight of the plough itself is 180 lbs. The strip of land selected for the trial being on a hill-side gave an opportunity of observing the effect of an acclivity, and it was noticeable how little the draft was increased in ascending the hill—not more indeed on an average than 25 lbs. The next plough tested was that manufactured by Eyer & Bros., Richmond Hill, an implement with iron beam and wood shafts. The weight of this plough is 140 lbs. and the draft was 475 lbs. The plough of George Wilkinson, of Gornley, a plough similar in construction to the last, and weighing 140 lbs., was next tested, and showed a draft of 450 lbs. The next implement brought on the ground was another of Gray's iron ploughs but of a lighter construction, weighing 150 lbs. This was also exhibited by Mr. Rennie. The draft was 460 lbs. Mr. Wilkinson showed a second plough entirely of iron, weighing 175 lbs., the draft of which was 475 lbs.

J. Morley, of Thorold, showed his well-known iron plough. Its weight is 130 lbs and the draft 450 lbs.

James Chisholm, of Paris, completed the list of actual competitors on this occasion. His is also an iron plough—weight, 175 lbs; draft, 450.

The judges for this class of implements were,—A. McKellar, M. P. P.; Mr. George Bell, of Tuckersmith, and Mr. Robson, of Falkirk. They expressed themselves well pleased with the quality of the work done by all the ploughs, under very disadvantageous circumstances, and found it a very difficult matter to award the prizes; and it was with much reluctance that they did not assign a premium to the excellent implement exhibited by Mr. Wilkinson, which, however, they considered well entitled to high commendation. The double furrow plough was not submitted to the test of the dynamometer on account of the very stony nature of the ground.

CULTIVATORS.

The same judges attended a test of cultivators on some fallow ground at a distance from all the other farm operations going on at the trial, and therefore but little noticed. The exhibitors were, J. Morgan, of Markham; B. Bell & Son, St. George; Thomas Clarke, Darlington; C. Thair, Guelph; J. Borer, Dundas. All were good implements, and it was no easy matter to decide upon their merits. That of J. Morgan, though not successful at the present trial, has carried off many prizes, and is certainly a thoroughly good machine, simple in construction and easily worked.

HARROWS.

The trial of harrows, like that of cultivators and ploughs, was only on a limited scale. The implements were all iron section harrows, very similar in construction and excel-

lence of work. The exhibitors were Eyer & Bros.; J. Campbell, Newtonville; Alex. Robb, Indiana; R. Lean, Stratford.

TRIAL OF REAPERS.

By far the largest crowd of visitors congregated in and around the wheat fields on the opposite side of the road, where the great attraction of the day, the trial of reapers, was going on. The grain was in excellent order, not heavy, but very fair in quantity on the ground, of moderate length of straw, well headed, and for the most part standing well up. In one or two places only was it laid; and this very circumstance afforded an excellent opportunity of testing the quality of the machines under this very frequent disadvantage. The single mowers were tried in one field by one set of judges, and the trial of the combined machines under another set of judges was going on at the same time in the field adjoining. The machines were first started round the field, not all at once, but consecutively. Afterwards each machine was driven by one of the judges over the same portion of the field, with the dynamometer attached, subjecting each to the test as nearly as possible under exactly the same circumstances. The gentlemen who acted in the onerous capacity of judges deserve to have it mentioned that they discharged their very difficult task with singular care, patience and impartiality. The greater part of the day was occupied in this important investigation. The machines were of excellent manufacture and elicited general admiration for the work they performed.

SINGLE REAPERS.

Six of these competed, though many more were entered. The names of the competitors will be mentioned in giving the results of the dynamometer test. The great curiosity in this class was the Marsh Harvester, which was followed by an immense crowd. It cut the grain well; but it was a question among the spectators whether they would not rather bind the sheaves on the ground than on the platform of the harvester. It seemed pretty hard work for the two binders to manage all the grain, even in this not very heavy crop. The hurry with which the binding must be performed tends, moreover, to leave the sheaves not in the best order. The machine is nevertheless a step in the right direction, and many farmers who have tried it speak highly of its merits. With regard to the other machines, we cannot here discuss their various merits and peculiarities. Most of them are well known, and a summary of the results of the dynamometer with each will be all that most readers will care for. With the single machines the drafts were as follows, the width of cut being also taken into account:

| Exhibitor. | Reaper. | Cut. | Draft. |
|--------------------|-----------------|---------|---------|
| | | ft. in. | lbs. |
| A. H. Harris | Burdick | 5 9 | 200 |
| Brown & Patterson | Johnston | 5 3 | 258 1/2 |
| L. D. Sawyer | Johnston | 5 4 | 220 |
| J. Watson | Dropper | 6 0 | 175 |
| Massey | Woods | 5 9 | 205 |
| Paxton, Tait & Co. | Marsh Harvester | 4 8 | 308 1/2 |

COMBINED REAPERS.

These were tested in a similar manner, and were on the ground in great force, and came more nearly up to the actual number of entries than any other class of implements at the trial. The following is a summary of the drafts as shown by the dynamometer. As will be seen, there was a remarkable uniformity in this respect:—

| Exhibitor. | Reaper. | Cut. | Draft. |
|--------------------|--------------|---------|--------|
| | | ft. in. | lbs. |
| Massey | Hubbard | 5 6 | 225 |
| A. Harris | Kirby | 5 0 | 208 |
| J. Bingham | Dodge | 5 6 | 241 |
| J. Bingham | Buckeye | 5 0 | 225 |
| J. Forsyth | Johnston | 5 0 | 233 |
| J. Forsyth | Johnston | 5 9 | 225 |
| L. D. Sawyer | Dodge | 4 8 | 250 |
| J. Watson | Johnston | 5 0 | 233 |
| Noxon Bros. | Ohio Buckeye | 5 6 | 225 |
| Noxon Bros. | Standard | 5 6 | 233 |
| J. H. Grout | Dodge | 5 9 | 250 |
| J. Eastwood | Ohio Buckeye | 5 0 | 225 |
| J. Eastwood | Ohio Buckeye | 5 0 | 225 |
| Oswald & Patterson | Ohio Buckeye | 5 0 | 226 |

THRASHING MACHINES.

There was not an extensive competition in this class of machines, four only being on the ground. Each was tested separately with a load of sheaves brought from the field where the reapers had just been at work. The machines shewn were Mr. Watson's agitator vibrating machine and his double-cylinder thresher; and those of Glasgow & Macpherson, of Clinton, and Maxwell & Whitelaw, of Paris. The work of each was thorough, delivering the grain very clean, and apparently threshing out completely. The first machine set to work was Mr. Watson's double cylinder, which threshed in excellent style 24 bushels in 30 minutes, without any effort at haste. Macpherson's next threshed 18 bushels in 17 minutes; Watson's agitator followed, and turned out 24 bushels in 18 minutes; and Maxwell and Whitelaw threshed 28 bushels in 18 minutes.

The grain was plump and even, turning out well in proportion to the straw, and the crop of the whole field will no doubt prove an excellent one—a promising index of the harvest in that neighbourhood.

STRAW-CUTTERS.

After the trial of threshers, two horse-power straw-cutters, one exhibited by J. Watson, the other by Maxwell & Whitelaw, were set to work. The machines were very similar in construction, and did excellent work.

The trial of pea-harvesters did not take place, as there was no field of that crop in the vicinity ready; but the committee propose to leave the trial of this much-needed implement with the County Agricultural Society, who will, it is hoped, arrange for a competition shortly and report to the Agricultural and Arts Association.

The following is the award of prizes:—

PRIZE LIST.

SINGLE MOWERS.

- 1st Prize, Brown & Patterson, Whitby.
- 2nd " Bell & Son, St. George.
- 3rd " J. Watson, Ayr.

SINGLE REAPERS.

- 1st Prize, Brown & Patterson, Whitby.
- 2nd " Harris & Son, Beamsville.
- 3rd " D. L. Sawyer, Hamilton.

COMBINED MOWERS.

- 1st Prize, J. Forsyth, Dundas.
- 2nd " Noxon Brothers, Ingersoll.
- 3rd " A. Harris & Son, Beamsville.

COMBINED REAPERS.

- 1st Prize, J. Forsyth, Dundas.
- 2nd " Noxon Brothers, Ingersoll.
- 3rd " J. H. Grout, Grimsby.

HORSE HAY-RAKE.

- 1st Prize, J. Davis, Guelph.
- 2nd " J. Soutar, Chatham.
- 3rd " J. Watson, Ayr.

PLOUGHS.

- 1st Prize, W. Rennie (Gray's plough), Toronto.
 - 2nd " J. Chisholm, Paris.
 - 3rd " J. & G. Morley, Thorold.
- Highly commended,—Wilkinson, Gormley.

GANG PLOUGH.

- 1st Prize, R. Lean, Stratford.

HARROWS.

- 1st Prize, Alexander Robb, Indiana.
- 2nd " John Campbell, Norwichville.
- 3rd " R. Lean, Stratford.

CULTIVATORS.

- 1st Prize, J. Borer, Dundas.
- 2nd " C. Thair, Guelph.
- 3rd " T. Clarke, Hampton.

THRASHING MACHINES.

- 1st Prize, J. Watson, Ayr.
- 2nd " Glasgow & Macpherson, Clinton.
- 3rd " J. Watson, Ayr.

STRAW CUTTERS.

- 1st Prize Maxwell & Whitelaw, Paris.
- 2nd " J. Watson, Ayr.

GRAIN CRUSHER.

- 1st Prize, Maxwell & Whitelaw, Paris.
- 2nd " J. Watson, Ayr.

The following are the names of the judges in the respective classes:—Single Mowers and Reapers—A. E. Goodfellow, Guelph; J. Anderson, Rednersville; Wm. Bell, Rogersville. Combined Reapers—George Hyde, Shakespeare; W. Patterson, North Easthope; John Tennant, Paris. Combined Mowers—J. Rymal, M.P.; James Stirton, M.P.P.; Alex. Dobson. Ploughs and Cultivators—A. McKellar, M.P.P.; George Bell, Tuckersmith; W. Robson, Falkirk. Threshing Machines—Geo. Robson, Lobo; H. Paxton, Port Perry; James Nellis, South Dumfries.

The Illinois Swine Breeders' Association is to hold a National Swine Exposition in Chicago the coming fall. Premiums to the amount of \$10,000 are to be offered.

Bears are unusually plentiful in Gloucester this summer, and commencing to destroy the green oats wherever they can find a field in the vicinity of the woods.

Agricultural Exhibitions for 1871.

CANADA.

| | |
|--|------------------|
| Dundas.....Dundas..... | Aug. 30-Sept. 1. |
| Brockville and Extra- Belthown.....Unionville | Sept. 19-20. |
| HURON (NORTH).....Clinton | Sept. 19-20. |
| TORONTO.....Toronto..... | Sept. 19-21. |
| HURON (SOUTH).....Seaforth..... | Sept. 21-22. |
| OXFORD (SOUTH).....Ingersoll..... | Sept. 21-22. |
| Cheese Fair.....Ingersoll..... | Sept. 21-22. |
| Blandford.....Plattsville..... | Sept. 22. |
| Yeepra.....Mldhurst..... | Sept. 22. |
| PROVINCIAL.....Kingston..... | Sept. 24-29. |
| WESTERN UNION.....London..... | Sept. 26-29. |
| WELLINGTON, N.....Harriston | Sept. 27. |
| McNab.....Balmer's Island..... | Sept. 27. |
| Proton.....Ronalds Bay..... | Sept. 29. |
| Saltfleet & Binbrook, Stoney Creek..... | Sept. 29. |
| Southwold and Dun- wich.....Iona..... | Sept. 29. |
| Stephen & Usborne, Exeter..... | Oct. 2-3. |
| KENTFREW (SOUTH).....Renfrew | Oct. 3. |
| East Wawanosh.....Wawanosh | Oct. 3. |
| Mornington.....Milverton | Oct. 3. |
| Wallace and Blma, Listowell..... | Oct. 3. |
| BRANT (NORTH).....Paris..... | Oct. 3-4. |
| PERTH (SOUTH).....St Mary's | Oct. 3-4. |
| WATERLOO (SOUTH).....Galt..... | Oct. 3-4. |
| Hma.....Newry..... | Oct. 4. |
| Turnley.....Wingham..... | Oct. 4. |
| CENTRAL FAIR.....Hamilton..... | Oct. 4-6. |
| Howard.....Ridgetown..... | Oct. 5. |
| Mara..... | Oct. 5. |
| BRANT (SOUTH).....Brantford..... | Oct. 5-6. |
| KENT.....Chatham..... | Oct. 5-6. |
| PERTH (NORTH).....Stratford..... | Oct. 5-6. |
| WATERLOO.....Waterloo..... | Oct. 5-6. |
| Barton & Glanford.....Glanford..... | Oct. 10. |
| Harwich.....Bleiheim | Oct. 10. |
| Hibbert.....Staffa..... | Oct. 10. |
| OXFORD (NORTH).....Woodstock..... | Oct. 10-11. |
| WELLINGTON CEN.....Guelph..... | Oct. 10-12. |
| DURHAM and Hope, Port Hope..... | Oct. 12-13. |
| Esquesing.....Georgetown..... | Oct. 13. |
| Otonabee.....Keene..... | Oct. 13. |
| NORTHUMBERLAND, (WEST).....Cobourg..... | Oct. 17-18. |

UNITED STATES.

| | |
|--|-----------------|
| NEW ENGLAND.....Lowell..... | Sept. 5-8. |
| AM. POMELOLOGICAL.....Richmond, Va..... | Sept. 6-8. |
| CINCINNATI INDUS- TRIAL.....Cincinnati..... | Sept. 6-Oct. 7. |
| OHIO (NORTHERN).....Cleveland | Sept. 12-1. |
| SWINE EXHIBITION.....Chicago..... | Sept. 19-21. |
| OHIO (CENTRAL).....Mechanicsburgh..... | Sept. 19-21. |
| WISCONSIN.....Milwaukee..... | Sept. 25-29. |
| NEW YORK.....Albany..... | Oct. 2-6. |
| MICHIGAN (CENTRAL).....Lansing..... | Oct. 3-5. |

Provincial Exhibition.

CHANGES IN THE PRIZE LIST.

The Provincial Agricultural Association's prize list for the twenty-sixth annual exhibition, to be held in Kingston the last week of September, has been issued. The rules and regulations are essentially the same as last year. Entries of horses, cattle, sheep, swine, poultry and implements must be made on or before Saturday, August 26th, four weeks preceding the show; entries of grain, field roots and other farm products, machinery and manufactures generally, on or before Saturday, September 2nd, three weeks preceding the show. Horticultural products, ladies' work, the fine arts, &c., may be entered up to Saturday, September

16th. Some changes have been made in the prize list. The prizes for road or carriage horses, agricultural horses and heavy draught horses, have been increased from 15 to 20 per cent. A similar increase is made in the prizes for the various breeds of cattle, except fat and working cattle, any breed; but in this latter class a third prize is added. The Prince of Wales' prize of \$60, which was last year given for the best lot of Leicester sheep, is this year to be given for the best short-horned bull and five of his calves, under one year old. Two dollars has been added to each prize for sheep, except fine-woolled for which the prizes remain as before, and Shropshire, Hampshire, and Oxfordshire Downs and fat sheep, for which the prizes are also the same, but a third prize has been added. The prizes for pigs have been increased in a similar ratio. The poultry prizes are the same as last year, except for chickens and ducks of 1871, which are reduced from \$4 or first, and \$2 for second, to \$3 and \$1. Some changes are made in the section of implements. The prize of \$25 for the best three-furrow plough, offered last year, is omitted. The prize for the best two-furrow plough is increased from \$25 to \$30, and a second prize of \$20 added. The first and third prizes for the best seed drill, for sewing two or more drills of turnips or other seeds, are increased from \$8 and \$4 to \$10 and \$6; and the prizes for the best horse-power thresher and separator are increased from \$20, \$12 and \$8, to \$30, \$20 and \$10. The other changes made in this section are the addition of the following prizes: Iron-beam ploughs, with steel mould board and wood handles, 1st, \$15, 2nd, \$10, and 3rd, \$5; horse-rakes, without wheels, \$4, \$3 and \$2; vibrating threshing machines and separators, \$30, \$20 and \$10; assortment of factory milk cans and pails, \$5, \$3 and \$2; and assortment of malleable castings for agricultural purposes, \$12 and \$8. A special prize of \$50 is offered for the best two bushels, new variety, of hybridized fall wheat, exhibited by the original producer. With this exception the prizes for agricultural productions are the same as last year. The prizes for best 30 varieties of apples correctly named; best 20 varieties do.; best collection not less than 15 varieties pears; best collection grapes grown in open air, not more than 12 varieties; and for best collection of grapes, not more than 12 varieties, grown under glass (all professional nurserymen's list) are increased from \$8 and \$6 to \$10 and \$8, and a third prize of \$6 added. A new prize of \$5 and \$3 is offered for best collection grapes, six varieties grown in open air. The changes made in the general list of fruit are about the same as those in the professional. Some additional prizes are offered for cabbages and tomatoes of specified kinds. No changes are made in the section of plants and flowers. A new prize of \$20 is offered for best three firkins of

butter, fitted for exportation, not less than 56 lbs. in each firkin, made by the exhibitor. The prizes for the best firkin of butter in shipping order, not less than 56 lbs., have been increased from \$12, \$10, \$8, \$6, \$4 and \$2 to \$14, \$12, \$10, \$8, \$6 and \$4; and for best butter, not less than 28 lbs., in firkins, crocks or tubs, from \$3, \$6, \$4, \$3, \$2 and \$1 to \$10, \$8, \$6, \$5, \$4 and \$3. The only other change in dairy products is the addition of three prizes, \$5, \$3 and \$2, for best 25 lbs beet root sugar. Some increase has also been made in the arts and manufactures department. Prizes for set of drawing-room furniture have been increased from \$15 and \$8 to \$20 and \$12; for sideboard do. from \$8 and \$4 to \$10 and \$6; and a few other articles in like proportion. The new prizes are—assortment of buttons, \$6 and \$4; willow peeler for taking the bark off Osier willows that will do the best work in a given time, cost of machine not over \$10, \$5 and \$3; assortment of perfumes, \$6 and \$4; specimens of Canadian polished marbles, \$6 and \$4. The changes in the fine arts are as follow:—Professional or amateur—oil (originals)—any subject—increased from \$15 and \$10 to \$20 and \$12, and a third prize of \$6 added; landscape, Canadian subject, increased from \$12, \$8 and \$5 to \$15, \$10 and \$6. Amateur list—oil (copies)—any subject—increased from \$8 and \$5 to \$10 and \$6, and a third prize of \$4 added; statue or group in stone, from \$15 and \$10 to \$20 and \$12. Professional list—water colours (originals)—any subject—increased from \$10 and \$8 to \$15 and \$10, and a third prize of \$6 added; landscape, Canadian subject, from \$8 and \$6 to \$12 and \$8. In groceries and provisions, the only change is the addition of prizes for assortment of cigars, Canadian manufacture, and 5 lbs refined sugar, Muscovado. The prizes for ladies' work are the same as last year. Under the section, machinery, &c., the following additions are made.—Printing press, water-wheel, wood-working machinery, wood-planing and matching machine, and wool-working machinery. Under the head of natural history, the prizes for collection of native birds, stuffed, and collection of native insects have been increased from \$12 and \$8 to \$15 and \$10. New prizes are offered for collection of Canadian fossils, \$10 and \$6, and collection of Canadian wild flowers and forest leaves, dried, \$6 and \$4. The above comprise all the changes worth noting made in the prize list.

WESTERN NEW YORK FAIR.—An effort is under way, says the *Country Gentleman*, to hold a "Western New York Fair," at the city of Rochester, Sept. 26th-29th. As the matter is in energetic hands, there is every reason to expect a large exhibition.

The hay crop around Mount Forest is generally light, in some places clover and timothy being less than half a crop. Farmers fear fodder will be scarce next winter.

Royal Agricultural Society's Show.

The annual exhibition of the Royal Agricultural Society was held at Wolverhampton, during the week commencing July 10th. A trial of implements for steam cultivation had taken place during the previous week in the neighbourhood of Stafford, when Fowler & Co., of Leeds, had succeeded in carrying off a very large proportion of first prizes; other leading manufacturers, such as Howard, of Bedford, and Ransome & Co., of Ipswich, coming in for their share. With regard to the show at Wolverhampton, the *Mark Lane Express*, of the 10th July, says:

However searching and consequently successful may have been the steam plough trials, a combination of circumstances has told against the stock show at Wolverhampton. Everybody of late seems to have been selling Shorthorns, whilst the death of the champion bull, Boliver, has deprived the meeting of one of its chief attractions in this way, as well as of the means for making a very useful comparison. Still, his second, the smart Edgar, has come again, and the prize bull of the season. Telemachus is also here. The great rival houses of Booth and Bates offer directly but little challenge for criticism; that is, as represented by the Warlaby and Wetherby herds, for Mr. Booth has again no entry, and the Duchesses do not figure in public; nor, so far, do we see anything of very remarkable excellence. So far as the actual number of entries can be taken as any proof, the Shorthorns and Herefords are equal to Oxford, but there is only a small show of Devons; while the death and dispersion of Lord Walsingham's Southdown flock may be said to have thrown open these classes of sheep. In fact, there never was a show when a fresh exhibitor of almost anything had a better chance of distinction. What with the extra prizes, the strong feature of the occasion is naturally enough the show of Shropshire Downs, of which there are more entries than there are of all the other breeds of sheep put together. Pigs, too, flourish in this district, as it is, moreover, almost everywhere a good pig year; and there is a far better exhibition of horses than at Oxford, where the entries were often but indifferent. Nevertheless, without attempting to judge of the meeting until we have more carefully examined its composition, the first impression is, that it is, on the whole, not one of any great calibre, nor even of average merit. There are 55 entries of Leicesters, where of course the late Lord Berners' flock makes no appearance; 36 entries of Cotswolds, 37 of Lincolns, 37 of Oxfords, 42 of Southdowns, and nearly 200 of Shropshires, or, in all, about 500 Shropshires "pitched;" but as coming after Oxford there is not here half a show of Cotswolds, of Oxford Downs, or of Southdowns, while the Leicesters are also in a minority. The two champions of their several breeds, Honest Tom for the Shires and Cup-bearer for the

Suffolk cart horses, are both entered, although from a classification of breeds they do not come into direct competition. Major Barlow's "nags" and other stock from Beccles were sent straight away from that meeting; Mr. Booth, of Killerby, shows some hunters, and Mr. Milward some hacks and ponies. Indeed, the horse section promises again to be a very strong feature of the meeting. Not but that the steam-horse has made his mark, with Fowler & Co. busy booking orders for all sorts of 'sets.'

The award of prizes, so far as announced, gave the first prize in Shorthorn aged bulls to H. Thompson, Penrith; first for two-year-old bull to W. Linton, Sheriff Hutton; first for yearling bull to Col. Townley. Mr. G. Turner gained first prizes for Leicester sheep. Mr. Duekering was again very successful with pigs, but did not by any means monopolize the honours, having to give place in many instances to Mr. P. Eden, of Salford.

The first prize for the best managed farm was awarded to G. Forester, of Wellington; the second to T. Winterton, of Lichfield; and the third to Elizabeth Sankey. For the best managed dairy farm, the first prize was awarded to J. Clay, Oswestry; and the second to M. Walker, Auslow.

Reaping Match.

The grand trial reaping match of the Whitby and East Whitby Agricultural Society came off on the Tweedie farm, Whitby, July 26th. The weather was delightful and the attendance large. The prizes were—First, \$50; second, \$30; third, \$20. The reapers on the ground were Mr. F. W. Glen's Johnston self-raker; Mr. F. W. Glen's Wood self-raker; Mr. F. W. Glen's Buckeye; Brown & Patterson's Johnston self-rake; Patterson's self-raker; Patterson & Bros.' Johnston; Estally's, an American machine; Paxton, Tate & Co.'s Marsh harvester. The field was a splendid one of fifteen acres of excellent fall wheat. The teams started at 3:20 p.m. precisely. The prizes were awarded as follows:—Brown & Patterson first; Mr. F. W. Glen, the Johnston, second; Patterson Bros. third. The judges were Messrs. James McCreight, Pickering; Henry Marr, Markham; and Thos. Cann, Darlington. The assemblage was the largest of the kind ever seen in the county, the number present being not less than 2,000 persons. The quantity allotted to each reaper was one acre. Time one hour. The judges in giving their decision declared the work of the three prize winners to be equally well done, so far as the cutting done by each, and said their decision was influenced by the neatness of the manner in which the sheaves were laid.

The proceedings were brought to a close at half-past five o'clock, when the large assemblage separated without the occurrence of an accident of any kind throughout the day. The Committee of Management was a very efficient one, consisting of Messrs. James Pile, D. Holliday, Jr., and C. Dawes.

Miscellaneous.

History of a Canadian Farm.

NO. 11.

SICKNESS AND HELP.

About this time, and just when I was in full swing with several hired men about me, my wife was confined, and assistance in the house was difficult to be obtained. I did, however, find a friendly, good woman, who (with her husband's consent, as they had no children) put aside her own work, and came and nursed my wife, through a long and severe illness, and but for her care I should, I feel sure, have been a widower. Had this great misfortune occurred, I never could have rallied sufficiently to contend with such an undertaking as I was at that moment engaged in. However, with that excellent woman's help, my wife eventually recovered; and when afterwards I was the means of saving the whole family from ruin and destitution, I thought the debt but half repaid, so greatly was I behoven to them. The way this happened was a curious coincidence.

Some time after this took place, the woman's husband endorsed a large note for a storekeeper, named Curtis, with whom he dealt, and whom he at that time believed perfectly honest and sound in his circumstances. A bad harvest following, crippled many a stronger man than Curtis, who "went down" amongst the rest, leaving almost every friend he had more or less liable. The very night that word was brought that such was the case, and that he had run away to the States, the barn owned by my nurse's husband was struck by lightning, and with its contents entirely consumed. "Poor Tom" ran about like one distracted. I was away at the time, having left for Toronto a day or two before the accident occurred, and did not return until next day. My business in the city was to draw my interest, and attend to some other business, amongst which, having accidentally met with an insurance agent, I insured my house in a safe mutual company. The agent was a very pushing man, and he got me to name any neighbour of mine who I thought would ensure with him. Amongst the rest I mentioned "Tom," and having the money in my own pocket, I actually effected an insurance there and then, on "Tom's" barn, house, and crop, and farm implements, to their full value. So poor "Tom" was saved. When I arrived at home, and put the receipt into his hands, he was like one struck dumb. He could not realize the fact that his loss was fully secured. This loss was so purely accidental that the company never disputed it, and the money was regularly paid.

I afterwards went again to the city, and compounded with the wholesale merchants to release "Tom" on payment of a small sum

of money. There were others in the note with him, who were in justice bound to pay most of the debt, and as they were also before "Tom's" name on the note, there was but little money to pay to clear up his indebtedness.

My wife was never tired of extolling my prudence, whereas in reality it was almost an accident that I had insured at all. Certainly nothing was due to my foresight.

CHASED BY WOLVES.

About the time of my wife's convalescence, and during the first winter following, wolves were very plentiful. I had, however, but little stock they could touch, having only two or three calves; but they very nearly "touched" me one night.

I remember well how and where it happened, and although now so many years since, I can hardly look back on the time without a shudder. I was returning home, and was about two miles from it; there was a path through the woods made by cattle coming and going to a stream about a mile distant. I was walking along the main road, looking out for the path where it turned off, forming a short cut to my place, when I heard the wolves beginning to give tongue. One would howl, then another, and so on, and it seemed to me that before I was aware they were all around me. I could, every now and then, see their white tails as they leaped logs, and in doing so threw up their hind quarters and exposed the lighter portions of the body. They were closing in all round me, and I was sure my time was come. However, I never was a coward, and determined to die hard. I made for a little conical hill close by; its formation was one of Nature's freaks, or the result of an eddy at the time of the deluge. There are several about my part of the country. I knew there was a hunter's cabin, built of open logs, on the very summit, and if I could reach it I was safe for the present; but to do so was the difficulty. The wolves were pressing nearer and nearer, and creeping round behind me, awaiting an opportunity or my running away, to make a spring. I had a bundle of cotton batting under my arm for my family's use, and a pipe well alight in my mouth. A few moments sufficed to set the bundle in a blaze. A forked stick enabled me to bear it aloft, and with it all ablaze I ran towards the hill, then but a few paces distant. This I fortunately reached, and rushed up the side and into the hut, and closed the door not a moment too soon. The blazing cotton lasted but a few minutes, and the moment the flame was deadened, excited by my running away, the wolves closed in in hot pursuit, rushing after me up the little hill in all directions, and five minutes later in reaching the hut would have seen me in the agonies of death. There were at least twenty of them—gaunt, thin, great brutes they were, their red tongues hanging out, and showing their gleaming white tusks.

The moon at that moment passed from under a cloud, and I could see through the logs the full extent of my danger. There were plenty of opportunities of doing so, as after a few moments the wolves began running round and round the hut, snarling and growling whenever they encountered each other, and putting their sharp noses between the logs smelling at me, apparently quite fearless of my presence. They were almost starving, as the snow that winter had been quite soft and deep, so that the deer could easily escape them; and had the crust on the snow been hard so as to have supported them, there would not have been so much danger, as food would have been plentiful. My fear now was for my poor wife. If she heard the wolves out she would be dreadfully frightened, and would not know I was comparatively safe. It seems my little dog, who always went with me, had run off home, and somehow escaped the attention of the wolves, and when he arrived had behaved so extraordinarily that suspicion was aroused, and consequently I was searched for. When they heard the wolves they surmised the fact, but supposed I was up a tree, and returning for torches made of cedar bark, and accompanied by all hands with guns, came on as fast as possible, and soon drove the wolves away.

That same drove of wolves hovered about the settlement where I was all that winter, and on moonlight nights I have more than once seen the yard alive with them; sometimes as many as ten were seen. The ox shed and cow stable, mere open sheds, were on one side of the yard, and on one night in particular I remember they attacked my calves, and would have killed them but they were kept at bay by the oxen, who, whilst close to human aid, charged them again and again, each time backing up to the house door. The discharge of a rifle laid one dead, and the rest all left for that night.

These little episodes, so constantly occurring in frontier life, that any one relating his history, and that of his farm and "beginnings," naturally mixes them up with other matters. Indeed, my host was full of such anecdotes, and it was with some difficulty I could draw his attention back to the rest of his farm operations.

WOOL STATISTICS.—The value of sheep and lambs' wool imported into the United Kingdom, says the *Farmers' Gazette*, now considerably exceeds £1,000,000 per month. In the three months ending March 31st this year the aggregate value of the imports effected was no less than £3,898,720, as compared with £3,782,858 in the corresponding three months of 1870, and £2,969,632 in the corresponding three months of 1869. The Australian wool imported figured in these totals for £2,799,650, £3,087,534, and £2,133,453, and £2,133,937 respectively.

REPORT OF THE CANADIAN DAIRYMEN'S ASSOCIATION.—We have received a copy of this publication, which embraces the transactions of the Association during the years 1869 and 1870, with a full report of the two public meetings held at Ingersoll, and a copy of the more important papers read at each of those conventions. In addition to this valuable matter, some of the most interesting and instructive papers read before the American Dairymen's Convention at Utica, are included in this official compilation.

Advertisements.

SHORTHORNS FOR SALE.

Two HEIFERS and one BULL, bred by some of the best breeders in the Province; good colour and pedigrees. Also, some choice South-Down Sheep. For price, &c., apply to

J. & J. WIXSON,

2 S. 11.

Rondeau, Ont.

NEW YORK STATE FAIR,

TO BE HELD AT

ALBANY, OCTOBER 2, 3, 4, 5, 6, 1871.

Last Day for Entries, September 2nd.

The Thirty-first Annual CATTLE SHOW and FAIR of the New York State Agricultural Society, will be held at Albany, October 2 to 6, 1871.

THE PREMIUMS are open to all comers, residents New York or non-residents, on equal terms.

ALL ENTRIES, except of fruits and flowers, must be made on or before Saturday, the 2nd day of September.

The usual FREE TRANSPORTATION of property for exhibition is conceded by all the principal Railroad and Steamboat Companies within the State, and free one way by the Boston and Albany Railroad for New England exhibitors.

For PREMIUM LISTS and all other information, address NEW YORK STATE AGRICULTURAL SOCIETY, Albany, N. Y. 2-8-11.

BREAKFAST.

EPPS' COCOA.

GRATEFUL AND COMFORTING.

THE very agreeable character of this preparation has rendered it a general favourite. The *Civil Service Gazette* remarks:—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills." Made simply with boiling water or milk. Sold only in the lined packets, labelled—

JAMES EPPS & Co.,

v2-11-121

Homoeopathic Chemists, London.

VINEGAR. HOW MADE FROM CIDER, Wine, Molasses or Sorghum, in hours, without using drugs. For circular address SAGE, Vinegar Maker, Cromwell, Ct. v2-9-121

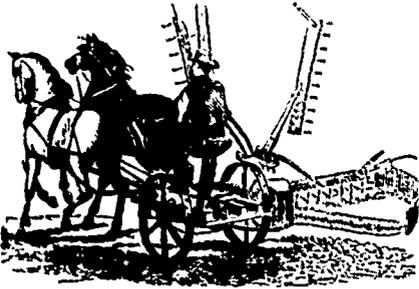
Colorado Beetle Exterminator.

This preparation will effectually destroy the COLORADO BEETLE, now infesting our Potato crops. The cost is not one-tenth that of Paris Green, and it is even more efficacious. Sold in boxes, with directions, at 25 and 50 cents a box.

HUGH MILLER & CO.,

2-6-31.

Toronto.



THE JOSEPH HALL MACHINE WORKS

OSHAWA, Ont.

ESTABLISHED 1851.

THE JOSEPH HALL
MANUFACTURING CO.'Y,
PROPRIETORS.

WE DESIRE TO CALL ATTENTION TO OUR

No. One and Two Buckeye Combined
Reaper and Mower, with Johnson's Self-Rake Improved
for 1871.

We believe this machine, as we now build it, to be the most perfect Reaper and Mower ever yet offered to the public of Canada.

Among its many advantages, we call attention to the following:

It has no gears on the Driving Wheels,

Enabling it to pass over marshy or sandy ground without clogging up the gearing, thereby rendering it less liable to breakage. It is furnished with **four knives two for mowing and two for reaping, one of which has a sickle edge for cutting ripe, clean grain, the other a smooth edge for cutting grain in which there is grass or seed clover.**

It has malleable guards both on the Mower bar and Reaper Table, with best cast steel Ledger Plates. It is also furnished with our **new Patent Tilting Table for picking up lodged grain.** This is the only really valuable Tilting Table offered on any combined Reaper and Mower. The Table can be **very easily raised or lowered by the Driver in his seat without stopping his team.** This is one of the most important improvements effected in any Machine during the past two years.

Any one or all of the arms of the Reel can be made to act as Rakes at the option of the Driver, by a Lever readily op-

erated by his foot. The cutting apparatus is in front of the Machine, and therefore whether Reaping or Mowing the entire work of the Machine is under the eye of the Driver while guiding his team. The Table is so constructed as to **gather the grain into a Bundle before it leaves the Table, and deposits it in a more compact form than any other Reel Rake.**

The Table is attached to the Machine both in front and rear of the Driving Wheel, which enables it to pass over rough ground with much greater ease and less injury to the Table. The Grain Wheel Axle is on a line with the axle of the drive wheel, which enables it to turn the corners readily.

The Rakes are driven by Gearing instead of Chains, and therefore, have a steady uniform motion, making them much less liable to breakage on uneven ground, and more regular in removing the Grain. The Gearing is very simple, strong and durable. The Boxes are all lined with

BABBIT METAL.

The parts are all numbered, so that the repairs can be ordered by telegraph or otherwise, by simply giving the number of the part wanted. There is no side Draught in either reaping or mowing, and the Machine is so perfectly balanced that there is no pressure on the Horses' necks either when reaping or mowing. All our malleable castings, where they are subject to much strain, have been **twice annealed, thereby rendering them both tough and strong.** Our Johnson Rake is so constructed as to **raise the Cam so far above the Grain Table that the Grain does not interfere with the machinery of the Rakes or Reels.** We make the above Machines in two sizes—No. One, large size for Farmers who have a large amount to reap—No. Two, medium size for Farmers having more use for a Mower than a Reaper. With the exception of difference in size, these Machines are similar in every respect. Our No. 2 Machine supplies a want heretofore unfilled, viz.: A medium between the Jan. Mower and large combined machine, both in size and price. We shall distribute our sample machines in March among our Agents, that intending Purchasers may have an early opportunity of examining their merits, and we **guarantee that all Machines shipped this season shall be equal in quality and finish to the samples exhibited by our Agents.** We invite the public to withhold giving their orders until they have had an opportunity of inspecting our Machines, as we believe that they are unsurpassed by any other machines ever yet offered on this continent. We also offer among other Machines,

Johnson's Self-Raking Reaper, impro-



ved for 1871, with two knives, smooth and sickle edge, and malleable guards.

Wood's Patent Self-Raking Reaper.

Buckeye Reaper No. 1, with Johnson's Self-Rake.

Buckeye Reaper No. 2, with Johnson's Self-Rake.

Ohio combined Hand Raking Reaper and Mower.

Cayuga Chief Jr., Mower.

Buckeye Mower No. 1.

Buckeye Mower No. 2.

Ball's Ohio Mower No. 1.

Ohio, Jr., Mower.

Taylor's Sulky Horse Rake.

Farmers' Favourite Grain Drill.

Champion Hay Tedder.

AND OUR CELEBRATED

HALL

Thresher and Separator,

Greatly improved for 1871, with either Pitt's, Pelton, Planet, Woodbury, or Hall's

8 or 10 horse-power.

We shall also offer for the Fall trade a new Clover Thresher and Huller, very much superior to any other heretofore introduced.

A NEW AND COMPLETE ILLUSTRATED CATALOGUE OF ALL OUR MACHINES

Is being Published, and will be ready for early distribution, free to all applicants.

All our Machines are warranted to give satisfaction, and purchasers will have an opportunity of testing them both in Mowing and Reaping before they will be required to finally conclude the purchase.

For further information, address

F. W. GLEN,
PRESIDENT,
OSHAWA, ONT.

Hay & Cotton Press Works.

Established 1854.



DEDERICK'S HAY AND COTTON PRESSES.

P. K. DEDERICK & CO.,

PATENTEES AND SOLE MANUFACTURERS
Dederick's Patent Progressive Lever Presses are bat...

P. K. DEDERICK & CO., Albany, N. Y.

2 8-11.

BULBOUS FLOWER ROOTS

A large, fresh importation of the finest varieties.
Illustrated Priced Catalogue, (No. 5.) with full directions...

- No. 1 Catalogue of Fruits, 56 pp. 10c.
" 2 Ornamental Trees, Shrubs, Roses, 80 " 10c.
" 3 Green House Plants, 42 " 10c.
" 4 Wholesale, free.

ELLWANGER & BARRY,
Mt. Hope Nurseries, Rochester, N. Y.

2 8-11.

TREES.

FRUIT AND ORNAMENTAL
For AUTUMN of 1871.

We invite the attention of Planters and Dealers to our
large and complete stock of Standard and Dwarf Fruit Trees.
Grape Vines and Small Fruit.
Ornamental Trees, Shrubs and Plants.
New and Rare Fruit and Ornamental Trees.
Bulbous Flower Roots.

ELLWANGER & BARRY,
ROCHESTER, N. Y.

Established 1810.
2 8-21.

NATIONAL

SWINE EXPOSITION,

TO BE HELD AT

CHICAGO, - ILLINOIS,
SEPTEMBER 19th, 20th, & 21st, 1871,
Under the auspices of the
Illinois Swine Breeders' Association.

Competition open to all the World.

120 Class Premiums from \$15.00 to
\$100.00 Each.

ALSO

12 Grand Sweepstakes Prizes, Ranging
from \$100 to \$1000.

Send for Premium List with Rules and Regulations.

CHARLES SNOAD, Secretary.

2 8-21* Joliet, Ills.

THOROUGH-BRED
SHORT HORNS

BULLS, COWS & HEIFERS,

Also several AYRSHIRES, and some splendid
CROSSES and GRADES for sale at Kingswood
Stock Farm, near Beachville, Canada West
The Station of the Great Western Railway at Beachville
adjoins the farm. ADDRESS,

GEORGE GREIG,

Beachville P.O., Canada West.

Markets.

Toronto Markets.

CANADA FARMER Office August 11th, 1871.

FLOUR AND MEAL.

The market generally has been very quiet, with no
special changes in price to note. The following are
wholesale rates:—

- Flour—Superfine, \$4 75 to \$5 10; Spring Wheat, extra,
\$5 10 to \$5 15; Fancy, \$5 20 to \$5 25; Extra \$5 45
to \$5 50, Superfine Extra, \$6 00 to \$6 25.
Oatmeal—\$5 40 to \$5 50.
Cornmeal—\$3 25 to \$3 40.
Bran, in car lots, \$14 to \$15

GRAIN.

- Wheat—Softest \$1 10 to \$1 15. Treadwell \$1 10 to \$1 12.
Spring, \$1 to \$1 12; Do Midge Proof, \$1 to \$1 10.
Barley—No 1, 65c, No. 2, 50c to 60c.
Oats—49c to 50c.
Peas—65c to 70c.
Rye—65c to 70c.

HAY AND STRAW.

- Hay, in fair supply, at \$12 to \$15.
Straw, scarce, at \$10 to \$12.

PROVISIONS.

- Beef, by the side, 6c to 7c.
Mutton, by the carcass, 6c to 7c.
Apples, per bush., \$1 to \$1 50
Potatoes—New, per bush., 60c to 70c.
Poultry—Turkeys, \$1; Chickens, per pair, 35c to 45c,
Ducks, per pair, 50c to 60c.
Pork—Mess, \$17 to \$17 50.
Bacon—Cumberland Cut, 8c to 8c 1/2, Canada, 8c.
Hams—Salted, 10c to 11c; Smoked, 12c.
Lard—10c to 11c
Butter—Dairy, 16c to 17c.
Eggs—Packed, 12 1/2c.
Cheese—Sc to 11c, Reesor's Sultona, 18c, Royal, 17c.
Dried Apples—7c to 7 1/2c.
Salt—Goderich, \$1 50, Liverpool, per bag, 80c to \$5c.
Live Hogs—\$4 to \$5.

THE CATTIN MARKET.

- Beeves (live weight) \$2 75 to \$4 50 per cwt.
Sheep—\$2 50 to \$4 50.
Calves—\$3 to \$6.
Lambs—\$2 to \$3.

HIDES AND SKINS.

- Hides—From 7c to 8 1/2c.
Sheepskins—50c to \$1 25.
Calfskins—12c.
Wool—27c to 33c.

PROVINCIAL MARKETS.

Montreal. Flour—very quiet and easier, buyers re-
stricting themselves to actual wants, quotations nomi-
nally unchanged. Wheat. Sales of a few cars of choice
white, to arrive, at \$1 25. Peas, taken at 95c per 66 lbs.
Pork, unchanged. Late sales in quantity were at \$12 25.
Butter, neglected and practically nominal. Cheese, No
late sales. Ashes, pots active. Pearls dull and declining.

Hamilton, Aug. 4.—Wheat, Dealt, \$1 05 to \$1 07,
Soules, \$1 15 to \$1 16, Treadwell, \$1 02 to \$1 03, Win-
ter Red, \$1 00 to \$1 11, Amber, \$1 10 to \$1 11, Spring,
\$1 00 to \$1 00. Oats, 55c to 56c. Peas, 75c to 80c.
Flour, Superfine Extra, barrel, \$6 to \$6 50, Extra, \$5 50
to \$6; Superfine No. 1, \$5 to \$5 50; do. No. 2, \$5 50
to \$6, fine, \$5 to \$5 50. Oatmeal, \$6 25 to \$6 50. Corn-
meal, \$1 50 to \$1 75. Bran, 80 to 90c. Shorts, fine, \$1 25,
coarse, \$1 10 to \$1 20. Butter, rolls, 20c to 24c, do, tub,
14c to 16c. Eggs 16c to 16c. Cheese, 11c to 15c. Potatoes,
new 70c. Honey, 25c. Apples, per bag, \$2; dried do, per
bush., \$1 25. Wool—Canada fleece, 37c to 38c, superfine
pulled, 30c to 35c, common, pulled, 32c to 30c. Hides
and Skins—Green, No. 1, inspected, 8c, do No. 2, 7c,
Calfskins, green, 00c; do, dry, 15c to 20c; lambskins,
25c; pelts, 25c.

Contents of this Number.

Table with columns: THE FIELD, STOCK DEPARTMENT, VETERINARY DEPARTMENT, THE DAIRY, HORTICULTURE, POULTRY YARD, CORRESPONDENCE, EDITORIAL, RURAL ARCHITECTURE, ENTOMOLOGY, APIARY, NATURAL HISTORY, HOUSEHOLD, POETRY, AGRICULTURAL INTELLIGENCE, MISCELLANEOUS. Includes page numbers for each section.

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space.

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all orders for the paper are to be sent to

GEORGE BROWN,
Managing Director.