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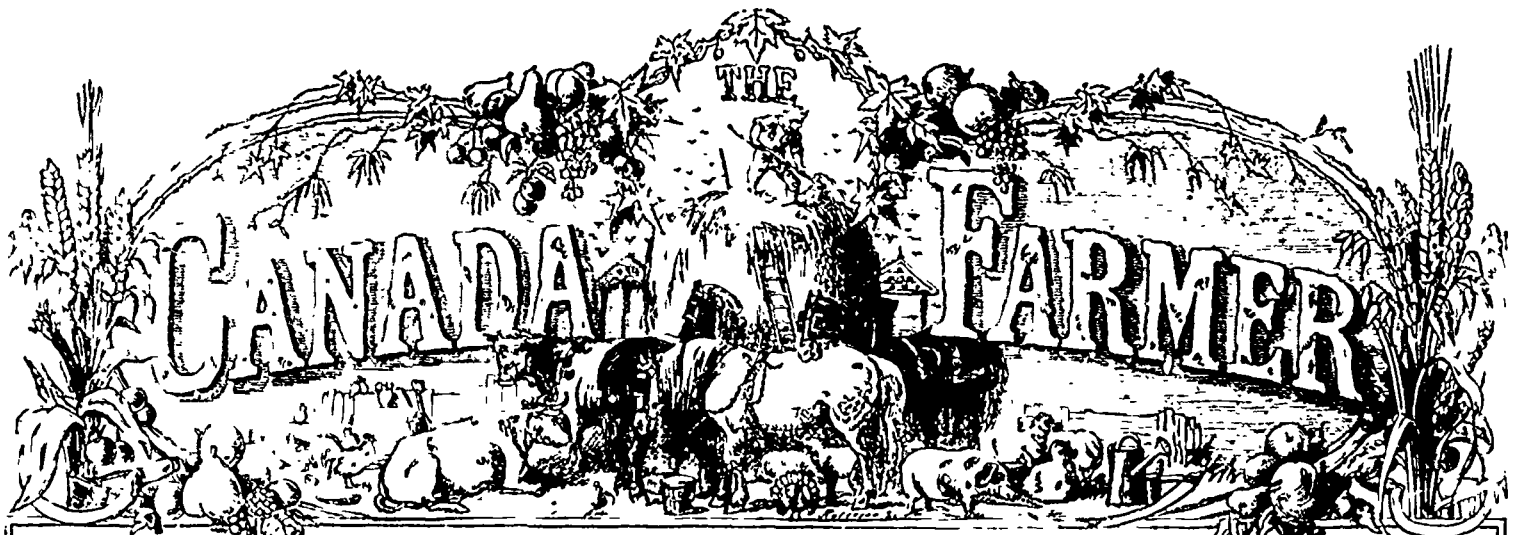
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VOL. V. No. 15.

TORONTO, CANADA, AUGUST 1, 1868.

POSTAGE FREE.

The Month.



AUGUST brings wane to the summer, and abatement to the heat. These are welcome and pleasant reflections always as July draws to a close, but they are especially so this year. The July of 1868 will be long remembered as unusually hot. For the first fortnight in the month, the thermometer hovered among the nineties in the shade, while drought accompanied the heat, and heightened its apparent intensity. No summer for thirty years past has equalled the present for great and long-continued heat. There have been single days as hot as any during the past month in former years, perhaps hotter, but a whole fortnight of such incessant heat is unprecedented. The mean temperature for the first half of the month, as noted at the Toronto Observatory, was 77° 3', upwards of seven degrees higher than the usual average, as given in our July article on "THE MONTH." The highest point of heat reached at the Observatory was 95° 4', but as all local influences are carefully avoided there, so as to get the actual condition of the atmosphere, it is not surprising that on the shady side of city streets, with confined air, and radiation of the sun's rays from contiguous buildings, the mercury should have risen several degrees higher. Under these less favourable circumstances there have been days when the thermometer marked from 90 to 100 degrees, and even higher. This unusual heat has prevailed not only throughout the Dominion of Canada, but all over the continent, not even excepting many of the cities on the Atlantic coast, where sea-breezes generally alleviate the miseries of the dog-days. As a consequence, the papers have chronicled a great number of deaths from sun-stroke, while many more have doubtless been caused in some way or other by the great heat. These cases have mainly occurred in cities, and a large proportion of the victims have either been persons of intemperate habits, or have brought on the fatal result by thoughtless exposure, excessive exertion, or too free use of iced drinks. People cannot

be too careful during such a condition of the weather. Extreme heat can no more be trifled with than extreme cold. We have met with scarce any instances of sun-stroke or other casualties among the farming community, although it must have been a very trying time, coming, as it has done, at the season of hay-making. Farmers being in general persons of temperate habits, and to a considerable extent accustomed to work in the heat, may account for this circumstance. July has told not only upon human health and life, but upon the crops. Up to the beginning of last month, the season was indeed a model one, giving, as we remarked in our issue of July 1, no conceivable ground of complaint even to chronic grumblers. But the scene has vastly changed within one short month. Wide, and we fear irreparable, damage has been done by the heat and drought.

Leaving now these features that have been special and unusual, we proceed to note the general characteristics and duties of the present month, and as we have been wont to do so far through the year, we transcribe from the "Year Book of British North America" the mean temperatures for August at leading points in the Dominion of Canada.

Stratford	59° 15'
Hamilton	62° 57'
Barrie	58° 31'
Toronto	66° 56'
Belleville	61° 73'
Montreal	69° 13'
Quebec	64° 09'
St. John, N.B.	59° 16'
Halifax	62° 09'

From the above it appears that Hamilton has an average of nearly two degrees greater heat than Toronto the present month, while Quebec is about four degrees, and Halifax between one and two degrees hotter than either Toronto or Montreal.

August work on the farm may be summed up in two words. "Harvest continued." By the beginning of this month, indeed, where the weather has been favourable, and farmers have been daily prompt and pushing, the greater portion of the hay and grain crops will have been secured. Oats will yet be to cut, and this ought to be done before the grain ripens, in order to improve the quality of the straw and prevent the grain from shelling out. When harvest operations are fairly concluded, the tools should be well housed and taken care of, especially the reaping machines, which are costly, and from their construction must suffer greatly from exposure to wind and weather. It is painful to observe what carelessness and neglect are practised in this direction. Farmers who have had a hard struggle to pay for expensive implements, bestow no thought or attention upon them, leaving them perhaps in the open fields, or giving them some partial shelter which is little better than none. This ought not to be. Tools and implements well housed not only last longer, but do better and easier work while they last than

those which are subjected to neglect. Root crops will now be so far advanced as to need no more hoeing. Even yet vacant places in the turnip field may be filled by sowing white turnips. They will of course attain no great size, but half a turnip, like half a loaf, is better than none. Those who have not lost faith in fall wheat will improve every opportunity for preparing land intended for that crop. A narrow field along the edge of the woods is the best locality that can be chosen, as there the wheat is less likely to be winter killed. It is a thousand pities every farm in Canada has not its belts and strips of trees to afford a degree of protection. The country is too bare. Drought in summer, and alternations of freezing and thawing in winter, are the fruits of wholesale clearance. The best seed wheat should be secured, and care taken to get it thoroughly clean. Why should the land be stocked with chess and foul weeds, when a little care and precaution will prevent it? Now is the time that most weeds ripen and scatter their seeds; therefore to destroy them at this period will prevent future increase. It must be destruction, however. To cut them up, is often but a half-way measure, from their being left to lie and perfect their seeds upon the ground. To make heaps of them and burn them is an excellent plan. This month is a good time, if there is leisure for it, to underdrain low-lying lands, to dig swamp muck, and expose it to dry, or to perform any operations upon parts of the farm that are wet in the spring and fall. During this month the sheep gad-fly, which causes the trouble in flocks known as grub in the head, hovers about the heads of its victims in order to deposit its eggs about the nostrils. Smearing the sheep's noses with tar, and giving them access to ploughed ground, are recommended as preventives. The garden and orchard will now begin to yield their increase, and the pleasant task of gathering and storing the fruits of the season will commence. Insect troublers may be checked in their depredations by keeping a sharp look out for them, especially the borer, which lays its eggs about this time. The grub quickly hatches and makes its way into the tree. A wire probe is the thing with which to hunt and destroy this pest. A coating of soft soap at the base of the tree is said to be a safeguard against its depredations. Except in localities where buckwheat abounds, honey-gathering will be pretty much over this month. There is yet opportunity to do something in the way of Italianizing, equalizing, and regulating stocks; operations which must be attended to, if at all, during the summer time. Bees cannot be handled to much advantage when chilly weather comes on, and after the working season is over it is well to disturb them as little as possible.

Stock of all kinds, let it be remembered, will need to be well looked after at this season of scanty pastures and failing springs. It is always poor economy to allow animals to fall off in condition.

The Field.

Summer Fallowing and Green Manuring.

It was a theory in farming, as formerly practised, that after a certain amount of cropping, land required rest, very much as the man who tilled the land, after a period of labour, found it needful to rest. Experience proved that summer fallowing had the effect of restoring fertility to the soil; but it may be doubted if many of our forefathers had any correct idea of the principles in nature according to which this result was obtained. Some vague notion about the land being exhausted, and needing rest, was well-nigh all they knew in reference to the matter. But the scientific explanation of reinvigoration by fallowing is, that in consequence of the exposure of the soil to sun and air, elements of fertility are absorbed, and chemical conditions obtained, which restore productiveness. Land is never exhausted by growing crops upon it; the exhaustion comes of removing the crops without giving back to the soil what has been taken out of it in the course of their growth. If the plant food taken out of the soil by a particular crop were faithfully returned, there would be no exhaustion, and no need of rest. Indeed under such treatment land would increase in fertility, since, to a certain extent, tillage is manure, and a constant stirring of the soil is highly favourable to productiveness. So, also, if the crop were suffered to remain on the land, and there undergo the process of natural decay, not only would there be no impoverishment of the soil, but it would increase in fertility, because growing plants obtain a portion of their nutriment from the air. Again, if, instead of its being left to decay, the crop is fed to animals who consume it on the land, their manure will so far enrich the soil as to prevent deterioration, and maintain the average standard of fertility; while by feeding these animals meal, grain, or oil-cake, in addition to such crop, the land is actually enriched.

Among intelligent and scientific farmers, the practice of green manuring has quite superseded the old plan of summer fallowing. This proceeding consists in the growth of green crops for the express purpose of the vegetable matter thus produced being ploughed under as manure. The most beneficial results have been found to follow this method, and it is every way desirable that it should be more extensively adopted. In explanation of the benefits thus obtained, it is only necessary to refer to a fact mentioned a few sentences back, viz: that plants derive a portion of their subsistence from the air. If the soil were the only source of plant food, the growth of a crop could not add any new material to the land, or augment its fertility. The processes of growth might act beneficially on the soil, as they doubtless do, but nothing would be given to the land except what had been derived from it. But it has been abundantly proved that growing crops absorb a large amount of vegetable matter from the atmosphere, and when this is incorporated with the soil, there must be proportionate enrichment. Nor is this increase of nutriment the only beneficial result arising from the use of green manures. If this were the case, it might be a question whether a like quantity of fertilizing material might not be purchased, and applied to the soil at the same or less cost. There is, however, the mechanical action of green manures to be taken into account, as well as their chemical action. In the case of strong, clay soils, this mechanical action is especially valuable. Such soils, though highly productive, are so dense and compact in their texture, that they are hard to work, and their stores of fertility may be said to be locked up, and to a great extent unavailable. After thorough preparation for a crop, they soon harden again, especially when subject to the influence of dry, hot weather. Ploughing under green manures renders a stiff soil

porous and friable, a state of things very encouraging to the growth of roots, enabling them to penetrate the soil more freely in search of nutriment. Sandy and loamy soils are also benefited, especially by their becoming more capable of retaining moisture, which is held by the vegetable tissues thus added to the land. Manure is also more easily retained in such light soils, as the result of this process. Even blowing sands have by this means been so improved, that in process of time superior farms have been formed on tracts of land previously considered barren and worthless.

A crop, to be suitable for green manure, must be of rapid growth, and a greedy feeder on the atmosphere. Mustard, buckwheat and lupin are chiefly used in Great Britain for this purpose. In this country, clover, buckwheat and Indian corn are the best green manures. The last mentioned crop cannot be allowed much growth before ploughing under, or it will become too tall for burial with the plough. Buckwheat is a most excellent plant for the purpose under consideration. It grows very fast, feeds largely on the atmosphere, and is fit to plough under in four or five weeks from the time it is put into the ground. There is no better preparation for fall wheat than ploughing under a luxuriant growth of this plant or of red clover.

The age of the crop at the time it is ploughed in is a matter of much importance. Just before blooming, or when in full bloom, are considered the best periods, and authorities differ as to whether before or while blooming is the preferable time. By all means, however, the plant must not be allowed to ripen and perfect its seed. If this is permitted, the soil is robbed greatly, and much of the fertilizing material consolidated into woody fibre, in which condition it is not so nutritious, or so readily available for plant food.

Another beneficial effect of green manuring, which has led to its being much encouraged in certain localities, is its destructiveness to the wire-worm. This insect, which is one of the wheat farmer's greatest pests, is greatly checked in its ravages by the practice we are commending, and it would be well for those who are troubled with this marauder to try a dose of green buckwheat.

Haying.

BY HENRY WARD BEECHER.

Alas for the poetry of farming! All the songs of milk-maids must be now listened for in the old English poets. The whetting of the mower's scythe is almost over—quite over—on my farm! Instead of that, one hears the sharp rattle of the mower, and sees the driving man quite at his ease riding round and round the meadow, for all the world as if he were out airing! Whereas, heretofore, two acres would be counted a large day's work, now ten and twelve are easily accomplished!

Nor is the contrast less remarkable in all the after-work. When I was a boy I was placed in line, with all the men that could be mustered, to shake out the hay with forks; and after a few hours all hands were called to go over the ground and turn it. To do this rapidly, and yet so that the bottom side shall really come on the top, was no small knack. Now, a tedder, with one man riding, will literally do the work of ten men, and do it far better than the most expert can. Have you ever seen a tedder? I have now a perfect one. The grass rolls up behind it and foams, I was going to say, like water behind the wheels of a steamer. The grass leaps up and whirls as if it were amazingly tickled with such dealings. The result is, that unless the grass is very heavy, and the weather very bad, you may cut your hay in the morning and get it into your barn before night, in far better condition than it used to be when it required never less than two, and generally a part of three days to cure it.

But, I have forgotten the horse-rake. Instead of the old-fashioned, long-handled rake, and the five or

six men, pulling and hauling to get the grass into winnows, that same fellow, with that same horse, rides his luxurious rake, and in the fifth part of the time formerly required, puts it in equally good shape. Indeed, haying, if it has lost its poetry, has also lost its drudgery. A man can now manage a hundred acres of grass easier than he formerly could twenty. The only thing that remains to be made easy is pitching on and off the load. It is true that horse-forks have been invented, but I have never seen any that did their work well; and in my barn, at any rate, the old work of pitching and mowing remains; and if you wish to know what fun is, get on to the mow, under the slate roof of my barn, on a hot day, and let Tim pitch off hay, as he will if I give him the wink. You will have to step lively, and even then, you will often be seen emerging from heaps of hay thrown over you, like a rat from a bunch of oakum. And then it is so pleasant, when a man is all sweat, to have his shirt filled with hay seed, each particular particle of which makes believe that it is a flea, and wiggles and tickles upon every square inch of your skin, until you are half desperate!

It is the 2nd of July, and my grass is all cut, and the last load is rolling into the barn while I write. How sweet it smells! How jolly the children are that have been mounted on top of the load; and their little scarlet jackets peep out from their nests while Tim stands guard and nurse. A child that has not ridden up from the meadow to the barn on a load of hay has yet to learn one of the luxuries of exultant childhood! What care they for jolts, when the whole load is a vast multiplex spring? The more the wagon "jounces" the better they like it! Then come the bars, leading into the lane with maple trees on each side. The limbs reach over, and the green leaves kiss the children over and over again. So would I, if I were a green leaf, and not consider myself so green after all! And so the load rolls slowly up the hill. There is no such thing as momentum in an ox. He is always at the dead pull and at the very hardest. But the children like it! The slower, the longer the ride! Let them take all the comfort they can. By and by they will be grown, and own fine carriages, and roll in style through the streets. But there is many a fair face that rides in a silk-lined coach, with a sad heart, and would go back if she could, oh how gladly, to the joyous ride on a load of hay!—N. Y. Ledger.

The Spruce for Hedges.

To the Editor of THE CANADA FARMER:

SIR,—Many of your correspondents' letters are so interesting that I wish to furnish my quota, especially about hedges.

I quite agree with Mr. J. Nicholson about trimming hedges, viz., that the triangular form should be always observed. A hedge trained in this way must be thick at the bottom, the rule being—one foot high, one foot at the base, and so on to six feet.

If this principle is a correct one, the question then comes, what form of tree will yield most easily to such conditions? The thorn is always trying to get topky, and consequently thin at the bottom; in fact most thorn hedges, if turned topky turvy, would make good hedges. I also find all classes of domestic animals feed greedily on the thorn shoots; another objection I make is that early in the year the hedge looks thin, until the leaves come out. I have, therefore, abandoned thorn hedges to adopt the Spruce Fir. This tree, if planted two feet apart, comes up to my idea of what a good hedge ought to be; it readily conforms to the shape required, viz., the triangular; it looks tremendously strong; no animal eats it, and it is handsomer in winter than in summer, besides growing quicker. I know of no insect which destroys the Spruce Fir. I have about twenty acres of Fir hedge planted on my farm; I clip them with shears as there is little or no trouble with them. The thorn, on the contrary, is always trying to bother us, and it is the work of a careful man or the master himself to keep them in bounds.

Spruce Firs are delivered on my farm, two feet high, at five cents each. I always prefer those grown in a field to those brought out of a wood. Fir hedges are used on the railways in Switzerland as thorns are used in England.

W. RHODES.

Sillery, Quebec, 20th June, 1868.

New and Easy Method of making Maple Sugar.

A correspondent of the *Mark Lane Express* referring to the principle of pneumatic evaporation applied by the Northern Tartars in a very simple and efficient way, during the winter months, in the preservation of milk, finds in it a novel and short-hand method whereby Canadians may make maple sugar. The Tartars place milk in shallow pans, and expose it to the cold winds during frost. In a short time, a dry, white, crispy substance is found on the surface, which is carefully scraped off and put into bottles. This process is repeated until all the watery portion of the milk is evaporated, and a sweet white substance, which is essentially *sugar of milk*, is thus obtained, which may be kept any length of time, in any climate, if kept dry. "This plan," says the writer, though not practicable here might be applied to the evaporation of the sap of the maple in Canada, and would produce excellent sugar at a trifling cost. Notwithstanding the assured confidence with which the above prescription is given, there being no "it," "but," or "perhaps" to qualify it, we doubt if anybody in Canada will have enough faith to try it. How very easy it is to theorize! Did ever anybody see a dry, white, crispy substance" floating on the top of a trough full of maple sap, exposed to pneumatic evaporation? Without consulting a manual or professor of chemistry for the scientific explanation of the difference between the two liquids, it is quite enough to know that sugar scales were never found formed on the surface of maple sap, and that the only method of obtaining the sugar is to evaporate the sap by applying artificial heat.

The Cultivation of Land.

Mr. JACKSON, M.P. for North Derbyshire, attended the anniversary dinner of the Norton Farmers' Club and District Agricultural Society, held at Staveley, and gave an amusing account of his experiences in agriculture. The honorable member, on the subject of the draining of land, observed that he once had a field of thirty acres, and it grew nothing else but large camomile flowers—that was, large yellow daisies. They were so thick and so hard that a cannon ball if fired into them would have rebounded. Well, at last he commenced draining, and he drained four and five feet deep, the distance between the rows being eight feet. Whilst the field was being drained the season overtook him, and although he ploughed as fast as he drained, he was unable to sow more than half of the thirty acres. He was speaking what was strictly true when he told them that the money he received from the first crop paid the cost of the drainage of the entire field; therefore, he was not a loser by it, but a great gainer, because during subsequent years he reaped the beneficial effect of the land being drained. Some time ago he was fortunate enough to produce forty-two tons of carrots from one acre. He trenched the soil about three feet deep, and at the bottom of the trench put a quantity of good stable manure mixed with guano. He then transplanted his carrots, and for a month they hung down their heads as if there was no life in them. At last they began to smell good stuff below, and the result was they went down with a vengeance. After some time he was able to draw carrots as long as his arm, and as thick as the thickest part of it. The next year he had a similar crop of carrots, followed by a splendid crop of potatoes, and then by a good oat and clover crop all without any additional manure. If they only brought capital and science into play, it was almost impossible to over-estimate what could be done with . . . and he did not know anything that would pay a man better than to purchase land for agricultural purposes. Mr. Jackson then proceeded to recommend farmers not to pay so much attention as they were doing to the production of cereals, as he said there were other countries in which they could be grown where land was cheaper and the sun stronger, but other countries could not produce such beef and mutton as England could, and he advised them to make the breeding of beasts and sheep their principal study. The hon. member recommended increased attention being paid to the rearing of poultry, as he said £2,000,000 were spent by this country every year for eggs and poultry, obtained from the Continent, when we ourselves might produce all that the country required.—*Farmer (Scottish).*

The Difference between Ploughing and Cultivation.

Mr. MOUNTAIN says deep ploughing may be ruinous where deep cultivation would be beneficial. This apparent paradox may be easily explained:—Where the land, just below the regular ploughed line, is undrained, panned down, and consequently has never been subjected to the ameliorating influence of aeration by exposure, it is, in too many instances, absolutely poisonous to young plants. I know of so many cases where, by at once ploughing up and bringing to the surface four or five inches of raw sub-soil, the land has been rendered much less productive for several years, that I warn my amateur farming friends against committing such a costly error. The young growing plants cannot thrive, in the beginning of their growth, in such unprepared mass, and, consequently, are encumbered before their roots reach the good buried top soil. That able agriculturist, the late Mr. Smith, of Deauston, wisely recommended that the subsoil should be allowed to dry a little after being drained before even subsoiling was attempted, and that kind and enlightened man, the Rev. Samuel Smith, of Lois Weeden, ploughed his top soil together, and then worked his manure into the uncovered subsoil, leaving it bare for a time, and then re-covering it with the surface soil. When I deeply cultivate, I plough the top soil, and follow in the same track with another plough (minus its breast or mould board): the next turn of the first plough then covers up this raw sub-soil. In this operation a portion of the subsoil gets gradually mixed with the surface soil, and thus my staple is gradually increased with benefit to the crop. My experience teaches me that from ten to twenty years will hardly suffice to bring into a suitable condition some of our tenacious plastic clay subsoils. It is on these grounds that I should, in the case of using steam power, commend the use of the grubbers, or cultivators, that stir the soil deeply without bringing much of it to the surface, and that it should be a gradual deepening instead of tearing up at once great masses of the subsoil. I have never seen any implement so suited to the purpose as that which steam ploughed a portion of my clover in 1856, in the presence of a large company. That deep cultivation showed its good effect for several years. Fowler's plough was supplemented by Colgreave's sub-soil plough. They were attached, so that as they moved along one furrow slice laid under the other, the top soil being laid on the top of the other; and yet, strange to say, I never have seen this used since. The fact is that this double ploughing takes much power, and cannot be hurried over, but it is the proper and most profitable mode. Many farmers have been ruined by rashly burying their best soil, and covering it with several inches of raw subsoil. There may be some subsoils sufficiently wholesome to permit of their being suddenly brought to the surface. In many cases ploughing is objectionable, leaving long unfiled spaces obnoxious to the roots of plants. The cultivator has many advantages.

The Peck per Acre.

To the Editor of the *Mark Lane Express*.

Sir.—The peck of wheat per acre sown the second week in November looked like a fallow all winter, but is now, after hoeing, branching abundantly, and my labourers predict that it will be as good or better than the rest of the field sown thickly with one bushel per acre. Every year I sow half an acre with half a peck of wheat, in the midst of a thicker sown crop, putting it in the same day and under the same circumstances in the various fields, as they come in rotation. By this means I arrive at safe conclusions, and I would strongly recommend my agricultural friends to follow my example, by thus experimenting on a small and unimportant scale. It would abolish many prejudices, and they are bound for their own interests to ascertain the most profitable quantity of seed. My four years' trials have resulted in 58, 57, 36, 36 bushels of wheat per acre, the two first good wheat years, the two later unfavourable. I still continue to drill 4 pecks of wheat, 6 pecks of barley, 8 pecks of oats, as my general sowing—a trifle more on the lightland, but I am getting more and more convinced that, with high, clean farming, and the drill, we may, in Essex, reduce our wheat to 2 pecks. On high lands we need not fear wireworm, if we use 6 bushels of salt per acre about February, or early in March. By having our drill-cups and wheels arranged like those of Mr. Hallett, at Brighton, we can put in very small quantities of seed. It does amaze me to read that 7 bushels per acre of oats

are still sown in Scotland, and that thin sowers pride themselves upon putting in only 5½ bushels! I presume that this is done broadcast, and the measure a Scotch acre. I am satisfied, however, that such a system can never result in such crops as we generally grow on this farm—say from 8 to 13 quarters of black oats per English acre.—I am, sir, yours,
April, 1866. J. J. Mecut.

Good Farming, High Farming.

Good farming is sometimes high farming, and sometimes not. Ploughing under a crop of clover for wheat is frequently good farming, but it is anything but high farming. Summer-fallowing is often the best and cheapest way of cleaning and enriching land, and in such case is good farming, but it is never high farming. High farming would summer-fallow the land, and have a heavy crop growing at the same time.

The market gardens around New York afford excellent examples of high farming. Read Henderson's interesting book on "Gardening for Profit," and you will get an idea of how much produce can be raised on an acre of land. They employ a working capital of \$300 an acre; underdrain thoroughly; use from 50 to 100 tons of manure on each acre every year; have two, three, and four crops in succession during the season on the same land; never let a weed show itself; pay from \$100 to \$300 an acre rent and taxes, and make a handsome profit besides. This is high farming. They have to pay an enormous price for the land, and they must farm high or not farm at all. They could not afford to let their land lie idle a year in order that they might summer fallow, or plough under a crop of clover. Where land is worth only \$50 an acre, we can afford to adopt a slower method of enriching it than when it is worth \$500, or even \$200 an acre.

I can afford to spend \$30 an acre in underdraining my farm in Western New York, but it is very questionable whether \$30 an acre can be profitably spent in draining a farm in a section of Iowa, where good, dry land could be bought for \$10 an acre. Where corn is worth \$1.25 a bushel, it may pay to expend 25 cents a bushel in grinding and cooking it for the hogs, but where corn is worth only 35 or 40 cents a bushel, it would hardly pay to expend 25 cents for the purpose.—*J. Harris, in American Agriculturist.*

ASHES FOR GRASS.—Mr. David Goodwin, of Arrprior, sends us a fine specimen of Timothy, with the following note:—"Enclosed I send you a stalk of Timothy, over six feet in length, grown on my farm, Township of McNab, County of Renfrew. It shows the great value of wood ashes as manure, as it grew on the border of a meadow where the fence was burned last spring, and the fire ran among the old grass."

SALTING WHEAT.—A correspondent in the *Colonial Farmer* recommends the addition of salt to wheat as soon as it is threshed, adding half a pound of salt to a bushel of wheat and mixing them in the bins. He says that wheat so treated is better preserved than by the ordinary method; that it does not lose so much in weight or volume, that it makes more and better flour; and that when used for seed it is not liable to be attacked by weevil (qv. midge?) The correspondent referred to has tested the plan, he tells us, for eighteen years with unvarying results.

HAYING IN "CATCHING WEATHER."—Last year the weather was characterized as "catching"—almost any body can make hay when the sun shines, but the problem may be presented to make hay when it does not shine. With the mowing machine, tedder, horse rakes, and hay taps, an active man of fair judgment may succeed, with a mere modicum of the direct heat of the sun. The principle is continuous drying. The lack of sunshine must be made up by stirring, if the atmosphere is a drying one, and here a good tedder will be found most useful. Long exposure of clover to the hot sun is ruinous, the heads and leaves will fall off, and these constitute the best part. Grass containing clover should be dried rapidly, until thoroughly wilted, and while still green and hot, cocked up. If it has a little sunshine when first cut, it will cure in ordinary catching weather in the cocks, covered with hay caps, provided it can be opened out and shaken up now and then. The hay will be surprisingly green and good, and it will not require much labor to make hay in this way.—*American Agriculturist.*

Stock Department.

Hampshire Down Wethers.

THE accompanying illustration, taken from the *Farmers' Magazine*, represents a fine group of Hampshire Down wethers, the property of Mr. W. D. Canning, of Elston, Devizes, England. Some account of this valuable breed of sheep will be found in our last volume, page 37, with an excellent engraving of the animal that took the prize in this class at the Provincial Exhibition of the preceding year. In reference to the subject of our present illustration, the June number of the *Farmers' Magazine* says:—"These wethers were at all points one of the best pens of sheep exhibited at the last Smithfield Club Meeting. Mr. Canning's flock has indeed fairly earned the title of 'Improved;' and his sort has been deservedly appreciated alike in the market and the show-ring. During the last few years the Elston sheep have taken ten of the Royal Agricultural Society's premiums, six of which were first, with ten from the Smithfield Club, in equal proportions of first and second. Mr. Canning was also a winner at the Salisbury Meeting of the Bath and West of England, the only occasion of his entering the ranks of that Society, while he has of course taken from time to time any number of local premiums.

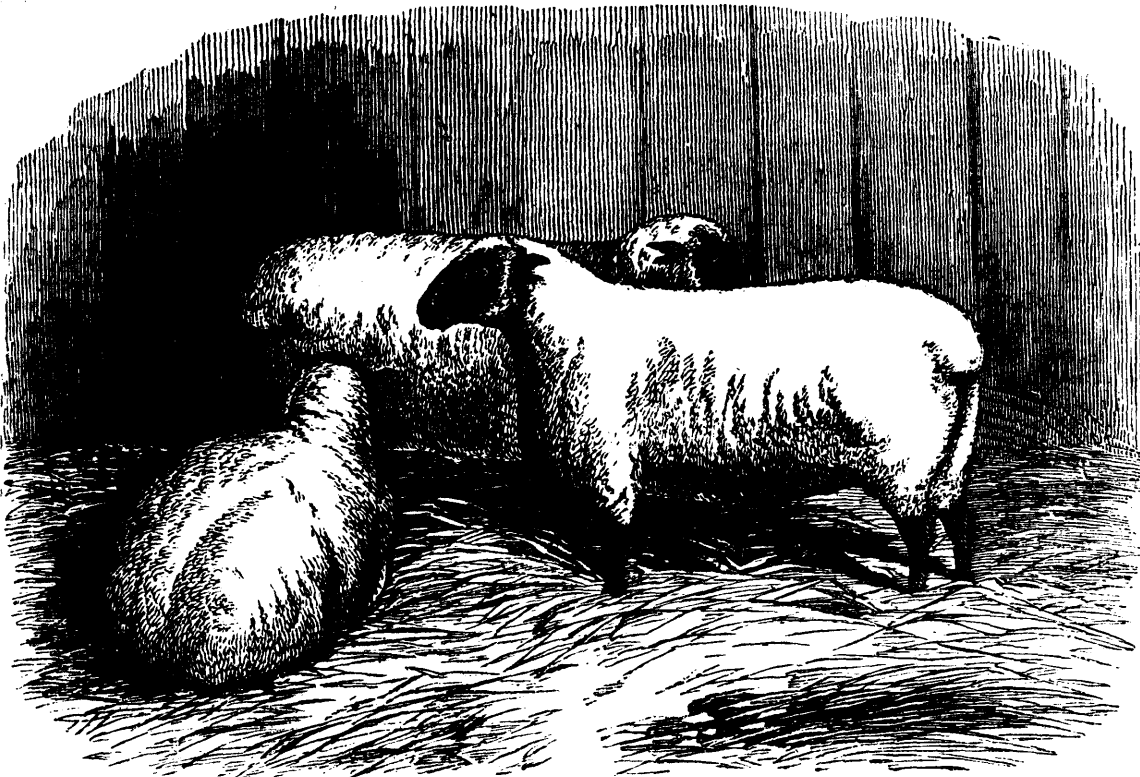
This deservedly famous flock of Improved Hampshire Downs will be sold at Elston in August."

The Chemistry of Respiration

HAVING already considered the mechanism of breathing, we come now to examine the chemistry of the process. By this phrase is meant the changes in the air and blood that result from the contact of the two in the lungs. The air we breathe is composed of two principal elements, oxygen and nitrogen, in the proportion of one-fifth of the former to four-fifths of the latter. There is besides a very small portion of carbonic acid present in the atmosphere; but the ordinary proportion does not amount to more than four-parts of this gas in ten thousand parts of air. A varying quantity of watery vapour is also dissolved and mixed with the air. Such is the composition of air as it is inspired or drawn into the lungs; but the breath which an animal expels from its lungs is found deficient in the proportion of oxygen, and contains in its place a quantity of carbonic acid. The amount of this gas given off in each act of breathing is indeed very considerable. Taking the human lung as an example, it may be stated as a general average that, under ordinary circumstances, the quantity of carbonic acid exhaled into the air breathed by a healthy adult man amounts to 1345 cubic inches, or about 636 grains, in an hour. According to this estimate, the weight of carbon excreted

from the lungs is about 173 grains per hour, or eight ounces in the course of twenty-four hours. The quantity of carbonic acid exhaled from the lungs of larger animals, such as the ox or horse, is considerably greater, and even in the case of smaller animals, as sheep, which are often collected together in large numbers, it will readily be understood that the air about them must soon become loaded with carbonic acid unless it is changed by a free ventilation.

The presence of carbonic acid in the expired air is easily shown by a simple experiment. If we breathe through a tube into lime water, that fluid very speedily becomes charged with carbonate of lime, and assumes a milky appearance. The cause of the change is that the carbonic acid from the lungs unites with the lime dissolved in the water, forming carbonate of lime, which being very sparingly soluble, becomes diffused through the liquid as a fine powder. This will gradually settle to the bottom if



the water is allowed to stand. Besides the carbonic acid expelled from the lungs, a considerable amount of watery vapor is exhaled in breathing.

The foregoing are the chief effects produced on the air by respiration. We cannot here very minutely explain the changes which the blood undergoes, but will merely state the principal alterations to be observed in this fluid during the same process. The blood, as already explained in the previous article, when it returns to the heart after completing the circuit of the body, is altered in colour, being dark instead of bright red. This change of colour is due to the presence of carbonic acid distributed or dissolved in it. As the blood permeates the minute vessels of the lungs, every drop of it is exposed to the air, and here it parts with its carbonic acid, and absorbs instead the oxygen of the air. This restores the bright color of arterial blood, and the change renders the fluid again fit to circulate through the body. Nitrogen is also absorbed and given off, but of this it is not necessary for our present purpose to take any account. The fresh portion of oxygen imbibed is probably in part immediately combined with some of the constituents of the blood, but most of it is merely dissolved, and carried in the circulation to various parts of the body, where in the ultimate capillaries it unites with carbon thrown off from the tissues in the constant process of change going on, thus forming carbonic acid; for this gas, it is scarcely necessary to inform the reader, is a chemical compound, in definite proportions, of oxygen and

carbon. The carbonic acid thus produced is carried in a state of solution by the blood to the right side of the heart, and thence into the lungs, to be exhaled, and replaced by a fresh portion of oxygen.

It is absolutely necessary that the venous blood charged with carbonic acid should undergo this change before it passes again through the body. Without this chemical alteration it is a fatal poison to the system, and nature indeed resists its circulation through the body. For if pure air is not admitted into the lungs, the dark blood will scarcely pass on its course; the lungs, therefore, are gorged with blood, the left side of the heart becomes empty, and the right side distended and overfilled; what little blood returns from the lungs into the left side is venous, and this being sent to the brain, augments the mischief, till both the acts of breathing and the beating of the heart very soon cease altogether. If air is completely excluded, as in drowning, a very

few minutes serve to extinguish life. In the human subject the contraction of the heart ceases in less than five minutes after complete submersion, and persons are rarely saved if they have been under water more than four minutes. The instances in which recovery has taken place after a longer immersion are probably to be explained by the occurrence of fainting at the moment of the accident; for, with the circulation thus enfeebled, the deprivation of air may be endured much longer than it can while the blood still circulates quickly and

accumulates carbonic acid.

It is obvious, then, that carbonic acid, mixed in any but the smallest proportion with the air we breathe, is highly poisonous. Its presence in even small quantities is deleterious, for it is only when the air is perfectly pure that the proper exchange of gases will take place. If carbonic acid already exist in the air, a much smaller amount is given off by the lungs, so that the mischief very rapidly assumes threatening and dangerous magnitude. We learn also, from the manner in which the ordinary gaseous elements of the air are absorbed by the blood, with what facility any impurities can by the same means be introduced into the vital fluid, and work out according to their nature, slowly or quickly, but most surely, their injurious and often fatal effects.

From these considerations the necessity of thorough and efficient ventilation becomes obvious. It is not necessary that the air should be vitiated to the point of suffocation to become a source of disease. The breathing of a single animal soon renders an apartment impure, and unless fresh oxygen—that is, fresh air—is supplied, and the carbonic acid and other impurities dissipated, the necessary change in the blood cannot be duly effected, morbid matter is introduced into the system, and disease in some form, if not a speedy extinction of life, will assuredly follow. There is indeed no more certain method of infecting poison into the blood than by the air we breathe, which is none the less potent because imperceptible and unseen.

The Summer Management of Stock.

It is a difficult matter on a considerable holding to keep all varieties of stock going on satisfactorily, to ensure their getting food suitable for them in quantity, and of a quality which will prove fairly remunerative; to prevent waste; to ward off causes of accident or disease. Properly to arrange all this, requires some generalship and some experience. Young farmers with a fair command of stock often fall into the serious error of getting overstocked; in a dry season like the present, many good managers are apt to discover that they also have too many mouths. Cattle and sheep always do best where they can have a change of grazing once or even twice a month; as we have often insisted on, a given acreage of clover grass or vetches will produce a greater weight of meat if the food is brought to the animals, instead of being walked over and spoiled by them. With sheep the penning system is the most economical, and has the great advantage of getting the land evenly manured, and making also the best of the cake or other purchased food. Even where sheep are not constantly confined to the pens, it is good practice to enclose the flock during the night. The food is thus kept fresh, and less of it is spoiled. The night pen, which should be moved several times a week, should either be in the same field in which the sheep graze during the day, or in a contiguous field of clover, vetches, or the like. By the adoption of the system of pens, and by increasing the quantity of purchased food, a bad season may be successfully encountered, and a very heavy stocking carried through without loss. In the grazing or penning, whether of cattle or sheep, it is unwise to have too many animals together. One hundred sheep is quite enough to have in one pen. It is important to place together those animals which are about the same age, or state of progress, and that will best agree.

Horses are thriftless inmates of good pastures; they are apt to disturb other stock; they graze down closely the best of the keep, and their summer management is often a difficult question. We prefer the eastern counties' system of keeping the cart-horses of the farm in lots of two or three together in divided yards, which, at this season, are usually kept empty. Here they are supplied with rough grass, cut about the pastures, or, where that is insufficient, with clover or vetches. If turned out at all, they had better be secured by the foreleg, as is done throughout the midland counties of England, and with an iron peg and stout chain confined on the roughest parts of the cattle or sheep grazings, or be similarly tied upon vetches or clover.

For all animals it is most important to look to quantity and quality of the water supply. A good supply of pure, fresh water is, in hot, dry weather, quite as essential to thriving as food itself. With access to a good spring, we often find young stock make wonderful progress, even when the pastures are extremely bare. Running streams are preferable to stagnant pools; but in many clay and fen countries, these pools are the only sources of water during a dry summer. Where pools are the sources of the water for stock, great care should be taken that all mud should be removed almost daily from the points of access to the watering place, so that all stock, but more especially the sheep, may get at the water readily. Sheep will often want water for days rather than walk over rough, poached or muddy ground to procure it. When sheep do not come readily to the pools, troughs should be formed without delay, and fitted from the pools with a convenient hand pump, or a supply brought daily in a water-cart. From being short of water in the summer or autumn, hundreds of young sheep pine and die during the subsequent winter.

During hot, dry weather, the dairyman has his special difficulties to contend with. The cows, instead of eating as much as usual, lie lazily in the shade, or worse still, gallop about, tormented with flies. A sponging over in the morning with a weak solution of carbolic acid, is recommended to abate this nuisance of the flies. In very hot weather milking cows are much better kept in the house during the day, and only grazed at night. A little beanmeal or cake, with some cut food twice daily, will sustain the condition of the herd, and the yield of the milk. In thundery weather the milk is liable soon to get turned, and within twenty-four hours, or better still, in twelve hours, it should be disposed of, skimmed, or set aside for calves or pigs. Ten grains of sulphate of soda, if mixed with each gallon of milk whenever it is brought in from the cow, will greatly retard fermentation.

Lambs after weaning will require for some weeks great care alike in feeding; and in general management. It is better to take the ewes from the lambs than to move the lambs from the ewes, as is often done. Accustomed to their grazing, their water supply, and other surroundings, the young lambs sooner become reconciled to the separation from their mothers. If they are not already receiving any artificial food, three or four ounces of linseed cake will greatly help thriving, and ward off disease. They should be "run thin;" when put in a fresh field, they should be daily driven to the watering place; little time should be lost in having them dipped, and before the middle of September they should be on roots.—*North British Agriculturist.*

Sheep Combing.

The new system introduced into Australia has enabled those that first followed it to obtain from 9d. to 2s. per fleece more for the clip than they formerly did. The sheep are collected into a long, narrow pen, and when standing close together water from a hose is spouted all over their backs; after this has damped the outside of the fleece, they are advanced forward gradually to a vat filled with water, about the temperature of 70 degs., into which some soda has been put. They swim across this, and are led into a narrow passage from 10 to 20 yards in length and 2 or three feet wide and 3 feet deep, and walk up a gangway, and collect in another pen, whence they are taken to the spouts, which consist of a stream of water about the length of the sheep falling in a sheet about one inch thick. They are held a minute or two under this, being turned all round, and then sent up another gangway to the dripping yard. The wool, when thus washed, is beautiful and bright, and neither harsh nor feeble to the touch. This country has great advantage over Australia as to spout washing, for in a flat country steam or other power is required to raise the water; but here, especially in the pastoral districts, by damming up a burn the requisite fall can be had, and where it cannot, the travelling threshing engine could be taken advantage of, and those who own these could purchase pumps, tanks, &c., and heat the water from the boilers for soaking with, as well as raising that required for spouting.—*James Melvin, Bonnington, Ratho, in London Farmer's Journal.*

CHALLENGE COLT.—Mr. George Addison, of Vaughan, sends us the following communication:—"Mr. Henry Russell, of Etobicoke, has purchased a colt from Mr. George Addison for one hundred and ten dollars. This colt was sired by 'Old Hard Fortune,' and its dam is the celebrated mare, 'May Flower,' and it is now only eight weeks old. It is pronounced by experienced judges to possess the finest points of any colt in Canada. It is Mr. Russell's intention to exhibit this colt at the principal exhibitions and fairs in the Province, so that owners of other colts may have a chance of testing whether it really is the 'best colt in Canada.'"

CRUELTY TO HORSES.—A correspondent of the *Norfolk Chronicle* has addressed the following observations on the use of the bearing rein, to the editor of that journal:—"Amongst those who have the care of horses, few appear to be aware of the pain they inflict on this useful animal by the injudicious use of the bearing-rein. Let any person place his head in the easiest position he chooses, and then have it strapped there two or three hours, he will then have a little experience of the pain the bearing-rein inflicts. Instead, however, of the easiest, let his head be forced into an unusual position and fixed there several hours, the sufferings of the horse from such restraint will be strongly impressed upon him. The pain thus caused is not the only evil. The horse is unable to act freely, he is prevented throwing his weight into the collar, and forced to draw by his muscle what he would do more easily by his weight. Horses not so confined draw greater weights more readily. The reason is evident. At many of the railways horses are worked without bearing-rein or blinders. Observe the heavy loads they draw, and the manner they throw their weight into the collar. Few persons who have witnessed the working of these horses will dispute the worthlessness of the bearing-rein, except for injury. There are other objections to its use. It spoils the horse's mouth, and often his temper, causing uneasiness and fretfulness, as may be noticed by roting at the mouth, and expression of the eye. It is painful to witness this noble animal subject to needless torture, and I hope the subject may attract the notice of those who are owners, as well as others who have the care of horses:

Veterinary Department.

Diseases of the Horse's Foot.

In a former number we mentioned that during spring and the hot months of summer injuries and diseases of the horse's foot are very common indeed. As a consequence of fast driving and overheating, the sensitive lamina frequently becomes inflamed, and gives rise to very alarming and painful symptoms. The horse is suddenly attacked, he suffers extreme pain, and when forced to move he does so with the greatest reluctance; he stands with his forefeet placed well forwards, and he brings his hind legs well under his body, so as to take the weight off the front feet; and from the position in which he places himself for relief the casual observer is apt to think that the loins are the seat of the disease; whereas the complaint is entirely in his front feet. The pulse is quickened, and in many cases the breathing is heavy and laboured; there is increased heat around the coronet, and the arteries going to the foot will be found to be throbbing violently. When made to back, the horse pulls his fore feet along the ground, and endeavours to throw the greater part of his weight upon his hind-quarters. Those urgent symptoms require immediate treatment, for if relief is not afforded in three or four days from the commencement of the attack, the disease is apt to terminate in permanent lameness. The shoes should be removed without delay and the feet enveloped in large poultices of bran or linseed meal; wet bandages should also be applied to the legs as high as the knee-joint; the horse should be placed in a loose box or roomy stall, and allowed plenty of clean bedding, as the more he lies the more favorable it is for his complaint. A plentiful allowance of bedding will prevent chafing of the loins and sides, during the hot weather. He should also have a moderate dose of purgative medicine, and if the fever is great, ten drops of the tincture of aconite, every three or four hours, will afford relief. When the stiffness disappears and the horse walks freely, the shoes should be re-applied, and he may be kept standing in moistened clay for three or four hours daily.

As another result of extreme heat, a solution of continuity between some of the fibres of the hoof is a frequent occurrence, and this is known as sand-crack, and so called because it is said to be most common amongst horses raised in hot sandy districts, the heat of which tends to give the feet a predisposition to this disease. Sand-crack is oftener met with in the fore feet than in the hind ones, and in the former the crack is usually situated in the quarters, whilst in the latter it generally occurs in the front of the hoof. In either case the crack may completely penetrate the thickness of the hoof, and as a consequence the sensitive parts underneath are injured and the affection becomes very painful, and of course gives rise to extreme lameness. The crack may extend from the coronet to the sole, or it may be confined to one-half of the wall. Sand-crack is very easily detected. At first a small crack will appear at the coronet, and will gradually extend downwards, becoming larger and larger, and frequently, after rapid exercise, blood will be noticed oozing through the crack, and there is considerable motion between the divided edges when the foot comes on the ground, thus setting up irritation, and frequently matter will form, which if not allowed to escape, will give rise to quitta. A complete crack in the hoof will not re-unite; but the new formed horn must grow from the coronet. In the treatment of this ailment, the shoe should be removed, and the divided edges pared. If matter has formed it must be allowed a free exit, and a poultice of linseed meal should be applied. When all irritation is removed, apply a shoe, so as not to press upon the affected quarter, and therefore, in many instances a bar shoe is most suitable. The growth of horn is also hastened by the application of a blister on the coronet, above the injured part.

The Dairy.

Manufacture of Whey Butter.

A recent number of the *Utica Weekly Herald* contains an account from the pen of Mr. X. A. Willard of a visit paid by that gentleman to a cheese factory in Lewis County, N. Y., where butter is made from whey by a method known as the "Riggs and Markham process." The factory in question is carried on by Mr. Homer C. Markham; works up the milk of 250 cows, (about 5,000 lbs daily,) turns out some 560 lbs. of cheese per day, and manufactures from the whey sixteen pounds of butter daily. Of this butter, Mr. Willard, no mean judge, says, that it is a decidedly good article, not equal indeed to first-class Orange County butter, but a marketable article, better in flavour than half the cream butter found on hotel tables, so excellent indeed that nobody would suspect it of being made from whey. In reference to the quantity obtained, Mr. W. remarks that the cheese-making at Mr. Markham's factory is most careful and thorough, so that it is only fair to conclude that the whey is of poorer quality than what is usually obtained at factories. The following is a detail of the method by which the butter is made at this factory:

"The whey is drawn directly from the cheese vat into the heating vat, which stands in an adjoining apartment and below the cheese vat, so as to allow the whey to be readily run from one vat to the other. The heating vat has a copper bottom, and is placed over a brick arch. It is preferred that the whey be drawn sweet. Then, for every fifty gallons of the sweet whey, one gallon of sour whey is added. If the acid is not sharp, one pound of salt is incorporated with it. Heat is then immediately applied to the mass until it indicates a temperature of 175° to 180°. When the cream rises, it is skimmed off and set in a cool place and left to stand till next day. It is then churned at a temperature of from 56° to 68°, according to the temperature of the weather, and is then worked and salted in the ordinary manner of butter making. Usually, under this process, five hundred gallons of whey will make twenty pounds of butter. On the day of our visit to the Markham factory, no acid was added to the whey, but a little salt added to the mass when the temperature had reached 160°. When the thermometer indicated 170°, the cream commenced rising, and was soon thrown up, and Mr. Markham commenced skimming off soon after the cream commenced rising, or before it became thick and hard. He dipped with a broad, square tin shovel with a short handle, dipping down into the whey and removing a portion of it with the cream. He dipped into a large pail, and when full emptied into a large milk can having a faucet at the bottom, and which stood in one corner of the room. This can was nearly or quite filled with the cream and whey. Mr. M. lets it remain in the can to cool off, and the next morning, just before churning, the faucet is opened at the bottom, and the whey which has separated from the cream drawn off. The cream is then taken out and put into the churn, and churned by dog-power. Mr. Markham's factory is a model of neatness, and both the whey and cream are kept clean and free from specks. The butter, therefore, contains no more impurities than the cheese."

The manufacturer claims that his butter, if properly stored in a good, sweet cellar, will keep for a long time. Mr. Willard, while doubtful as to its keeping qualities, justly observes that if it will keep long enough for present use and for this purpose is equal to the great bulk of butter made for the table, it would be a vast saving of money to dairymen if this process could be generally introduced.

"On the assumption that the whey from 250 cows gives fifteen pounds of butter per day, a factory of 1,000 cows would turn off sixty-four pounds of butter, while the cost of apparatus and making for the large number of cows would be but a trifle more than the smaller number. Sixty-four pounds of butter, say at an average of thirty cents, per pound, would amount to \$19.20 per day, and if only four months be taken, say from the 20th of May to the 20th of September, or 120 days, we have \$2,304 for a single factory."

As to the value of the whey for feeding purposes, after being deprived of its oil, the cooked state of the whey is thought to go far toward counterbalancing the loss of the oil. Mr. Markham believes it does

more, and says that his experiments in feeding hogs on each kind of whey prove this. Be this as it may, it certainly will not pay to feed hogs with butter at the present market price of the article. An equal weight of bran substituted for the butter, would certainly make the whey more nutritive than with the butter left in it. As to the labour and cost of manufacturing butter from whey, Mr. Willard says:

"The apparatus is very simple and inexpensive—a vat with copper bottom over a brick arch would be the main outlay. For a large number of cows we presume some extra labor would be needed, but such additional labor, with proper conveniences, can not be much. At Mr. Markham's factory, Mr. M. has but one assistant—a girl. They two do all the work about the factory, manufacturing both the cheese and butter. Fuel, too, is required. Of the amount some estimate may be made from the quantity used by Mr. M., a cord of 18 inch wood (hemlock slab) lasting eight days. We could not see that the labor of extracting the cream was of much account. The whey runs from the cheese vat to the heating vat simply by arranging the pipes; a little fuel is thrown under the heating vat and the cream skimmed off. It can all be done by those attending the cheese vats. How much additional labor will be required to churn and pack the butter, dairymen generally can estimate. The cream, we were informed, readily churned into butter. Occasionally, if gathering the butter is delayed, it is readily obviated by using warm water in the churn, say at a temperature of blood heat."

We have transferred to our columns the leading points in reference to the process of making butter from whey, and we commend the matter to the attention of Canadian dairymen. Further particulars may doubtless be had by addressing Messrs. Riggs and Markham, Turin, N. Y.

Hunting for the Cows.

MANY of our farmers have wasted years of valuable time just because they did not teach their cows to come home at night. Any one who has ever lived or travelled in the country will remember the familiar "Co-bos," "Co-bos," of the farmer's son, or hired man, as they endeavour to coax the cow from the woods or the tall grass in the great pasture. We have had a little experience in these matters, and well remember how many times we have waded through the brush and bogs looking for the cows, and boylike, we thought them dreadful contrary animals. But we have lived long enough to learn better, and now think that the biped was the more contrary animal of the two. Boys, we will tell you a secret that will save you a great deal of trouble, and it is this: Just sow a few rows of corn in drills, where it will be handy to the milking place, and every time the cows are driven up at night, or in the morning, give each one a good armful of the fresh cut cornstalks, and our word for it the cows will always be on hand at milking time. Besides this, they will give more milk, and forget to kick over the milk pail, even if you do whistle a little too loud.—*Weekly Sun.*

MILK FROM A CALF.—I have an Alderney heifer, eleven months old, that I accidentally discovered, a week ago, had milk. I have drawn it daily since, and the quantity increases. Can any of your subscribers inform me if there is anything very strange about this, or whether it will be any injury to continue to milk her?—*S. A. J. in Co. Gent.*

HONESTY.—A boy, whose honesty is more to be commended than his ingenuity, once carried some butter to a merchant in a country village to exchange for goods. The butter had a very beautiful appearance, and the merchant, desirous of procuring such for his own use, invited the boy to bring him all the butter his mother had to spare. "I think," said the boy, "she can't spare any more, for she said she would not have spared this only a rat fell into the cream, and she did not like to use it herself."

COLLETT'S ANTISEPTIC.—The attention of cheese-makers and others is directed to Mr. Collett's advertisement in the present issue. We believe that the rennets which he supplies are of first-class quality. We have also a high opinion of the antiseptic preparation that he advertises. Practical experience and chemical testimony concur in commending its use for a variety of purposes besides that mentioned in the advertisement. It has been successfully used in preserving meat fesh, both in this country and in England.

The Apiary.

Management of Frame Hives.

Now that movable-comb or frame hives are being extensively introduced, it may be well to give a few hints respecting the management of bees in such hives. Frames are put in hives in order that the bees may build their combs in them, so that the combs may be removed at pleasure. Now, it is thought by some that all that is necessary to do is to put the bees in the hive, and pay no further attention to them until they wish to remove the combs, when they expect to find them nicely filled in the frames, touching each other at no point, and as easily removed as the frames would be if empty. Such persons are sure to be disappointed. On opening the hive they not only find the combs attached to each other by bars, often appearing like a solid mass, but even some of the combs built across from one frame to another. Now, it should be remembered that no hive, can be constructed that in every case will ensure combs built exactly straight in the frames without any attention on the part of the bee-keeper. But with a well-constructed frame hive and proper management, straight combs may always be secured. In the first place, before the bees are put into a frame hive, the hive should be examined, and all the frames properly adjusted on their bearings: the bees may then be put in and the hive placed on its stand, which should be level, so that the hive will not lean to either side; but the hive may lean to the front or rear, as that will not cause the bees to build crooked. In four or five days after a swarm has been put into the hive it should be examined, and if there is then any inclination to build crooked, it can then be remedied by simply raising the frame and pushing the comb back to its place. In this way straight combs may be had in every hive. When it is found necessary to examine a stock and remove the frames, the bees should first be smoked a little, driving them down from the top to the centre of the hive. Then all bars that connect the combs should be cut away. There is no amount of honey in the bars, they being put there simply to strengthen the combs. When these are once removed, there is no longer any difficulty in removing the frames, which should at first be raised gently from their bearings and moved close together until sufficient room is given to remove a card of comb without crushing the bees. Too much should not be expected from the bees, but we should be more than satisfied if, with a little attention on our part, and the use of a frame hive, they may be caused to construct their combs in such a manner that they may be lifted out with so little difficulty. That the cards of comb may be separated, and removed from the hive at all, is a wonder, but by attending to the above hints every card from any number of hives may be removed, examined, and replaced at pleasure, giving perfect control over the bees and their combs.

SURPLUS HONEY.—A subscriber sends the following queries:—

"Will you or some of your correspondents, experienced in the matter, please answer through the CANADA FARMER the following questions:

"How long, after putting a young swarm of bees into a hive, should it be before I put in the surplus boxes; or should they be put in when the bees are?"

"When is the best time to remove bees from one hive to another, taking care that they shall have time to gather honey sufficient for their winter's use?"

ANS.—The surplus boxes may be put in a hive three or four days after the swarm has been put in; but never immediately after the transfer unless there are already combs in the body of the hive, in which case they may be put in at once.

Bees may be removed from one hive to another at any time after fruit blossoms appear, either before or after swarming. Generally the earlier it is done the better after the honey harvest commences.



Report on the Philadelphia Raspberry.

OF THE DIRECTORS OF THE FRUIT GROWER'S ASSOCIATION OF ONTARIO.

It is now four years that the writer has had this Raspberry in bearing, and has in that time grown it with most, if not all, of the leading sorts of Raspberries, and carefully compared it with them as to vigor of growth, hardiness or ability to endure the cold of our winters and the heat of our summers, productiveness, size of berry, and flavor. After such a test and comparison there seems to be a propriety in giving the opinions and conclusions that have been formed with regard to this fruit to the public in the form of a report to the Fruit Grower's Association.

Among all the Raspberries generally known or cultivated, the common Black Raspberry, or as it is sometimes called, the Black Cap, so universally to be found in neglected clearings and fence corners, is the most hardy sort we have, withstanding perfectly our coldest winters, and enduring the heat and drouth of our summers. But this berry, with all its good qualities, still lacks the size and juiciness of the Antwerp class, while the Antwerp, though yielding large and juicy berries, could not withstand the cold of our winters without protection, and suffered off a very severely during the trying heat and drouth of our summers. A Raspberry that should combine the powers of endurance possessed by the Black Cap, and yield a fruit as large, juicy and high flavored as the Antwerp, was and is a great desideratum. The writer procured the Philadelphia under the assurance that it did combine these qualities in a good degree, and it is the purpose of this Report to show how far this variety may lay claim to such great excellence.

In flavor it is not equal to most of the Antwerp class. The Brinckle's Orange stands at the head of all the raspberries growing in these grounds for richness and delicacy of flavor, and Franconia, Hornet, Imperial and Naomi all take precedence, in the writer's estimation, of the Philadelphia in point of flavor, not that there is anything unpleasant in the latter variety, but it lacks the richness of the others.

It is much more pulpy and juicy than the Black Cap, and in this respect is a decided advance on that variety, yet not quite as juicy as the other varieties above mentioned.

It is also larger than the Black Cap, considerably larger, yet not equal in size to the Franconia, and much shorter of the great Hornet.

In productiveness it far exceeds any of the sorts mentioned in this report, and is in this respect far superior to any variety that has been cultivated here. Indeed the load of fruit is quite surprising, and were it not that the canes are more stout than most varieties produce, the burden of fruit would drag upon the ground. In abundance of fruit it is (as was stated by Mr. Arnold, of Paris, at the last meeting of the Association) among the raspberries what the Wilson is among strawberries, head and shoulders above its fellows.

The test of five winters leads the writer to believe that the Philadelphia is perfectly hardy, as hardy as our native Black Cap. It has not killed back at all in some winters, and in others only the extreme tips have suffered. The blossoms are not injured, but come out along the whole length of the cane, hence the very abundant crop it produces every year.

It also endures perfectly the heat and drouth of summer, growing luxuriantly and perfectly its fruit much better than the Franconia. Not that in such an extreme drouth as has prevailed in this vicinity for the past five weeks it perfect every berry, or shows no lack of moisture, or that in hard or nearly sterile soils it will not flag under such intense heat and continued drouth; but in the same row with the Franconia, in the same soil and receiving the same treatment, it suffers less from heat and drouth, and brings to perfection a heavier crop.

The habit of growth is unusually vigorous, stout, and upright, enabling the plant to sustain its enormous crop; the foliage is deep-colored and heavy, and thus far there has no disease or symptom of disease appeared.

The conclusion to which we are carried by these experiments and comparisons is, that in the Philadelphia we have a raspberry that leaves nothing to be desired in health of natural constitution, in hardiness to withstand the cold of winter or the heat of summer, nor in immense productiveness. On the other hand, it does not possess all that we could desire in flavor nor in size of fruit.

Here is opened a field that needs at once to be cultivated by the careful hybridizer. With a mother so hardy and productive as the Philadelphia, what may be not hope to attain by crossing with the Brinckle's Orange for flavor, or with the Hornet for size? He who will add to the perfect hardiness and abundant fruitfulness of the Philadelphia, the size of the Hornet and the flavor of Brinckle's Orange, should receive a gold medal from the Association, and the lasting gratitude of his countrymen.

Meanwhile we must not do without our raspberries, and until such a happy combination is achieved, we can do nothing better than recommend every one to give the Philadelphia a trial.

Your most obedient servant,

D. W. BEADLE.

St. Catharines, 22nd July, 1868.

Failure of Young Orchard Trees.

To the Editor of THE CANADA FARMER.

SIR:—I have noticed recently considerable failure among young fruit trees (the apple in particular), of two, three and four years' growth. As I own quite a number of different varieties, and from fifty to two hundred and fifty of each kind, my experience may be interesting as showing which are the hardy, which the tender varieties. The Baldwin seems to suffer most with me, the greatest part of them being dead to the bottom of the stem, while in some few the tops are entire, and others have escaped with the loss of a few branches.

The Rhode Island Greening comes next. A few have passed the season with the loss of the tops, and others with loss of last year's growth, but the greater part are doing well. I have lost others from the bark splitting from the ground from six to nine inches up the stem. This occurred early in the fall, as I supposed from too rapid growth. I should like to know if there is any means of preventing this. I have observed it before in trees of the same age, but with less fatal effect. It generally happens about the second year after planting, when they have begun to grow well.

Other varieties have been affected, but not to such an extent as the Rhode Island Greening and Baldwins. I shall try and send you a correct list of the loss on the different varieties as soon as I can get time. Pears have been damaged by the frozen sap blight. I have over one hundred dwarfs and standards, from four to six years old. In many cases I had to cut within one foot of the ground in order to get sound wood, and to remove a good many branches off others. Plums seemed to promise well, but now some trees shows signs of girdling, out, the stem getting dead first, others losing half of the tops. Out of about fifty trees there are only about six healthy, and the plums on all of them are shrivelled, on the branches and dropping off from the excessive heat and dry season, although the trees were early mulched.

There was a good show of blossom on all fruit trees, but what was formed is now dropping off. I have older planted apple trees of the same varieties as those above mentioned that have stood well. The complaints are general respecting the young orchards here. I should like to know if in other parts of the Dominion the young orchards have been similarly affected. I may mention that we have had one of the coldest winters on record; an early break up in spring, cold weather again setting in. The fall was late, and exceedingly fine.

I have this spring destroyed the gooseberry caterpillar by mixing two dippers full of oil soap and one of air-slaked lime in a pailful of water, and thoroughly drenching the bushes with it, the leaves and ground remaining white with the lime. The variety on which I operated was the Houghton.

J. M. L.

Owen Sound, July 20th, 1868.

Toronto Electoral Division Society's Show.

THE Summer exhibition of the Toronto Electoral Division Society was held on Thursday, 16th ult., in the Horticultural Gardens. The grounds, as usual at this season of the year, presented their varied attractions of foliage and flowers. The exhibition of Horticultural products, was laid out in a spacious tent at the northern part of the grounds. We are sorry to confess that the display altogether very much disappointed us; and it is a cause of much regret that the praiseworthy efforts of the Society to produce a love of horticulture are not more generally seconded by the gardeners and amateurs of Toronto and the neighbourhood. But for the liberality and generous interest taken in the institution by a few gentlemen in the neighbourhood, the show would have been meagre indeed. As it was, it owed its principal attraction to some fine collections of stove and greenhouse plants contributed by Hon. D. L. Macpherson, C. S. Gzowski, Esq., Judge Morrison, F. C. Chisholm, Esq., and one or two others. The number of exhibitors was remarkably few, and the prizes were distributed among only nine or ten persons altogether. A horticultural show in such a city as Toronto ought certainly to be very differently supported. The scarcity of exhibitors does not, however, in the least detract from the merits of those who competed, and who enriched the collection with some very beautiful specimens.

The centre of the tent was occupied by a long table, on which were displayed a very fine collection of stove and greenhouse plants, among which were very beautiful fuchsias exhibited by F. C. Chisholm, Esq. The same gentleman showed also on this table some fine black Hamburg and Chasselas de Fontaineau grapes growing in pots, and well loaded with rich-looking clusters of fruit. Conspicuous in this collection were a number of foliage plants and ferns, native and foreign, shown by C. S. Gzowski, Esq., Judge Morrison and Hon. D. L. Macpherson had also a variety of beautiful greenhouse plants on this centre table. Ranged on each side upon the ground, were some palms and fruit trees grown in tubs, the latter bearing well, and all looking remarkably healthy. These were chiefly furnished by Mr. Gzowski. The remaining flowers were displayed on a table along one side of the tent, the table on the opposite side being occupied, very sparingly however, with specimens of garden vegetables.

Among the flowers we noticed specially a plant of Yucca Filamenta flowering very handsomely and profusely, shown by Mr. James Fleming; also a variety of cut flowers, some very fine, some good hand and table bouquets, and a few beautiful baskets of flowers.

There was a small display of fruits—among them some fine grapes shown by Mr. Chisholm; peaches and other greenhouse fruit grown by Hon. D. L. Macpherson and C. S. Gzowski, Esq. Mr. Leslie showed some good cherries of the following varieties—Cleveland Biggareau, Belle de Choisey, Guigne Noir, Lincante, Napoleon Biggareau, Elton and Black Eagle. The same gentleman showed a few strawberries of the Agriculturist and Jacunda varieties, but these were past their prime. There were also, notwithstanding the dry season, a few plates of large raspberries, and none finer than those of Mr. Edwards, the Secretary. Judge Morrison and Hon. D. L. Macpherson showed some very fine currants.

Of the display of vegetables we cannot say much. We only trust that the exhibition in this department was no indication of the general produce throughout the country.

The judges were Messrs. Charles Weston, David Murray and Edwin Townsend, all of Hamilton.



Alsike Clover.

To the Editor of THE CANADA FARMER

Sir, It has been said by some that the Alsike Clover would not do well in Canada, that after the first year it would die out and fail to produce an abundant crop. That such is not the case, however, the sample I now send you will fully prove. It was grown by my brother, H. M. Thomas, of Brooklin, Ontario, and was taken from the same field that last year produced eight bushels of seed to the acre, this being the third year's growth. The whole field is a swamp of clover, and a perfect wave of flowers. It has been in full bloom for four weeks, and will continue for at least a week longer. It is abundant in honey, and a perfect cloud of bees visit it every day. For two weeks past the weather has been so dry that other flowers have secreted but little honey. Even white clover has failed to secrete its usual abundance, but my brother's bees have continued gathering large supplies from the Alsike Clover, and storing large quantities of surplus honey. I would urge the growing of this clover as being one of the best honey-producing plants, while at the same time it is more productive as a hay crop than red clover, and better calculated for winter feed for cattle. Light or ten acres will be found sufficient pasturage for forty or fifty stocks of bees, and will well repay the trouble of growing it. H. M. Thomas will again have plenty of the pure seed for sale, which will be advertised in proper time.

J. H. THOMAS

Brooklin, July.

NOTE BY ED. C. F.—The sample of Alsike Clover accompanying the above communication, exhibits certainly a most luxuriant growth; some of the stalks even now, though somewhat shrank, measure nearly five feet in length, and the average of the bundle is four feet nine or ten inches; which, especially considering the recent dry weather, is sufficient evidence that this plant is at home in the locality. Mr. Thomas's continued success in the cultivation of this crop, and the favorable account which others also give in reference to their own experience with it, should induce Canadian farmers generally to give it a trial.

Fine Sample of Wheat.

We have received from Mr. Samuel Berriman, of Stamford, a splendid-looking sample of Soule's Wheat, the heads being fully six inches long and the stalks six feet. The date of the letter which accompanies the specimen is July 7th, and from the shrunken condition of the grain we judge it was gathered very green. We cannot therefore say how the yield would prove when ripe, but subjoin Mr. Berriman's account though we fear he will be greatly disappointed. "The sample," he says, "was grown in a light sandy soil, on the highest point of the mountain here, and distant about three miles from Niagara Falls and the Suspension Bridge. The subsoil is gravel, over one hundred feet deep. The yield cannot fall short of forty bushels to the acre.

"I have grown this description of wheat for sixteen years, regardless of midge, and with one solitary exception have done better than with any of the rough wheats, such as Midge-proof and Mediterranean.

"One acre of White Wheat is worth nearly two acres of red—in this way, supposing two acres in one field, the condition being the same in every respect, the one red, and the other white, both apparently equally good, if the red yield twenty bushels, the white will yield thirty. Now as to the price: if the red be worth \$1 30 the white will bring \$1 75. The straw also from the white is worth more than the red."

Bent Grass.

To the Editor of THE CANADA FARMER.

Sir, I send you herewith a living specimen of a grass that grows somewhat abundantly in this city. It is the *Agrostis Alba* or *stolonifera* of botanists, and is known in common parlance as white bent-grass, or forin grass.

Unlike its congener, *Agrostis vulgaris* (red-top), it is not suitable for a hay crop, but it is one of the most valuable of known grasses for pasture, on heavy clay soils, or clay loams in moist situations, and when cultivated in such will surely double their productiveness. It will also prove very valuable to the landscape gardener in this country, for lawns and parks; in kind, when cut short and well trimmed, a thick green carpet with a soft nap.

As grass may be considered the basis of the farmer's wealth, I have sent you this specimen that some of your agricultural visitors may see it, and may possibly send other specimens to the exhibition at Hamilton.

A. KIRKWOOD.

Toronto, 22nd July, 1868.

SHEEP TICKS.—A correspondent writes:—"Have you used with success, and do you confidently recommend Miller's Tick Destroyer? This spring we used tobacco water for our sheep; whether we used too strong or not I do not know, but several of the lambs were found dead a few days after."

NOTE BY ED. C. F.—We have used and can recommend Mr. Miller's Tick Destroyer as an efficient remedy for sheep ticks. Tobacco requires to be used with the greatest caution. The writer adds a note respecting a weed which has been very prolific in his neighbourhood. The name is not clearly written. If he will send a specimen we can most likely tell him something about it.

The Canada Farmer.

TORONTO CANADA AUGUST 1 1868.

The Season.

In our last editorial on the weather and crop, (opened July 30, we chronicled "recent heat and drought." Since then the conditions have continued with augmented intensity, so that at this writing (July 28), every green thing is well nigh dried up. It seems hardly credible that so great a change can have taken place in so short a time. Yet so it is, adding another to our many lessons concerning the mutability of earthly things, and the uncertainties that beset the farmer's calling. Spring grain and root crops have suffered very severely, but it is matter for congratulation that the hay, and fall wheat especially, being too early to be injured by the heat and drought. It remains to be seen how far the remainder of the season may repair damages, but at present all nature has a scathed appearance which tells but too plainly of the fiery ordeal through which it has passed. Nothing shows the severity of that ordeal more convincingly than the state of recently transplanted trees. The early part of the season was a most favourable one for tree planting, and there were scarce any failures. Now, however, it is widely different. There has been great mortality in new plantations, nor are there wanting instances in which old established trees have succumbed. Liberal mulching has proved the only successful protection. Where this has been practised, life and growth have been maintained with very few exceptions. Heat seems to agree with insect life. The plague of flies has been worse than usual. Grasshoppers have been very numerous. The Cicadas have made merry all through the hottest days. Gardens and orchards have suffered greatly from insect pests. "The little busy bee," however, is an exception. It has found the heat unbearable, and has done little for days together, but fan itself, like a "nothing-to-do" lady.

Emigration Documents and Arrangements.

We have before us the "Return" to an address of date 7th May, 1868, by the Senate of the Dominion Parliament for all the correspondence which has taken place from the first of January last to the date of the address, between the Minister of Agriculture and the various emigration agents in all parts of the Dominion, as also in any parts of Europe bearing upon the probable extent of immigration to be expected in 1868, and the arrangements made to meet and encourage said immigration; and the first report of the standing committee on immigration and colonization.

A very considerable number of the letters given in the "Return" are of very little general interest, referring as they do principally to estimates of the probable expense of each agency during the current season, with instructions on the part of the Bureau, that the plan of forwarding destitute immigrants from Quebec to their destinations would henceforth be discontinued, or at the very most that any allowance of the kind would only be made in very exceptional cases. Against the strict enforcement of this regulation the emigration agents urge some very strong objections.

It is somewhat difficult to strike the just medium in such a matter, for it is very manifest that the system of "forwarding" is liable to great abuses; and, as a matter of fact, we believe has been greatly abused. Sometimes this has been the case from persons presuming upon this arrangement, and being sent with means barely sufficient to land them destitute in Quebec, as it afterwards the Canadian Government would take all care and all expense, and treat such immigrants, and care and provide for them, as if they were children. Often also we believe this kindness has been abused by parties who had means, feigning poverty, in order to secure conveyance at Canadian expense. At the same time, to make anything like a very stringent regulation stopping all this, might sometimes inflict great injury upon very deserving and very suitable parties, and deprive the country of some excellent settlers. It would be likely also to levy an extra tax upon the landing places, and possibly to divert a good deal of the immigration from the St. Lawrence altogether; for, as the agents urge, it is not to be forgotten that, after all, the capitation tax levied on each emigrant more than meets all the forwarding outlay, and even those who land without any intention of remaining in Canada, benefit the railways to a very considerable extent, and expend a good deal for provisions as well; so that it would be a matter of regret if anything should arise to stop the course even of that immigration by the St. Lawrence from which our country derives the least benefit. We must acknowledge, at the same time, that we can see very little occasion for such excessive liberality as has been exhibited when parties have been "passed" through from Quebec to Chicago at Canadian expense. Let it be clearly understood that those who come to Canada must come prepared to work at the very earliest opportunity, and at whatever comes readiest to land, and that all that can in reason be expected is that they be helped to the nearest place where their labour can be made available, after which they must look to themselves for providing the means to take them "further west." Thousands and tens of thousands have found Canada a "good land;" but these chiefly have benefited by it who have most fully believed in self-reliance and self-help. The Government can do a good deal, and it ought; but it is not to be expected that it should do everything.

From the correspondence we do not learn that anything has been done during the winter of this year to ascertain what may be the wants of the country, and where may be the most likely places for immigrants finding employment and a home. From all that is here published one cannot learn that anything like systematic enquiry has been set on

foot, or that the local authorities in counties and townships have been at all communicated with.

Some requests were made by agents to be allowed to visit their districts and seek to ascertain by personal canvas how many immigrants might be likely to be absorbed in the various localities, and while these requests have not been absolutely refused they have been received in such a way, that nothing in the way indicated has been done. Even apart from personal visits, a great deal surely could be done by correspondence, if that were set about with something like heartiness and energy, but we are not told that this has ever been attempted. Even so early as the 6th of May, Mr. Donaldson, of Toronto, tells the Minister of Agriculture that the farmers around this city had been pretty well supplied with labourers, and suggests that a notice should be put into the journals inviting those at a distance to send in a statement of their wants; but we are not aware that such a notice has been to this day given in any paper in the western section, if indeed in any part of the Dominion. In short, with the exception of Miss Rye's female emigrants, which was not a Government undertaking at all, no attempt has been made to establish anything like a LABOUR EXCHANGE, or to bring those who wish to hire and those who wish to be hired into contact and communication with each other.

IN THE REPORT OF THE STANDING COMMITTEE, some rather interesting facts are given. The relation of the Dominion Government to the whole business of immigration is somewhat ill-defined and anomalous, inasmuch as the whole disposal of lands, minerals, &c., in each of the Provinces is entirely at the disposal of the local authorities. The first thing, accordingly, which the committee did was to issue a circular to the heads of the various Provincial Governments, asking their opinion on the point. To this circular, the answers of the Attorneys-General of Ontario and Nova Scotia are given, the latter, by the way, a production whose main object appears to be a display of the writer's dislike to confederation.

We are then informed of the SANITARY ARRANGEMENTS for the reception of immigrants at Quebec, St. John, New Brunswick, and Halifax. The Quarantine expenses at Quebec were in 1866, \$21,346 07. In New Brunswick for the same year, \$518 65. In Halifax the expense, which is not specified, has been met by a tonnage on vessels.

The AGENCIES AT WORK IN 1866 are next noticed. In that year the salaries paid to the local agents in the Province of Canada were as follows:—

Quebec.....	\$6,319.72
Montreal.....	1,500.00
Ottawa.....	800.00
Kingston.....	800.00
Toronto Agent and Assistant.....	1,817.00
Hamilton.....	780.00
Total,	\$12,016.72

The total expenditure in the Immigration Department for the year in the above mentioned province was as under:—

Quarantine Establishment.....	\$18,146.07
Inspecting Physicians.....	3,200.00
General Expenditure.....	7,148.81
Emigration, indirect relief.....	14,180.36
Contingencies of Agencies, Rents, Printing, &c.....	3,911.72
Salaries of Agents.....	12,016.72
Total,	\$58,603.68

Foreign immigrants during the same period paid to railway and forwarding companies for their inland transit alone over \$100,000, besides the outlay for provisions, &c.; while the amount of immigrant tax collected in Quebec and Montreal amounted to \$26,857, or nearly one-half of all the official expenditure on immigration.

In New Brunswick, there was in 1866 only one immigration agent, at an expense of about \$1,000. About 808 persons arrived during the year in that province, of whom about 450 became permanently resident.

In Nova Scotia there was also one immigration agent, at a salary of \$800. The number who came into Nova Scotia in the year specified was 932, of whom most of those who were agricultural labourers remained. The vote for 1867 was \$4,000.

In 1866, in Quebec and Ontario, 3,393 immigrants were assisted to their destinations, at an expenditure of \$14,180 36. What has been done in this way in New Brunswick and Nova Scotia cannot be ascertained, or at least is not given. A large portion of the report is taken up with a description of the terms on which lands can be acquired in the different Provinces, either by free grant or by purchase.

The system inaugurated at the beginning of the year in Ontario is described, and, with certain differences in detail, those of the other Provinces. We are glad to learn that the plan of Free Grants in this Province, though far less liberal than it ought to have been, is likely to have considerable success. It is mentioned that the Assistant Commissioner of Crown Lands for Ontario has sometimes had as many as 300 applications in a single day. The conclusions at which the committee arrived, and the recommendations they suggest to Parliament, are given in the following extract. Mr. Dixon, the agent in England, it will be observed, is blamed for sending out persons quite unsuitable for the country, though the evidence in support of this is not very convincing. It is recommended that his agency be suppressed, and in short that the whole system be reorganized, as it very much needs to be.

"The system," says the Committee, "which has been in existence for furthering and aiding immigration to Canada, has not been productive of satisfactory results, neither is it, in the opinion of your Committee, adapted to be so under the law which has placed the public lands under the control of the Provincial Legislatures.

"In order to avoid a conflict of authority, and to secure the efficiency of any general immigration scheme, it is necessary that there should be an understanding, and, consequently, co-operative action between the General and Provincial Legislatures. In the meantime, and before any such concurrent action can be agreed upon, your committee recommend that such care and assistance be extended to emigrants arriving seaward as may be necessary.

"Your committee recommend a discontinuance of the agency at Wolverhampton, in England, and such a reduction of the staff at Quebec, Toronto, and other agencies, as can be made consistently with the recommendation in the preceding paragraph, with a view to the early reorganization of these agencies.

"As the success of the emigrant depends greatly upon his willingness and ability to adapt himself to the conditions to which alone success is to be expected, your committee suggest that great caution and circumspection should guide any public effort to induce persons to emigrate. While Canada offers health, prosperity, and freedom to the industrious labourer and mechanic, she cannot assume any responsibilities on behalf of persons whose occupations or habits have been unfavourable to self-reliance, or to the practical exercise of intelligent efforts.

"Your committee have received a number of letters containing suggestions on the subject of emigration, and offers, on the part of the writers, to place their services at the disposal of the Government, as writers or lecturers on the resources of Canada, in Europe. It is not incumbent upon your committee to express any opinion in reference to the suggestions themselves, or to the gentlemen by whom they are made; for, if the views to which your committee have given expression, in this report, are in accordance with those entertained by your Honourable House, it will be the obvious duty of the Government, in conjunction with the Provincial Governments, to adapt the agencies in Canada, and elsewhere, to existing circumstances.

"The prospective acquisition by Canada of the fertile lands in the valley of the Saskatchewan and its tributaries is, no doubt, interesting to thousands who purpose to migrate from the Parent Country to one of its dependencies. In the present state of the relations between the North-West Territory and Canada, no precise plan for its settlement can be recommended or even considered by your committee, but they submit that, without any unnecessary delay, as much of these lands as are fitted for agricultural purposes should be made accessible, through the British territory, and offered on such terms as will be attractive to a class of settlers who desire to enjoy the fruits of their industry under the security of British laws and institutions.

"Coincident with the construction of the Intercolonial Railway a large quantity of land hitherto inaccessible will be available for settlement. During its progress the labourer will earn the means of sustaining himself in the early stages of his settlement. The chief drawback to settlement hitherto has been the difficulty of obtaining employment at a convenient distance, and then of conveying produce to market over a long line of almost impassable road. On the line, and within the influence of the Intercolonial Railroad, these difficulties will not exist; therefore your committee urge upon the Government of the Dominion the necessity of co-operating with the Provincial Governments, through whose territory the road will pass, in the adoption of a well considered and liberal policy with regard to settlement.

"The Legislatures of Ontario, Quebec, and New Brunswick, respectively, have passed homestead exemption laws. The former has also devoted large tracts of land for the behoof of actual settlers, in free grants of one hundred acres each, with permission to purchase an additional one hundred acres at fifty cents an acre. Though these terms are not precisely similar to the Homestead Exemption and Free Grant system of the United States, they are presumed to be equally favourable. Your committee doubt not that the terms will be altered or modified, should it be found in the interest of settlement to do so. The new policy, so far, appears to be liberal and progressive, and may be held as justifying a claim for adjustment by persons in arrears to the Government, on account of purchased lands in the comparatively recent settlements, but which lands, for various reasons, are of little real value."

"The mode in which the mineral lands in the Dominion are to be disposed of, and the obligations imposed by the Governments, with regard to the manner of working these lands, will very much affect the number of mining immigrants, as well as the flow of capital necessary for the development of our mineral resources.

"The mode of disposing of these lands should be at once inviting and encouraging; therefore your committee desire to express the hope that the public policy in regard to them will be quite as liberal as that which appears to have succeeded in the United States. By the investment of capital in extracting the treasures of the mines, a consuming population necessarily follows, so that, besides giving value to that which has no value while hidden in the earth, a home market is opened for the produce and manufactures of the country."

Beet Root Sugar Making

THE *Mark Lane Express* of June 15th, 1868, contains an exhaustive paper on the beet sugar question, occupying nearly six columns, and written by the "Old Norfolk Farmer," a well known and able contributor to that influential journal. We cull a few particulars, bearing chiefly on the practicability and profit of beet sugar-making in Britain.

It would appear that there are two kinds of sugar possessing different characteristics and requiring different processes in their manufacture. The first and best of these is extracted from the cane, the Silesian beet-root, and the maple. The manufacture of sugar from these plants is purely a mechanical process. The second kind, termed "a factitious" sugar, is obtained from the grape and other ripe fruits, and starch or farina. To procure it, chemical agents and processes are necessary. The beet, therefore, ranks among the highest and best of the sources whence sugar is obtained.

Actual experiment has demonstrated that beets grown in Britain yield as large a proportion of saccharine material as those grown on the continent of Europe. The report of an investigation undertaken by Sir Robert Kane, director of the Museum of Irish Industry, and presented by order of Her Majesty to both Houses of Parliament, is most conclusive on this point. No fewer than 118 specimens of Irish-grown beet roots, from various localities, were carefully analyzed, when it was found that the quantity or percentage of sugar they contained ranged from 3½ to 14½, the low average being from large, and the high from small roots. It was also found that condition and quality of soil have much to do with the proportion of saccharine, but on all soils, the small roots yielded a larger proportion than the large ones. Comparison of the Irish beet with the Belgian beet shows that the former is fully equal to the latter.

Notwithstanding this fact, it is well known that while on the continent of Europe beet-sugar-making is a large and increasing interest, the attempts made in Britain to establish this branch of industry have proved failures. So far as England is concerned, three manufactories have been started, but were unable to make the thing pay, owing to the very heavy differential duty levied upon indigenous sugar. In other words, protection ruined them. The West India influence in the British Parliament was fatal to home industry. An effort to set going a similar establishment in Ireland also failed, from what cause or causes we are not informed, but it is distinctly stated that it was in no respect owing to the soil or climate not being adapted to the cultivation of the root. The French Government adopted a different line of policy, and protected the beet-sugar industry while in its infancy, by levying a duty on imported sugar. After a time a small tax was imposed on beet-sugar, which was gradually increased until in 1848 an equalization of the duty was effected, and the home-made sugar put upon the same footing as the imported article. Still the manufacture of beet-sugar progressed, being found highly profitable, until at length the French Government imposed a differential duty of five francs per cwt. on beet-sugar above that paid by the tropical sugar. So far from this branch of industry being annihilated or even injured by the governmental policy just described, it has steadily prospered, so much so that the product has more than doubled, as the following statement will show :

PRODUCE OF BEET-SUGAR MANUFACTURE IN FRANCE.

Year.	Tons.
1847-8.....	51,716
1850.....	100,000
1864-5.....	147,000
1865-6.....	{ 275,000 (a very fine season.) }
1866-7.....	215,000
1867-8.....	{ 210,000 to 215,- 000 expected. }

It thus appears that the beet-sugar manufacture, when once fostered into strength, is quite competent to hold its own against the tropical article, and even beat it in the contest. This would seem quite natural when it is considered that cane juice does not yield more than 10 or 12 per cent. of saccharine, that this must be expressed, boiled down, and finished for market in a very short space of time, rendering harvest labour costly, and that then there is a long, expensive, risky voyage to be encountered before the market is reached. A loss of 15 per cent. on the sugar and 20 per cent. on the molasses by drainage during the voyage must be counted on, as also the occasional bursting of a hogshead of sugar from fermentation, in which case there is total loss, as the scattered contents only sweeten the bilge-water in the vessel's hold.

Not in France only, but in the Continental States, beet-root-sugar making has become an established and growing industry, as the following statement will show :

QUANTITY OF BEET-SUGAR MADE IN GERMANY.

	Tons.
1864-5.....	170,000
1865-6.....	185,000
1866-7.....	200,000
1867-8 estimated at.....	165,000
AUSTRIA.	
1864-5.....	85,000
1865-6.....	70,000
1866-7.....	90,000
1867-8.....	95,000

Even in Russia the business is gaining a foothold. So long ago as 1856-7 nearly 7000 tons were made in that country. Returns of a more recent date are not given, but the manufacture of beet-sugar is constantly increasing; new and extensive works are springing up in every part of the country; and nearly enough is now produced to supply the whole population. In these countries the cultivation of beets has not interfered with any other branch of husbandry. No fewer cattle and no less wheat are raised than

formerly. In fact, wherever this branch of industry has been introduced the agriculturists have become wealthy.

The authority we are quoting strongly maintains that no reason exists why this manufacture should not succeed as well in the United Kingdom as on the Continent. He contends that the question rests, in point of fact, wholly with the agriculturists, whether it would pay them—not as well as wheat, for it must not for a moment be supposed that the cultivation of the sugar-beet would supersede that of wheat—but whether selling the roots would pay them as well as consuming them on the farm, or as growing common mangolds or turnips for the purpose. This question is pretty fully discussed, and the conclusion arrived at that it is for the farmer's interest to raise beets for the sugar market; that it will pay him as well if not better than the present system of root-growing and stock-feeding; that instead of impoverishing, it will enrich the soil, while it affords a living profit and something beyond; and that by feeding the residuum of the roots after the juice has been extracted, he can, with the addition of a portion of artificial food, fatten more stock than he now does. The last consideration adduced appears to be one of much importance. Beet pulp is about 30 per cent. of the entire weight, so that nearly one-third of the beet crop is available for feeding purposes after the juice has been taken out of it, and all this, be it remembered, or very nearly all of it, is solid food, and contains a small percentage of saccharine, it being found impossible to extract it all. On the Continent the sale of the residue is a regular part of the business of the manufacturer, though in some of the large establishments it is consumed on the premises, animals being bought and kept for the purpose.

If the above reasonings and conclusions are correct, and we see no reason to dispute them, they appear to show that the manufacture of beet-sugar is quite practicable, and tolerably sure to be remunerative in Britain; and if in Britain, the question very naturally arises, why not in Canada? The beet flourishes well in this country, and we believe is by no means deficient in the saccharine property, though we are not aware how far this point has been settled by chemical analysis. Until the appearance of the paper under notice, we did not know to what causes the failure of beet-sugar making in England was to be attributed. If the chief cause has been the West India monopoly and repressive taxation, of course it puts the questions of practicability and profit in a new light. We should greatly like to see this matter brought to a practical test. Of course this would involve the hazarding of some private or public capital; but success would open a new and important line of business that could not fail to be of great benefit to the public, while failure would set at rest a much agitated question, which only actual experiment can decide.

Value of a Railroad to the Farmer.

In several parts of the Dominion of Canada, railroads are being projected, and the agricultural communities through which they pass are asked to tax themselves towards the construction of such railways. People in general are averse to being taxed. They shrink from it with instinctive dislike, and deem that line of policy wise which keeps taxation down to the minimum point. But it is possible to indulge a shortsighted and unprofitable economy. We are by no means in favour of reckless railway building, nor do we counsel every farmer to try and get an iron track close to his own door. But the advantages of near access to market and cheap transportation of grain are very great. They benefit the farmer's pocket more than those who have only given the subject a cursory consideration are apt to think. The following, from an American journal, puts the subject in a striking, and as we believe, correct and truthful light:—

It is proper to bear in mind that the figures here given present only one of the many advantages that railroads bring. To haul 40 bushels of corn 50 miles on waggon would cost at least \$12 for team,

driver and expenses. A railroad would transport it for \$4 at most. Allowing an average of 40 bushels per acre, the crop would be worth \$3 more per acre, or 8 per cent. on \$100. As the relative advantage is about the same for other crops, it is clear that a railroad passing through a town would add \$100 per acre to the value of the farms. A town 10 miles square contains 64,000 acres. An increase of \$100 per acre is equal to \$6,400,000, or enough to build 200 miles of railroad, even if it cost \$32,000 per mile. But 200 miles of road would extend through 20 towns 10 miles square, and cost \$10 per acre, if taxed upon the land. These figures are given merely as an illustration. If the farmers had taxed themselves to build all the railroads in the country, and given them away to any companies that would stock and run them, the present increased value of their lands would have well repaid all the outlay.

JOURNAL OF THE FARM.—In place of the *Culturist*, one of our American exchanges which has been discontinued, we now receive the *Journal of the Farm*, a paper published in Philadelphia by Daugh and Sons. Of course, as we should all expect, one of the objects of this journal is to advocate the claims of the superphosphate manufactured by the publishers; but there is besides a large amount of valuable information relating to the garden, the farm, and rural affairs generally, and a due portion of its pages is set apart for household and fireside reading.

DIET WHEAT.—We direct attention to the advertisement of Mr. Lewis Springer in the present issue. We have before us a sample of the wheat which he has for sale, and have pleasure in stating that it is of excellent quality, sound, plump, and even. We receive favourable reports of this variety of wheat in many localities, though some parties have expressed their disappointment in regard to its merits. Mr. Springer says he has now grown the Diel wheat for three seasons, the first time, however, only in very small quantity, in order to raise the seed. Last season he raised forty-four bushels to the acre, all free from midge. This season he expects to thresh out not less than forty bushels to the acre; and the grain is still free from midge. The soil of his farm, in Barton, near Hamilton, is a sandy loam. We recommend farmers on similar land to make a trial of this promising variety. It should be sown during the first fortnight in September.

Agricultural Intelligence.

British Agricultural Gossip.

BEDFORDSHIRE SHOW—WOBURN ABBEY—MESSRS. HOWARD—AGRICULTURAL MACHINERY—MR. MECHI—WEATHER AND CROPS.

To the Editor of THE CANADA FARMER:

SIR,—During the last few weeks I have been over portions of the counties of Middlesex, Hertford, Bedford, Cambridge, Suffolk, and Essex, have attended several markets and shows, and have otherwise had much personal intercourse with different parties connected with the landed interest. I have been invariably met by all classes in a kind and courteous spirit, and the being known as a Canadian has more than once enabled me to visit museums and other places of public interest, when the strict application of their regulations would have shut me out. I tell the people that in becoming a Canadian I am not one whit the less an Englishman, and that while our people love and cherish their native or adopted home, they feel proud of the old country, and are fully sensible of the honour and advantages of a continued connection with it. The doctrine that it is the duty and interest of the mother country to transport her surplus labour and capital to her colonies, where it will fructify and increase the strength and wealth of the empire, is certainly not unacceptable to the rural population, and in Lancashire even I have met with several instances of its recognition. The truth is, only the merest fraction of the British people can be considered in any sense or degree anti-colonial; "ships, colonies and commerce" is old England's motto and guiding star

yet, and will continue to be so while sound statesmanship continues in the future, as it has in the past, to guide the helm.

The limits of a letter will only admit of a few allusions to such matters that have come under my observation as may possess some degree of interest to your readers, and here I may just remark that the site chosen for the Bedfordshire Agricultural Show this year, was the most beautiful, and comfortable for the cattle, that I have yet seen on either side of the Atlantic. The fine old park of Luton was granted for the purpose, and both visitors and stock felt truly grateful for the cool shade of those gigantic and symmetrical trees, such as form the characteristic beauty of English park scenery, during one of the hottest days I ever experienced. The show itself offered but few occasions for comment. I felt rather disappointed in its extent; many of our local shows in Canada exceed it in that respect. The quality, however, was generally very good, yielding therefore a *high average*, which I find to be now-a-days the ordinary condition of British exhibitions. I well remember the time when it was not so; a fact which should encourage Canadians to follow in this matter—and we may do so beneficially in others—the example of the parent State. The cattle were all either pure short-horns, or very largely mixed with strains of that blood. Mr. Charles Howard, of Beddenham, had some very fine specimens, and also Oxford Down sheep, a breed much cultivated and appreciated in this section. In most of the flocks bred for the butchers a mixture of Down blood of some variety, either with Leicesters or Lincolns, is quite apparent; but crosses are seldom bred from. The new Lincoln is decidedly making progress in many places, while in others the Leicester or Cotswold has a strong hold. The cart horses at the show I consider too heavy, at least for Canada, and even the lighter soils of England. But the modern Suffolk Punch, (not wholly unknown in Canada), seems to combine many excellencies as a draught horse—he has often good action, with decidedly a large amount of muscle compressed into a small compact compass. The dinners which inevitably form sequels to English shows, are not among the least of their attractions; good humour, and sometimes good speeches, containing useful and reliable information as the results of experience, characterize the proceedings. I must not omit to mention that in connection with Luton Park, a farm of a thousand acres, is the most complete and extensive farmery, probably, in the world. I have neither time nor space to enter on a full description of it here, but having got full particulars and a ground plan of the whole, I hope on my return to prepare a paper on the subject. The changes introduced of late years into agricultural architecture are certainly no less striking than those belonging strictly to the art of culture.

I had the pleasure of spending a day or two with my old highly esteemed friend, Mr. Thomas Bennett, land steward of the Duke of Bedford, Woburn Abbey. I wish I could give your readers an idea of the management of this princely domain. Park, (3000 acres within a high wall,) gardens, conservatories, with a mansion reaching back into remote antiquity, all on a magnificent scale, with numerous and extensive farms, villages, and churches, comprising the elements of a happy, orderly and well-to-do moral community. Whatever objections may apply to some large estates on account of bad management, have certainly no relevancy to Woburn. The Dukes of Bedford have for centuries been honourably distinguished, not only for sound statesmanship, but for an intelligent and munificent encouragement to agriculture and horticulture in all their branches; and some of the most happy and instructive gatherings to promote these objects have been held at this distinguished place. For many years past a thorough system of draining has been progressively carried out on this estate; a large number of improved farmeries and cottages erected, and every encouragement given to

the improvement of agriculture, including both the farmer, mechanic and labourer. The old herd of Hereford cattle is still kept up in the park, and this breed continues to occupy a high position as beef cattle.

I have also had the gratification of inspecting the agricultural works of Messrs. James and Frederick Howard, of Bedford, and of the Messrs. Ransome and Simes, of Ipswich. These are the most extensive and complete of any, perhaps, in the world, and having jotted down many particulars, I propose, when I return, to give your readers a pretty full account of them. It is workshops like these that impress the conviction on the mind, not to be doubted or misunderstood, that agriculture is indeed rapidly becoming a science, and can no longer be looked down upon as a mere empirical art. The Messrs. Howard have a farm of some 600 acres near their works, and certainly their wheat, after steam culture, looked much more luxuriant than that of their neighbours after the ordinary manner. The fact is, both chemical and mechanical science are largely contributing their valuable aid to British agriculture, which owes probably as much of its modern improvements to the latter as to the former. I had time only for a mere glance at the farm of Mr. Charles Howard, a brother of the manufacturers, but that glance was sufficient to convince me that he occupies a high position among his countrymen. His extensive herd of Short-horns contains some animals not to be excelled anywhere, and as to his Oxford Downs, they have already more than a British reputation. Mr. Chas. Howard is regarded as one of the most intelligent and successful English breeders.

On my return to London, through Essex, I spent a very pleasant day with Mr. Mechi at Tiptree Hall, near Kelvedon. It was twenty-four years since I visited this wide-famed farm, soon after Mr. Mechi had commenced his improvements. What a change did I witness! literally a "wilderness made to blossom as the rose." Here skill and capital have converted a formerly barren heath into a highly productive farm. It has been the work of enlightened perseverance, and the application of capital to a degree which many sober-minded people regarded, if not as reckless, still decidedly unprofitable. Mr. Mechi shows by his accounts that it has been far otherwise, and that he has reaped, at least, a fair profit. I can not now go into details, which I shall be happy to do at some future opportunity. I found Mr. Mechi as frank and generous as ever, although near a quarter of a century has elapsed since I last saw him; and he has suffered heavy losses during the recent commercial panic. I looked over seventy-five acres of wheat, drilled with one bushel of seed per acre, with a prospect of more than fifty-five bushels. A portion was dibbled with a peck per acre, and the crop, though a few days later in ripeness, will probably prove as large as the former; a fact clearly showing that superior cultivation requires less seed.

The agricultural prospects here are not very bright. The weather continues extremely hot and dry. Hay not half a crop, and spring grain generally must be very deficient. Swedes will be an entire failure, and mangels in some places nearly as bad. Keep for stock is very deficient, and should the drought continue for a few weeks longer (and there are no signs of a change at present) the consequences will be disastrous, for in many places there will be neither food nor water for sheep and cattle. Fortunately there is a considerable amount of old hay left throughout the country. Wheat is decidedly the best crop, and in the best, moist soils, will be heavy, but the yield generally will be affected from want of rain. Hops promise an abundant crop, but they have suffered of late from the same cause. The harvest will be unprecedentedly early; peas, barley and oats, on the forward soils, are already cut. It is said that so intense a drought has not been experienced in England and portions of the continent since 1818. I hear that in Canada the copious rains of May and part of June have been succeeded by warm sunshine, so that abundant crops may be reasonably anticipated; a result most devoutly to be desired. I am off to the show of the Royal at Leicester in the morning, and will send you some account of it the earliest opportunity.

GEO. BUCKLAND.

Hedge-Plant Growers' Convention

A convention of hedge-plant growers was held at Bloomington, Ill., June 25, 1868, for the purpose of organizing an association, and in various ways advancing the interests of their business. A Constitution and set of By-Laws were adopted, to the effect that the organization be called the "North-Western Hedge-Plant Growers' Association;" its officers to be

a President, not less than five Vice-Presidents (who shall be *ex officio* Corresponding Secretaries), a Secretary and Treasurer, all to be elected annually. Any person actually engaged in growing hedge-plants may become a member for one year on payment to the Treasurer of \$1 admission fee.

Capt. W. H. Mann, of Gilman, Illinois, was unanimously elected President, and on taking the Chair said he thanked the Association for this honor; that the fact that the hedge-growing interest of the North-west now involved millions of capital showed the necessity for this organization, and he bespoke for it a future of usefulness, both to the growers of plants and to the farmers who must depend upon them for fencing material. He had been over twenty years a hedge-plant grower, and he saw men now making mistakes that caused him serious losses ten or fifteen years ago. The discussions of this Association would prevent such errors by its members hereafter.

The following Vice-Presidents were then chosen: G. N. Parker, Kankakee, Illinois; S. W. Lamson, State Centre, Iowa; E. Safford, Marengo, Illinois; D. W. Norris, Paxton, Illinois; M. Neal, Bloomington, Illinois.

H. N. Pearce, of Bloomington, was elected Secretary and Treasurer.

Official Reports of the Condition of the Crops in the United States.

The following is from the Department of Agriculture:—Wheat—an increase of the average is observed, in a greater or less degree, in nearly every State. The Eastern States show no increase of fall sowing, except four per cent. in Vermont, but the enlarged area of spring crops, which are the main home reliance for bread supplies, is very marked in Maine and Vermont; the former showing an advance of twenty-six per cent., the latter of sixteen per cent. New York indicates five per cent. increase in the fall average, with no change in spring wheat. In Delaware a reduction of seven per cent. appears, while an increase of nine per cent. is shown in Maryland, eleven in Virginia, seventeen in North Carolina and South Carolina, eleven in Georgia, ten in Alabama, fifty-three in Mississippi, thirty-one in Arkansas, forty in Tennessee, and thirty in West Virginia. The increased acreage in the West, where the great bulk of the wheat crop of the country is grown, is of peculiar significance of the State in which winter wheat is mostly cultivated. Ohio presents an increase of five per cent. of that variety; Indiana, ten per cent.; and Michigan seventeen per cent. In portions of these States an unusual effort has been made to enlarge the area by spring sowing, showing respectively eleven, fourteen, and six per cent. increase in the States, which rely mainly upon spring-sown crops. Illinois indicates an increase in that variety of twelve per cent.; Wisconsin, four per cent.; Minnesota, twenty-three per cent.; Iowa, twelve per cent.

An analysis of these averages will show a general average of about eleven per cent. increase in the fall sowing, and twenty-eight per cent. in the breadth of spring wheat, altogether an increase of eighteen to twenty per cent. in the aggregate number of acres in wheat. The reports of the condition for June are generally very favourable. A promise of the best crop ever known is held out by local correspondents in many places, particularly west of the Mississippi. Winter grain on new land is looking very well; but there is a large proportion of wheat sown on old, worn-out land, poorly managed, and a very light crop will be the result. Barley—Kentucky, Missouri, and Minnesota have given increased attention to barley, but most of the other States are either slightly below the average or barely up to it. The fall sowing especially was deficient in most of the Western States, but the deficiency was generally made up by extra exertions in preparing for a spring crop. Oats—An increased area in oats, averaging seven per cent. for the entire country, is reported. Clover—It is worthy of note that every State in the Union reports an increased attention to the clover crop, with the single reduction of two per cent. in New Hampshire, and the prospect for a good crop is almost universal, Kentucky only being marked a trifle below the average. Pastures—Delaware and Wisconsin are the only States failing to give increased averages. Fruits—The appearance of apple blossoms was unusually late on the Atlantic coast, opening very fully; at last they were injured in many places by storms and unpropitious weather. In the central portion of the West, the bloom of the orchards was not generally abundant. It was small on the Atlantic coast between New York and Georgia. With the single exception of apples west of the Mississippi it was large, and in some localities excessive.

ROYAL AGRICULTURAL SOCIETY'S SHOW.—This world-renowned agricultural gathering was held this year in Leicester, and was one of the largest exhibitions ever collected together in England. The show and trial of implements was one of its most prominent features. This is the twenty-ninth show of the Society. It commenced on July the 8th, and was not closed up to the date of our latest British exchanges, July 15th. In the expectation of receiving a report of this interesting meeting from our esteemed correspondent Professor Buckland, now in England, we defer for the present any further notice of the occasion.

The hay crop in England is mostly harvested. The crop turns out to be much lighter than was at one time anticipated, in consequence of the exceedingly dry weather during the last few weeks. It was expected that reaping would commence some time about the middle of July. Alderman Mechi, the celebrated farmer and owner of the model farm, has written a letter to the *London Times*, in which he prophesies that the yield of wheat will be exceedingly large, more especially on heavy clay lands, which the late dry, warm weather has exactly suited. Another writer remarks that the hottest, driest seasons have always been noted for heavy crops in England. The summers of 1826 and 1854 were exceedingly warm, and the crops of those years were the finest known for fifty years past.

AGRICULTURAL MEETING.—The *Orillia Expositor* says:—A meeting of the Directors of the Muskoka Union of Townships Agricultural Society was held at Bracebridge, on the 16th inst., when the Secretary read a draft of rules, which were adopted. Settlers in Muskoka would do well to bear in mind that for this year provision has been made in the rules entitling those who may join before the 1st of September to all the benefits of membership. This liberality should be rewarded by a large accession to the list of members. The meeting adjourned to meet at Gravenhurst, at ten o'clock, on Thursday, the 30th July, for the purpose of enrolling members, and to afford an opportunity of explaining the objects of the Society.

OXFORD WOOL.—The *Woodstock Sentinel* says:—The wool market has closed for the season. The quantity of wool purchased this season in Woodstock falls short of that of last year, by the several purchasers. This year, Thomas Oliver, Esq., was the principal buyer, and has shipped a quantity equal to the one-half of all that was purchased. Last year Mr. Oliver shipped 23,000 lbs—this year he has shipped 37,000, that is 14,000 lbs in excess of his shipment last year. The average price of Mr. Oliver's shipment is 25½ cents per pound.

TRACTION ENGINE.—The Traction Engine lately imported by Mr. Sutherland Taylor, having been successfully tested as to its capacity for drawing heavy loads on our ordinary roads, and surmounting the difficulties of pretty steep inclines, has been sold by the importer to an enterprising Canadian firm. The purchasers are Messrs. John Bruce and James Waterson, of Walkerton. They intend to place the engine on the route between Walkerton and Guelph, to accommodate the growing and already extensive trade of that locality. Their enterprise in an entirely new branch of the carrying trade should ensure for them every encouragement.

GAMBLING IN CEREALS.—The recent gambling operations in wheat in Chicago and Milwaukee, in which merchants of the latter city, by their superior acuteness, came out ahead of the Chicago schemers, making a considerable margin by the operations, drew the following from the recent Convention of North-Western millers at Chicago:—

“Resolved, That we deprecate all gambling operations in wheat and flour, all corners and efforts at cornering, as unjust to the manufacturer by disturbing the value of the commodity, and as oppressive to the labouring man, who is compelled to bear the burden of the high prices of the staff of life, and that such conspiracies against the interest of the poor and labouring man are deserving of universal reprimand.”

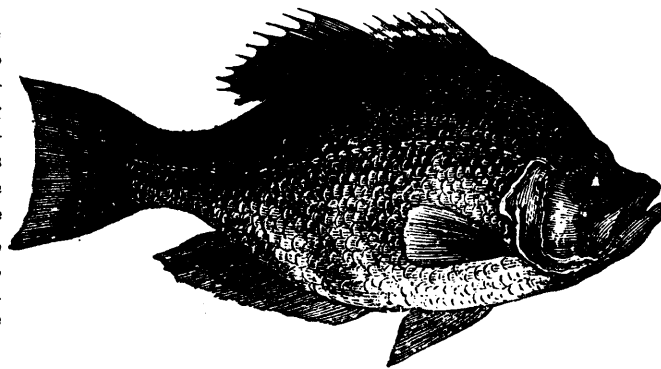
Canadian Natural History.

Rock Bass.

(*Centrarchus Aeneus*.)

HAVING already noticed and illustrated the larger species of the [Perch] family, we have selected for our present illustration a very common and much smaller species, well known to all the frequenters of our lakes, namely, the Rock Bass. We are indebted to that excellent authority “Frank Forester's Fish and Fishing” for the following description.

The general colour of this fish is a dark coppery bronze above, with green reflections, the head above dark green, gill covers metallic green, with a dark spot on the posterior margin of the operculum. The sides golden copper, with several rows of oblong dark spots below the lateral line. The fins bluish green. The body is compressed, short, and broad. The dorsal outline gibbous; the lateral line following the curve of the back. Head large, with a concave outline. Gill-covers scaly; the operculum with rudiments of a double angle on the posterior margin; lower jaw somewhat the longest. Teeth small, conical, recurved, on the maxillaries, intermaxillaries, vomer, palatines, and pharyngeals. The dorsal fin has eleven spinous, and twelve soft rays; the pectoral fourteen rays; the ventrals one weak spine, and



five branched rays; the anal, six spinous and eleven soft rays; the caudal, with rounded tips, has seventeen rays.

The Rock Bass is a good flavoured fish, and affords excellent sport to the angler. In some places it is so abundant, however, as hardly to afford sport in its capture. It is taken off the wharfs and docks on all the lake waters from Kingston to Lake Superior. It rarely exceeds a pound in weight.

There is another species of Perch famous on Lake Ontario, and often confounded with the Black Bass, but most probably distinct, namely, the Oswego Bass. Of this fish a writer quoted in the work to which we have already alluded, says:—“The Oswego and Black Bass bear so strong a resemblance to each other, that not one fisherman in ten knows them apart. In form, colour, weight, and habits, the two are almost identical; and yet their differences, though minute, are striking and essential. An Oswego Bass, when placed by a Black Bass of the same size, is readily distinguished by his more forked tail, his greater thickness of shoulder, his coarser scales, and, above all, by his mouth, which, when open, is nearly twice as large as that of the Black Bass. In Lake Ontario, the Oswego Bass is abundant, and the Black Bass comparatively rare. In Lake Erie the Black Bass greatly predominates; and it may be doubted whether the Oswegonian—like certain citizens of the Ontario shore—is not an interloper in our waters, who has found his way to us from below, through some canal. However this may be, he is certainly right welcome.”

The small species, the subject of the accompanying illustration, needs no particular skill to capture, and scarcely gives sufficient sport for the experienced angler, but the larger kinds furnish excellent angling.

The Black Bass, it is said, will seldom take the hook in the rivers until June. He is always good eating, but is in best condition in August. An enthusiastic disciple of Isaac Walton gives the following account of his experience with this fish in Lake St George:

“This is a game fish, affording the angler the very highest enjoyment. These fish are taken in various ways. When collected on their feeding grounds, in August and the succeeding fall months, they are sometimes taken in considerable number. The usual mode of angling for them at this time, is either with or without a float and with live bait—a small fish taken for the purpose, along the lake shores or in brooks. They are exceedingly strong and active—qualities which delight the angler. When first hooked, they run very wild, and almost invariably rise to the surface, and leap one, two, and even three feet in the air, shaking the head violently, evidently with a view to dislodge the fatal hook. Frequently, while making their runs, they will suddenly turn and come with all their power directly towards their enemy, and by thus slackening the line, will succeed in shaking the hook loose: this often happens with inexperienced fishermen, but more rarely with the angler who holds a good reel and winds rapidly. The most beautiful mode of angling for them known, is trolling, either with live bait or an artificial fly of large size and gay appearance. The writer has succeeded remarkably well with a fly made on a large-sized Limerick hook, such as are used for Striped Bass when fishing with crab bait. The fly is made as follows: Body of a peacock feather, wings of bright scarlet kerseymere and white pigeon feathers; or, the feather stripped from a white goose-quill, and wound round like the hackle, and surmounted with thin strips of scarlet for wings. For trolling pleasantly and comfortably, the angler should provide a moveable seat, which he can place across the gunwale of his boat, in order that he may sit with his back to the oarsman, and facing the stern. Thus he will have full command of his rod and line, and not be sitting in the cramping

attitude which the lowness of the seats would cause. He should reel off fifty to sixty, or even one hundred or more feet of line, and in going over shallow reefs of seven or eight feet depth, two hundred feet, as the fish feeding on the reefs usually dart aside as the boat passes, and do not return immediately to their harboring spot, which is one reason why those who do not use the reel are not as successful as those who employ it. After a few moments they glide back to their favorite spot, and as the fly comes along, dart at and seize it. A strong tug is felt by the angler, who has only to draw gently, and his prey is fastened. The oarsman rests on his oars, to give the angler full command of his line. The noble fish, after one or two runs to right and left, suddenly rises and makes his splendid leap, and plunging, again seeks the bottom, again rises, and then tries his last experiment of dashing right towards the boat. He struggles long and vigorously, but his strength is at last exhausted, and you trail your unresisting captive to the landing net.”

The same fish is taken in great numbers, and of unrivalled excellence, in the St. Lawrence, among the Thousand Islands.

ACCLIMATION OF BIRDS.—We translate the following from the *Courier du Canada*, published in Quebec:—“M. W. Rhodes, of this city, has recently received from Europe twenty-five couples of insectivorous birds, known in Ireland under the name of common sparrows, which are destined to be acclimated in this country. All that M. Rhodes demands for his little protégés is that they shall have the same protection as that provided by law for the various species of insectivorous birds which are indigenous to the country.”

Stuffing Birds.

To the Editor of THE CANADA FARMER :

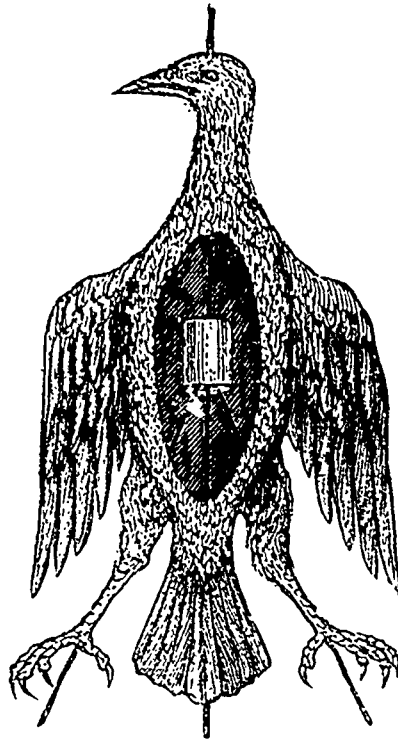
SIR,—For the information of those of your readers who may wish further instruction in the art of Taxidermy, I will now proceed to give directions for stuffing birds; and will take just as an example the Pigeon, for skinning which instructions were given in a former article. Let us suppose the bird just skinned with the skull attached. I will treat on mounting dried skins some other time. The first thing is to replace the skull after it has been well anointed with the arsenical soap and inside with solution of corrosive sublimate. The bird is now laid on a table with the head towards the left hand, and the legs and wings adjusted to their proper situation. A pound weight is laid on the tail, while the feathers of the margins of the opening are raised by the forefinger and thumb of the left hand to prevent their being soiled. The inside of the neck is now coated with arsenical soap; flax, tow, or cotton is then stuffed into it, but not too tightly. The back and rump are next anointed, and the body should be partly stuffed with tow, putting in about one-third the quantity that would be required to fill up the whole carcass. The simplest way to form the carcass is to take a cork from a wine bottle, say 1½ inch long by one inch in diameter; put a straight piece of annealed wire the whole length of the bird, from head to tail, then bend a piece of wire the shape of the letter V, and push it through the cork from the end which you intend for the head, leaving the projecting ends long enough to reach beyond the longest toes. You may now wind the cork with tow, or cotton, forming an artificial carcass. Then you put the wire through the neck, running through the skull; then push the wires through the legs, that is between the skin and the bone on the back side, and through the soles of the feet. Lastly, thrust the tail-bearer, or wire to support the tail, into its place; then finish stuffing. The skin is now brought together and sewed up, taking the greatest care to separate the feathers at every stitch. The orbits of the eyes are next finished, by inserting a little chopped cotton, attention being paid to round the eyelids properly. The glass eyes are now inserted, taking care to insert them properly under the eyelids. But before fixing the eyes, a little calcareous cement must be used to prevent them from coming out. The stuffing of the bird being now finished, the next thing is to place it on a piece of plank, by boring two holes for the reception of the wires which have been allowed to protrude from the soles of the feet for fixing the bird. These, of course, are pierced in such a situation as is necessary for the attitude or position of the legs. The wires are put through these holes and twisted so as to secure the bird in its position. The attitude of the bird will of course depend upon the fancy and taste of the operator, and ought to be in conformity with the habits of the bird in a living state. The leg wires are to be bent something like the letter Z, as in the skeleton. Give the neck and head its proper shape; smooth all the feathers down, and set it in some airy place to dry, and then your work is done.

The following is the composition of the ARSENICAL SOAP.

- Arsenic in powder 2 pounds.
- Camphor 5 ounces.
- White Soap 2 pounds.
- Salt of Tartar 12 ounces.
- Powdered Lime 4 ounces.

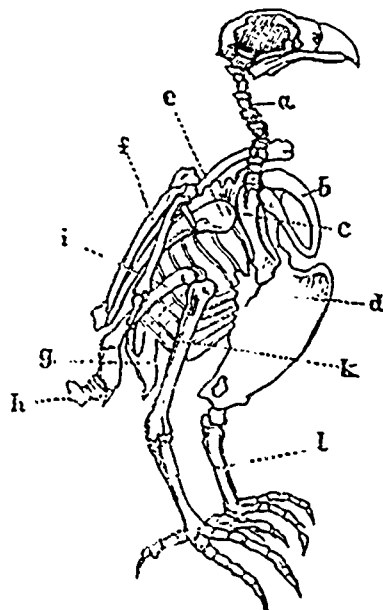
The soap must be cut in small and very thin slices, put into a crucible with a small quantity of water, and held over a gentle fire, and frequently stirred with a wooden stick or spatula. When it is properly melted, the powdered lime and salt of tartar must be added and thoroughly mixed. It must now be taken off the fire, the arsenic added gently and stirred. The camphor must then be added and stirred; but it must first be reduced to a powder by beating it in a

mortar, with the addition of a little spirits of wine. This must be added while off the fire. It may then be held over the fire to assist in making the ingredients incorporate properly, but must not be much heated, as the camphor will very rapidly escape. It may now be poured into glazed earthen pots, and allowed to cool, after which a piece of paper should



be placed over the top; and over this some sheep leather; then set aside for use. The composition is about the thickness of flour paste. When it is necessary to use the soap put as much as will answer the purpose into a preserve pot, and an equal proportion of water. This is applied to the skin or feathers with a bristle brush.

N. B.—It should be kept as close as possible, and used with caution, as it is a deadly poison.



As a guide to the correct anatomy of a bird, which should always be borne in mind in forming the carcass and fixing the attitude, the accompanying outline of the skeleton of a falcon is given, with lettered references. a, cervical vertebrae; b, clavicle; c, coracoid bone—an appendage to the clavicle or collar-bone peculiar to birds; d, sternum or breast bone; e, humerus; f, uropygial; g, portions of the Ilium or hip bones, h, sacrum, and os coxygis; i, femur, or thigh bone; k, tibia; l, tarsus.

A. B. B.

Entomology.

Entomological Society of Canada.

THE Annual General Meeting of this Society was held, by invitation of the London Branch, at their rooms in the City Hall, London, Ont., on the 7th of July; the President, Prof. Croft, of Toronto, occupying the chair. The following members were present: Messrs. Croft, Sangster, Clementi, Bethune, and Osler, from the Parent Society; Messrs. Saunders, Reed, Barker, Griffiths, Puddicombe, Denton, Chapman, Waterman and Simpson, of the London Branch.

The minutes of the last meeting, the reports of the Quebec and Toronto Branches, and the Financial Report were read and adopted. After the reading of letters of apology from various members, and other communications, the meeting proceeded to the election of officers for the ensuing year, with the following result:

- President—Prof. Croft, D.C.L., Toronto University.
- Vice-Presidents—Johnson Pettit, Esq., Grimsby; Wm. Saunders, Esq., London.
- Ex officio Vice-Presidents—Rev. O. Brunet, President Quebec Branch; J. M. Denton, Esq., President London Branch.
- Secretary—Treasurer—Rev. C. J. S. Bethune, M.A., Credit, Ont.
- Curator—W. H. Ellis, Esq., M.A., Toronto.
- Council—G. J. Bowles, Esq., Secretary Quebec Branch; E. Baynes Reed, Esq., Secretary London Branch; J. H. Sangster, Esq., M.D., Normal School, Toronto.

A number of eminent Entomologists in the United States were nominated for election at the next meeting as Honorary Members of the Society; the number of such members is limited by the Constitution to twenty-five. A discussion then took place respecting the publication by the Society of a small periodical to contain the transactions of the Society and serve as a medium of intercommunication among Entomologists in this country. It was finally unanimously resolved that a periodical, to be entitled the "Canadian Entomologist," should be issued by the Society, under the editorial management of the Secretary, the Rev. C. J. S. Bethune, and be distributed gratuitously to members of the Society, and at the rate of fifty cents per volume of twelve numbers to non-members.

After a couple of hours adjournment the meeting re-assembled at 8 o'clock p.m., and proceeded to the examination, comparison, and discussion of Longicorn Coleoptera (*Gerambycidae*), or wood-borers. Large and interesting collections of this family of insects were exhibited by Messrs. Saunders, Croft, Bethune, Reed, Sangster, and Clementi; among them were to be seen specimens of nearly all the 127 species enumerated in the Society's printed list, and also a few more species new to Canada, as well as some foreign specimens from the United States and Mexico. A few new species of Lepidoptera were also exhibited, while on the table were some powerful microscopes, and a number of handsome works on Entomology, including an unpublished volume of plates by Mr. Townsend Glover, all of which attracted a great deal of attention. Notwithstanding the intense heat, which the members almost vainly endeavoured to modify with ices and other cooling refreshments, a very pleasant and instructive evening was spent.

The following day, Wednesday, July 8th, was devoted to a very pleasant Entomological Field-day and Pic-Nic. The heat, though still great, was tempered by a most refreshing thunder storm during the previous night, and nature looked all green and fresh and bright. After a few miles drive into the country, the chosen spot was reached, and the members betook themselves to the woods, fields, and river side, in quest of their fly game; two or three

hours were spent in the capture of various orders of insects, and a fair measure of success was attained by all, many rare and interesting specimens being taken. At mid-day all re-assembled under a shady grove of wild cherry-trees, and did full justice to an excellent lunch provided by our hospitable London friends. The rest of the afternoon was devoted to more captures, bathing, and hunting, while some, unwilling to encounter again the blazing heat of the sun, enjoyed a quiet pipe and chat under the shady trees. Before returning to London, photographs were taken by Mr. Griffiths of all the members in a group, with their nets and other apparatus, as a memento of this first-gathering under the new constitution. In the evening the Society re-assembled at the house of Mr. Saunders, the Curator of the London Branch, and spent some pleasant hours in the examination of his large and varied collections, and the use of the microscope.

The next day, Thursday, a few of the members paid a visit to the strange natural ponds, a few miles south of London, and collected a number of rare and beautiful insects and plants. This closed a most agreeable reunion of the members of the Society, which will long be remembered by all who took part in it; the members from a distance all expressing themselves highly delighted with the unbounded hospitality and kindness of their London friends.

Knocking the Curculio.

It is becoming generally admitted that jarring down the curculio on sheets extended for the purpose, is on the whole the most effectual and certain of all remedies. There are other modes or auxiliaries which are useful, and which sometimes of themselves are sufficient to give good crops. Allowing a herd of swine, for example, to run among the trees, from the moment the punctured fruit begins to drop until it approaches maturity, these animals will eat every young larva, and generally save the crop the following year. The trouble, however, with most persons is, that they do not give it a complete trial. A single year's experiment obviously will not answer. It must be continued without intermission for an indefinite period. We knew a cultivator who had heavy crops of plums for seventeen years in succession—his swine for these seventeen years, without a season's interruption, being allowed the run of the yard.

But where the insects are abundant, no other method may answer but the immediate, direct and certain assault of jarring and pinching.

We published, two years ago, the result of a perfectly successful experiment on an orchard of seventy trees, which became heavily loaded throughout, although in previous years we had not had a peck of fruit when no care had been taken.

Although it is now some forty years since the late David Thomas first introduced this efficient mode, and proved at the time the inefficiency of mere shaking the trees, and the importance of a sudden sharp jar, we find all over the country that this difference is still generally unappreciated. It is common to cover the mallet or bar of wood with cloth and cotton batting in order to prevent the bruising of the bark. The soft taps thus given are quite inefficient to bring down all the insects. Let any one try the experiment with a tree fully infested; shake it first, and he may possibly get two or three curculios; jar it next with the soft cushion already described, and he may get two or three more, but strike the tree with the back of an axe, which will impart a sudden and sharp jar throughout all the branches, and not a Turk will retain his hold. To prevent the bruising of the bark by these sharp blows, we have formerly adopted the practice of sawing off a small limb, leaving a stub an inch long, against which the axe or hammer might be struck without injury to the tree. But we have recently discovered an easier, better and more efficient mode. It was introduced by our correspondent E. W. Herendeen of Macedon, and we have adopted it with entire success. It consists in driving an iron spike into each tree nearly up to the head, at such place as will most effectually jar the whole tree. A stroke on the head of this spike will be more sudden and more certain to dislodge the curculios, than anything else that has been tried. The size of these spikes may vary with the size of the tree. For those of medium growth, what is commonly known as a twenty-penny cut nail, will be about right—first breaking off about an inch of the point before driving. For larger trees heavier spikes will be necessary—boring a small hole just before driving. Railway spikes might be inserted, against the heads of which very efficient blows may be given. No injury to the tree can result from their insertion, as no uncovered wound is made.—Country Gentleman.

Leaf-rolling Caterpillar on the Apple.

To the Editor of THE CANADA FARMER:

SIR,—You invite farmers to communicate anything that may be of interest. I am but a tyro in the science of Agriculture, and am willing always to be an enquirer rather than a teacher.

An acquaintance of mine called my attention a few days since to an enemy of the apple tree, of which I had no knowledge previously—a member of the caterpillar tribe snugly ensconced within a leaf of the tree, which was curled about it. Have you noticed it? and what is its name and habits?

JOHN LE BOUTILLIER.

NOTE BY ED. C. F.—The insect referred to is the larva of a moth belonging to the tribe *Tortricina*, or leaf-rollers, so called from the habits of the caterpillars. Without seeing specimens we cannot, of course, tell to what species to refer that noticed by our correspondent on the apple; it may, however, be that named by Dr. Fitch the "Apple shoulder-striped Tortrix" (*Brachytenia Malana*).

Most observers of insects and their ways must have noticed the curious manner in which the edges of leaves are often rolled up by some small caterpillar, for the purpose of obtaining shelter and protection as well as food. Their mode of constructing this habitation is remarkable; first the little caterpillar fastens a number of silken threads from one side of the leaf to the other; then it draws these threads together till the opposite edge of the leaf is curled over, when it fastens it down with more threads; should it discover that the larger ribs of the leaf will not readily bend, it gnaws them partially through, and thus cleverly effects its object. In this way a cylindrical tube or cone is made, in which the tiny architect spends its life and undergoes its transformations. A large number of species of this tribe are found in this country; one—the larva of a very pretty moth (*Desmia Maculalis*)—infests the grape-vine, and is often so numerous as to defoliate the vines in some parts of the Western States; another is plentiful on the leaves of the Bass-wood; while others may be found on various trees and shrubs. They may easily be destroyed by crushing the curled leaf in the hands.

The Three-lined Potato Beetle.

(*Lema trilineata*, Oliv.)

The following letter was addressed to Prof. Buckland, of the Bureau of Agriculture and Arts, Ontario, but in consequence of his absence in Europe, it has been sent to us with the writer's consent:

DEAR SIR,—Accompanying this you will receive two bottles, one containing the bug—a true one, I think—of the largest kind of Aphis; also the slugs, (in the other bottle) produced from their eggs. These I gathered in Moore this morning, where they are infesting and destroying the potatoes. The bug appears on the top of the leaf, lays the eggs at the axil of the upper leaves, near the flower, and the slug, a slimy one, appears under the leaf and devours all the vegetable matter therein. I have recommended to let the slug appear, and then, with a broom, brush the slugs off; a very light touch makes them fall, and they die as soon as they touch the ground. I thought you might like to hear of this new pest, and so send you specimens. I will inform you of the final effect on the crops.

I remain,

Yours truly,

W. P. VIDAL.

Sarnia, July 9th, 1868.

The specimens sent with the letter represented two stages in the life of the "Three-lined Potato Beetle"—the slugs being the larvæ of the beetles. Last year we gave a description and figure of the insect (C. F. Aug. 15th, 1867, p. 252), to which we beg to refer our readers. This devourer of potato leaves we have long known and observed in different parts of the country, but it has seldom proved very destructive; this year, however, we expect to hear a different account of its work, as in many places it is more numerous than we ever saw it before. We shall be anxious to learn from Mr. Vidal how far its depredations will have affected the yield of potatoes in the Township of Moore. The remedies that have been employed with the greatest success are dusting the larvæ with lime, ashes or soot; and brushing them off into a vessel and destroying them with hot water. Children might be advantageously employed in this work with but little expense.

THE PRIVET SPHINX CATERPILLAR.—Mr. Brown, of the Louisa Street School, Toronto, sent us the other day a specimen of this large caterpillar. It is about three inches long, of a delicate pale green colour, with a series of whitish oblique stripes along the sides, and a sharp horn-like tail on the last segment. We tried to feed it on privet, lilac and other leaves, but it refused to eat, and on the 19th July turned into a chestnut-colored chrysalis, about two inches long, with a short, thick tongue-case pressed close to the body. Next year, if all goes well, it will turn into a large ash-colored moth whose wings expand about five inches. It is unusual for these caterpillars to turn into the pupa state so early; their general period for transformation is about the end of August or beginning of September.

The Household.

Washing Made Easy

MANKIND, and more especially womankind, have long been agreed that whoever should banish, or even mitigate the horrors of washing-day, should be assigned a high place among the benefactors of the human species. The aspirants for this honour have been very numerous, and their efforts have been worthy of more success than they have achieved. A legion of washing machines have been invented and brought into the market, but no one among them has operated satisfactorily. Various chemical preparations for taking out dirt without the tedious and fatiguing process of hand-rubbing have been tried and found wanting in some one or other of the elements of efficiency. That rude kitchen utensil the wash-board is the only apology for an assistant that woman can press into her service when the soiled linen of the family, heaped upon heaps, demands purification. A sorry helper it is at the best!

There is reason to think that a truly valuable discovery has been made, whereby the toils and sorrows of washing-day may be very greatly lessened. "Clark's Excelsior Washing Composition," a recently patented preparation, and said to be free from the objections that lie against other compounds of the kind, is winning golden opinions in many quarters, and comes before the public with most respectable certificates as to its capabilities. The patentee, Rev. W. W. Clark, a highly respectable Wesleyan Minister, is well known to us, and is too honourable and upright a man to sell a recipe for mere purposes of money-making. He simply asks for his "composition" a fair trial, and offers, if it does not give full satisfaction, to refund the money (one dollar) charged for the secret of its preparation. It is warranted perfectly free from everything injurious to hands, clothes, or health. Clothes require no rubbing, except it be very dirty collars and wristbands, which may be subjected to a little hand friction. All kinds of fabrics may be washed by it, as it neither injures texture nor unfixes colour. It will remove paint, grease and stains of all kinds. The components of this preparation are cheap—enough to wash thirty-two times for a family of eight or ten persons costing only from forty to fifty cents. Washboards are dispensed with, and a day's hard work reduced to the labour of a couple of hours at most. Besides a number of testimonials from individuals—among them several responsible chemists, who attest from actual trial the qualities of this washing composition—the *Toronto Leader*, *Guelph Mercury*, and *Ingersoll News*, having tried it in their respective editorial families, give it the highest eulogy, the last named periodical pronouncing it "the best and greatest discovery of the age for washing purposes." This is good news for house-keepers, and laundresses generally. "Family rights," containing full directions for making and using the composition, may be obtained by remitting one dollar to Rev. W. Warner Clark, Guelph, Ont., or they may be purchased of that gentleman's agents, who are canvassing in various parts of the Province.

What Shall I Do ?

BY MRS. FRANCES DANA GAGE.

"What shall I do?" My boy, don't stand asking;
Take hold of something—whatever you can.
Don't turn aside for the toiling or tasking,
Idle, soft hands never yet made a man.

Grasp with a will whatever needs doing,
Still standing ready, when on work is done
Another to seize; and thus, still pursuing
In duty your course, find the victory won.

Do your best for to-day, trust God for to-morrow;
Don't be afraid of a jest or a sneer;
Be cheerful and hopeful, and no trouble borrow;
Keep the heart true, and the head cool and clear.

If you can climb to the top without falling,
Do it. If not, go as high as you can.
Man is not honored by business or calling,
Business and calling are honored by man.

—Herald of Health.

Quills are things that are sometimes taken from the pinions of one goose to spread the opinions of another.

IMPROVEMENT IN CISTERN PIPES.—An improvement in the arrangement of cistern pipes has been invented and patented by Mr. W. H. Rodden, of Toronto. The peculiarity of the system consists in such a disposition of the overflow and withdrawing pipes that the pure water from the top is pumped out for use, while the overflow is drawn from the bottom of the cistern, where, naturally, the sediment will collect and render the water less fit for use. The new arrangement is highly recommended by medical men. Mr. W. Hewitt is the Patentee's Agent for this city.

ABOUT SUN-STROKES—Since sun-strokes have been so common, it may be well to give some hints concerning remedies for them. It is said that cold water should be immediately poured over the head of the person thus affected, and that mustard or other stimulants should be applied to the back of the neck, the wrists, knees, and soles of the feet. Of course these remedies should not preclude the calling of a physician in any case where the patient does not immediately rally. As a safeguard against sun-stroke it is well to have something more than the usual covering over the head on venturing into the rays of the hot sun—for instance, a handkerchief, or still better, green leaves in the hat, those of the common plantain being excellent, and frequently used.

PHILOSOPHY FOR THE LADIES.—PIE JUICE.—The time has now come for fruit-pies, and therefore for pie-juice; and as our readers strive at all points for the practical and useful combined, we intend to offer a suggestion for "the better arrangement" of pie-juice. Some people place an inverted cup in the pie, thinking this catches juice that would otherwise boil over, but that is a mistake, for though juice is found under the cup when the pie has cooled, it never entered the cup while the pie was in the oven for this simple reason, the inside of the cup was as hot as the inside of the pie. The case of inverting a cup in the pie does more harm than good, for, as the heat cooks the fruit, it also expands the air in the cup, which tends to blow out the juice from the dish. But if a small hole, say a quarter of an inch, be made in the bottom of the cup, which, of course, comes to the top of the pie when inverted in the dish, the hot air will escape into the oven, and leave room for the juice to run into the cup, which, again, will descend amongst the fruit on the pie cooling. "Now how are we to make this small hole in the bottom of the cup?" says the reader. "Listen and you shall hear," says the writer. "Take a six-inch flower-pot, fill it with dry sand or mould; then take your cup, invert it, and push it down into the mould or sand till only the top is just seen, by which means the inside of the cup is as full of sand or mould as it will be of juice when in the pie; then take a sharp-pointed instrument, like an old pair of scissors or a one-pronged fork, and begin to peck away little by little, and you will soon have a small hole, which can then easily be made bigger before taking the cup from the flower-pot. The sand or mould prevents the cup from cracking or breaking during the chipping process. When the cup is used invert it in the pie, but take care that the small hole is free from the crust." Here is a very simple contrivance that will soon prove itself. A grand plan is to make three pies, one without any cup, one with a cup, and one with the cup with the hole in; then you can see the difference.—Gardener's Magazine.

Miscellaneous.

The Borrowing Nuisance.

My neighbour wanted to borrow my shovel—would return it in the evening. Evening came, but no shovel. The next evening it was quietly returned to its accustomed hook in the wood house, the blade covered over one-half its surface with a coating of dry mortar. I pride myself on my clean and bright shovels and hoes. Half an hour's work with an old knife blade, and the use of a sheet of sand paper, restored it.

Another time he was building a pig pen. The posts were too long, and they were very hard, and his saw very dull. Of course he borrowed mine, and he sawed off a nail with it—the posts had been used before. He sent his little boy to return the saw with the message—"Pa would a' sent and got it fied, but he knowed you allus fied your own saw, and it wouldn't take but a few minutes to sharp it again."

Another neighbour "borrows" the privilege of getting water at my well. The well is deep, and we draw with a windlass. It is hard for my wife to draw up a bucketful, for she is feeble, and to save her, I usually fill the bucket before going away to my business. As the well is in an out kitchen, I leave the filled bucket hanging in the curb. My neighbour sneaks in, empties the bucket, and is mean enough to go away without refilling it. Wife and I conclude it is better to suffer wrong than to have a difficulty with a near neighbour, and so, for the sake of peace, we submit to this wear and tear of soul and body. When the same person borrows flour, for the best article a poor one is returned. Eggs, matches, a "drawin' o' tea," are never returned.

I might increase to great length a record of these examples, but my object is only to illustrate the position taken, that the habitual borrower's code is a lax one. This may be partially accounted for by the fact that the independent, self-reliant portion of the community seldom borrow, and the practice is mostly left to people of the opposite kind. The unscrupulous borrower usually belongs to one of two classes; the easy, shiftless sluggard, or the greedy, grasping victim of avarice. The first borrows with a dim expectation of paying some time, and the hope that he may be able to do so; the other borrows with a full design never to make an honest return if he can avoid it; it shall be clear gain, if he can make it so. Both are knaves, and unreliable in all matters of trust.

Among honest men, borrowing may be made a convenience, and mutually beneficial. Yet I think the question is worth considering, whether it does not demoralize a man—weaken his self-reliance. We get to relying on our neighbours more and more for the thing ourselves ought to procure. On the whole my advice is, to borrow only in cases of great need, when you can get along without doing so.—North Western Farmer.

A BILL said to have been presented by an English Hostler. Who can read it?

- Afortheos..... 3d.
- Cleninosansha..... 4d.
- Bringinonimomagin..... 5d.

The phrase "Sound on the Goose," originated in Pittsburg, Pa. That city, some years ago, was so overrun with this aquatic fowl that its sidewalks became in an intolerable condition. A public meeting was held on the subject, and at it the extermination of the offending bird was decided on. A charter election soon following, the two candidates for the mayoralty were questioned as to what would be their action in the premises in case of election. The one who was "sound on the goose question" was elected; and from that day the phrase crept into general use among politicians.

Advertisements.

Farm of Prospect Hill

TO LET, for a lease of 10 or 12 years, from and after 1st October next:

Being Lot 16, Con. 12, East Zorra, Oxford, 200 acres, occupied by the heirs of the late W. Dawson, Esq.

This is a first-class farm either for cropping or dairy purposes, and is in a high state of cultivation; 160 acres arable; well watered and fenced. Excellent Dwelling House, large Orchard, and extensive Farm Buildings, suitable for dairy purposes. By gravel road, 6 miles from Woodstock; 1 mile from Strathallen cheese factory.

Should an intending tenant take the stock and crop, by valuation, he could have immediate possession. Apply on the premises, or by letter post paid, to

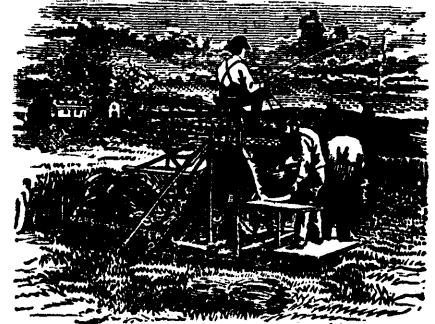
MRS. DAWSON,

SOUTH ZORRA, ONTARIO.

Prospect Hill, 26th June, 1868

5-14-2t.

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, from eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper

Port Perry, March 28, 1868.

PAXTON, TATE & CO.
v5-7-1f

JONES & FAULKNER,

(Late J. JONES & Co.)

Dairymen's Furnishing Store!

DEALERS IN BUTTER AND CHEESE,
No. 141 Genesee Street, Utica, N. Y.

DAIRY necessities of every description always on hand, particularly Pure Annatto, an article in much request among dairymen.

No Duty on Annatto purchased in the United States.
Special attention given to Canadian orders. v4-19-1f

Duncan's Improved Hay Elevator.

PATENTED April 13th, 1867.

THE cheapest and simplest constructed Fork in use in the Dominion of Canada. County or Township Rights for the manufacture of the above Fork may be obtained from the undersigned.

JAMES W. MANN,
v4-20-1f Port Dover, Ont.

THE BRIGHTEST ITALIAN QUEENS IN AMERICA.

HAVING IMPORTED three extra-fine Queens from the Dzierzon Stock, I can now furnish an unlimited number of the brightest Queens ever offered for sale, price as usual, \$5.

SAFE DELIVERY GUARANTEED.

I will also be able to furnish an unlimited number of Italian Stocks in the Fall, Italianized with Queens from the imported stock. Price in the S. D. hive \$18—in the D. B. hive \$20.

Orders must always be accompanied with the money, and will receive prompt attention.

J. H. THOMAS,
APIARIAN,
Brooklin, Ontario.

Aug. 1, 1863.

v5-15-1f

GEO. A. DEITZ,

The Great Seed Wheat Grower,

CHAMBERSBURG, Pa., sends free a Descriptive List of the best Seed Wickets in the world. v5-11-6t

THE BEST SHEEP MARK YET INVENTED.

IT is made of tinned wire stamped with name and number. Is cheap, does not wear out, and looks well. Price three cents each.

ARCHIBALD YOUNG, Jr.,
Sarnia, Ont.

N. B.—AGENTS WANTED,

v5-13-1f-e, a, t.

PROVINCIAL EXHIBITION

OF THE AGRICULTURAL ASSOCIATION

UPPER CANADA, TO BE HELD AT HAMILTON, On the 22nd to 25th September, 1868.

PERSONS intending to exhibit will please take notice that the Entries of articles in the respective classes must be made with the Secretary, at Toronto, on or before the undermentioned dates, viz:

Horses, Cattle, Sheep, Swine, Poultry, on or before Saturday, August 15th.

Grain, Field Roots, and other Farm Products, Agricultural Implements, Machinery and Manufactures generally, on or before Saturday, August 29th.

Horticultural Products, Ladies' Work, the Fine Arts, &c., on or before Saturday, September 12th.

Prize Lists and Blank Forms, for making the entries upon, can be obtained of the Secretaries of all Agricultural Societies and Mechanics' Institutes throughout the Province.

HUGH C. THOMSON,

Sec. Dd. of Agriculture.

Toronto, July 24, 1868.

[v5-15-2t.]

IMPORTANT TO CHEESE-MAKERS.

Collett's Patent Antiseptic.

WE are receiving and supplying second orders for our FRESH RENNETS; they are giving great satisfaction. We have a few hundreds of our old stock on hand, and will sell them at 18 cents each. WARRANTED GENUINE. Orders for fifty will have one bottle of our Patent Antiseptic sent with the goods—the use of which will entirely prevent all huffing of the Cheese. Letters, Post-paid, enclosing remittance, will receive prompt attention.

MARTIN COLLETT & SON, 468 YONGE ST. v5-15-1t.

Toronto, July 28, 1868.

EXECUTOR'S SALE.

Valuable Farm for Sale BY AUCTION.

WILL BE SOLD BY AUCTION, AT THE

"DALY HOUSE," INGERSOLL, On Wednesday, Sept. 2, 1868,

AT ONE O'CLOCK, P. M., that valuable Farm, being Lot No. 21, 3rd Concession of Deroham, containing 100 ACRES, situated five miles from Ingersoll—the property belonging to the estate of the late William Scott.

TERMS: made known at time of sale, or on application to the Executor or Auctioneer, Ingersoll P. O.

JOHN MARKHAM, Executor.

JAS. BRADY, AUCTIONEER.

Deroham, July 30, 1868.

v5-15-2t.

The South Grenville Agricultural Society

WILL HOLD THE ELEVENTH ANNUAL EXHIBITION, AT PRESCOTT,

ON Wednesday, Thursday, and Friday, Sept. 30, Oct. 1 & 2, 1868.

WM. TRACY, Secy. and Treas.,

Prescott, August 1, 1868.

(v5-15-2t.)

pro tem.

MILLER'S

INFALLIBLE



TICK DESTROYER FOR SHEEP!

DESTROYS THE TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and \$1, with full directions on each package. A 35c. box will clean twenty sheep.

HUGH MILLER & Co.,

187 King Street East.

Medical Hall Toronto.

v4-14-1f

DIEHL WHEAT.

THE Subscriber has for sale a quantity of DIEHL WHEAT at \$2 per Bushel.

LEWIS SPRINGER,

v5-15-4t.*

Hamilton, Ont.

THE FINEST STRAWBERRY

FOR AMATEUR CULTURE!—NAPOLEON III., of LARGE SIZE, HIGHEST FLAVOR, GREAT PRODUCTIVENESS, AND EXCELLENT VIGOR AND HARDINESS. We offer a splendid stock of young, thrifty plants of this valuable new French variety. Illustrated Descriptive Circular mailed to applicants.

Price of Plants, (by mail, Postage paid.) \$3.00 per doz.

EDWARD J. EVANS & Co.,

v5-15-4t.

YORK, PENNA, U. S.

DIEHL WHEAT FOR SEED.

PARTIES in want of the BEST SEED WHEAT, can be supplied by the undersigned, who has for sale a quantity of excellent Diehl Wheat.

JAMES MCNAIR,

RICHMOND HILL, P. O.

v5-15-1t.*

Markets.

Toronto Markets.

"CANADA FARMER" Office, July 30th, 1868.

FLOUR AND GRAIN.

The Produce market during the past fortnight has been quiet; there has been little doing owing to the lightness of the stocks of flour and grain here.

Flour.—The market has been quiet but firm. There has been a fair demand for fresh ground No. 1 Super, but there were few lots in the market. Prices have been steadily advancing. Holders now ask \$6.75 for choice brands, and some sales took place at that price, which may be taken as the ruling market price here.

Oatmeal—Selling at from \$6 to \$6.25.

Wheat.—The market is almost bare of spring wheat, for which there has been a fair demand. Several small lots sold at \$1.50; there are buyers of car lots at that price. Fall wheat has been offering freely, but there was little or no demand; the market is decidedly dull for fall wheat; lots were offering during the week at \$1.50, with no buyers at that price. To-day a car sold at \$1.45.

Oats.—The market is firm, with good demand; there are not many lots offering; holders are now asking 55c for car lots. To-day 3 cars sold at 53c at Port Hope.

Barley—Nothing doing and nominal.

Peas.—The stocks here being almost exhausted, there has been nothing doing in car lots. Prices are therefore entirely nominal.

Hay—Good supply, at \$12 to \$15 per ton.

Straw—In demand, at \$15 per ton.

PROVISIONS.

Pork—Stocks light and held firmly at \$23 50 for mess.

Bacon—In brisk demand at 11c. to 11½c. for Canadian.

Hams—Selling freely at from 14c. to 15c. for smoked.

Butter.—The market for the past week has increased in firmness; the dry weather at home, with favourable foreign advices, has caused dealers to buy freely at our quotations. We consider the prospects to depend upon the weather. We quote even yellow at 14c. to 15c. Selected parcels at 15c. to 16½c.

Eggs—Lower; offered at from 11c. to 11½c.

Cheese—Quiet without decided change in prices. We quote 9½c. to 11c.

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. Lambskins, green, 15c.; do. pelts, 10c.

THE CATTLE MARKET.

We quote, per 100 lbs., dressed weight:—1st class cattle, \$6; 2nd do. \$5; 3rd \$4. Sheep have been in fair supply. 1st class, \$4; 2nd do. \$3; 3rd do. \$2. Lambs have been in demand. We quote: 1st class \$2.50 each; 2nd do. \$2; 3rd do. \$1.50. Calves have been offering freely. There has, however, not been much demand. 1st class \$6 each; 2nd do. \$4; 3rd do. \$2.

Montreal Markets, July 30.—Flour, superior extra, \$7 50; Extra, \$6.80 to \$7; Fancy, \$6.60; Welland Canal superfine, \$6.65; Superfine No. 1 Canada Wheat \$6.60 to \$6.70; Superfine No. 1 Western wheat, \$6.30 to \$6.40, No. 2 do. \$5.85 to \$6.10; Bag flour \$3.30 to \$3.60. Wheat—Canada Fall, \$1.45 to \$1.50; Canada Spring, \$1.55 to \$1.60; Wes. ern, \$1.42 to \$1.45. Oats—Per 32 lbs., 44c. to 45c. Barley—Per 48 lbs., 90c. Butter—Dairy, 15c. to 17c.; store packed, 13c. to 16c. Cheese—Factory, 9c. to 10c. per lb. Ashes—Pots. \$5.65 to \$5.70; Pearls, \$5.50 to \$5.52. Pork—Mess, \$24.75 to \$25; Prime Mess, \$18.75; Prime, \$18. Peas—\$1.12 to \$1.16. Rye Flour—\$5.75 to \$6.

Quehph Markets, July 30.—Fall wheat, per bush, \$1 40 to \$1 45; spring wheat, \$1 44 to \$1 40; oats, 50c to 61c; peas, 65c to 70c; barley, 70c; wool, 26c to 27c; hides, per 100 lbs, \$8; beef, per 100 lbs, \$7 to \$8; straw, per load, \$3; hay, per ton, \$7 to \$8; eggs per dozen, 12c to 13c; butter, per lb., 12c to 16c; potatoes, per bag, \$1 25 to \$1 50; sheep skins, 20c to 30c.

Hamilton Markets, July 30, 1868.—Fall Wheat, per bush, \$1.40 to \$1.47; Spring Wheat, \$1.38 to \$1.40; Barley, \$1 to \$1.5; Oats 60c. to 65c.; Peas 80c. to 85c.; Corn 65c to 70c.; Potatoes per bag \$1.25 to \$1.50.

Milwaukee Markets.—July 29, noon.—Wm. Young & Co.'s report.—Wheat—Receipts, 6,000 bushels; shipments 6,000 bus. No. 1 wheat firm at \$2.14; No. 2 do. at \$1.78 to \$1.79. Flour quiet and unchanged. Pork firm at \$28 to \$28.25.

Chicago Markets, July 29, noon.—William Young & Co.'s report.—Wheat—Receipts, 29,000 bushels; shipments, 1,000 bus.; No. 2 Wheat firm at \$1.80. Corn—Less active at 94½c. to 95c.; receipts 84,000 bush; shipments, 51,000 bush. Pork—Firm at \$28.25 to \$28.50.

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