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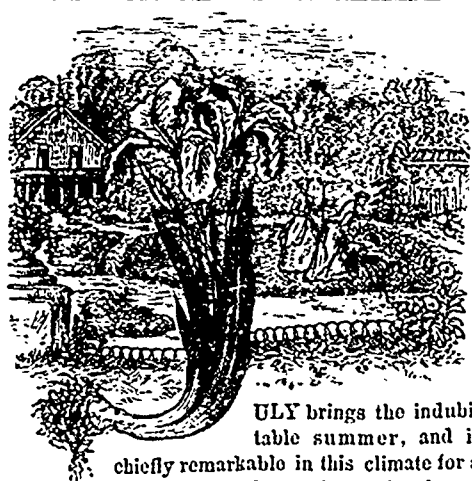


Vol. V. No. 13.

TORONTO, CANADA, JULY 1, 1868.

POSTAGE FREE.

The Month.



JULY brings the indubitable summer, and is chiefly remarkable in this climate for a degree of heat that, with occasional most welcome relents, keeps us almost constantly in a sweltering condition, and makes our anticipations and memories of the month rather painful than otherwise. We hail June, but dread July. "Ike Marvel" says: "I picture July as a stout woman perspiring fearfully; yet she wears a cheery, honest face, and if she have none of the bridal freshness of May and June she wears the honours of maternity, and leads in a great brood of flowers and fruits in her train."

The mean temperatures for this month at various leading points in Canada are as follows:—

Stratford	66° 64'
Hamilton	72° 47'
Barré	71 88
Toronto	70° 40'
Belleville	71° 57'
Montreal	69° 35'
Quebec	71° 00'
St. John, N.B.	61° 75'
Halifax	61° 00'

The above table shows nearly four degrees difference between Toronto and Stratford, makes Toronto and Montreal nearly alike, and, strange to say, gives Quebec a slight superiority in point of heat over both Toronto and Montreal.

We are still having a splendid season. The June frost put in a very feeble appearance, just enough to be identified, but doing no mischief. Copious rains have fallen from time to time. Nature seldom wears robes of such gorgeous green as the present summer. It has been a most favourable time for transplanting, and nurserymen, who are usually treated to many unjust execrations on account of dead trees, will this year have immunity from censure. Evergreens never wore a richer or more varied foliage than now. Grain and grass are most luxuriant. The face of the earth is radiant with smiles, and bewitching with beauty. There is promise of abundance of fruit, and

crop prospects generally are all that could be desired. Will farmers find any cause for grumbling this year? As a class, they are so given to complaining, and so fearful it should be thought they are doing well, that we have our misgivings lest even the present season may not escape without some fault being found with it. The grain stalks will be so heavy that there will be lodging the midge will commit a world of havoc some of the best trees in the orchard will break down under the load of fruit, produce will be so plentiful that the prices will be low. Yes, not a doubt of it, but in the song of the year there will be a low bass (base) note of dissatisfaction with something or other. But if ever heaven rebuked this disposition surely it is now.

Thorough cultivation of the soil, unrelenting slaughter of weeds, turnip hoeing, hay-making, and wheat harvesting are the chief labours of the month. All crops that admit of it are greatly benefited by frequent stirring of the soil about them. July is a most favorable time for the extirpation of weeds. Only scratch them out of the ground, and the scorching sun will do for them very quickly. In a damp, cool time it often seems of but little use to hoe among weeds, they take root again so quickly, but the July heat finishes them in no time. Even the Canada thistle will "cave in" if hoed up or mowed down in July. The latter process is highly recommended by many farmers. It is especially likely to be effectual if rain come shortly after the mowing, as the wet filling the stalks and settling into the roots, induces quick decay. Almost the only bit of advice necessary about haying is to be sure and cut at the proper time; not too soon, or the fodder will be deficient in substance and nutritious properties; nor too late, or it will be tough, woody, and sapless. Grass ought to be mowed between blossoming and seeding. Very much the same advice may be given about harvesting wheat. The *Illustrated Annual Register of Rural Affairs* says:—"Cut wheat a week before full ripe. The grain will weigh more and be better. The straw will be brighter and richer." Early cutting of grass not only improves the hay, but secures a better after-growth for a second mowing, or for pasturage.

A word about the turnips. Early in July is the time to secure a good plant, and attend to proper thinning in the rows. Re-sow if there be extensive failure, through fault in the seed, or depredations of the fly. Caps in the rows may be filled up either by transplanting or sowing again. When too late for Swedes, Yellow Aberdeens and White Globes may be sown. One great essential to success in turnip-growing is to thin the plants thinned at the proper time. If left too long it is almost impossible to retrieve the error. A sharp hoe, about eight inches wide in the blade, is the tool to thin with, and a skilful hand will go over the ground very fast. This well done, and all

danger of the fly past, they will grow very fast quickly shade the ground, and form bulbs.

Though the end of June is the usual time for sowing buckwheat, it does well most seasons if sown early in July. We recommended this crop last month for cakes and green manure, but forgot to speak of its value to bee-keepers. Buckwheat honey is not a choice table article, but it is good enough winter feed for the bees themselves, and it is easy to rob them of their white clover stores, and compel them to stock up again from buckwheat blossoms. The great drawback to bee-keeping in this country is the want of late summer and early autumn forage. This is removed in localities where buckwheat is largely grown.

Happy is the farmer who has green corn, vetches, or other soiling crops, wherewith to cke out the pasturage so apt to fail under the fervid heats of July. His milk pails shall still be full to overflowing, his butter and cheese rich as in June, his young stock shall grow without check, and his teams continue fat, sleek, and strong to labour. Ho that has no patch of green fodder for a time of need in July, may yet have one for a similar time in September. A rich bit of ground near the barn should be chosen for this purpose, and sown forthwith.

Orchards will be grateful for a stirring of the soil this month. Over-production of fruit should also be guarded against, and care taken that the trees are not broken down through being over-loaded. Now is the time for thumb-pruning of young fruit-trees, and thereby giving beauty of shape, vigour and fruitfulness to them. Budding may be done so soon as the terminal buds are well formed. Grape vines may be layered this month, and well-rooted plants obtained by winter. The duties of the garden in July are more than can be well enumerated. In fact their name is "legion" at all times when work is practicable. Extermination of weeds is the chief thing to be done this month. This must be thoroughly accomplished year by year. "Eternal vigilance is the price of" a garden, as well as "the price of liberty."

July is the Apirian's harvest. Now, if at all, the surplus honey boxes are to be filled, and such arrangements made as will maintain stocks in full number and strength. Put on boxes forthwith, if they have not yet been supplied. Prevent late swarming, or unite two or three to make vigorous colonies. There is nothing more conducive to successful bee-keeping than to see to it that colonies are strong. Weak stocks are liable to many evils that never trouble strong ones. Some bee-keepers imagine that strong stocks consume far more honey in proportion than weak ones, and are therefore harder to winter. This, however, is a mistake, as is every other argument in favour of weak rather than strong colonies. The value of an apiary is to be estimated, not by the number, but by the weight of the hives composing it.

The Field.

"Eight Dollars an Acre."

A WRITER in the June number of the *American Journal of Horticulture*.—a periodical, by the way, of great excellence,—mentions the case of a Vermonter who, reporting his management of his farm of 125 acres, finds a balance for profit of \$732.68 on the year's operations, and seems quite content in view of the result, complacently remarking: "This, I think, is better than money at six per cent., and answers the question as to whether farming is profitable." Allowing for the woodland, this is about eight dollars an acre. This case is used to point a contrast between the said Vermont farmer and the New Jersey market gardeners, one of whom, a fair average specimen, is reported to have made \$711.50 from less than four acres of extremely light land, or within a trifle of the gain upon thirty times the same number of acres devoted to grass and grain, in the case first instanced. Of course, near access to a market like New York or Philadelphia goes far to explain the difference, for the four acres of "truck" side by side with the farm crops on some White Mountain slope, would have been worth little more than the average profit per acre of the farm. Our object in referring to the Vermont example is to make it the occasion of putting three questions, which we beg our readers attentively and seriously to ponder.

1. How many farmers know what they make per acre annually? In other words, how many farmers are there who keep a set of accounts? We fear there are very few who have data on which to frame an answer to the enquiry, "what are your profits per acre?" Beyond vague general impressions on the subject scarcely any can go. When the crops are short they have an indefinite idea that they are not doing much and when there is an abundant harvest they have a similarly indefinite idea that they are not doing so very badly; but, generally speaking, farmers "shoot in the dark," and "go it blind." Now, surely, this is discreditable and undesirable. Why should a large farm be carried on in a way that would be disgraceful in connection with a little huckster's business? No commercial concern could be reasonably expected to prosper, if carried on after the fashion on which too many farms are conducted. Confusion and loss would be the sure result. We conjure all and sundry to keep note of expenditure and income, so as to know how much per acre they are making year by year.

2. Is there good reason to think that farmers generally, take one year with another, clear "eight dollars per acre?" We apprehend that a negative reply must be given to this question. There are, doubtless, those who are making far more than the figure above mentioned, assuredly there are those who make much less, while we fear the majority cannot flatter themselves that they reach the average named. We know a better-than-ordinary farmer, cultivating over a hundred acres, who stoutly maintains that, taking one year with another, he is not so well off as a book-keeper or salesman who has a salary of six hundred dollars a year, and who would be glad to sell his farm, and take a situation of the kind just named. We have no objection to be contradicted, and to stand corrected by "stubborn facts,"—indeed, we should rather like it than otherwise—but our present conviction is, that it is by no means the majority of our farmers who make a yearly profit of "eight dollars an acre."

3. We have yet another enquiry to put, and it is this, ought a nineteenth century farmer to be contented to make only "eight dollars an acre?" We answer, decidedly, *very decidedly*, no! That sum implies less than twenty bushels of wheat per acre; less than three hundred bushels of turnips per acre; not much more than a ton of hay per acre. A good system of rotation, a well-balanced quantity of stock and produce, liberal manuring, good tillage, a wise

mixed husbandry, ought to accomplish more than this. Capital wisely invested, and labour well directed, should assuredly yield a better return. Such a balance sheet can hardly be said to exhibit successful farming. It does not satisfactorily meet the question, "Is farming profitable?" Contentment is a virtue only when we are doing our best. Let every effort be made to bring out the innate capabilities of the soil, and the recompense is certain. To till a smaller quantity of land, and do it better, would be the part of wisdom with many. Our counsel to every Canadian farmer is this: Keep exact accounts, work up your land to the highest point of fertility practicable, and set for yourself a higher mark than "Eight dollars an acre."

Clover versus Fallow.

To the Editor of THE CANADA FARMER.

STR,—More than four months having passed away since you published my remarks on the subject of the Canada Thistle, and of an inexpensive way of getting rid of them, I had concluded that the thistle-growers of Canada saw no reason to trouble themselves further about it, but your number for May 15th has agreeably disappointed me. My outspoken, but friendly opponent, Peter Shisler, has done his best, in reviewing my letter, published in the first two numbers of this year's issue, to support a plan which I think thoroughly detrimental to the farmers' interest, and as such seriously affecting the welfare of the whole Province. We, as a family, are constantly in the habit of reading your paper, which has become quite a household necessity, and sometimes there is a little grumbling that the *two weeks* seem a long time, and sometimes I have heard remarks as follows: "Well, now, that is well worth knowing," "Yes, that is worth the year's subscription." But there are articles now and then make their appearance which cannot fail to puzzle, the opinions expressed being nearly as opposite as the poles. Last year a writer appeared on the stage, recommending his *eighty* bushels of potatoes to the acre, for seed, and this curiosity excited no reply. In your April number you quote from a States paper a plan requiring (as I understand it) about eight bushels an acre, which is a considerable difference. These extremes, while they puzzle, set men thinking, and from thinking; to experimenting for themselves, and then they are on the right track, and will not fail in the end to benefit themselves. The question as to which is the best mode of subjugating the thistle (as subjugated they must be) is a subject fit for the philanthropist, as well as the philosopher, and whoever shall accomplish the task will be entitled to the grateful acknowledgments of the people of the Province. In submitting this for your consideration, (as a rejoinder to Peter Shisler's last letter, published in the CANADA FARMER, 15th May) you will please remember that my remarks applied to the two writers, (and the only two of the year) namely, the steam-plough advocate and to P. S. The first has remained silent, and the second has come out square on the mystic fallow as the great remedy for the great evil.

I quite agree with the substance of the first paragraph of the letter of P. S., namely, "The theory or practice that cannot stand a scrutinizing investigation should go down." He also informs us that "too many false systems and humbugs have been imposed on the farmer causing him to spend time and money to no purpose," and yet he only mentions one, namely, 'cutting (thistles) in the moon.' In this paragraph P. S. has dipped his pen in vinegar, and approved of a mild mixture of *inveective*, in defence of the misguided and abused farmer.

In the second place, he becomes jubilant, if not eloquent, in declaring "that my arguments show most conclusively, and ought to convince the most sceptical, that his method is the right one." I have heard that Irishmen are allowed to speak three times, Scotchmen twice, but an Englishman is expected to say what he means. I had no idea that his "method

as set forth in his November letter," and what I suggested, were the same. If "method" made summer-fallowing superior to everything else, I entirely repudiate the utility of the plan, while neither himself, nor the advocate of steam ploughs, even so much as hinted at the smothering-out system. Therefore I must contend there is as much difference between the two methods as there is between the two methods used by the dog and cat in catching a mouse. The canine goes to work in a most resolute and laborious manner, and sometimes will continue for days successively, using the different tools at his command, such as teeth and claws, but more frequently gives up the hard job as a bad case, and so fails in his undertaking. The feline goes about the business just the very opposite of the canine, and, by waiting only a short time, the prey comes out from sheer necessity, and the feline pounces on it without spending any labour at all. I hope, by being allowed to speak twice, I shall be better understood.

I think my system might commend itself to all, on the score of economy at least, so far as to induce a trial, because, no one can lose by it; and, permit me to say, no one will fail in accomplishing the object sought by the trial. But I fail to see anything new in P. S.'s "method" of fallowing, as set forth in his November letter; and why is it now put forth as a panacea for the evil? The simple routine of farmers in this locality for the past thirty or forty years (as I learn) is to sow peas, wheat, oats, (and of late years) barley, seed with timothy or a mixture of clover and grass; and every year it is held essential to good farming to cultivate a fallow. This routine does not differ, as I can see, from the "method" set forth by P. S. in the November letter. Then in favour of the plan recommended by myself are the aged and grey-headed, while the disastrous consequences of careless or bad farming would afford additional evidence on my side. I have seen the seed grain that was to precede the timothy crop mixed with not less than from twenty-five to one hundred thistle-heads, and plenty there are who seem so thoroughly ignorant about thistle-seeds growing, and consequently give themselves no concern about the mixture of thistle-heads with such seed grain. Such parties may, perhaps, fortify themselves in this careless practice by quoting our friend's dictum, that "not one in a million of thistle seeds ever grows." This class of farmers are "neither few nor far between." They have long since cut down their last stick of timber, and have not another fresh field to break up; their whole farms are being "run out," and the "plaguey" thistles are overrunning everything. As a very general rule, we see such farmers' stocks thrust out on the highways, "to pick about and get a little" of what they can find even before the snow is gone, because, we are told, "hay runs short, straw is run out (too much has been sold, perhaps), and roots didn't grow any last year, or it pays better to sell than to feed them." Yet, talk to these men about doing away with the fallow system, and you touch them in a tender place. If any were to ask me, what they could do with their land without fallowing, my answer would be, give it to some one (and four dollars per acre with it) to take it off your hands for the year, who would use it properly, rather than abuse it yourself by cultivating a fallow. Or, secondly, why not have a field of a clover lay to plough down after the first or second crop? or, thirdly, as a last and desperate recourse, why not have ten acres of roots? If it produced only two hundred tons it would pay better than cultivating a fallow; it would furnish abundance of food for their half-starved cows in the spring, and do away with the necessity of selling their baby calves at from twelve to twenty days old. They might then feed and fatten them to the age of eight or ten weeks, when the meat would have passed a transition state to something wholesome and nutritious. Then one-fourth of the calves that are now slaughtered would suffice, and the farmer might raise not less than four times the stock that he now does, and the Province of Ontario might become a great emporium either for live or dead stock; its soil and sunny seasons being so pre-eminently suited for the growth of all the roots, as well as cereals, that any farming community can need or wish for. The practice of growing roots instead of cultivating fallows would enable the farmer of one hundred acres to keep an extra man and boy, and (in many cases

that I have seen and known) he might spare the housewife from such laborious work as pitching whole fields of grain, climbing a loft to throw out a load of hay for market—taking to the scythe to help mow a compound crop of grain and thistles, besides attending to the cows and pigs, &c. All this, over and above the whole weight of household duties, entirely devolving upon her unwearied exertions. Allow me to refer once more to the words already quoted, viz., "It is reasonable to suppose, not one thistle seed out of a million ever grows." This statement I consider is fraught with mischief, and is a serious error. To fully explain and explode such a mistake would require a separate article. But for the present I will only ask in reference to his own method of destroying thistles, at what cost has it been achieved. The loss of a year's crop, added to the expense of cultivating his fallow, say \$20 per acre, which for thirty-six acres amounts to the considerable sum of \$720. This method carried out through a hundred acre farm would make up the snug little sum of \$2000. This in a financial point of view amounts to something. To follow a tenth part of the arable land now under cultivation every year would enable the farming community to count their losses by scores of millions. I challenge P. S. (or any of his numerous followers) to show how land is benefitted by fallowing. I have one little case to report, and would that it were so perfect a success as the thirty-six acres of P. S. I had a piece of land cut off by a swamp, and it was some years before I could come at it to seed it down. This piece of land was thoroughly infested with thistles. I never attempted by fallow, or otherwise, to destroy them (only keeping them from seeding). The land was ploughed in 1866; sowed with oats, and seeded with clover, and mowed twice in 1867, and in the third week of May, 1868, when thistles were generally from six to nine inches high, I made diligent search for thistles, and could find only just two, and those miserably weak, and not more than from two to three inches high, and they grow on a spot where the clover was a little thin. I almost conclude that had the clover lay been ploughed in the fall, these two might never have been found to have told the tale. In your note, Mr. Editor, attached to Mr. Hammond's enquiries, I think you have illustrated and placed the subject in a very intelligible position, by stating the partial success of your fallowing, and what you might reasonably expect in another year, namely, success in the perspective, but never in the possessive. After fallowing and seeding with timothy, thistles will surely spring up again, (the country being full of flying seeds.) Then what is to be done? I suppose the reply will be, fallow again, to be sure. Twenty-five years ago, demagogues in the old country got a considerable hold on their ignorant followers by persuading them that the best thing to put the whole nation to rights was to divide the property of the country, and to make all men equal. A gentleman said to Pat, "suppose it were so; in twenty-four hours there would be great difference again, for some would save and some would squander; then what could be done?" "Nothing aisear yer honour, divide again."

PUBLICOLA.

Young Grass for Hay.

Mr. C. L. FLINT, Sec'y Mass. Board of Agriculture, in 1862 visited several European States. The leading object of his visit in "those foreign lands," was to make himself acquainted with the agricultural practices of the farmers in the "old world States." His mission was a success, the results of which are published in the Annual Report of the "Agriculture of Massachusetts, 1862." In writing respecting the grass or hay crop in Lombardy. (Italy.) he says:

"To me, previous to seeing this fertile country of Lombardy, made fertile wholly by its admirable system of irrigation, the results that I had frequently read of seven, eight, and nine cuttings a year—always appeared chimerical, but after travelling through the length and breadth of the watered district, I am prepared to believe that an enormous quantity of grass can be cut from it. Another thing has impressed me strikingly here, and that is, that the Italians understand the period at which grass should be cut, to make the most of it, better than we do. I nowhere saw grass allowed to stand even into blossoming; it was cut in a very green and succulent state, when full of its sweet young juices. In hundreds of instances, perhaps thousands, I saw men and women—more frequently the latter—mowing grass less than six inches high, often less than four, and very often, and in many countries, cutting grass that our farmers would never think of cutting. So careful and so saving are they in all parts of the

continent, that grass is cut very green, very often, and very close to the ground, almost universally. But they often apply a dressing of liquid manure immediately after cutting, and I saw it in innumerable instances carried out upon the backs of women, and applied by the slowest of processes, distribution by hand, often making an extremely bad smell, to be sure, after it was first applied, but causing a wonderfully rapid start and growth."

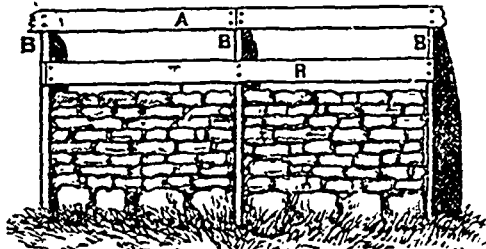
Bag-Holder and Tunnel Combined.

The engraving represents the simplest, most convenient, and altogether the best arrangement for holding bags while filling with grain, meal, or anything else put into bags. It consists of a metallic tunnel, to which are attached four steel hooks, which hold the mouth of the bag distended in such form as readily to receive the grain from the measure or shovel without the inconvenience of filling the bag alone.—(Prairie Farmer.)



Wall and Board Fence.

In many localities it is desirable and convenient to build a fence, the lower portion of which is stone and the upper of boards. I do not know of one that possesses so many advantages as the one shown herewith. The posts, B, B, B, are made from plank, two inches thick, and one foot wide, and of any length to suit the height of the fence. The portion above the wall is tapering, as shown in the figure R is a board six inches wide, the lower edge of which is nailed on the post, two and a half feet from the ground. A is a board four inches wide, and placed eight inches from the lower one.



Directions for building a Fence.—First, set the posts B in the ground; two feet will be about the depth; nail on the boards, or the upper one at least, when you are ready for laying up the wall. The nearness of the posts to each other, and the width, will enable you to use a great many round or coble stones in its construction, with a certainty of their remaining.

The superiority of this fence over the common round post and wall-fence, consists in—1. The wall never falls or tumbles down around the post, as they are laid between, and not around the posts.—2. The post never heaves by the action of the frost, as the stones in the wall hold it with the power of a vice, so to speak.—3. I consider this the only cheap and durable plan by which a half-wall fence can be constructed, and it looks neat and is substantial, as I can testify from examination.

Barrington, Yates Co. N. Y. L. D. SNOOK, in Country Gentleman.

Flax Culture.

To the Editor of THE CANADA FARMER:

SIR—It is now some time since I troubled you with a few lines on this subject, and I have much pleasure in handing you a letter from a gentleman of well-known experience, not only in the manufacture of machinery used in this department, but a practical spinner and weaver, by which you will see he points out the plan whereby this branch of industry can still be successfully carried on in Canada.

We have not had a season during the last ten years as favourable for a flax crop as the present, and those who still continue to grow it in the counties of Waterloo and elsewhere, will find the crop remunerative. There need be little fear on the part of the manufacturer if he will only follow the advice offered by Mr. Walker in the accompanying letter.

J. A. DONALDSON.

Toronto, June 22, 1868.

To J. A. DONALDSON, Esq.

DEAR SIR,—I was very sorry to hear of the misfortune at Streetsville, and since arriving here I have heard that the linen mill of Messrs. Elliot, Hunt & Co., of Preston, has been given up. What are the flax-growers of Canada going to do for a market for their produce? There is now no consumption to speak of in Canada—the distance and expense of carriage prevents the sale of it in England. They have therefore to depend entirely upon the demand in the United States, which is liable to be stopped any session of Congress by a heavy additional duty. Does it not appear that the best way of securing a market is to manufacture in Canada the flax grown in Canada? But it will be said, what encouragement is there for men of capital to invest in a business, seeing that those who have attempted it in this country have not succeeded. I answer that not one manufactory has been planned, arranged, or managed in a way to succeed. They would not have succeeded anywhere, and I am sorry to say it, because the proprietors, in two instances at least, deserved success, having spared no pains or expense to render their works efficient, but they were misled at the very beginning. There is no reason whatever why linens cannot be made in Canada. The material produced in the country is quite good enough for the usual linens used. The expense in freight, duties, &c., on imported goods would more than make up the difference in the cost of labour, and now that cotton has advanced from 7d. to 12½d. per lb, in Liverpool, with every indication against a reduction below the latter figure, there is no doubt any party going into linen manufacturing in this country, on the same plan as that adopted in Europe, would make the business answer well. Should you wish to write me at any time, please address to care of Messrs. T. & W. Hutton, Ottawa, C. W., or to Box 4131 Post Office, Boston, Mass.

"JOHN WALKER."

Greasing Wagons.

But few people are aware that they do wagons and carriages more injury by greasing too plentifully than in any other way. A well-made wheel will endure common wear from ten to twenty-five years, if care is taken to use the right kind and proper amount of grease; but if this matter is not attended to, they will be used up in five or six years. Lard should never be used on a wagon, for it will penetrate the hub and work its way out around the tenons of the spokes, and spoil the wheel. Tallow is the best lubricator for wood axle-trees, and castor oil for iron.

Just grease enough should be applied to the spindle of a wagon to give it a light coating; this is better than more, for the surplus put on will work out at the ends, and be forced by the shoulder-bands and nut-washers into the hub around the outside of the boxes.

To oil an iron axle-tree, first wipe the spindle clean with a wet cloth with spirits of turpentine, and then apply a few drops of castor oil near the shoulder and end. One teaspoonful is sufficient for the whole.—Rural American.

Canadian Natural History.

Canadian Ducks.

Throughout nature, and especially among animated creatures, there is everywhere manifest, along with an almost endless variety of detail, a beautiful uniformity of type. This is especially remarkable in the great class of animals to which hitherto the brief notes in the Natural History Department of the CANADA FARMER have been confined, namely, the Vertebrata. Throughout the whole of this class we trace the same general principle of structure, and, indeed, the very same parts and members endlessly modified to adapt the form to the peculiar requirements and habits of the individual. Take, for instance, the fore-arm, and notice how wonderfully the same fundamental type is maintained, and yet

amongst our native species or occasional visitors, and in this expectation neither the naturalist nor the sportsman will be disappointed. Canadian Natural History has hitherto had but few expositors, and, doubtless, there are many species of animals to be found that have not yet been enumerated in the Fauna of the country; but in the admirable list furnished by Professor Huxley, we find there are no less than thirty-eight species of the Duck tribe alone mentioned as being found more or less generally on Canadian waters. Specimens of nearly this number of distinct species of Duck were sent by the Board of Arts, along with other birds, to the Paris Exhibition. We have selected four of these for notice and illustration, namely, the Mallard (fig. 1), the Shoveller Duck (fig. 2), the Widgeon (fig. 3), and the Summer Duck or Wood Duck (fig. 4). These are all remarkably beautiful and characteristic species. The drawings have been made from specimens in the

their treacherous destroyer. A common method of decoying them is by the use of wooden figures shaped and painted to resemble ducks. These "dummies" are floated on the water, and enticing the wild birds, bring them within gun-shot of the concealed hunter. Sometimes a frame, with a number of these figures upon it, is attached to the bow of a skiff, which is itself decked down to the water's edge with reeds, rushes, and coarse grass, so as to present the appearance of a small island, with ducks swimming about it. Thus concealed, the gunner can float his skiff within easy range of the birds, and take a murderous shot at close quarters. An elaborate account is given in Berwick's History of British Birds of the method practised chiefly in the fen districts of Lincolnshire, and called the "Decoy." A long curved ditch is dug from the edge of the lake inland. Over this ditch, which is wide at its junction with the lake, but gradually narrows towards the other extremity,



modified in the different orders of animals. The same variety, with uniformity, is observable in the different members of each order. Thus, among birds, the general character of whose form fits them for the air, some are adapted for spending a great part of their time seeking their food and taking their rest on the ground, having recourse only occasionally to their powers of flight; whilst others pass half their lives on the wing, and rest only at night amongst the trees; and another tribe again are specially fitted for floating on the surface of the water, where they find their food, and revel in the enjoyment of their appropriate element. Here, while the bird type is perfectly preserved, we see the breast broadened, and the whole body flattened to fit them for floating, while special arrangements are made in the plumage for throwing off moisture, and in the feet, forming jointed and flexible paddles, for progression through the water, or rather on its surface. The whole tribe of waterfowl are singularly beautiful and graceful creatures, and there is scarcely a more interesting study to the naturalist than the characteristics and habits of this extensive portion of the feathered race. Abounding as Canada does in lakes and streams, we should expect to find numerous representatives of the order

Toronto University Museum, or from the illustrations in Wilson's American Ornithology. To this excellent work we are also largely indebted for the description of the birds.

All the different varieties of wild duck are in their natural state extremely cautious birds, alert and quick, and difficult to approach; either lying closely concealed among the reeds of their favorite marshes, or taking suddenly to rapid flight upon the least alarm. They are greatly sought after as supplying a delicate article of food, and are sometimes, on this account, mercilessly slaughtered by sportsmen, or by most unsportsmanlike hunters. Various methods have been, and are still, employed in different countries to capture them. In India and Ceylon, we are told, the natives catch them in a curious manner. A man covers his head with a calabash, or large gourd, perforated with holes to see through, and thus disguised, wades into the water to such a depth that only his head is above the surface, and approaches right into the midst of the birds, who perceiving nothing but apparently a floating calabash, do not take alarm even when one after another of their number is caught by the legs, drawn under water, and attached to the girdle of

is stretched, on arched hoops of wood, a net, terminating at the narrow end in a sort of purse or *col de sac*. Along the side of this curved ditch are placed a series of screens formed of reeds, behind which the trapper hides, showing himself now and then to drive the birds toward the narrow extremity of the ditch. He is usually assisted by a trained dog, and also by tame ducks, employed to entice their wild congeners into the fatal snare. Vast numbers used to be caught in this way in England. In one season as many as thirty-one thousand and two hundred ducks have been sold in London alone from ten of these decoys near Wainfleet, in Lincolnshire. We trust that in this country a wise policy will protect our native waterfowl from any such wholesale destruction; and especially that during their breeding season they will be left unmolested.

In the present article we can only notice very briefly the Canadian species represented in the accompanying illustration. The most striking figure of the group is the Mallard (*Anas boschas*), the parent of the common domestic duck. In colour and plumage some of the domestic breeds very closely resemble the original wild stock, but in other respects are sadly degenerate. The duck of the

poultry yard is contented and happy enough truly, but inert and slow, waddling in its gait on land, while its wings, from disuse, can hardly raise it above the ground. The wild duck of the lake is quick and wary, full of life and spirit, and springs into the air when alarmed with a power of flight at once strong, rapid and enduring. Nothing can be more beautiful than the form, bearing, and plumage of the Mallard, especially when seen floating on its favorite element. Its length is about twenty-four inches. The general colour is too well known to need particular description. The bill is greenish yellow; irides hazel; the head and neck are a rich, shining green, abruptly terminated by a collar of white. The back is chestnut brown, deepening into black; the four central tail feathers are velvety black and curled up; the rest of the tail is of an ashy grey colour, edged with white. The greater wing-coverts are marked with a bold white bar, and tipped with velvety black, and the wings are beautifully coloured with shining purple, snow white, and velvet black. The colour of the female is mottled brown, the feathers bordered with a yellowish tinge.

The summer residence of this duck is in the northern latitudes. The female selects for her nest the most solitary recesses of the marsh, among reeds and rushes, where she lays from twelve to sixteen eggs of a greenish tinge. Occasionally, however, she seeks some sheltered woodland nook at a considerable distance from water, and there hatches her young, which for some time at least afterwards she nightly takes back to the same spot. Audubon mentions meeting on one occasion a duck thus leading her brood into the wood. His well-trained dog, at the master's bidding, brought all the young ones to him without hurting them; but the piteous behaviour of the bereaved parent moved the compassionate heart of the naturalist to restore the ducklings to their mother, and thus to make her, as he believed, a grateful and a happy duck. Instances are recorded in which the bird has so far departed from its usual habits as to build its nest in a tree, and several notices of a similar occurrence have recently appeared in the *London Field*. The Mallard is certainly a voracious bird, and by no means choice in its feeding. They are omnivorous; and in a domestic state, whatever of the wild spirit and activity they may have lost, they retain, at least, their enormous capacity of eating. On this account some farmers do not consider them profitable inmates of the poultry yard. They possess, however, many good qualities that well repay the trouble of keeping them. They are expert fly-catchers, and render excellent service by destroying vast numbers of insects, slugs, and other pests of the garden and fields.

The next species in our illustration is called, from the peculiar shape of its bill, the Shoveller Duck (*Spatula clypeata*.) This peculiarity in the bill, and the striking plumage of the bird, will always distinguish it from every other species and render its identification easy. It is liable, however, to considerable variety in the colour of its plumage. It is about twenty-two inches long. The bill, of a brownish black colour, is remarkably broad towards the extremity. The head and upper part of the neck are glossy green; the rest of the neck and breast white. The belly is reddish chestnut; the flanks are brownish yellow, pencilled transversely with black; between them and the vent is a white band. The back is dark brown; the wings are beautifully and somewhat variously coloured with white, blue, green, and black. This bird frequents the muddy shores of lakes, and feeds on small worms and the larvæ of insects, which it sifts by the peculiar construction of its mandibles from the muddy water. Along the edge of each mandible is a row of comb-like teeth, closely fitting into each other, and forming a kind of sieve which admirably serves the purpose just mentioned. Each mandible is also grooved to receive the pectinated teeth opposite, when the bill is closed. Like

the preceding species, the female usually builds her nest on the ground, in the secluded recesses of the marsh, concealed by reeds and rushes. She lays about ten or twelve rust-coloured eggs. The young are at first odd-looking, ungainly objects, the strangely developed bill appearing out of proportion to their downy little bodies.

Behind the Shoveller in the illustration, appears a somewhat smaller, less strikingly marked, but very elegant species, the American Widgeon, (*Mareca Americana*.) A sober grey predominates in the plumage of this graceful bird, but beautifully varied with wavy lines, giving to the surface a softly shaded appearance, and rendering this species one of the most elegant of the tribe. The widgeon, or as it is frequently called, the Bald Pate, accompanies another well-known species, the Canvas-back Duck, so abundant in Chesapeake Bay. It is extremely fond of the tender roots of a particular aquatic plant on which the Canvas Back usually feeds, and for which the latter divests the bottom of the water. But as the Widgeon never dives, its only means of procuring the coveted delicacy is to watch the movements of its bolder cousin, and, as the latter emerges after its plunge, to snatch the morsel from its beak, before it has well-recovered its breath or dashed the water from its eyes. On this account there is perpetual contention between the two species, the smaller of which, with the ordinary philosophy of thieves, considers discretion the better part of valour, and always retreats when attacked; only, however, to watch its opportunity for another petty raid on the very next occasion that presents itself. This species does not usually breed in the States, the southern portion of which it leaves in April; and appears in May along the coasts of Hudson's Bay. It is about twenty inches long. The bill is slate-coloured, with the nail black; the crown of the head is of a creamy white. Beneath this a band of glossy green, speckled with gold and purple, extends back from the eyes to the middle of the neck. The throat, chin, and sides of the neck are a dull, yellowish white, speckled with black; the belly is white; the breast and hinder part of the neck are of a bay tint, crossed with wavy lines of black; the back and scapulars, of a darker hue, are also crossed with wavy lines; the lower part of the back is dusky.

The last species we shall notice is perhaps the most beautiful of our native ducks. It is called the Wood Duck (*Aix sponsa*), from its practice, not occasional, as in the case already mentioned, but habitual, of making its nest in the hollow of a tree, or sometimes even in a fork of the branches. It is also called the Summer Duck, especially in the adjacent States, because it remains and breeds there during the Summer season. This beautiful species is about nineteen inches in length. The bill is red, margined with black. The crown of the head and crest are of a rich glossy, bronzed green, ending in violet. A line of pure white extends from the upper bill over the eye; another white line meets this behind the eye, and both join their long pendent plumes with the green and violet ones. The cheek and sides of the upper part of the neck are violet; the chin, throat, and collar are white, the snowy band curving up in the form of a crescent. The white collar is bounded below with black. The breast is dark violet brown, marked on the forepart with minute triangular spots of white, increasing in size till they spread into the white of the belly: the side of the breast is bounded by a large crescent of white, and this again by a broader one of deep black. The flanks are marked by broad semi-circular lines of alternate black and white. The tail coverts are long, and hair-like at the sides, of a deep black blue glossed with green. The back is a dusky bronze, and the scapulars are black. The tail is tapering, glossy green above, dusky below. The primaries, of a dusky silvery tinge, are tipped with violet blue; the secondaries are greenish blue, tipped with white.

The legs and feet are yellowish red. This description, taken from Wilson, will give some idea of the singularly beautiful plumage of this remarkable bird. The specimen in the University Museum was very much damaged by moths. The nest of the Wood Duck contains about thirteen eggs, rather smaller than a hen's e.g., perfectly oval, in colour of a creamy polished white, much resembling old ivory. The male is usually perched near while the female is laying or setting. When the young are fully hatched, the mother carries them in her beak, either by the back of the neck or the wing, from their elevated nest to the ground, and leads them off to the water. These birds do not occur in large flocks, but generally in pairs. They are easily domesticated, and become very tame, forming most beautiful objects to enliven the surface of ornamental waters in private grounds. The Indian frequently decorates the Calumet, or Pipe of Peace, with the skin from the Wood Duck's head, the most beautifully painted object that he could select in all his wide range of search.

We must not extend this notice by any description or even allusion to other species. Most of the family are migratory, and their movements are familiar harbingers of spring or warnings of approaching winter. The flight of the Mallard especially is swift, strong, and well sustained, its speed being estimated by Audubon as not less than a mile and a half in a minute, and, in long journeys, amounting to as much as one hundred and twenty miles in an hour. The instinct or faculty which guides their swift, extended, and unerring flight through the trackless air to distant regions, where both the temperature and means of subsistence are in accordance with their wants, is among the wonderful provisions of nature, which have ever called forth the admiration of the naturalist and the poet, and teach us much of the goodness of the universal Father, whose care and "tender mercies are over all his works." This lesson is pleasingly embodied in the beautiful lines of William Cullen Bryant, "to a waterfowl."

Whither, midst falling dew,
While glow the heavens with the last steps of day,
Far through their rosy depths dost thou pursue
Thy solitary way?

Vainly the fowler's eye
Might mark thy distant flight to do thee wrong,
As, darkly painted on the crimson sky,
Thy figure floats along.

Seek'st thou the plashy brink
Of weedy lake, or margin of river wide;
Or where the rocking billows rise and sink
On the chafed ocean side?

There is a Power whose care
Teaches thy way along that pathless coast—
The desert and illimitable air—
Lone wandering, but not lost.

All day thy wings have fanned,
At that far height, the cold, thin atmosphere,
Yet stoop not, weary, to the welcome land
Though the dark night is near.

And soon that toil shall end;
Soon shalt thou find a summer home, and rest,
And scream among thy fellows; reeds shall bend
Soon o'er thy sheltered nest.

Thou'rt gone, the abyss of heaven
Hath swallowed up thy form; yet, on my heart
Deeply hath sunk the lesson thou hast given,
And shall not soon depart.

He who, from zone to zone
Guides through the boundless sky thy certain flight,
In the long way that I must tread alone,
Will lead my steps aright.

The English sparrows which have taken so kindly to the squares and parks of New York, are now numerous in Newark and other neighbouring cities, and by their hardihood and cheerfulness under adverse circumstances, put to shame their cousins of American birth.

Stock Department.

Breathing.

A constant process of change is one of the essential and mysterious elements of life, even in its lower forms, and becomes more marked in the higher organizations. In man and those animals nearest to him in physical structure, this process of change is very active. Hourly and momentarily some portion of the material of the body is being removed, and its place supplied with new matter freshly endowed with vital properties. No part of the body remains the same for two days together, and it is not in any case a long period that is required to change completely every atom of our frame, so that, while through all the transformation our identity is wonderfully preserved, the component materials are altogether new. In consequence of this perpetual waste and repair arises the necessity of furnishing new matter to be converted into living tissues, and take the place of that which has been removed. This is effected in large measure by food, and the process of digestion, whereby so much of the food as is fit for nourishment becomes converted into blood; and out of this fluid the tissues of the body are continually renovated. But digestion is far from being the only function employed in this work of restoration. Indeed while essential for the maintenance of life, it is intermittent in its operation, and may be suspended for a considerable time without serious inconvenience. There is another function concerned in the process, and which is constant, and cannot be interrupted, for many seconds, without endangering life. This is the function of Respiration, or Breathing. By the process of digestion fresh blood is formed, by that of breathing the impurities of the blood are continually removed, and fresh vivifying material added to it. The impurities are contracted by the blood being charged with effete or waste matter, and the office of breathing is to supply the vital fluid with a fresh element that, while it helps to build up the system, unites chemically with the waste material and removes it from the body. The agent by which this essential restoration is effected is the element oxygen, which plays so important a part throughout the material world. This element, it is scarcely necessary to inform the reader, is a component part of atmospheric air, the grand reservoir, so to speak, in which it is stored. It constitutes one fifth of the atmosphere, the remaining four fifths being composed of a comparatively inert substance, nitrogen, whose chief office, as it exists in the air, may be said, speaking generally to be that of diluting the oxygen. One part of the process of breathing, then, is a mechanical agency, that of bringing the blood and air together. There is, besides, another part, the chemical effect resulting from the contact. Let us consider first the mechanism of respiration.

We have seen, in examining the circulation of the blood, how this fluid, after traversing the system, returns to the right side of the heart, and is thence sent into the lungs, where it is distributed in a very fine network of delicate tubes, or capillary vessels as they are called, the coats of which are extremely thin and permeable to air, though they do not allow the escape of their liquid contents. Now, the air apparatus of the lungs is, in its essential nature, nothing more than a membranous sac or bag, communicating by a narrow opening with the air, and having its walls or coat completely surrounded by these delicate and closely set blood vessels. There are, then, between the blood and the air, two membranes—the coat of the capillaries and that of the lung sac—but each is extremely thin, and offers no impediment to the passage of air or any gas through it. It is a law affecting all gases that they tend to diffuse equally, almost as if one were a vacuum to another, and a thin animal membrane does not at all interfere with this diffusion and intermixture. It may

therefore be understood that the air and blood are brought into contact. Air passes through the sac containing it into the blood, and any vapour or gas from that fluid passes out into the air. All that is essential to the lung then is, as before mentioned, a plain sac, the interior of which air can enter, while blood vessels cover it on the other side. Such, the simplest form of lung, is represented in figure 1 of the accompanying diagram, where the external line indicates the boundary of the chest, the inner line the coat of the air sac or lung, and the dark line between them the layer of capillary blood vessels.

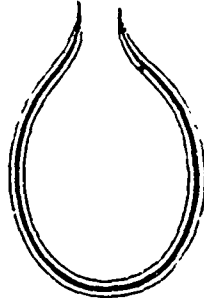


FIG. 1

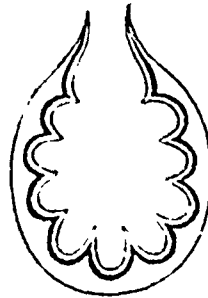


FIG. 2

The further extension of the organ is mainly an economy of space, and is designed simply to increase the surface over which the air and blood can be brought together. Thus in figure 2 the air sac is turned in folds or scollops, whereby evidently the extent of surface is increased within the same boundary line. This is the actual form of lung in some *amphibia*, such as frogs. By still further deepening these folds a greater expanse of surface is obtained within the same external limits, as shown in figure 3. And again, by branching these deeper folds, we obtain a series of tubes ending each in a little cul de sac, or cell, as in figure 4. The last diagram represents the ramification of the air tubes and cells in the more complicated form of lungs, such as those of man and the higher animals. The simple principle is the same in all, a bag of air with blood vessels outside it, but in the more completely developed lungs an enormous extent of surface is secured, over which the blood and air are brought together.

Having stated the principle of the structure, let us now very briefly examine the details. We may take the human lung as the type, for the construction is precisely similar in that of the higher animals, and both the mechanism and the chemistry of the process are the same in all. Briefly to glance, then, at the anatomy of the lung, there are first the exter-

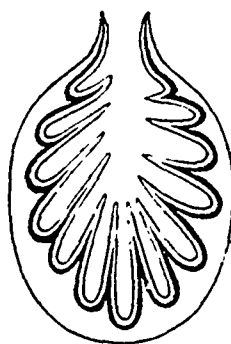


FIG. 3.

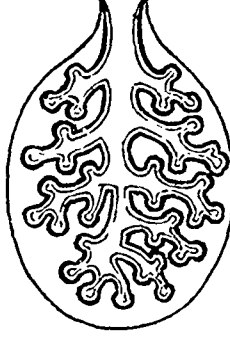


FIG. 4.

nal opening, and the tube leading from it. The latter is called the *trachea*, or windpipe, and at its summit is placed an accessory organ, the *larynx*, or organ of voice. The trachea is a membranous tube, kept open by a series of rings of gristle or cartilage. After it has entered the chest, the windpipe divides right and left into two main branches, and these again subdivide repeatedly, the minutest branches terminating in a cluster of small cells. These branches of the windpipe are called bronchial tubes, and the terminal sacs air cells. The cartilaginous rings are met with in the larger bronchial tubes, but throughout all of them is a highly elastic material,

like that which forms the elastic coat of the arteries. This elastic tissue allows the tubes and cells to be distended, but as soon as the distending force is withdrawn causes them to collapse to their ordinary dimensions, expelling a portion of the contained air. If a lung be removed from the body after life has ceased, and inflated with air, the elasticity of its substance will in the absence of all muscular power or any force from without, drive out again a portion of the air.

Now, we have seen that the blood is passing in a constant stream through the blood vessels of the lungs, constantly exposing, therefore, fresh fluid to the action of the air, which, as it receives the impurities of the blood, must become in turn impure. It is necessary, then, to change the air in the lungs, and this is effected on well-known mechanical principles. Take, for the sake of illustration, the simplest form of lung, the air sack, fig. 1. The chest itself is an enclosed cavity impervious to air; the lung within it an elastic bag freely communicating by an open orifice with the atmosphere. The pressure of this will necessarily fill out the internal sac, and press its sides close against the walls of the chest. Now, the chest is so constructed that its dimensions or capacity can be altered. When it is enlarged, more air will rush in; when it is diminished, a portion of the air will be expelled. This is just what takes place in ordinary breathing. The general shape of the chest is that of a hollow cone, with an arched or convex base. The ribs, placed obliquely, and muscles between them, compose the sides of the cone, while the base is formed by the diaphragm, a muscular and membranous partition, arching up, which divides the chest from the abdomen. The dimensions of the chest are altered by the elevation of the ribs, an action which increases the width of the cavity, and by the depression of the diaphragm, increasing its depth. These are muscular actions which in ordinary breathing are carried on under the influence of certain nerves without any effort of the will. This involuntary muscular action increasing the dimensions of the chest, causes air to rush in, and accomplishes the drawing in the breath, or inspiration, as it is called. As soon as the muscular action ceases, the elasticity of the lung comes into play, and, causing the tubes and cells to contract, drives out a portion of air, while, at the same time, the pressure of the external air keeps the walls of the chest still close against the boundaries of the lung. This part of the process is called expiration, and is, in ordinary breathing, entirely due to the elasticity of the lung. We can, however, by an effort of the will control these actions to a considerable extent. Expanding the chest to a greater degree, we can draw a deep breath; or contracting it by an effort, we expel the air more forcibly. We also fix the ribs,—hold the breath, as it is called,—for the purpose of making an extra exertion, especially with the arms; and we control these movements in the exercise of the voice.

The quantity of air that is taken in and expelled by the lungs in ordinary tranquil breathing varies somewhat in different individuals, but may be taken as an average in healthy adults at from twenty to twenty five cubic inches with each act of breathing. The breathing capacity, or the largest amount of air that a person can, after a deep inspiration, expel from the lungs, also varies considerably, but maintains a curious relation to the height of the individual. Thus, the full capacity of a healthy person, five feet seven inches in height, is about 225 cubic inches. For every inch of height above this standard the capacity is increased on an average by eight cubic inches. This statement does not refer to the size of the chest, or the amount of air it will hold, but to the quantity that can be expelled by a forced expiration.

This brief and imperfect outline of the mechanism of respiration, all that our space or the scope of this journal will permit. The consideration of the chemical changes that take place in the process must be deferred to a future article.

The Dairy.

Hints on Dairy Matters.

It is a fact too palpable for dispute, that the average of cows kept throughout the country for milk production, is a low one. Various exceptions show that amount of milk a really good cow can produce, under proper selection, with abundant food of the right kind, and good care. With such examples as the latter for a standard, at which, in due time, we may arrive, if the proper means be taken to accomplish it, we can add twenty to fifty, or even a hundred per cent. to the production and profit of our cows, with little additional cost. We have known—we now know—men who derive an income from a single cow, in the sale of her milk, beyond the annual cost of her keeping, besides supplying their own families with milk and cream, and sometimes butter. The average of our milk dairies, as they are usually kept, is not over five hundred gallons a year; of the butter dairies one hundred and fifty pounds; of the cheese dairies, three hundred and fifty pounds per cow. These averages can be increased full one-half, in the simple items of selections of cows, more suitable and abundant food, and increased care in their keeping. The requirements to constitute a really good dairy may be somewhat more expensive, but much less so in proportion to the additional yields to be obtained from it, than in the loose and negligent way in which they are now managed. All these improvements we have suggested; and why not at once adopt and act upon them? A wise forecast will do so.

The establishment of cheese and butter factories has improved the quality of those articles, and cheapened their production. The tests of science, and accuracy of method, have been adopted in them, raising their flavor and quality to the highest standard, both at home and abroad. Knowing, thus, what has been accomplished in these particulars, we have every incentive to a still further improvement in the material—cows to furnish these most satisfactory results. Dairy factories, aside from improving the quality of their products, and increasing their prices over the old household way of making them, have accomplished a most beneficent and merciful mission, in relieving the wives and daughters of our dairymen of a routine of slavish and most wearing labor. The life of a household dairy-woman is toilsome in the extreme. Perpetual watchfulness, anxiety and work throughout the dairy season, frequently beyond her physical endurance, has been her destiny—over the cheese-tub, and shelf, the churn and butter-bowl—to say nothing of her labours in the milking yard, over the wash kettle, and scrubbing brush. No relaxation whatever is permitted. Necessity knows no law, nor mercy for those patient over-worked solaces of the household. Even hired female labour is impatient of the task, and shirks it, except at the highest wages, and for a limited period.

We trust that dairy factories may soon become the rule, and the household thus relieved of an intolerable drudgery. In factories, the strength and ingenuity of man is employed almost solely, and the female assistance is so mitigated in its toil, as to be easily and cheerfully accomplished. In the spirit of drowsy Sancho, who invoked blessings on the man who invented sleep, we utter unbounded thanks to the benign brain of him who contrived the cheese and butter factory!

Every farmer, every owner of a cow in the land, should take a pride and a pleasure in having her the best, most useful of her kind. There is no more comely creature living than a fine, well developed cow or heifer, a steer or an ox, and the whole majesty of the bovine race stands forth in a well-bred, stately bull, of an established approved breed. No higher ornament to the farm, the park, the paddock or the stall, can be found than in them. Their presence is ever a pleasure to those who appreciate their value, whether in the humbler walks of rural life, or enjoying the highest social or public distinctions.—*Allen's American Cattle.*

New and Old Rennet---Curing it.

In answer to an inquiry on the subject, Mr Willard says, in the *Utica Herald*:

We do not believe new rennet to be so good for cheese-making as old rennet. We have experimented a great deal, first and last, with rennet in the manufacture of cheese, and we have invariably found old rennet, properly selected and cured, of more strength than is going further in coagulating milk than new rennets. Again, new rennets are apt to produce a more active fermentation of the cheese while curing, causing it to huff or swell, and no cheese that huffs but is more or less injured in flavor. There is great

difference in the power of different rennets to coagulate milk, not well understood or even to be fully explained by the chemists. Dr. Voelcker, the celebrated English chemist, after making numerous analyses of rennet, says the precise nature of rennet and its action on milk is yet a mystery, and that we have not even a name for its coagulating principle. We know from experiment that a superabundance of salt in curing rennet neutralizes in part the coagulating principle, hence, in curing rennet, no more salt should be used than is absolutely necessary to keep the skins from tainting. We have no doubt but that rennets which often prove weak in strength have been injured by over-salting, the soda in the salt not only neutralizing the active principle in the rennet, but having the same effect upon the lactic acid in the milk.

In saving rennet, we are of the opinion that the Bavarian method will prove of great value to our dairymen. We have adopted this method of curing in our own dairy, and we find it not only of less trouble, but the skins are more perfectly cured and more easily packed away than when salted in the usual way. We have heretofore explained in the *Herald* the manner in which rennets are cured under the Bavarian method, but as some may have overlooked our remarks we repeat again. The curing consists in simply turning out the contents of the skin, wiping off all specks or dirt with a cloth, and then blowing up the skins or filling them with air like a bladder. The ends are tied with a string, and a little salt applied to this part only. The skins treated in this way soon dry out perfectly, and are as sweet and clean as can be desired. If there is any truth in the assumption that salt neutralizes the action of the rennet, then rennets treated on the Bavarian plan must be much more effective than those cured in the old way. Again, when the rennets on the Bavarian plan are dry, the air may be expelled and the skins packed away in small space, and can be kept clear of bugs. The trouble with salted rennets is that the salt in wet weather accumulates dampness, and if particular care is not taken to keep them in a dry place, they drip, and consequently lose strength. Rennets saved on the Bavarian plan of curing, are said to be stronger as well as sweeter than any other. We can not say positively, from our own experience, that this is so, but we are testing the method, and shall be able in time to give the result. So far we approve of the system, and recommend it to the attention of dairymen.

To Make Cows Give Milk.

A writer who says his cow gives all the milk that is wanted in a family of eight persons, and from which was made two hundred and sixty pounds of butter in the year, gives the following as his treatment. He says: "If you desire to get a large yield of rich milk, give your cow, three times a day, water slightly warm, slightly salted, in which bran has been stirred at the rate of one quart to two gallons of water. You will find, if you have not found this by daily practice, that your cow will gain twenty-five per cent. immediately under the effect of it, and she will become so attached to the diet as to refuse to drink clear water unless very thirsty, but this mess she will drink almost any time, and ask for more. The amount of this drink is an ordinary water pail full each time, morning, noon and night. Your animal will then do her best at discounting the lacteal. Four hundred pounds of butter are often obtained from good stock, and instances are mentioned where the yield was even at a higher figure."—*Wisconsin Farmer.*

How to Prevent Badly Weaned Calves from Sucking.

If you or any of your readers have been pestered with the contrary wilfulness and persistence of a badly weaned calf, as I have been for the past twelve months, they will be glad to know that a common snaffle bit will cure the beast most effectually. A colored man, George Daniels, who has charge of my stock, claims that he "is do first chap who invented dat dar," and it has certainly answered the purpose with a two-year old heifer who has given George a "silo of trouble" for the past year. He tied a strong twine-string to the bit, and thus fastened it on her head as a bridle would be put on any animal. It does not interfere materially with the feeding of the beast, and I have no doubt will be an easy and thorough remedy for the trouble, either with calves or with cows disposed to milk themselves.—*Cor. Country Gentleman.*

How Country Folks Cheat City Folks.

It is universally supposed that country farmers are an honest race; but a city retail butter dealer makes a grievous complaint as follows:

"It does not seem to me as though the dairymen were determined to find in every possible way to the weight of their butter, as they manage in more than one way to defraud the retail dealer. I consider it cheap practice to overload butter with salt; also to pass from a sprinkle to a half-pound in the bottom of the tub, and from three-quarters to a pound and a half on the top of the cloth covering the butter.

"It also appears as though the maker forced all the water in the tub with the butter that was possible.

"In fact, to sum up, butter-makers appear to think they have a good thing of it selling salt rags and water at the price of butter. My advice to producers and dealers is, to sort colors, do not put so much salt between layers, and in particular keep their kerosene in some other place than where they pack their butter."

A woman in Brooklyn purchased a quart of milk, and found a small fish swimming in it. The milk-man stated he thought the cow must have swallowed the fish.

Veterinary Department.

Injuries and Diseases of the Horse's Foot.

At all times, but more particularly during the dry, hot months of summer, the foot of the horse is very liable to injury and disease. When the roads are dry and hard, the jar and concussion occasioned by fast travelling is very great, the hoof also becomes hard and brittle, and frequently splits or cracks, and owing also to small rolling stones the sole is frequently bruised, and these injuries, when neglected, often extend and give rise to more serious disorders. When horses are used on the farm or on soft roads, the feet are not very liable to concussion, but when they are driven a distance upon a hard road, and, perhaps, with shoes that are pressing upon the soles, then the laminae, or sensitive parts become bruised and congested, and the horse will go slightly lame. At this season, many horses are lamed in the above manner. The lameness may be produced after one drive. Frequently horses are purchased in the country and then brought to town, when they are driven for a few days on our hard roads and streets without their feet being attended to in the least, and the shoes lying on the sole; as a consequence of the jar and concussion, the horse will begin to stumble and falter in his action, which is most observable when he goes out of a morning, or after standing some time. What we refer to is to be met with mostly in the front feet, because the fore feet are raised higher from the ground, and are brought down with much greater force, therefore they suffer more frequently than the hind feet. From this continued battering, the laminae are strained and congested, and the horse goes lame, especially if he carries any weight upon his back. When standing, he will keep shifting his feet; the heels will be hot, and the fetlocks somewhat puffy, and in some instances the legs will swell upwards towards the knee. The foot taken up and the sole tapped with a hammer will at once cause him to evince pain, shown by suddenly jerking the foot. When these symptoms are observed, the horse should be at once laid off work for a few days; the shoes should be removed, and the feet cooled by means of wet cloths wound round the feet, or by keeping him standing for several hours daily in moistened clay; he should also have a mild dose of physic, and be restricted to a cooling diet, as bran mash, or, when it can be procured, green clover or vetches. In the course of eight or ten days, he may be re-ghod, and if he evinces the least tenderness leather shoes should be applied, and also a stopping of tar and tow. By so doing, the sole is kept soft and moist, and the jar and concussion are to a great extent removed.

The Causes of Disease.

DARKNESS AND DIRT.

SOLAR light consists of luminous, chemical and calorific rays, and appears to be almost as important for the well being of animals as of vegetable life. With what unmistakable satisfaction do all the domestic animals bask themselves in the sunshine! In its brightness and warmth all creatures seem to revel. Yet horses in coal pits and mines, deprived of its cheering influence, if otherwise well managed, do not seem specially liable to any particular diseases. Young animals deprived of sunlight probably suffer more notably than adults, are apt to become puny, listless, and liable to scrofulous disorders. Human beings living in dark dwellings, underneath high walls where sunlight seldom penetrates, become the parents of an unusually large proportion of dumb, blind, and idiotic children. Amongst pigs and poultry we have observed the depressing influences of dark abodes. In covered yards, shut out from the direct rays of the sun, cattle do not thrive so well as where they can bask themselves in its cheering rays. During several winters we have had under observation, in one of the midland counties of England, two contiguous yards of nearly equal size, and capable of holding comfortably eight or nine two-year old Shorthorns. The inner is entirely covered with a lofty glass and slated roof; airy, but not liable to draughts. The outer has a deep, commodious shed, continuous with the roof of the covered yard. Both yards are similarly supplied with water. Successful lots of Shorthorns during seven consecutive winters have been fed exactly alike in each yard. In both they thrive remarkably well; but the occupants of the outer yard, albeit they are further from the barn-door, invariably come out in spring with better coats and rather more condition; and this we can ascribe only to the fact that they enjoy a full share of sunshine, from which their fellows in the inner yard are almost entirely shut out.

Light, when too abundant or dazzling, is trying to the eyes. The bright glare of the sun's rays, when reflected from white cliffs, sandy flats, snow, or even from white lime-stone roads, irritates the eye, and occasionally gives rise to blindness. Some horsemen object to brightly lighted stables, on the plea that the animals are kept more upon the alert, do not compose themselves, and cannot rest well. But in a stable or kennel too much light is preferable to too little. By curtains, blinds, or other devices, any excess can easily be excluded. Deficiencies of light usually prove a cloak to filth. A dark stable is seldom clean, fresh or airy. Solid or liquid excreta are apt to accumulate, contaminating the air; dust and cobwebs escape observation; the atmosphere, if not absolutely foul is generally frothy. Darkness being favourable to repose, a dim light is however desirable for fattening animals. Thus feeding cattle ought to be kept quiet, disturbed only at meal times, and placed in comfortable, rather dark pens. Poultry cramming for the table, for a fortnight before being finished off are cooped up in dark pens, to which light is introduced only three or four times daily at the regular hours of feeding.—*North British Agriculturist.*

DISEASE OF THE HOOF IN CATTLE.—Mr. Robert McLaren, Secretary of the South Renfrew Agricultural Society, sends the following communication:—"There are some of the cattle in this county affected with foot disease, and the people are at a loss as to the proper method of treatment. The disease appears to begin at the heel of the hind foot and follows on like a tube to the toe, where the foot begins to rot, and threatens the loss of the hoof. Any information you may be enabled to give in your next issue of the CANADA FARMER relative to the disease, and the best treatment thereof, will be thankfully received by your readers in this part.

NOTE BY ED. C. F.—The disease of the foot above referred to, is generally the result of carelessness and filth. Gravel or sand accumulates in the clefts of the hoof, which sets up considerable irritation, followed by inflammation and suppuration so that pipes form in various directions. The treatment consists in thoroughly cleansing the parts with soap and water, and also removing any detached horn, and then dress with a mild caustic, as chloride of antimony; after which the cleft should be filled with a stopping of tar and tow, which soon brings on a healthy action.



Crops in England.

To the Editor of THE CANADA FARMER:

SIR, I have now been just three weeks in England and have taken a passing glance at agricultural matters from Lincolnshire through the Midland Counties to the English Channel, which separates this country from France. As yet I have not had opportunity of examining fully any district of country and can only furnish you with a few general remarks.

The spring here has opened earlier than usual, accompanied by a high temperature, and, consequently, notwithstanding the want of rain in some parts, all kinds of crops are forward and generally promising. Showers having recently fallen the appearance of this picturesque and highly-cultivated district resembles a well kept garden, which indeed is more or less the appearance of the country generally. When I left Portland on the 25th of April, there were no signs, to the casual observer, of retarding vegetable life, after, perhaps, one of the coldest winters ever experienced in North America. On the twelfth day the picturesque hills of Ireland became visible; the fields being covered by a thick mantle of the richest green. The next day brought us to Liverpool, with its forests of masts; and although Lancashire is by no means distinguished for natural beauty and rural prospects, I felt deeply impressed by the loveliness of the landscape, and the forwardness of the crops. Orchards were blooming profusely, the hawthorn hedges in full leaf, and, in places, rich with flowers; while in the gardens various kinds of roses, laburnums, and numerous other flowering shrubs and plants, were in full perfection—broccoli and asparagus were actually going out of season, and cabbage (planted in autumn) well turned into head. In a few days afterwards, I found the fruit blossoms in the middle and south of England fading away, peas in full flower, and early varieties podding, some almost ready to gather. What a wonderful influence have the Gulf Stream and the insular position of the British Islands on their climate and natural productions.

Wheat, on the whole, must be considered as promising, although I saw some in Lancashire and Cheshire apparently on wet, heavy land, wanting plant, and of a yellowish colour. Spring grain is making great progress since the rains, but the grass, in consequence of the late dry weather, is backward, compared with other crops; it is now, however, progressing, and in meadows manured and otherwise well-managed, the yield will most probably be heavy. Turnips, mangels, &c., are sown early in this country, and are now coming up. All crops are generally drilled and carefully hoed, giving a clean and nicely finished appearance. In this section of country hops are extensively cultivated, and they are unusually forward, more so, I think, than I ever saw them before. The vines, almost without exception, are exceedingly vigorous, and the management being of so careful and liberal a character, a heavy crop is being reasonably anticipated. The aphid has already made its appearance in some situations, and with it the "lady-bird," its natural enemy. A large crop would certainly be accompanied by low prices. I think that I shall be able to offer our Canadian hop-growers some useful suggestions. So strong and forward is this plant that I have already seen it, in some places, over the tops of the poles.

I have attended several markets and fairs, and had much intercourse with farmers, laborers, &c. The condition of English agriculture is, I should say, on the whole, prosperous. The cattle plague in some

counties (particularly Cheshire) was very disastrous. It has now ceased, and cattle this spring are permitted to be brought to markets and fairs, as formerly. Beef and mutton, though somewhat lower, continue to maintain, for good qualities at least, high prices, from 4s 6d to 5s per stone (8 lbs), dead weight. Lean sheep meet with a very heavy sale, owing to the extremely large supply and hitherto want of grass. For several years past, especially when grain was low, a large extent of arable land was converted into pasture, thereby greatly increasing the amount of sheep and cattle. If this had not been the case, the effects of the late cattle plague would have been still greater on prices. Some farmers, I find, now that the price of wheat is high, seem inclined to put a portion of their pasturage under grain culture. A good wheat crop in Europe and America this year would reduce prices as to remove the motive for such a change of practice. It takes many years in England, say from 10 to 25, for poor arable land to be converted into a good, permanent pasture, a change involving not only time, but a considerable pecuniary outlay, in the way of draining, seeds, and manures. The best pastures, sustaining seven or eight large sheep per acre during a large portion of the year, have been in that condition for centuries. The older it is said they are, the better; hence the reluctance manifested against ploughing them up.

I shall be in London to-morrow to see the great horse show in the Agricultural Hall, from whence I proceed to the Bath and West of England Exhibition at Falmouth, of which I hope to send you some particulars in my next.

GEO. BUCKLAND.

Tonbridge, Kent, May 29th, 1868.

NOTE BY ED. C. F.—The foregoing letter only came to hand just as we were going to press with the last number, and therefore too late for an earlier insertion.

Circular to the Agricultural Societies.

TO THE OFFICERS AND MEMBERS OF THE AGRICULTURAL SOCIETIES OF ONTARIO.

GENTLEMEN,—Permit me to remind you of the purport of a circular issued early in the year by the Hon. the Commissioner of Agriculture, having among other matters reference to the formation of an industrial museum in the Parliament Buildings at Toronto. As the season is approaching when grains and other agricultural productions will reach maturity, I trust that the Agricultural Societies of the Province will lend all the practical aid in their power towards the realization of so interesting and important an object. It must be obvious on the least reflection that the successful carrying out of such a project must, in a great degree, depend on the cordial co-operation of our farmers and mechanics, who have been earnestly requested to furnish characteristic specimens of their various productions.

I therefore trust that, before the termination of the present year, the Department will be put in possession of such specimens of our fields, gardens, and workshops as will indicate in a creditable manner our industrial and social progress. I may just remind our agricultural friends that grain in the straw, whenever practicable, is very desirable.

During the short period I have been in England, the mention of this object has met with approval from several influential parties, and I hope to be able to collect material here, mostly free of cost, that will be found of much practical utility. The mere attempt to carry out an object like this is regarded here as unmistakably indicating a desire for sound and industrial progress.

In the pleasing hope that you will give this project your hearty support, and likewise our agricultural, mechanical, and manufacturing interests generally

I remain,

Gentlemen,

Your obedient servant.

GEO. BUCKLAND,

Secy. Bureau of Agriculture, Ont.

London, May 30th, 1868.

Railway Gardens.

To the Editor of THE CANADA FARMER:

SIR,—In your issue of the 15th inst., I read with much pleasure your article on Railway Gardens, and would beg leave to state that the little oases on this railway are more numerous than your article would lead one to suppose; also, that the chief officers are very anxious that, as far as possible, their agents and employes generally should do all they can to beautify their surroundings at stations, and also help them to the extent of placing fences around, and filling in land if necessary, leaving their men to lay out and ornament, the expense of which they kindly allow them (the agents) to pay out of their pockets. The Managing Director, for one or two years, on the Toronto and Montreal District, gave an annual premium for the best laid-out and kept garden, the prize being always taken by the one at Brockville, which is really most beautifully kept, and a great credit to the persons in charge. There are also very fine gardens at Cornwall, Belleville, Newcastle, Whitby, and several other places on the Central Division, and I believe the wish is general among the agents to do all they can in this direction, but in many cases the obstacles to be overcome are great. I sincerely endorse the idea that it would be a good investment for the Company to lay out and beautify their station grounds, as they would thereby attract more travel. I have had persons assure me they have chosen the Grand Trunk Railway from Detroit east mainly to see the gardens at Kingston and Brockville; and when the train draws up at these stations a general exclamation of delight is at once manifest, and passengers rush to view them, much as I have seen tourists leave the table on a Mississippi steamer to view the celebrated Maiden's Rock. Many of these stations have fine fountains, which add so very much to their attractions that I am in hopes your excellent article may induce the Company to place them at all water stations, and especially here, and that all who can, and particularly railway men, may adorn as far as possible their waste places.

G. A. OXNARD.

ENQUIRY.—A subscriber from Addington County sends an "enquiry," which has been handed to the proper authority and will be attended to.

OIL FOR INSECTS.—A correspondent cautions all gardeners against the use of diluted coal oil as a remedy for insects. He tried the plan recommended in the *Gardener's Monthly*, and copied from that journal in our last issue, and found the application destructive to all the plants on which it was used.

SPRING-BEETLE.—Mr. A. T. Walbridge, of Whitby, sends a specimen of one of our largespring-beetles, and wishes to know its name. The specimen sent is the *Elater* (or *Alaus*) *oculatus*. The name spring-beetle is given to the genus from their power of throwing themselves up with a jerk when laid on their back, and this species is called *oculatus* (eyed) from the eye-like spots on its thorax.

WELLS.—Mr. J. Ketchum, of Brighton, Ontario, writes:—In your issue of 15th inst., I notice an enquiry from a "Colborne correspondent" for information as to whether there is not a more economical way of obtaining water from below the ground than the old-fashioned way of digging and walling. I think there is decidedly a much cheaper and easier method; and in California, where I have seen the method fully tested and generally used, it gives complete satisfaction and is universally conceded to be preferable by far to the "old way." In fact it can be used, particularly for extreme depths, where water could not be obtained at all by digging. I refer to the plan of boring and piping, using 2 or 4 inch tubes. If your correspondent will address or call on me, I shall be happy to give all the information I can on the subject, with regard to tools, mode of operation, &c.

CANADIAN FLORA.—A "subscriber" asks:—Would you through your valuable columns inform me what work on Canadian plants would be best for a person intending to make a botanical collection?

ANS.—The best book for the purpose at present published is the *Manual of Botany for the Northern States of America*, by Professor Asa Gray. This work, though not intended to give the Canadian Flora, contains an account of most of our plants, and is the only work, as far as we know, that will enable the young naturalist in this country to determine the names of the plants he may meet with. A small work by the same author, entitled, "*How Plants Grow*," will be found useful for beginners, and this also contains a large portion of the Canadian Flora.

EMIGRANT'S GUIDE.—"A Constant Reader" asks: "1st. Are there any books giving reliable information as to the cost of an outfit for the backwoods," with list of necessary articles? 2nd. Is it possible for a comparative greenhorn to obtain information that will enable him to judge properly of land and timber? If so, where can he get it?"

ANS.—We do not know of any complete Emigrant's Guide for Canada; and we think that such a work by a competent hand would be of inestimable value. Our correspondent may find some information that will be of service to him in the "*Canada Emigration Gazette*," published at Quebec, which can be obtained, free of charge, from A. C. Buchanan, Esq., Chief Emigration Agent, Quebec, and probably from other Emigration Agents in this Province. There is also a small work recently published by the Rev. W. Fraser, of Kincardine, entitled the "*Emigrant's Guide, or Sketches in Canada*," which contains many useful hints. Maps of the Free Grant lands are supplied by the Crown Land Department, and information respecting them can be obtained from the same quarter. But we would caution any one who is altogether unacquainted with "land and timber" not to take up land till he has practically acquired some little knowledge of these matters by a few lessons in the "Bush," beyond the mere study of books. A year's residence with an old settler would be a good school.

The Canada Farmer.

TORONTO, CANADA, JULY 1, 1868.

American Pomology.

We have just examined with some care, and with no little interest, the recently published proceedings of the Eleventh Session of the American Pomological Society, held at St. Louis, in September last. This goodly volume, of 264 pages octavo, contains a vast amount of information respecting the present state of the important branch of rural industry to which it relates. The Society above-named has for its objects, adjudication of the merits of new fruits, identification of varieties, establishment of a common nomenclature, dissemination of useful pomological information, and the promotion generally of fruit-growing. It meets biennially, and its transactions consist chiefly of essays and discussions on points connected with fruit culture. On the occasion to which the report in question relates, papers were read on the general subject of pomology, on diseases of the pear, on packing and marketing fruit, on diseases of the grape, on plant diseases, and on insect enemies of fruit. Free discussion was had in reference to the subjects just enumerated, also in reference to numerous varieties of fruit; reports were also given from different parts of the United States and Canada respecting the condition and prospects of fruit-culture.

Some idea of the work done by the Society, also of the progress of pomology on this continent, may be

formed by looking at the following facts: The Society's catalogue now contains the names of five hundred and sixty-one fruits, viz.: 178 apples, 122 pears, 43 cherries, 55 peaches, 6 nectarines, 11 apricots, 33 plums, 3 quinces, 18 native grapes, 22 foreign grapes, 18 currants, 13 gooseberries, 12 raspberries, 2 blackberries, and 25 strawberries. Its list of rejected varieties is even larger than its catalogue of recommended varieties, containing no fewer than six hundred and twenty-five kinds, viz.: 126 apples, 351 pears, 5 apricots, 32 cherries, 2 grapes, 31 plums, 3 raspberries, and 75 strawberries, making a total of one thousand one hundred and eighty-six varieties of fruit, on which the Society has put the stamp of its approval or disapproval. Each of these varieties has been the subject of free and sometimes protracted discussion, and the decision come to has been arrived at by an open vote on the part of the members who have participated in, or listened to the discussions. It is especially indicative of pomological progress, that instead of only fifty-four approved varieties of fruit, which comprised the Society's list in 1848, there are now the large number of five hundred and sixty-one. This evidence of advance is the more striking when it is considered that the standard of excellence has not been lowered but raised. The President, Hon. Marshall P. Wilder, in his opening address laid down very clearly the requisites in a tree or fruit, for obtaining favour with the Society. A good tree must possess, first, health, or freedom from constitutional disease; second, hardiness, or the power of resisting extremes of heat, cold and drought; third, fertility or productiveness of fruit; fourth, persistency of fruit, or power of adhering to the tree; fifth, vigour of growth, or productiveness of wood; sixth, persistency of foliage; and seventh, a good habit of growth. Those which unite these characteristics in the highest degree are most valuable. A good fruit must be, first, of the best quality; second, it must possess durability, or the property of remaining sound after being gathered; third, size; fourth, colour; fifth, form. It is conclusive evidence of the vast capabilities of the American continent as a fruit region, that between five and six hundred trees and fruits have stood the test of the foregoing rules, while among the still greater number of ostracised sorts there are doubtless not a few of a high order of merit, though they are eclipsed by others that are still better than they.

The Society's catalogue of approved fruits is an interesting and useful study. Certain varieties do well almost everywhere, while others have only a limited range. Thus among apples the Red Astracan, Baldwin, Early Harvest, Fall Pippin, Fameuse, Gravenstein, Yellow Bough, Maiden's Blush, Northern Spy, Rambo, Rhode Island Greening, Roxbury Russet and Wine Sap, have won golden opinions North, South, East and West. The apple has been well designated "King of Fruits." It has been also said of it that it "belts the year." A farm that has on it an orchard comprising such varieties as those just enumerated is well enough supplied with fruit, though it refused to grow any other. Pears are perhaps less cosmopolitan than apples, yet the following are spoken well of in most parts of the United States and Canada; Bartlett, Belle Lucrative, Beurre d'Anjou, Flemish Beauty, Louise Bonne de Jersey, Seckel, Tyson, Vicar of Winkfield, Winter Nelis; and he who can grow these, or the half of them, is well off. Cherries are coy, and beyond the Kentish, May Duke, and Morello, there seems to be none that can be called universal favourites. Peaches, Nectarines, and Apricots are of course limited to sunny spots and favoured latitudes. Among plums, Coe's Golden Drop, Green Gage, Imperial Gage, Lombard, Smith's Orleans, and Washington, seem to have the widest popularity, and if curculio and black knot would only let these alone, we need hardly sigh for more. Of hardy grapes there are Concord, Delaware, Hartford Prolife, and Diana, which are widely diffused and approved. There is only one universal gooseberry, the Houghton. Hovey's Seedling, Triomphe de

Gand, and Wilson's Albany, are the favourite strawberries. When you add to these varieties, which appear to do well anywhere and everywhere, those which succeed particularly well in certain localities, you have a pretty respectable collection of fruits, one of which a comparatively young country has reason to be proud and one with which it may well be content and thankful.

That much enthusiasm exists in the United States and Canada in connection with pomology there are many encouraging proofs. We link our own Dominion with the Great Republic in this remark, because the efforts of Canadian fruit growers, and especially Mr. Arnold's experiments in hybridizing, received honourable mention at the St. Louis meeting, and there seems a very pleasing disposition to work hand in hand, oblivious of national distinctions, in the promotion of fruit culture. This branch of horticulture is yet in its infancy, and although most valuable discoveries and improvements have been made, it is by no means visionary to expect that they may yet be superseded and eclipsed. Many shrewd, intelligent, experienced and persevering experimenters are at work, and we believe they will not labour in vain. Such societies as the one whose proceedings have furnished the subject of this article, are doing vast good, and deserve all encouragement. Our own Fruit Growers' Association, though more limited in its field of operations, has already laid the country under a debt of gratitude, and will doubtless in coming years increase the obligation. We sincerely wish it, and all similar associations, the success they so richly merit.

Quebec Provincial Exhibition.

It is officially announced that the Agricultural and Industrial Exhibition for "Lower Canada," as it is still called in the announcement from which we quote, will be held in Montreal in September next, during the week commencing on Monday, the 14th, that is to say, the week previous to that in which the Ontario Provincial Exhibition will be held in Hamilton. This arrangement accommodates those visitors and exhibitors who may wish to compete or be present on both occasions. A very full and liberal prize list is published, and every arrangement seems to be made with a view of rendering the exhibition worthy of the Province. Parties intending to exhibit must make their entries in the Agricultural Department on or before the 22nd of August, and in the Industrial Department not later than the 15th of September. The programme for the Exhibition week is as follows:

Monday, Sept 14th, will be devoted to the receiving of articles for exhibition, and their proper arrangement. None but officers and members of the association, judges, exhibitors, and necessary attendants will be admitted.

Tuesday, Sept. 15th. The judges will meet in the committee room at 10 a. m., and will commence their duties as soon as possible afterwards. As soon as they have made their awards, they will report to the Secretary. Admission, 50c.

Wednesday, 16th. The judges of the various classes will complete their awards, and will place all the prize tickets if possible. Admission, 25c.

Thursday, 17th. The public will be admitted this day on payment of 25cts by each person, each time of entering.

Friday 18th. The annual meeting of the Directors of the Association will take place at 10 a. m. in the committee room.

Saturday, 19th. The Treasurer will commence paying the premiums at 9 a. m.

All protests must be sent to the Secretary before 10 a. m. on Thursday, the 17th September.

The prize list contains some new features, among them the addition of a silver and bronze medal, to accompany the first and second prizes in the more important classes of stock. This we think a commendable example, as it supplies the successful competitor with a permanent memorial of superiority. These medals, it is announced, will be publicly dis-

tributed by his Excellency, the Governor of the Province, on Thursday, the 17th September. Another noticeable deviation from former prize lists, is in the class of horses, in which the breeds are more distinctly specified. Thus the sections are—1, Clyde; 2, Percherons; 3, Suffolk; 4, Thorough-bred Stallions; 5, Brood Mare and Foal; 6, Heavy Draught Stallion, (1300 lbs and over); 7, Middle Draught Stallion, weighing 1200 lbs. and over; 8, Light Draught Stallion, weighing 900 lbs and over; 9, Three year old Stallion of any breed; 10, Brood Mare and Foal, Heavy Draught; 11, Brood Mare and Foal, Light Draught; 12, Three year old Filly, any Breed; 13, Pair of Draught Horses; 14, Pair of matched Carriage Horses; 15, Saddle Horses. We expect the above classification will be open to some criticism amongst horse fanciers, and will elicit considerable differences of opinion.

The industrial building will be fitted up for the reception of the industrial department, as in 1865. The skating rink will receive the Horticultural Department, under the special care of the Montreal Horticultural Society. The ground selected for the cattle sheds are the same as last exhibition. The usual half fare arrangements have been secured from the various railroad and steamboat companies.

Illinois State Fair.

THE Illinois State Fair is to be held the present year from Sept. 21st to 26th, at Quincy, the same place as last year, one of the most beautiful and thriving cities in the Mississippi valley. The grounds and fixtures used last year were found very commodious and convenient. It is intended to enlarge and improve the accommodation, so as to afford every facility possible for intending exhibitors. Large additions have recently been made to the hotel capacity of Quincy, and it is considered that no place in the West, of its size, is better prepared to entertain a large number of visitors. There are two features in the coming Illinois Exhibition which we note with much pleasure. The first is, the prohibition of horse racing, and all its concomitants. Concerning this great and growing evil in connection with Agricultural Fairs in the United States, the Executive Board of the Illinois State Agricultural Society have taken most praiseworthy action, and we hope their example will be extensively copied. Let the New England Society, especially, blush at the idea of being outdone in moral excellence by the Prairie State. We quote from the Circular announcing the Exhibition of 1868, so much as refers to this matter, deeming it a capital epitome of the reasons why such a stand should be taken universally:

"The Executive Board, in obedience to their own convictions, have resolved to permit, as part of the exhibition, nothing having a tendency to lower the proper moral standard of Agricultural Fairs; and they are expressly determined to exclude from the grounds horse-racing and its usual accompaniments, jockeyism and gambling. Let their position not be misapprehended. This action is dictated not by any feeling adverse to the horse interest, the importance of which they well understand and are glad to acknowledge, but by a just regard to the legitimate aims of agricultural fairs, as well as to deliver the interest itself from the injury inflicted upon it by a certain professional class, who, claiming to be its especial champions, are its worst enemies. The legitimate breeder of horses of every class will find in the list of premiums unusual encouragement, and in the discretion given to committees, ample opportunity for the display of action, and other tests of the valuable qualities of his favorites; but those GIPSIES OF THE TURF "who prou about" the Race Course and County Fair speed-rings "for human prey," are not expected to participate as exhibitors. Having taken this position, the Board expect to be sustained in it by all good citizens who feel an interest in the true progress of agriculture and industry, and particularly by those whose specialty is rearing good, serviceable horses."

Another noteworthy feature in the Illinois arrangements, is the provision of suitable camping-ground, for those who prefer that economical and independent mode of self-entertainment during the fair. The expense of hotel accommodation, and the certain discomfort consequent on the crowded state of the hotels, are considerations that deter many from attending Exhibitions who would otherwise do so. At a season of the year when the weather is enjoyable, and the nights are warm, there is no danger to

health in camping out, and if proper arrangements and regulations are made, we see not why the provision would not tend to secure both a larger and longer attendance on such occasions. Complaint has been made in connection with our own Provincial Fairs that horse boxes and cattle stalls have been occupied as bed-rooms and boarding-houses, to the exclusion of their legitimate occupants. What has been done irregularly and stealthily, might, we think, be advantageously done under official sanction and superintendence. In fact, we see no reason why a range of sheds might not be put up under the direction of the Board, and apartments let during the Fair at a moderate rental. It requires a considerable outlay to pay travelling, hotel, ticket, and other expenses at such times. Our backwoods farmers especially, who are not flush of money, but who, more than any other class, would be benefited by attendance at the Provincial Exhibition, would be allured by such an arrangement. They are accustomed to rough it in the bush, and would think nothing of camping out for two or three nights, if facilities were afforded for their doing so. We commend this feature in the Illinois arrangements to the attention of those with whom it rests to make preparation for our own approaching Exhibition.

The Season.

As elsewhere chronicled, in our article on the month, we have pleasure in putting on record that the season continues to be one of the most favourable within the recollection of that sapient and venerable individual "the oldest inhabitant," and that all the accounts which reach us from various parts in reference to the crops are of the most satisfactory nature. So far everything augurs well for a year of plenty, and consequently a year of prosperity.

NEW YORK AGRICULTURAL EXHIBITION.—The New York State Fair will be held in the week commencing Sept. 29th, not 19th, as by a typographical error was stated in our last.

ROBERTS' HAY ELEVATOR.—An advertisement of this Hay elevator appeared in our last issue, but was not sent in time for any editorial notice. We now draw attention to the new implement which, from a personal examination and testimony in its favour, we believe to be at once simple and efficient. It is manufactured by T. Wrong & Co., 70, Bay Street, Toronto. The price of the elevator, with pulleys and rope complete, is \$10.

Worthen and Baker's Hand-Loom.

We direct attention to an advertisement in our present issue, of this very useful domestic machine, which we have had an opportunity of examining and seeing at work at Mr. Norris Black's in this city. It is neatly furnished, occupies comparatively little room, appears to be very easily operated, and to turn out good work. Such a machine would be invaluable to many of those who reside at a distance from large towns; and, indeed, almost any farmer in whose household the female members have any leisure would find it advantageous to possess one of these looms. We all know that the quality of home-made goods is genuine, and, as a rule, far superior in strength and durability to any that can be bought. The manufacturers thus speak in reference to the capabilities of the machine:

"The simplicity of this machine, and the speed and accuracy with which it performs all the work of making cloth, is admired by all who see it operate."

"It lets off the warp, winds up the cloth, throws the shuttle, and treads the treadles by simply turning an easy crank. When the warp is drawn through the reed and harness, on the same warp, Jeans, Satinets, Tweed, Linsey, Blanket Twill, Double Plain, Fencing Twills, and various kinds of Ribbed Goods and Balmoral Skirting can be woven. To make the changes from one kind of Cloth or Twill to another, require but two minutes, and they are so easy and simple that a child can make them after one time showing. The improved Loom also weaves Flannel, Cassimeres, Flax and Tow, Linen Bagging, and all Wool, Hemp, and Rag Carpeting. Warping and beaming is done in the same way as per the old-fashioned Hand Loom, and every provision is made on the Loom to facilitate the bearing of work."



Multiplying Seedlings.

To the Editor of THE CANADA FARMER :

SIR.—One sometimes conceives a good idea, but neglecting to put it in practice, so as to communicate it, it is lost. Mine came too late to put in practice this spring, but unwilling that my flower should "blush un-seen," I take the first opportunity of giving it to the world.

Everybody conversant with fruit-raising is aware that good fruit trees are raised from seed, in fact that our best varieties originate in no other way; but the proportion of good seedlings is so small, it is so long waiting for them to bear, and the whole expense and trouble of bringing them out so great, that any plan of lessening the expense and time will be considered important.

My plan is this: take cuttings from such seedlings as may be considered worth testing, and graft or bud them upon the previous year's wood, of a healthy grown tree. In this way an immense number of scions could be put on one tree, and nearly every orchard has one or more suitable trees, which do but little in the way of bearing fruit. I am of opinion that the wood of a young plant grafted into a tree of mature growth, would bear as soon as a scion from the old tree. I may be wrong; the thing has not been tried yet; but if it succeeds as well as I expect, what an immense number of apple, pear, and other seedlings can be put on trial at a very small outlay of time or money. I hope some of your readers who have a desire to benefit themselves and the fruit-eating community by developing new fruits, will give my plan a trial, and I would just remind them that the budding season is not very far off, and may be taken advantage of for the purpose.

TENDEAU L'ARRADEE.

Asparagus in France.

This is one of the leading vegetables in France. The following, from the *London Journal of Horticulture*, shows how careful they are in selecting seed:

"Every grower raises his own roots by sowing selected seed. The largest and earliest ripened seeds are chosen. A bed of sandy, unmanured soil is lined off, forming little furrows twelve inches apart, and the selected seed finger-and-thumbed-in at least four inches apart. After the rake has been drawn over all, the seed will be two inches from the surface. This operation is done on a dry day in February. By the end of March, a hoeing before the seeds germinate tends to keep the seed beds clear of weeds, after which the young plants soon begin to show themselves above ground. The end of April and the beginning of May bring hot, dry weather. A slight mulching with decayed manure is now applied. After this nothing more is required but a little hand weeding and repeated waterings in very hot weather throughout the year. At the period when they may be termed yearlings, with half an inch of growth, which will be about the end of March, is the time when the planting in the *Aspergerie* takes place.

How to Make Gravel Walks.

In the first place remove all the soil and vegetable mould, where the walk is to be made, to the depth of six or more inches, so that there will be nothing to promote the growth of grass roots. If this precaution is not taken, grass roots will soon spread from the sides of the walk, and grass will cover the entire foot path. After the way has been evacuated to the desired depth, let the depression be filled with coarse gravel, if it can be obtained, and the surface covered with clean, small gravel, about one or two inches in depth. Then roll the surface with a heavy roller. If any stray spears of grass should appear in the walk, let them be pulled up at once. A more effectual way, however, is to sprinkle salt over the walk, or apply a weak brine with a watering pot. A weak

brine will effectually destroy all vegetation in a walk, at an expense of only a few dimes on the salt.

Another way to form the body of a walk is to fill the evacuation with black-smith's and iron founder's cinders, or pieces of old brick, old mortar, lime siftings, oyster and clam shells, or anything else of a similar character. Then cover the surface with about two inches of sharp, clean gravel, that is free from mould, or anything that will promote the growth of vegetation. It gravel must necessarily be carted a long distance, the surface of rubbish may be covered with only a thin coat of clean gravel. Let it be borne in mind that one barrel of salt sowed over the walk, will save much labor and expense in keeping down weeds and grass. This is a very cheap and satisfactory manner of making a loose or open gravel walk. Where the soil is heavy, and there is only a thin stratum of mould on the surface, resting on a compact subsoil, in which there is little or no vegetable matter, nothing but the thin stratum of mould need be removed where a walk or carriage drive is to be made. *V. J. Times.*

Tree Mignonette.

Sow a pinch of seed in the centre of as many three inch pots as there are plants required. When the young plants are strong enough thin them by degrees to one plant in a pot, and that must be the strongest. Train that up a stake to the height required, pinch out all side shoots and the heads of bloom, but do not divest the stem of its leaves until the plant has attained its full height. To form a head leave about three shoots at the top, and pinch them in from time to time.

I have had tree Mignonette four and five feet high, with heads two feet through, by sowing the seed, as above described, in August, and growing the plants for twelve months, shifting into larger pots when required. These were hand-some objects in the conservatory, and afforded many cut flowers all winter. For ordinary sized trees the seed should be sown during the first week in May, to bloom throughout the following winter. Different catalogues announce a giant variety for this purpose, but in growing the two I have found no difference.—*Times, Recon. Hawkehurst, in London Journal of Horticulture.*

TRANSPLANTING CABBAGES.—The *Gardener's Monthly* recommends the following mode for enriching the soil for young cabbage plants just before they are set out, for the purpose of giving them an early and vigorous start. Make holes with a dibble where the plants are to be set, and then fill these holes with manure water. It soaks away into the surrounding earth, and becomes perfectly diffused through it. The plants are then set in the holes.

TRANSPLANTING IN THE NIGHT.—A gentleman anxious to ascertain the effect of transplanting at night, instead of in the day, made an experiment with the following result: He transplanted ten cherry trees while in bloom, commencing at four o'clock in the afternoon, and transplanting one each hour, until one in the morning. Those transplanted during daylight shed their blossoms, producing little or no fruit; while those planted during the darker portions maintained their condition fully. He did the same with ten dwarf pear trees, after the fruit was one-third grown. Those transplanted during the day shed their fruit; those transplanted during the night perfected their crop, and showed no injury from having been removed. With each of these trees he removed some earth with the roots. The incident is fully vouched for; and, if a few more similar experiments produce the same result, it will be a strong argument to horticulturists, gardeners, and fruit-growers to do such work entirely at night.

THE USE OF FLOWERS.—Says a writer in *Harpur's Weekly*:—There has been of late years a marked increase in the use of flowers for social purposes. Every dinner party or dancing party must now be graced with these "stars of the earth." At larger assemblies there is always a lavish display of flowers, as if it were designed to intoxicate the guests with the delicious odors of innumerable blossoms. If we visit a lady, flowers must precede our coming, if we drive out with her, the odor of flowers must sweeten the pleasure. Superb presentation baskets and bouquets are now seen in almost every parlor, and are the horticultural compliments of gentlemen to ladies. The favorite flowers are the camellia japonica, the sweet Neapolitan violet, and the white and tea rose. Although a large capital is employed in producing these, the supply is always unequal to the demand, and they bring high, even extravagant prices, on great occasions. Flowers are of course extensively used at weddings, but according to the florists, they are employed more liberally at funerals. Five hundred dollars are not unfrequently expended in crosses and wreaths for these solemn occasions.

Agricultural Intelligence.

An Agricultural Degree.

We are glad to learn from our British Exchanges that the University of Edinburgh intends to confer the Degrees of Bachelor and Master of Agriculture ("Agr. B." and Agr. M.) on all who may be found worthy of such distinctions. Before any candidate can graduate in agriculture, he must satisfy the examiners as to his general attainments by undergoing a preparatory examination, unless that be rendered needless by the possession of certain specified certificates of qualification. The following is the published programme:

The candidate who has passed successfully this examination may present himself at the next examination for his degree of Bachelor of Agriculture. For this examination the candidate must produce certificates of acquaintance with practical agriculture, and is required, with the view of specializing his studies, to profess one, and not more than one, of the following groups of subjects, with their practical relations to agriculture:—A. Natural Sciences—Botany, Geology and Zoology; B. Experimental Science—Chemistry and Physics; C. Mechanical Science—Mechanics and Engineering. The certificates of the Royal Agricultural Society, the Highland Society, and the Royal Agricultural College will be accepted for practical agriculture.

Successful candidates who have thus acquired the Degree of Agr. B. may at the next period of examination, provided they have attained the age of 21, proceed to the examination for the Degree of Master of Agriculture (Agr. M.). For this Degree the candidate will be required to submit to a searching examination on one of the following subjects, in its special relation to agriculture: A. Agricultural Chemistry—organic and inorganic; B. Agricultural Mechanics—Machinery and Implements; C. Engineering (Civil) Surveying and Draining, &c.; D. Natural History—Botany, Geology, &c.; E. Animal Physiology—breeding, rearing, &c. of animals. The examinations for Degrees will be conducted by University examiners, and an examiner appointed by the Highland Society."

Agricultural Societies & Officers for 1868.

We publish in the present issue, as we did in the corresponding issue of last year, a list of the Agricultural Societies and officers for the current year, so far as returns have been made. Omissions, where they occur, must be attributed to the fact of no return having been sent in. Where blanks appear under the column headed Treasurers, it is to be understood that the office is held in connection with the Secretaryship. As soon as the new law comes fully into operation, it is expected that a more regular system will be adopted, and one which will enable us to give a still more complete and an earlier list.

THE canker worms have begun their depredations in the neighbourhood of Newton and Auburn-dale, Mass., and the foliage of the trees is rapidly changing to a rusty red.

A new variety of corn, the result of selecting seed and of high culture, has originated in Minnesota. The yield last year was as high as one hundred and thirty-seven bushels to the acre.

FALL EXHIBITION.—The annual Exhibition of the South Simcoe Electoral Division Agricultural Society will be held at Bradford on Thursday and Friday, Oct. 1st and 2nd.

ARMY WORM.—The Corinth, Miss. *Model Farmer* for May, says the army worm is on the march there in amazing force. The *Farmer* makes the following astounding statement: "The movements and numbers of this insect are astounding. The army worm has appeared in this country near the State line, and is now moving southward. Their breadth is about two miles, and they are stripping the forest of all foliage in their path. There are so many millions, that last week they actually stopped the freight train on the Memphis and Charleston Railroad. The worms were so thick on the track that they accumulated on the wheels until it caused the drivers to slide on the rails. We don't think this is the regular army worm, but a species of insect smaller, and not so destructive to vegetation."

AGRICULTURAL AND HORTICULTURAL SOCIETIES AND OFFICERS, 1868.

NOTE.—Towns distinguished by an asterisk (*) have organized Horticultural Societies, under Section 26 of the Statute.

SOCIETIES.	PRESIDENTS.	SECRETARIES.	TREASURERS.
ADDINGTON	John Sharp, Bath	John B. Aylsworth, Newburgh.	
Camden	Peter Mills, Newburgh	Wm. Boyce	
Loughborough	Wm. Lawrence	J. Brown, Tamworth.	
Shelfield	G. R. Miller, Tamworth	James Cooke	
Portland	Joseph Watson		
ALGOMA			
BRANT, NORTH	Louis B. de Lapierre	D. R. Dickson, Paris.	
Dumfries, South	A. McWilliams, Mt. Vernon.	D. Stenebaugh.	
Onondaga	Richard Harris	J. Bingham, Burford.	
Brantford, East		Duncan McKay, Brantford.	
BRANT, SOUTH		B. F. Fitch,	
*Brantford			
BRUCE, NORTH	Wm. White	J. McCulloch, Claverton	John W. Hodgins.
Amable	Wm. Gibson, Invermay	J. N. Gardner, Invermay	John Douglas, Tara.
Arran	C. McLean, Underwood	P. Sinclair, Underwood	
Bruce	John Johnson, Paisley	James Saunders, Paisley.	
Elderslie	Jas. Sibbald	Archibald Roy	
Saugeen	Richd. Rivers, Walkerton	Wm. Fraser, Walkerton.	Jas. Waterson, Walkerton
BRUCE, SOUTH	Stephen Walsh	Thos. Bradley	Robt. Madden.
Kincardine	R. L. Watt	David Henderson	Thos. Wilson.
Huron	Thos. Inglis	W. J. Parsill	George Rife.
Carrick	Dr. J. Hurlburt, Brockville	C. Sibbald, Brockville	C. Fletcher, Brockville.
BROCKVILLE	Jas. Smith, Dawn Mills	Isaac Unsworth, Florence.	
BOTHWELL	Geo. Ramsay, Wilkesport	P. Cattenach, Bombr.	
Sombra	Thos. Carey, Florence	Isaac Unwin, Florence	
Dawn and Euphonia	D. Kennedy	A. S. Woodburn, Ottawa.	Robt. Gunne, Florence.
*ARLETON	S. McBride	W. Elliott, North Gower.	
Gower, North	J. G. Street	W. Rivington.	
Huntley	John Mitchell	G. W. Monk	
March	Alex. McLaughlin	John Allan, Mono Mills	J. Alexander, Mono Mills.
CARDWELL	John Mitchell	David Kirkwood	John Harris.
Calodon	David Tait	John Anderson	M. McCarthy.
Mono	John Thorn, Millbrook	J. S. McDougall, Cornwall.	
*CORNWALL	Thos. McCamus, Ballieboro'	John Foot, Port Hope	Wm. Sisson, Port Hope.
Canan	E. G. Power, Bowmanville	J. W. Sootheran, Millbrook.	
DURHAM, EAST	Saml. Wilmot	R. Windott, Bowmanville.	M. Porter, Bowmanville.
Clark	M. Jones	Jacob Casselman	H. Middleton.
Darlington	Wm. Bimon, Iroquois.	R. Windott.	
*Bowmanville	John Kennick, Inkerman.	John McLeod, Bowmanville.	
DUNDAS	John Graham	A. G. Macdonell, Morrisburgh.	
Mountain	James Thompson	R. Shaver, South Mountain.	
Matilda	Jas. Armstrong, Union	Adam Harkness.	
Williamsburgh	Chas. Ross, Grovesend	Wm. Whittaker.	
ELGIN, EAST	Geo. W. Mann, Union	H. F. Ellis, St. Thomas	John King, St. Thomas.
Malahide	John Clunas, Spring Id.	Robt. Ward, Aylmer.	
Yarmouth	Thos. McCall	L. S. Leonard, St. Thomas	
Dorchester, South	J. S. Kofage, Amherstburg.	M. Fullarton, Lyons.	
ELGIN, WEST	H. Golden	John A. Phillpott, Iona.	
ESSEX	T. Malott, Leamington	H. Botsford, Amherstburg.	Jas. Noble, Windsor.
Malden and Amherston	George Pool	W. H. Foster, Leamington	D. Campbell, Amherstburg.
Gosfield and Mersea	J. Simpson, Junr., Cataracqui	James P. Dobb	J. C. Fox, Olinda.
Tilbury, West	H. Robinson	Isaac Simpson, Kingston.	
FRONTENAC	Henry Wilmot	John Simpson	— Northwore.
Kingston	Wm. Duff, Inverary	Robt. J. Milton.	
Pittsburgh	J. Macpherson, Lancaster.	T. Conklin, Inverary.	
Storrington	M. McGillivray, Kirkhill.	Thos. McDonell, Williamstown.	Daniel Campbell.
GLENGARY	George Heck	Alex. McDennell, Lochiel.	
Bel and Kenyon	Jas. Miller	Thos. Tracy, Prescott.	
*DUNVILLE, SOUTH	Martin Cathred.	Jas. Robertson	Gideon Fairbairn
Edwardsburgh	Geo. Vickers, Heathcote.	Thos. Gordon, Owen Sound	Alex. Crichton.
GREY, NORTH	S. D. Speer	Wm. Hewgill, Heathcote.	
Collingwood and Euphrasia.	Jas. Webster	John Albery	D. L. Layton.
St. Vincent		Donald Fleming.	
Derby		Thos. Gordon, Owen Sound.	
*Owen Sound			
GREY, SOUTH	James Edge	Adam Cochrane.	
Bentick	David Thompson, Indiana.	Jacob Young, York.	
HALDIMAND	Edwd. Bertram, York	F. A. Nelles, York.	
Seneca	H. Crawford, Dunnville	W. Braund, Dunnville.	
Cayuga, South	W. Kellam, Rainham Centre.	John Law, Rainham Centre	
Rainham	J. P. Biggar, Erie	W. R. Hewitt, Cheapside.	
Walpole	Adam Spreatt, Milton	W. C. Beaty, Onagh.	
HALTON	J. T. Standish, Georgetown	John Murray.	
Esquesing	Joshua Freeman	R. B. Ireland.	
Nelson	J. A. Chisholm, Oakville.	H. Switzer, Palermo.	
Trafalgar	H. J. Lawry	A. E. Walker, Hamilton.	
HAMILTON			
HASTINGS, NORTH	C. A. Jerdison	G. E. Bull	H. G. Thurber.
Hawden	J. R. Ketcheson	Chas. Gream	E. Mouney.
Huntington, Madoc, Elzevir and Tudor.	J. Farley, Canifon.	P. H. Palmer, Thurlow	W. Hudson, Roslin.
HASTINGS, EAST	Thos. Martin	Chas. Anderson	Wm. Chapman.
Thurlow	Wm. McLaren	Saml. D. Farley	Thos. Earl.
Tyendinaga	Benjamin Gilbert	D. R. Ketcheson	W. H. Graham.
HASTINGS, WEST	Bradley Mallory		J. A. Chisholm.
Sydney			
HURON, NORTH	F. W. Irwin, Tumberry	Hugh Lowry.	
Tumberry	Wm. Wilson	Thos. Holmes	Jas. McCowan.
Morr's	Jas. Dickson, Goderich	Hugh Love, Hill's Green	G. E. Cresswell, Seaforth.
HURON, SOUTH	Geo. Young, Chatham	Jas. Hart, Chatham	Geo. D. Ross.
KENT	D. Sicklested, Junr.	Robert C. Struthers.	
Chatham	H. Dalson, Chatham	J. Jenner, Charing Cross	S. White, Charing Cross.
Raleigh		A. J. Briggs, Kingston.	
KINGSTON	A. Rawlings, Ravenswood	E. Watson, Sarnia	Arch'd Yeung, Sarnia.
LAMBTON	W. Hollingshead	J. Fripp, Forest.	
Hosquet	Jas. Graham	George Smith.	
Warwick	J. Kennedy, Camlachie	J. Simpson, Abernethy	W. Brown, Wyoming.
Plympton	David Hoaslo	Wm. Mowbray.	
Moore	R. Brock	Capt. Tracey.	
Enniskillen	James Lovell	Edwd. Dowby.	
Brooke	W. Mostyn, Almonte.	David Campbell, Almonte.	
LANARK, NORTH	D. McDougall	John Donald.	
Dalhousie	Alex. Stewart, Lanark	Jas. Young, Rosetta.	
Lanark	Andrew Dickson	A. Fowler.	
Pakenham	Alexander Cuthbertson, Perth	Archib McNee, Perth.	
LANARK, SOUTH	Peter Clark	E. Chalmers	R. Carnuff
Montague	Robert Bull	A. McArthur.	
Berkwith	H. H. Eaton, Frankville.	H. H. Brennan, Frankville	S. J. Southwork, Frankville.
LEEDS AND GRENVILLE	Joseph Adams	John S. Adams.	
Gower, South	Dr. Richmond, Gananoque	W. Brough, Gananoque.	
LEEDS, SOUTH	G. J. Smith, Morven	Chas. James, Napanee.	
JENNIX	Wm. Dawson	O. D. Sweet.	
Richmond	John Dunkar, Napanee.	Nelson Dollar, Napanee.	
Fredericksburgh, North	Wm. Phippen	E. Mallory.	
South	P. McPherson, Bath	Robt. Aylsworth, Olesca.	
Ernestown	John Lawrie, Port Dalhousie.	Jas. H. Bessey, St. Catharines.	Jas. Lawrie, St. Catharines.
LINCOLN	Thos. Keyes	Saml. Goldsmith.	J. Robertson.
Grantham	Dennis Vandusen	A. H. Fetteh.	
Grimby			

SOCIETIES.	PRESIDENTS.	SECRETARIES.	TREASURERS.
Leath.	J. J. Gregory, St. Catharines	Perceval Prest, St. Catharines.	David Crow, St. Catharines.
St. Catharines.		W. Leckie, St. Catharines.	
LONDON.	Jas. Johnson, London.	W. Melbride, London.	John Stewart, London.
MIDDLESEX, NORTH.	L. E. Shipley, Lobo.	W. K. Atkinson, Alsa Craig.	
Huddulph.	Alex. Grant, Granton.	Wm. Forte, Lucan.	
Williams, East.	L. E. Shipley.	J. C. Priestly.	
West.	Mathias Mackey.	John Dawson.	Alex. Kerr, London.
MIDDLESEX, EAST.	Geo. G. Magee, London.	Henry Anderson, London.	
Dorchester, North.	Richd. Farley.	James B. Lane.	Jas. Beattie, London
Westminster.	Alex. McArthur, London.	Robert Fleming, London.	Thos. Elliot
London.	Robt. Robson.	Robt. Orr.	
MIDDLESEX, WEST.	Thos. Moyle, Napier.	Jas. Keefer, London.	
Delaware.	Chas. J. Fox.	Dr. A. Francis.	
Carradoc.	J. B. Burwell.	W. E. Sawyer.	
Metcalf.	H. Thompson, Napier.	R. Richards, Stratroy	
Ekfrid.	Malcolm Campbell.	A. Douglas.	
MONCK.	Geo. Scott, St. Ann's.	D. C. Holmes, Wellandport.	Jacob Upper.
Clasborough.	J. L. Heaslip.	S. Kennedy.	G. A. Clement.
NIAGARA.	Robert Shearer.	F. M. Whitlaw, Niagara.	John Eyre, Brighton.
NORTHUMBERLAND, EAST.	J. A. Clark, Brighton.	R. P. Hurlbut, Percy.	
Cramah.	Robt. Scripture.	Wm. Easton.	John Douglas.
Percy.	Wm. Humphries.	R. P. Hurlbut.	Walter Hiddell, Cobourg.
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Hamilton.	Wm. Masson.	R. Cullis.	
Haldimand.	Joseph Baker.	Josias Gillard.	
*Cobourg.		J. A. Polkinghorne, Cobourg.	
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Windham.	W. H. Ball, Scotland.	D. W. Freeman, Simcoe.	J. D. Morgan, Walsingham Centre.
NORFOLK, SOUTH.	H. J. Kilmaster, Port Rowan.	A. W. Smith, Simcoe.	Joseph McCall.
Charlottesville.	Jas. Coverton.	Thos. M. England.	James Walker.
Woodhouse.	Oliver Austin.	John Christie, Manchester.	Robt. Spears, Uxbridge.
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Scott.	Geo. Thompson, Ashworth.	Andrew Turner.	
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Derham.	Phillip Falke.		
OTTAWA.	T. B. Lewis.	A. S. Woodburn, Ottawa.	
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Toronto Gore.	Wm. Porter, Humber.	John Linton, Humber.	
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PERTH, SOUTH.	Wm. Lang.	W. H. Fort, St. Mary's.	Robt. Harstone, St. Mary's.
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WEST.			
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Ross and Bromley.	John Rankin.	R. Allen.	
RENFREW, SOUTH.	J. L. McDougall, Renfrew.	Robt. McLaren, Renfrew.	
McNab.	Donald Stewart.	D. McNamara.	John Stewart.
Almaston.	Wm. Gardner.	Alex. Brown.	
RUSSELL.	John Kennedy.	Ira Morgan, Osgoode.	
Osgoode.	Joseph A. Campbell.	Jas. Cowan.	
Russell.	Wm. Craig.	E. F. Loucks.	John Darby, Barrie.
SIMCOE, NORTH.	W. Halkes, Barrie.	Josh. Thomas, Barrie.	
Nottawasaga.	J. D. Laidlaw, Stayner.	H. M. Frame, Duntroon.	Robt. Leadley, Midhurst.
Vespra.	Edward Cave, Barrie.	Geo. Sneath, Midhurst.	
Oro.	Wm. Gardner.	Joseph Thomas, Barrie.	John Craig, Craighurst.
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Ops.	Wm. Thorn.	Wm. Baynton.	E. A. Bowes.
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Vernum.	Joseph Kilso.	W. B. Hind.	
*Lindsay.		C. Read, Lindsay.	
WATERLOO, NORTH.	John McDougall.	Moses Springer, Waterloo.	
SOUTH.	Thos. Chisolm, Galt.	Alex. McGregor, Galt.	John Rannie, Atanburg.
WELLAND.	John Mitchell, Stamford.	A. Reid, Crowland.	B. M. Disher.
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York (Western half).	(See East York)		
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Entomology.

The Wheat Midge.

SHORTLY before the issue of our last number, but too late for insertion in it, we received the following communication from Mr. Alex. J. Belch, Proprietor of the *St. Mary's Argus*. It was accompanied by a lump of clay containing an enormous number of small orange-yellow larvæ:—

(MR. BELCH'S LETTER.)

"A farmer of Blanshard has just handed me the enclosed lump of mud, containing the 'rare thing' you notice in it, and which he and his brother farmers pronounce 'the weevil.' The handful was scraped up from a field in which was fall-wheat last year, and which contains wheat this year. The whole field is covered with these insects, discovered just after the late heavy rain, but none can be found on meadow land or in fields sown to peas and other grain last year. It is the opinion of farmers hereabout that the insects remain in the land all winter, from the fact that they are too far advanced in growth to be the product of the egg deposited by the fly this year. They are not found on land unaffected by weevil last year, nor upon land sown to other crops last year, or upon meadow land.

"Of course all depends upon whether the insects really are the weevil or something resembling it. I may say that all intelligent, observing farmers in this section, to whom the clay was shown, unhesitatingly pronounce it the weevil, and they feel so interested in the matter that I have thought it would be well to let you see a specimen, and ask you to ventilate the subject by enquiring through the *CANADA FARMER* whether the same deposit has been observed in other sections of the country. The investigation might possibly throw some clearer light upon the origin of that farmers' scourge, the weevil, than already exists."

We have given a very close and careful examination to a large number of the specimens contained in the portion of earth sent us, and can now state positively that the orange-yellow larvæ or maggots are the larvæ of the well-known wheat-midge (*Cecidomyia tritici*), an insect commonly, but erroneously, called "the weevil." To render us the more certain of the identity of the insect, there issued from the loose wrappings round the lump of earth, a single winged specimen which we had no difficulty in determining to be a male wheat-midge; the sex is remarkable, as, in general, myriads of females may be taken in the fields they infest, while a male is very rarely found.

With regard to the occurrence of these larvæ in the ground early in June, it is only what we should naturally expect for as we stated in an article on the 1st of May last, a large proportion of the larvæ descend into the ground to undergo their transformations, while some remain permanently in the ear. The specimens before us, in all probability, entered the earth last year before the crop was removed from the field, and there remained till the spring; the heavy rain referred to by our correspondent, quickened them into activity, and caused them to approach the surface of the earth; then the pupa state is assumed for a short time, from which they emerge in the form of winged flies, usually in the month of June, ready to lay their eggs in the blossoms of the new crop of wheat. We fear that the farmer from whose land were brought the specimens before us will obtain but a scanty crop of wheat this year, if the whole field is even half as thickly infested with the insect as the portion of earth sent to us. It is a great pity that wheat was again sown in the same field; the best plan would have been to have ploughed under the surface soil as deeply as possible, and then have grown upon it a totally different crop; the majority of the insects would thus have been either prevented from coming to maturity,

or so much retarded as to be unable to do much injury.

The effect of moisture upon these insects is very remarkable. During our examination of them, we took a few dry, motionless specimens, and laid them upon a piece of glass, where they remained perfectly still; then we dropped a little water upon them, and almost immediately they began to move about, crawling over the surface of the glass as long as the water surrounded them; after a time the drop evaporated, and very soon they became as still and motionless as before. This experiment we repeated several times, and always with the same result. Dr. Fitch has also observed somewhat similar effects, so much so that he speaks in one place of the larva as being amphibious in its nature.

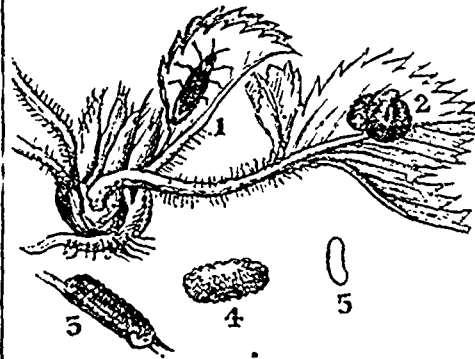
We shall be glad to learn from our correspondent what is the condition, from time to time, of the wheat field from which this earth was taken; we shall also be especially anxious to hear how the crop turns out, and whether the midge proves troublesome in the neighbourhood. It is only by gathering together information from different localities, and under different conditions and circumstances, that we can ever expect to understand completely the life history of our insect enemies; and to know thoroughly their nature and habits is the greatest help of all towards finding out an effectual remedy.

The Strawberry Worm.

(*Emphytus maculatus*.)

As this delicious fruit is now so universally cultivated, it is well for us to be acquainted with its enemies that they may be prevented from such undue multiplication as to become a universal curse.

There are two caterpillars which, by their very destructive attacks on this plant have of late years attracted attention in the West. One of them is a true caterpillar—the larva of a moth—rather more than one and a half inches long of a pea green color, smallest at the first, and largest at the last segment: curling itself up in a ball and falling to



the ground whenever the plant is touched. The other is a false caterpillar—the larva of a four-winged fly—much smaller, but more destructive, and it is the history of this last that I will now elucidate.

This insect is, in all probability, quite generally distributed throughout the West, as it occurs in the southern portion of this State, and I have found it in this county. Complaints of its ravages have also been sent me from Berrien County, Mich., and Mr. W. H. Castor, of Niles, had great difficulty with them last year.

In the month of May, in this latitude, numerous flies may be seen hanging to, and flying about the vines, in fields which have been previously infested. They are dull and inactive in the cool of the morning and evening, and at these hours are seldom noticed. They are of a pitchy black color, with two rows of large transverse dull whitish spots upon the abdomen. The female, with the saw like instrument peculiar to the insects of this family, deposits her eggs, by a most curious and interesting process, in the stems of

the plant, clinging the while to the hairy substance with which these stems are covered. The eggs are white, opaque, and 0.03 of an inch long, and may be readily perceived upon splitting the stalk, though the outside orifice at which they were introduced is scarcely visible. They soon increase somewhat in bulk, causing a swelling of the stalk, and hatch in two weeks—more or less according to the temperature—and by the middle of May (speaking of Northern Illinois) the worms attract attention by the innumerable small holes which they make in the leaves. Their colors are dirty yellow and gray-green, and when not feeding they rest on the under side of the leaf, curled up in a spiral manner, the tail occupying the centre, and fall to the ground at the slightest disturbance. After changing their skin four times they become full-grown, when they measure about $\frac{3}{4}$ of an inch.

At this season they descend into the ground, and form a very weak cocoon of earth, the inside being made smooth by a sort of gum. In this they soon change to pupæ or nymphs, from which are produced a second brood of flies by the end of June and beginning of July. Under the influence of July weather, the whole process of egg-depositing, etc., is rapidly repeated, and the second brood of worms descend into the earth during the fore part of August, and form their cocoons, in which they remain in the caterpillar state through the fall, winter and early spring months, till the middle of April following, when they become pupæ and flies again, as related.

The accompanying illustrations represent the insect in various stages: fig. 1, showing the perfect fly, natural size; fig. 2, the larva at rest; fig. 3, the larva crawling; fig. 4, the cocoon; and fig. 5, the egg enlarged.

And now, knowing the facts in the case, it will be no difficult matter for any one interested to make war in his own way. Their habit of falling to the ground enables us to destroy them with coal oil, or any other decoction, without sprinkling the vines; while, knowing that they are in the earth during the fall and early spring, when there is no fruit, the ground may be stirred and poultry turned in with good advantage.

This insect belongs to the order HYMENOPTERA, the family *Tenthredinidæ*, the genus, *Emphytus*, and as I learn from Mr. Walsh was named *maculatus* by Norton, in consideration, no doubt, of the spots above referred to.—C. V. Riley, *Prairie Farmer*.

The Black Currant Caterpillar.

To the Editor of THE CANADA FARMER:

SIR.—For the first time during the life of, or rather during the time the writer has been able to observe anything, the black currant has become affected with a worm or devourer apparently peculiar to itself. The first time it was observed was last summer, 1867, when suddenly the whole of a long row of black currant bushes became covered with innumerable light-coloured moths. There were a few worms followed, but not many, and some holes were eaten in the leaves; but the worms were very hard to find, and they did not come at all in proportion to the number of the moths.

The moths were white and ash-coloured, feathery and soft, with small black spots on the wings. They were very active and busy during the day, more so than in the evening, although they appeared in the evening also. There appeared to be so little difference between the males and the females that they could not be distinguished, and we could not trace any eggs on the leaves. This year, however, 1868, on the 13th June the worms first showed themselves, and they bid fair to strip the trees.

The worm is light in colour, white or ash-coloured, with longitudinal yellow stripes down the back, with black spots; the back whiter than the side. It is a "measurer," and moves the hinder parts close up to the fore set of legs, arching its back and bringing the extremities together. The skin of the worm is not hairy. It is very active; it is a spinner also, and when disturbed throws itself down, holding on to a short web which exudes from the mouth, similar to the worm which at times devastates the oak forests in England; indeed, both worm and moth are very similar to the oak worm and moth, but it does not spin so long a thread.

Samples of the worm are enclosed herewith for the entomologist to pass judgment on and to name, and the moth shall besent when it appears.

It is a curious fact that these plagues to different kinds of trees and plants make their advent, continue for a few years, and then nearly or quite die off. The Locust or uccacia borer, has now ceased to work in destructive numbers, and all the locust trees are recovering, being able to grow faster than the borer can injure them. No doubt all these insects are governed by the same laws, and in time bring their own parasites with them, which reduce their numbers below the destructive point.

C.

Toronto, 18 June, 1868.

NOTE BY ED. C. F.—The caterpillars sent are specimens of the larvæ of the well-known currant moth (*Abrazas? ribearia*, Fitch), of which a full account has been given in former numbers of this journal (see CANADA FARMER, 1865, p. 231; and 1867, p. 202, for description and remedies.) It is only during the present and last seasons that we have found these caterpillars on the black currant bushes; formerly they confined themselves to the white and red varieties and gooseberry bushes. The moth, we should say, can hardly be called white, it is rather pale buff or nankeen yellow, with black spots. We are glad to hear that the ravages of the locust-tree borer (*elytus flexuosus*) are beginning to subside; probably a parasite affects it; should our correspondent find that such is the case, we should be glad to hear further from him.

The Palmer Worm.

A correspondent from the neighbourhood of Kingston, sends the following hint:—"The Palmer worm is very numerous in this locality. Yesterday I called the attention of a person seventy-seven years of age to the fact; he immediately got a ladder and cleared the tree of the pest. If it was of so much importance to him at his time of life, surely it must be equally so to the community at large."

We are not quite sure whether our correspondent means, by "the Palmer Worm," the insect usually called by that name in the New England States, or the common Tent Caterpillar. The former we have never met with in this country, though, of course, it is not at all unlikely that it should be found in Canada; the latter is but too well known throughout the length and breadth of our land. However, no matter which insect it is, the duty of fruit-growers remains the same—to destroy it utterly whenever and wherever seen. The tent-caterpillar had better be destroyed at night or on rainy days, when all the inhabitants of a web are at home; this can easily be done either by cutting off the branch and burning it, or by tying some rags to the end of a pole, and with it rubbing off the whole nest, burning or stamping on all its inhabitants.

The habits of the Palmer-worm are different, and are thus described by Dr. Fitch:—"Appearing the latter part of June, at times excessively numerous, residing in worm-eaten leaves drawn together by silken threads, and when jarred, dropping and hanging in the air suspended by a thread: a pale, yellowish-green worm, having a dusky or blackish stripe along each side of the back, edged on its upper side by a narrower whitish stripe, and with a dusky line on the middle of the back. The pupa remaining in the same mass of leaves occupied by the worm, and giving out the moth in about ten days. The moth ash-grey, with its fore-wings sprinkled with black atoms, and having four black dots near the middle and six or seven smaller ones around their hind edge." He recommends, as a mode of destroying them, "attaching a long, stiff handle to an old tin pan, smearing the inside of the pan with tar, bird-lime, or some similar adhesive substance, and catching the worms in this by swinging it around under the tree as they hang suspended—removing the coating as often as it becomes so covered with the worms and their threads as no longer to adhere to them."

The Apiary.

Why do Bees Refuse to stay in a Hive?

BEEKEEPERS often experience great difficulty in getting a swarm of bees to stay in a hive. Not unfrequently a few hours, and sometimes even a day or two, after a swarm has been hived, it suddenly swarms out, and either goes to the woods, or clusters again as at first. There are various reasons given for their doing so, many of which, however, are not correct. It is said by some that if a nail appears on the inside of the hive, or if the hive is planed on the inside, the bees will not stay in it. Others again affirm that bees will not stay in a painted hive, because they do not like the smell of the paint, and many other equally absurd notions are entertained by some few bee-keepers. Such reasons, however, are but the flickering rays of superstition, fast fading out before our rapidly increasing knowledge in the science of bee-culture. The principal cause of bees leaving a hive after having been newly put into it, is, too great heat. When a swarm of bees are cast, they rush from the hive under great excitement, causing much animal heat. They are then, not unfrequently, put into a hive which has been standing exposed to the sun, and are then left with the rays of the sun still falling upon the hive. The consequence is, the heat becomes so great in the hive that they are compelled to leave. If the hive is new or recently painted, the heat will of course be greater. Care should be taken to keep the hive well shaded, and if the weather is excessively hot it is well to wet the hive with cold water two or three times a day for two or three days. Bees will sometimes leave from other causes, such as being hived without a queen, the queen being lost or killed; or if they had found a home in some hollow tree before they swarmed they may prefer it to the hive, and accordingly leave and go to it. Such instances, however, are rare, and the more frequent cause, as before said, is excessive heat in the hive.

BEES BATTLES.—In almost every work on bees you find accounts of bee-battles; but in no one of them (at least so far as I have seen) do you find any attempt to explain the causes of them. Now, any one who has observed bees at all, will readily agree with me that they are far too sensible to engage in causeless war, and I am surprised that some one has not, before this, found out that it has been caused by starvation. In every instance of it which has come under my observation, (and I am sorry to say they are not a few,) it has been the effect of want of stores. The starving bees attempting to join, and strong stocks who make violent resistance to the union, and thus ensues desperate war.—Cor. in *Bee Journal*.

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NOW READY FOR SENDING OUT.

WE beg to announce to our customers that our SHARPE'S IMPROVED PURPLE TOP SWEDE can be sent forward on receipt of order, and that we are prepared to supply them in full. Our reason for curtailing their orders last season was in consequence of a very short quantity that we were able to obtain. We are, however, pleased to state that we are able to surmount this difficulty this season, having made our purchases somewhat in accordance with the requirements of previous years, and consequently will endeavor to fill all orders entrusted to us.

This superior Swede has gained a world-wide reputation and far surpasses any other variety, both for quality and quantity, yet introduced. We also have the following varieties of Swede:

- SHARPE'S IMPROVED SWEDE. DO.
- SKERRING'S DO.
- MATSON'S DO.
- MARSHALL'S DO.
- MUTTON'S CHAMPION DO.
- EAST LOTHIAN DO.
- ASHCROFT'S DO.

ALSO.—White and Yellow Fleshed Turnip Seeds in every variety. Parcels of over ten pounds DELIVERED FREE to any part of Canada.

C. & A. SHARPE, GUELPH, Ont.

v5-13-11

Paxton, Tate & Co., Port Perry, Ont.,



MANUFACTURERS OF THE

MARSH HARVESTER!

AGRICULTURAL IMPLEMENTS

OF ALL KINDS,

- STAVE & SHINGLE MACHINERY,
- OSCILLATING MULLEY SAWS,
- TURBINE WATER WHEELS,
- MILL CASTINGS, etc., etc.,
- MADE TO ORDER.

Repairing of all kinds promptly attended to.

WARRANTY.

We warrant the Marsh Harvester to be well made, of good material, and when properly used, not liable to get out of repair; to be a good grain-cutting machine upon which two experienced binders can bind in average grain, on suitable ground, on eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper

PAXTON TATE & CO. v5-7-17

Port Perry, March 28, 1868.

FRUIT GROWERS' MEETING!

THE SUMMER MEETING OF THE ONTARIO FRUIT GROWERS' ASSOCIATION

WILL BE HELD IN THE AGRICULTURAL HALL, TORONTO,

On Wednesday, July 8, at 11 o'clock, a.m.

WORTHEN AND BAKER'S HAND-LOOM

WEAVES all kinds of Cloth with either Woollen or Cotton Warp. It is all worked by turning an easy crank. Farmers would get better clothes if they would make up their own wool, especially now, when the price of Wool is so low. The above Loom can be seen in operation at

NORRIS BLACK'S,

No. 18 KING STREET EAST, TORONTO,

The Agency for the SINGER SEWING MACHINES, which is another machine that every family should have. v5-13-11.

Markets.

Toronto Markets.

"CANADA FARMER" Office, June 27th, 1868.

FLOUR AND GRAIN.

The market has been dull and in the higher grades of flour there has been nothing doing; prices are therefore entirely nominal, and cannot be quoted.

Wheat—The market has been without animation. There was some demand for spring, but at lower prices than holders were disposed to accept; \$1.40 was the price buyers were offering; in general buyers would not give over \$1.40. To-day the market improved, and holders, owing to an advance in the Eastern markets, are asking higher prices. Spring is held at \$1.45 and \$1.47, and Fall at \$1.50. We, however, heard of no sales at those prices with the exception of a small lot of 200 bush spring, which sold at \$1.45. The street prices have been as follows:—There is very little coming in on the street market; spring and midge-proof \$1.38 to \$1.40; fall \$1.40.

Oats—The market has declined since our last review. Lots are now offering freely at 45c without buyers. Retail lots on the street market have sold at from 41c to 50c.

Barley—There is nothing doing in this grain; car lots are nominally worth from \$1 to \$1.05. The few lots offering on the street market bring only from 60 to 70c.

Peas—The market has been dull and drooping, lots sold as low as 74c. A better feeling has succeeded, however, within the past two days. We heard of no sales of car lots, but a small lot sold to-day as high as 79c.

Eye—Lower; worth only from 80c to 90c, with very little doing.

PROVISIONS.

Pork—Mess pork is held at \$22.50 to \$23; with but little doing, and extra prime at from \$15.50 to \$16.50. **Cut Meat**—Very little doing. We quote Cumberland cut at 10½c to 11c. **Eggs**—Scarce and higher; selling at from 11c to 12c. **Butter**—The market is firm with light supply—selling at from 12½c to 13c. **Cheese**—Unchanged, about 11 cents.

HAY—As high as \$21 was paid for a few loads to-day; prices ranged from \$12 to \$21. **Straw**—Prices ranged from \$12 to \$15. **SALT**—American, bbl. \$1.60; Liverpool coarse in bags \$1.20 to \$1.30.

WOOL—The market is quiet, but some buyers have advanced prices; the ruling rates now are 25c to 26c and 27c, the latter price being paid in silver.

HIDES AND SKINS—Hides, green, rough per lb. 5½c to 6c, do. green, inspected 7c, do. cured and inspected 7½c to 8½c. **Calveskins** green, 10c, do. cured 12c, do. dry 18c, to 20c.

Galt Markets, June 23—Market still dull; the quantity of wool offered is much less than in former years. Farmers are holding back in order to manufacture for themselves. The price yesterday was 27½c silver, 2½c bills.

Guelph Markets, June 23—Fall wheat, per bush, \$1.40 to \$1.45; spring wheat, \$1.30 to \$1.36; oats 50c to 51c; peas, 70c to 75c; barley, 90c to 95c; wool, 26c to 27c; eggs, per doz. 12c to 13c; butter, 12c to 13c per lb.

Hamilton Markets, June 22, 1868—Fall Wheat, per bush, \$1.40 to \$1.45; spring wheat, per bush, \$1.38 to \$1.40; barley, do. \$1 to \$1.05; oats, do. 52c to 55c; peas, do. 80c to 85c; corn, do. 65c to 70c; potatoes, per bag, \$1.25 to \$1.50.

London Markets, June 23—Fall Wheat per bush, \$1.25 to \$1.40; spring wheat \$1.28 to \$1.33; barley, 75c to 80c; peas, 60c to 70c; oats, 46c to 48c; hay, per ton, \$9 to \$10; straw, per load, \$2 to \$4; pea straw, per load, \$2 to \$3; potatoes, per bush, by load, 75c; carrots, do., do., 40c to 50c.

Montreal Markets, June 24—Flour, superior extra, \$7.50; extra, \$7; fancy, \$6.60 to \$6.70; Welland Canal superfine, \$6.50; superfine No. 1, Canada wheat, \$6.30 to \$6.70; superfine No. 2, Western wheat, \$6; bag corn, \$3.50. **Wheat**—Canada Fall, none here; Canada Spring, \$1.50; Canada Western (Chicago No. 2), \$1.50 to \$1.52. **Oats**—Per 52 lbs., 40c. **Barley**—Per 48 lbs., 90c. **Butter**—Dairy, 14½c to 18½c; store packed, 13c to 15c. **Cheese**—Do to 9½c. **Ashea**—Pots, \$5.74; pearls, \$5.50. **Pork**—Mess, \$22.75; Prime Mess, \$16.00; Prime, \$15. **Peas**—97½c. **Eye Flour**—\$5.75

New York Produce Market—Flour—Dull; receipts 3,600 bbls; sales 8,000 bbls at \$6.85 to \$7.30 for super state and western; \$7.65 to \$8.60 for common to choice extra state; \$7.70 to \$9.75 for common to choice extra western. **Rye Flour**—Quiet at \$8.5 to \$10.40. **Wheat**—Limited export demand; receipts, 72,000 bush; sales, \$30,000 bushels at \$2.20 for choice No. 1. Spring; \$2.12 for No. 2 do. **Eye**—Quiet. **Corn**—Dull; receipts 116,000 bushels; sales, 40,000 bush at \$1.05 to \$1.06 for new mixed Western afloat, and \$1.11 for white western. **Barley**—Dull. **Oats**—Active and in good speculative demand; receipts, 34,000 bush; sales, 36,000 bushels at 83c for western in store; 83c to 83½c for western afloat.

Chicago Markets, June 24, noon—William Young & Co.'s report.—Wheat—Receipts, 24,000 bushels; shipments, 48,000 bushels. No. 2 wheat, quiet at \$1.99. **Corn**—Lower at 88½c; receipts, 145,000 bushels; shipments, 60,000. **Pork**—Unchanged

Milwaukee Markets, June 24, noon—Wm. Young & Co.'s report.—Wheat—Receipts, 23,000 bushels; shipments 17,000 bus. No. 1 wheat, irregular but moderately active at \$1.97½ to \$1.98; No. 2 wheat irregular but moderately active at \$1.89½ to \$1.91. Flour dull. **Pork** unchanged.

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