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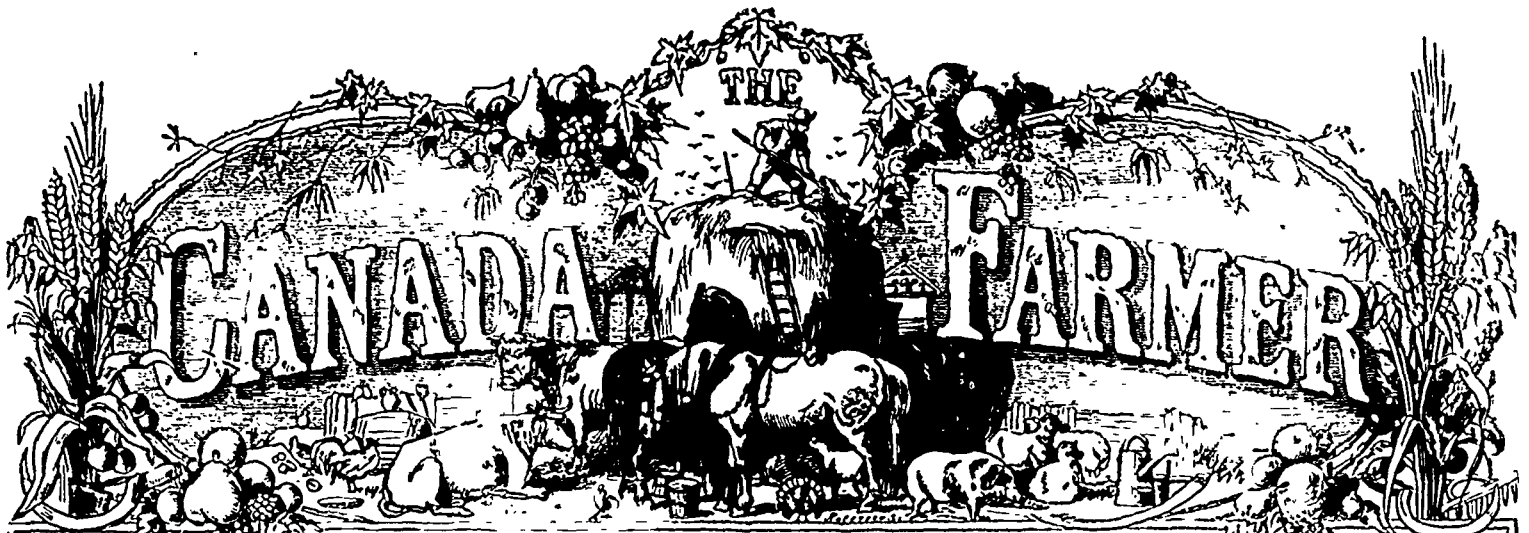
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POSTAGE FREE.

The Field.

Familiar Talks on Agricultural Principles.

PEAS.

THE pea belongs to what are called *leguminous plants*, which are thus named from their bearing legumes, or pods, as beans, peas, tares, &c. They are an extensive order of plants, containing a great variety of useful and beautiful species, highly valued in practical agriculture. Beside these plants which are strictly leguminous, this class embraces a wide range of enriching or ameliorating crops, such as clover, lucerne, sainfoin, &c. These last are of course less exhausting to the soil than those first named, not only because they seldom mature their seeds, but also because they borrow their food largely from the atmosphere.

Chemical analysis of the pea shows the following results: 1,000 parts of peas yielded 501 parts of starch, 22 of saccharine matter, 35 of albuminous matter, and 16 parts of extract. The ashes obtained by burning the pea plant when in flower, when subjected to analytical tests, gave for 100 parts of ashes: soluble salts, 49.8 parts; earthy phosphates, 17.25; earthy carbonates, 6; silica, 2.3; metallic oxides, 1; and loss, 24.65 parts. From the ashes of the ripe plant, the following results have been obtained: soluble salts, 34.25 parts; earthy phosphates, 22; earthy carbonates, 14; silica, 11; metallic oxides, 2.5; and loss, 17.25 parts. The straw of the pea contains large quantities of lime, and hence this fertilizer, or composts containing it, are suitable applications to this crop. The grain is highly nutritious, containing a large proportion of farinaceous and saccharine matter, and the straw, if harvested in good condition, is thought by some to be scarcely inferior to meadow hay.

In England, peas are considered rather an uncertain crop, but in this country they seldom fail. As a cleanser of foul land they are very useful, their dense growth mulching the ground, smothering down weeds and grass, and rendering the soil moist and mellow. They should never be sown year after year on the same land, though they may follow any farm crop in the rotation. Drawing largely on the soil, they should not be grown often. They do best on a rich, light, friable loam, but will flourish on most soils, except the two extremes of very stiff clay or very light sand. Coarse barn-yard manures are not adapted for this crop, as they make the haulm grow rank without a corresponding yield of grain. Fine, well-rotted composts or ashes, plaster or lime, are the best fertilizers for the pea. It is best, however, not to manure the land immediately for peas, but to let them follow a crop which has been liberally dressed. A single deep ploughing, followed by the

harrow, is considered sufficient preparation for sowing peas. Like all grain, the preferable method of sowing is with the drill, but they do well sown broad-cast. Some mix them with oats, and obtain a fine yield. Rolling with a heavy field roller is advisable when it can be done. Peas are sometimes grown as a green forage plant, and also as a green manure crop to plough under. When allowed to ripen, they are cut and gathered in small heaps with the scythe, hauled to the barn, and thrashed, usually with the flail.

The pea is very liable to attack from a species of weevil, commonly known as the pea-bug. This insect deposits its eggs in the pod just as the pea is swelling. The mischief is done at night or in cloudy weather. As soon as it is hatched, the grub makes its way into the young pea, and remains there till toward the close of the next winter, when it leaves its abode, after having changed into a pupa and cast its skin. A smooth round hole gives evidence of its long sojourn. Generally, if not always, this insect leaves the germ uninjured, so that seed infected by it will germ, though of course the grain is diminished in value by its depredations. There seems no effectual way of preventing the attacks of this insect. Some recommend very early sowing, and others very late sowing, but this troublesome little creature lives in other plants, so that its destruction is well-nigh an impossibility. Professor Dawson is an advocate of early sowing, and remarks that it is worthy of enquiry whether, by sowing betimes, peas may not be harvested soon enough in the season to take a crop of buckwheat from the same ground. If this is not practicable, a sowing of buckwheat might follow peas, and be ploughed in to enrich the soil for a crop of something else the following year.

Flax Culture.

To the Editor of THE CANADIAN FARMER:

Sir,—That flax culture is largely on the increase in this country, is beyond a doubt; but we are yet far short of what might be done, when it is freely acknowledged from the few trials that have been made to be a paying crop; and to those who may have doubts on this subject, I would say, go and enquire for yourselves of your brother farmers, from whom I have taken my information. Among others, I would first introduce you to a well-known agriculturist in the county of York, Col. R. L. Denison, intimately connected with the Board of Agriculture ever since its formation in Upper Canada. He will tell you he pulled from one acre, last year, *three tons* of flax. This, you will observe, was from the Riga seed, imported by the Government. He received for his crop the handsome sum of \$48, or, at the rate of \$16 per ton; this, too, out of the stock, before he had entered on taking off any of his other crops. At Bradford, in the county of Simcoe, Mr. Cross raised a similar

quantity per acre. In several instances, in the neighbourhood of Mr. Brown's mills, near Woodstock, parties have realized this amount; in fact there are few localities where scutching mills have been established, that you will not find a number of farmers who produce this quantity per acre. But in order to make a safe estimate, I have always put down two tons per acre as an average, and at from \$12 to \$15 per acre, it is a paying crop, and a good substitute where wheat has failed, to the extent it has of late years.

We had some ten or twelve thousand acres last year, but what is this when we look at the extent of agricultural operations in Canada? It is not over a sixth of a township. Let us compare this with other flax-growing countries—Ireland for instance. There we find, in 1864, the number of acres amounting to 301,942, enough to cover five of our townships, allowing 60,000 acres to a township, and all arable. Yet the manufacturers in the north are heavy importers from all other flax farming countries, and there is no reason why we should not export from Canada with prices ranging as they are there, from 11s. to 16s. sterling per stone of 14lbs.

It is to be hoped the samples of Canadian flax sent to the Paris Exhibition will claim attention. Many of them were fine, and evince a marked improvement in quality during the last two years. One sample of dew-retted flax from the mills of Col. Mitchell, Norval, was a very superior article, and no doubt will be much admired. The value of seed alone is sufficient to induce our farmers to grow it more extensively, the price being at present \$2 per bushel for the American market, in the face of all the duty the Americans put on; neither should it be forgotten that only 56lbs is the bushel; 4lbs less than wheat; on a large quantity quite an item. From 6 to 8 bushels is a common yield to the ton—quite sufficient of itself to encourage any farmer to grow more or less. Suppose each farmer would put in two acres on each 100, what a quantity would be produced in Canada! If it exhausts the land as we are told by some it does, he could afford to lose a little; but on the contrary, the finest crops of both fall and spring wheat have been grown immediately after flax. Ask this question of the farmers near Norval, from whom I have taken this information.

Complaints are constantly heard in all large cities and towns—Toronto not excepted—of the number of idlers of all classes seen on the streets. Now, if a company were organized to start a Linen manufactory, say with a capital of even ten or fifteen thousand pounds, employment would be created for perhaps a thousand hands; the services of the boy or girl from 10 years of age, and upwards, can be made available, and they are not only furnished with sufficient wages to keep them, but they learn a trade sufficient to make provision for them for life. This

is well worthy the consideration of the citizens of Toronto. While the establishment of such a manufactory would be an improvement, it would be a great boon to the city to get rid of this surplus population, and turn their services to good account. The great advantages of a linen manufactory are most obvious where water-power is not available, and when a scutch mill is attached, it will furnish its own fuel—no small item with wood as it is in Toronto, at \$8 a cord.

The wardens of each County will excuse my making a suggestion, as I am confident would be productive of much good if acted on. Let a small appropriation be made in each County, and offered as a premium to the party who would erect the first scutching mill in a Township or County. This has been done already in the County of Simcoe, and with good results. Before farmers will grow flax, a mill must be built—to prepare it for market. Parties who may not be acquainted with the mode of cultivation, &c., &c., who wish to make the trial, and will let me know, I will only be too glad to attend a meeting in their neighbourhood, and explain why we should grow flax more extensively in Canada.

JOHN A. DONALDSON.

Large Crops of Wheat.

THE discussion about the peck of Wheat per acre, the laughter and disbelief about 7 quarters of White Wheat, or 8 quarters of Revett Wheat per imperial acre, present to my mind a painful sense of our national agricultural humiliation; because, if those sneers and laughter are honest and genuine, it proves that small crops are the order of the day, and that crops such as I have described are very uncommon and produced at very great cost. I also come to be convinced that great corn crops cannot be grown by the ordinary thick sowing, and that this thick sowing is a national calamity, owing to its injuring and diminishing the crops. I know and expect that this statement of my honest conviction will raise a fresh storm of doubt and disbelief, but I will nevertheless calmly give my reasons for coming to such a conclusion; and, first, when I recommend high farming, I am very frequently told "that it is all very well for root and green crops, but that it won't do for corn, for we get our crops laid prematurely, and the quality and quantity both injured if we farm so high." But it seems never to have occurred to such persons that the real cause of disaster in such cases is not too much manure, but too much seed. The roots of the thickly sown plants, when the rootlets attempt to extend and ramify, meet with opponents having the same requirements; a grand battle ensues as to which shall have the greatest number of soil granules, and, as in all other battles, the weaker perish, and the victors are either crippled or injured. There can be no more mistake about this than about an over-thick or uninjured plantation, or a crop of unhoed and unsingled Turnips. Liebig justly says that the greatest enemy to a Wheat plant is another Wheat plant, for the very obvious reason that they both require identical elements of food. Small heads and kernels and weak flabby straw are the natural consequences of this competition.

I never heard one of my own laborers say that I farmed too high for Wheat. Well, then, I assert confidently that one main cause of small grown crops is thick sowing, and that however rich your soil, you can rarely obtain a great crop with the usual quantities of seed sown. There are several awkward attempts at correcting this evil; first, by sowing late, and secondly, by flagging the Wheat at certain periods of its growth. A money-making high farmer (an old friend of mine) who grows 400 acres of Wheat annually, employs a whole gang of men in flagging all his Wheat, and very often all his Oats and Barley. This is done when the broad or flag leaf is well grown in June, care being taken to avoid cutting into the sheath that contains the ear. He knows quite well that unless this were done the crop would be prematurely laid and greatly injured. By this flagging the stem is relieved of weight, and stands more erect, the air and light are thus admitted to the lower portion of the stem, the overhanging canopy of flags no longer prevents evaporation or causes mildew. All this is rendered unnecessary by a more moderate quantity of seed. Let it be well understood that I lay down no fixed rate of quantity, but merely commend my brother farmers to try on a small scale comparative quantities, so as to arrive at conclusions suitable to their very various soils

and climates. Now, when a man sneers or gibes at one peck of seed per acre on heavy land, or even at my general quantity of one bushel per imperial acre, I know at once that he has never tried it, and therefore knows nothing about it, having had or seen no experimental facts on which to form his opinion, and, therefore, instead of being angry, I can only pity or regret the absence of a more sound mode of arriving at a just and safe conclusion. I plead guilty to being an agricultural disturber in this matter of thin sowing, and so long as I live and have my faculties I will continue to deprecate erroneous agricultural practice, with the sole and earnest view to benefit and elevate my country. But, eschewing motives, let us see what there is extraordinary in growing 7 quarters of White Wheat, and then from 6 to 8 quarters of Revett, on the same ground in two successive years, the land being poor stiff heavy land, and the season suitable to such land; namely, plenty of sunshine and not too much moisture, such as 1864 and 1865. "Oh! but then you take Wheat after Wheat, Mr. Mèchl, which we dare not do."

Let there be no misunderstanding about this. I know that many who make this remark, and farm high, take Barley after Wheat, and get it of better quality as well, under their system of thick sowing, than taking it immediately after Turnips sown off with cake. The land has less "branching" force after the removal of the Wheat crop.

Now, although I take two Wheat crops, the kinds differ a most as much as Wheat and Barley. I never attempt to take two glassy Wheat crops in succession. I know that they would fail, because the silica is not dissolved in time for a second glassy crop; but, as a second crop I take the pithy-strawed non-glassy Bearded Revett, which gives, on our stiff soil, a larger return than Barley.

But, then I am convinced by practical experiment that I should be unable to obtain 7 or 8 quarters from 2 or 3 bushels of seed, although I frequently do so from 4 pecks, or even from 1 peck. These conclusions have been arrived at by careful experiment. For several years I tried one bushel of Wheat per acre, against 2 bushels of Wheat per acre—both drilled. The difference in favour of the 1 bushel was equal to a rent of 30s. per acre. This settled the question so far as my heavy land was concerned; but every man must judge for himself, not by imagination, but by experiment. Whenever we hear of very great yields, it is generally from a very thin plant, that was almost condemned to be ploughed up in the spring—a branching crop is almost always a good one; but thick-sown cannot branch—there is no room or power for this. As to manuring, I keep plenty of live stock, and so make much manure.

I use 2 cwt of Peruvian guano, mixed with 1 to 2 cwt of salt, as manure for Wheat after Beans, or roots drawn off, and also for Revett Wheat after White Wheat. So much does a warm, dry summer, benefit our heavy land, that in 1865 my 40 acres of heavy land Wheat averaged 7 quarters per acre—not farmers' acres, but really and correctly measured acres. After a crop of Mangel I got 7 quarters, and after beans 7 to 5 bushels of Red Wheat, and after 7 quarters of White Wheat 8 quarters of Revett.

In conclusion, it must not be supposed that I recommend a general seeding or sowing of 1 peck an acre of Wheat; but the success during three years of such a quantity proves that a great reduction in the absurd quantities usually sown may safely take place. A bushel an acre on my heavy land is more than is required, and leaves an ample margin for slug or other damage. The peck an acre has, however, in my case, surpassed the bushel in yield of corn and straw two years out of three.

My object is to induce agriculturists to try reasonable comparative experiments, which as men of business they are bound to do, and not rely upon antiquated quantities only suited to a state of things either long since passed away, or gradually changing. Broadcast quantities are not suited to modern drill culture.

That there is need for great amendment is clear when I am even now frequently told, "We always put in 7 bushels of Oats, 4 of Barley, and 3 of Wheat." Take heed to local measures, for at Carlisle some farmers told me, to my surprise, that they only put in a bushel of Wheat, but I soon found that a Carlisle bushel is equal to 3 imperial bushels.

On very light land, where Wheat does not usually branch freely, more seed is required, especially where subject to wireworm and foot. In this case plenty of salt, some Rape-cake, and compression are more beneficial than too much seed. Salt not only removes wire-worm, but protects the roots against frost.

I hope that another year, instead of silly sneers and mis-statements, I may receive a list of carefully conducted experiments from various districts and

differing soils. On poor, miserably farmed, un-drained small fields, shut in by immense weed-growing hedges, and robbed by the roots of worthless pollards, a good crop can scarcely be expected, be the quantity of seed large or small. Unfortunately, I know of too much such land. My usual quantity of seed on the heavy land is 2 bushels of Oats, 6 pecks of Barley. 4 pecks of wheat per imperial acre.—*J. J. Mechi, Tiptree, Jan. 1.*

I take this opportunity of wishing many happy and prosperous years to my brother agriculturists. In our county Wheats promise particularly well, and the land is altogether in a more fit condition than at the same period last year. Let us, therefore, hope for a good crop and a fair price.—*Gardeners' Chronicle.*

Experiments in Top Dressing.

To the Editor of THE CANADA FARMER :

SIR,—I see in your journal some discussion on top-dressing, or ploughing under manure. My experience is in favour of top-dressing for any crop, excepting corn. For corn, I would rather have the manure under ground, for this reason: I think it hoes better, and in a dry season gives the land more moisture. Such at least seems the effect on my land, which is principally a black sandy mould. Another reason is that I always plough a sod in the spring for corn; and I think in ploughing the manure down with the sod, that it rots the sod better. But for barley, I would not have it put on any other way than on the top, evenly scattered over—as evenly as possible. The manure should be previously piled and limed enough to cause it to rot thoroughly, and to kill foul seeds. I think the difference in my crop of barley is nearly one-third over and above what is raised with the manure ploughed under. Let farmers try it, and see on a small scale how it will answer; and I will warrant they will never regret the trial if they succeed as I did. The first trial I gave it I sowed two acres, using two and a half bushels of two rowed barley to the acre. I top-dressed this patch, and harvested one hundred and fifteen bushels from the two acres, and I have not heard of a better crop secured by ploughing manure under yet. I have also experimented more or less on sowing plaster and unleached ashes on barley, after it was about two inches out of the ground, sowing it broad-cast, and following after with a roller to press it down. It is my opinion that if there are any wire worms attacking it at that time, the roller alone will drive them down a peg or two; but the ashes and plaster will set them back farther yet; for I had a piece of barley which, when up about two inches high, looked as though the fire had run through it, and my neighbours thought it was gone up; the true cause of the mischief was the wire-worms eating it up. I sowed ashes and plaster on it, and rolled it down, and in less than a week I was told that I had the best thriving piece of barley in the county of Welland. W. D.

Thorold township, Co. of Welland.

Manufacture of Sugar from the Beet in Canada.

To the Editor of THE CANADA FARMER :

SIR,—In the report of the proceedings of the Board of Trade of Toronto, published in the *Leader*, I see that Mr. Clarkson called the attention of the meeting to the growing importance of the manufacture of beet-root sugar in Europe, and it was finally resolved that the President of the Board, who was about to visit Europe, be requested to examine the beet-root sugar establishments there, and to procure samples of the best seed suitable for the manufacture of sugar in this country, in order to encourage the farmers of Canada to plant beets the ensuing spring.

I would not unnecessarily throw anything in the way of improvements in Canada; quite the reverse; and, with the same object in view, this subject engaged my attention many years ago.

When I saw the delightful white sugar made from the beet-root that is used all over France, and know-

ing how easily we could grow the roots to perfection in Canada, I felt very anxious to see the establishment of such factories in my own country, and visited many places with that view, and at last came to the conclusion that we could not manufacture to advantage, however well we could grow the beet, and for this simple reason: the time was too short between the maturity of the root and the severe winter, in fact only a few weeks at most available for the purpose, while in France the winter is so mild that the roots can be preserved almost without any covering, while here they would require to be covered so carefully to protect them from our severe frost that they would heat and rot, unless proper cellars were provided for their safety; and then they would have to be very extensive, so as to prevent too large masses being thrown together, and on many days during the severe frost they could hardly be carted from the cellar to the factory without freezing, which would materially injure them for sugar-making.

Many in the country will remember the celebrated humbug, Dr. Napheg, and his sugar-beet establishment at Paris, U. C., and how he fooled and cheated many worthy people by his lectures and samples.

DENIZEN.

The White Willow for Fences.

I have seen the white willow growing in many places in this State and the West, and wish to say something regarding its value for fencing. Those who pronounce it a humbug are generally of that class of men who expect nearly all kinds of shrubbery and fruit trees to grow vigorously and do well with little or no culture or pruning. Such men should not plant the willow, or any kind of hedge plant, expecting to make a good fence. I speak advisedly and positively when I say the white willow is not a humbug.

It is suited to making stockades or tree fences, but is unfit for hedges. But very few of those who try it succeed in making a good fence—perhaps not more than one in twenty. Want of care is the great trouble. It is often neglected for want of knowledge as to its management and not getting it started rightly. I will give a few directions for making a fence or stockade with the white willow:

Plant your cuttings in nursery rows, and cultivate them as well as you would so many rows of cabbage. After one season's growth take them up and plant them on the fence line, where they are to remain, taking particular care to have them stand perfectly upright or perpendicular, leaning neither to the right or left. In nearly all cases where the cuttings are planted on the fence line, at first the young shoots diverge in many ways from a perpendicular, and it is very difficult to make them grow straight up as they should. Hence they should be set in nursery rows one season, and then when replanted on the permanent fence line they can be set so as to avoid thus diverging, in various ways, from the proper upright position so necessary to make a decent-looking tree fence. They should be well cultivated with a horse-hoe on both sides of the row for two years at least after being set on the fence line; with as much care as a farmer would give to a row of corn. All the lower limbs should be carefully trimmed off twice during the season and the young plants encouraged to run up tall and straight, and no browsing from cattle or horses allowed. In this way good durable fences can be made, which will, in a few years, be quite a screen or shelter from the winter winds.

To make a fancy or ornamental tree fence and windbreak—set evergreens; Norway spruce, red cedar, white pine, are among the best, and white willow. Set about three evergreens, then a white willow, and so on alternating. Keep the willows trimmed up high so as not to interfere with the evergreens, and they will fill the entire space below, while the willows will shoot up much higher, their trunks being but little in the way of the evergreens. This style of fence, if well cared for, would, in a few years, be an ornament to any plantation.—*Cor Country Gentleman.*

SALT AND ASHES AS A MANURE.—A Georgia farmer writes the *Southern Cultivator* concerning two experiments made by him with salt and ashes mixed as manure for corn land. The salt used was the dirty article which fell from bacon while being stored in a warehouse, and mixed with leached ashes. About eight bushels of this mixture were sown broadcast upon an acre, with most marked and flattering results. The yield of corn per acre on the ground thus fertilized was very much greater than on that not thus prepared, paying the cost of the preparation many times over.

UNFERMENTED MANURE.—Many excellent farmers have an idea that manure to be most efficient in raising crops should be well-rotted; but this is a mistake. Manure loses a very heavy per centage of its real value by decomposition. Fresh manure, dripping with animal urine, and hauled directly from the stable on to the land, ploughed under, is worth nearly double that which has decomposed to a saponaceous consistence. When it is convenient for farmers to haul their manure on corn-ground from the stable as fast as it is made, it saves handling it twice, and forwards the work in busy spring time. No fears need be entertained that the atmosphere will carry off the strength of the manure if left on the surface. The only danger to be apprehended by this method will be in case of the ground being frozen and covered with snow or ice when the manure is applied; if upon sloping land, the virtue of the manure might wash away; but on level land there is no exception to this plan of operation during the entire fall and winter season.—*Germanstown Telegraph.*

Entomology.

Insects Injurious to the Turnip Crops.

The cultivation of the turnip as a field-crop has of late years increased to so great an extent, and the value of the root as a winter food for stock is becoming so generally acknowledged and appreciated, that any information respecting its culture, its natural history, its economy, and its insect enemies, must be of importance. In this department of THE CANADA FARMER, we shall, of course, confine ourselves to the discussion of the last mentioned particular—the insect enemies of the turnip, and their remedies.

There are few plants whose foes of this description are so numerous as those of the turnip. The late Mr. Curtis, whose writings on insects in relation to agriculture have proved of so much value in England, enumerates nearly forty species of insects, besides slugs and snails, which to some extent and on some occasions prove injurious to turnip crops. A writer in the *Popular Science Review* (January, 1866) draws a gloomy picture indeed of the work of these depredators, and were it not that he afterwards tells us how these foes are kept in check by various birds and insect parasites, we should be inclined to think that the English turnip growers would be driven to utter despair. "The ants," he says, "run off with the seed as soon as it is sown; that which is spared by the ants is attacked the moment the tender leaves appear above the surface, by one of the most formidable, albeit diminutive, enemies of all—namely, the little flea-beetle, popularly known throughout England as "the fly." Should the crop weather this storm, another blasting influence occasionally attacks it, in the shape of the "nigger" caterpillars of the turnip saw-fly, and the larvæ of the white butterflies; these soon make skeletons of the leaves, and defile them by their excrements. Beneath the cuticles of the leaves the larvæ of different kinds of two-winged flies excavate their winding tunnels; other dipterous larvæ riddle the turnip bulbs with innumerable mines, while the smother-fly, in two or three of its species (*Aphis*), entirely destroys the leaves. Fat grubs—bad luck to them!—the larvæ of certain moths, bite off the young root and sever it from the green portion; wire-worms,—i. e., the larvæ of various click-beetles (*Elateridæ*), centipedes, and weevil beetles, must be added to the long catalogue of turnip enemies. When we reflect on this formidable list of destructive agents in the form of insects, and add to it various fungi, it would seem almost to be a matter of wonder that turnips ever come to perfection at all in this country."

Such are the various kinds of depredators that the turnip crops of the English farmers are exposed to; let us now consider whether we have to encounter any similar attacks in this country. To take them in the order of the writer we have quoted:—First come the ants to run off with the newly-sown seed. Of these insects we have many species in Canada,

which may be found in infinite numbers in our gardens, and fields and forests, and some of them far surpass in size and strength any that inhabit the British Isles: their depredations, however, on the particular crop we are considering, have never, that we are aware, been noticed in this country.

Next, the flea-beetle, or "the fly," as it is commonly called. This little pest is, unfortunately, but too well known among us, though its ravages here cannot be compared with what it often commits in the "old country." Our species (*Ialtica striolata*, Fabr.), which differs slightly from its congener on the other side of the Atlantic, is a tiny little black beetle, with a wavy yellowish stripe down each wing-cover; it is rather less in length than a tenth of an inch, but though so small, it can leap to a comparatively enormous distance. It begins its work of destruction in the larva state by burrowing into the soft pulpy substance of the young leaves, and making winding passages under the outer skin: and then, when it becomes a beetle, it completes the mischief by eating holes through and through the leaves, especially the first pair that come up from the seed. A great number of remedies have been proposed from time to time in order to get rid of these pests; probably the best plan is to have, first of all, good, clean seed, free from charlock, of which this insect is especially fond, and then strive to produce as rapid a growth as possible by selecting new seed, steeping it before sowing, and putting it in the ground when there is a prospect of showery weather.

The next insect on the list is "the nigger" caterpillar of the turnip saw-fly (*Athalia centifolia*, Albin). An insect identical with, or very similar to this, has made its appearance in Canada west, as recorded in THE CANADA FARMER for Oct. 16, 1865 (vol. II, page 311), to which we must refer our readers for more detailed descriptions and information. One of the English white butterflies (*Pieris rapæ*) whose caterpillars feed upon the leaves of turnips and similar plants, about four years ago migrated to this side of the Atlantic, and has since been frequently captured in the neighbourhood of Quebec; its chief food, however, is the cabbage. In addition to this new-comer, we have an indigenous butterfly of the same genus (*Pieris oleracea*, Harris), whose pale green caterpillars have long been known for their habit of eating irregular holes in the leaves of turnips, cabbages and other cruciferous plants. The best remedy against these and many similar insects is the protection and encouragement of small birds—the farmer's true friends.

The foregoing insects, together with the plant-lice (*Aphides*) all attack the leaves of the turnip. We now come to a still more insidious class of enemies, those, namely, that make depredations upon the root. And here again we have something to correspond to those mentioned as found in England. Most people have noticed little white maggots in the roots of radishes; a similar kind may often be found in turnips, riddling the bulbs with their mines, and causing them to rot prematurely and become unfit for use. These maggots turn after a time into two-winged flies, which (according to Dr. Harris) strikingly resemble the *Athomyia canicularis* of Europe—the same genus of flies as those referred to by the writer in the *Popular Science Review*. Wire-worms, so called from their slenderness and unusual hardness, which prey upon roots during, it is said, four or five successive seasons, and then turn into the well-known spring-back or click beetles (*Elateridæ*), are by no means uncommon in this country. And even more destructive than these, are the horrid, fat, greasy-looking caterpillars called cutworms, from their disagreeable practice of cutting off the tops of young plants just at the surface of the earth; with these we are all, probably, but too familiar. The dull-coloured moths (*Agrotis*), into which they turn, may be taken in abundance on almost any summer night. These complete the long catalogue of insect ills which turnips are heir to; when we recount them all, we are inclined to wonder that there are over any left for the food of ourselves or our cattle; but Providence mercifully keeps them in check in various ways, so that we seldom find that they assail us in any great numbers at a time, though occasionally they appear to be let loose for destruction.

Stock Department.

Sheltered and Unsheltered Stock.

The care of animals during the winter season is a most important part of rural economy. More depends upon it than superficial thinkers are apt to suppose. It is pretty well understood now, at any rate by all farmers who are sufficiently enlightened to take an agricultural paper, that there is no farm management worthy the name that does not include manure-making as a prominent object. Without manure, land must run down as crops are successively taken off it. But if manure is to be saved, stock must be housed and fed in such a manner as to facilitate this important process. This is one way of looking at the subject of shelter.

Another view of it points at once to economy of food and the improvement of the manure. Animals exposed to the blasts of winter will be lean and skinny on an amount of food that would keep them comfortable if they were properly housed. Nor is it good policy to stint a sheltered animal, since the droppings of "lean kine" are of poor quality, and make a far less valuable fertilizer than those of well-kept creatures.

Again, an animal that has a hard time of it in getting through the winter, and comes out of it like a soldier who has been through a harassing campaign,

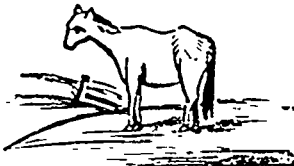


FIG. 2.—Storm-fed Calf.

requires considerable time to recruit so as to be good for anything the following season. Unsheltered and half-starved oxen are not fit to do any spring work; it will be midsummer before they are in decent condition. Cows thus neglected do not recover their vigour so as to be profitable until the season is half over. In many cases constitutional injury is done by exposure and starvation, such as is never wholly repaired.

These and similar considerations appeal to the farmer's pecuniary interest, which is far better served by taking care of live stock, than by treating them with neglect. There is, however, a higher view of the subject—that based on considerations of humanity. Man owes a duty to those lower tribes that, while they serve him, are dependent on him. It is a sin and a shame to doom innocent, unoffending, faithful creatures to months of discomfort and suffering. Questions of profit and loss entirely left out of view, we are under obligations to care for the comfort and happiness of the inferior animals to whom we stand in the relation of "Lords of creation."

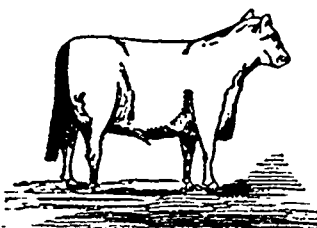


FIG. 3.—Stable-fed Calf

While there is pleasing evidence of improvement in this respect, it is still to be regretted that many farmers have yet to learn the first principles of right winter stock management. It is no rare or strange thing to behold scenes like that depicted in the ac-

companying engraving (fig. 1), which, together with the other cuts on this page, we copy from a recent number of the *Country Gentleman*. To their shame be it spoken, there are not a few Canadian farmers who are in the habit of wintering their stock in the open fields, and feeding them from stacks in the way the annexed picture represents. Thus exposed, animals consume far more food than they would do under cover, and yet never look hearty and comfortable.



FIG. 1.—Wintering Stock in the Open Fields.

It has been estimated that fully one-third of the food consumed under such circumstances, goes to restore the animal warmth abstracted by keen frosts, and swept away by cold winds. The extra food thus thrown away would soon amount to the cost of comfortable sheds and stalls. No contrast could be more complete and striking than that presented by the sleek, comfortable appearance of the well-housed and well-fed stock kept by the thrifty farmer, and the skinny, drawn-up, wretched-looking animals owned by the negligent and slipshod farmer. Picking out one of the best specimens from the former, and one of the worst specimens from the latter, the yearling cattle of the two classes of managers will present an appearance very like that shown in figs. 2 and 3, in which we have represented a storm-fed, and a sta-



FIG. 6.—Evergreen Screen.

ble-fed calf." Of course, shelter alone will not account for the difference. There must be abundant and regular feeding, cleanliness and care, along with the housing. Insufficient and irregular feeding, dirt, and want of attention will tell very unfavourably even on animals that are privileged with shelter. In fact, the winter care of stock is a business, and to succeed well it must have constant and thorough attention. For this it will pay in a double sense. The farmer's profits will be increased, and there will be a satisfaction and pleasure, instead of mortification and disgust, in surveying the flocks and herds. The *Country Gentleman*, in referring to the style of mismanagement once so common, remarks: "The feeling of many farmers for their cattle on entering winter and emerging from it, was like that of a general on taking his men into battle and coming out

of the conflict—he expected to lose many of his men as an unavoidable calamity. We can remember when it was common, in the same way, for farmers to compare notes by counting losses in their flocks of sheep in spring. Cattle sometimes, but not often, died in wintering. The more common calamity was the loss of flesh; and the degree of success or failure, was sometimes measured by the distance at which an animal's ribs could be counted when viewed across the field." Our contemporary adds: "We are glad to be able to say that such burlesque management has become quite rare." There is, however, still too much of it, and it is greatly to be wished that those who practise it could be effectually argued or shamed out of their folly.

Among all the tenants of the barn yard none suffer so severely from exposure and neglect as sheep, and none pay better for care in wintering than they do. Storm-fed flocks often contain specimens of which fig. 4 is no caricature. Unsheltered sheep generally come out of winter with their numbers more or less thinned by exposure, and their owners always calculate on loss from a cause which need not operate if proper means are adopted. Fig. 5 shows the appearance of the housed and well cared for animal. The journal above quoted remarks that "sheep owners have long since discovered that the loss from exposure in life, in flesh, in quantity and quality of wool, will pay for comfortable, permanent sheep sheds every two years."



FIG. 4.—Unhoused Sheep

It is not as though large outlay were required to house stock. Of course, expensive, ornamental buildings can be put up for this purpose. But very simple and cheap ones will do. A few posts and boards will make the sides, and a few poles covered with straw the roof of sheds in which animals may pass the winter very comfortably. The backwoods farmer can, with no outlay, and very little sacrifice of time and labour, make his creatures comfortable. Log walls and slab roofs answer an excellent purpose. Even now, in mid-winter, the backwoodsman who has no shelter for his little out-door family would do well to provide house and home for them. It is no great job to scrape out the snow from an area sufficiently large for the purpose. The cedar or black ash swamp will bear now, and the logs will glide beautifully over the snow and frozen ground. There



FIG. 5.—Housed Sheep.

is usually leisure in the winter season, and how could it be better improved than by making the stock comfortable?

A screen of evergreens, like that shown in fig. 6, makes an excellent shelter. The *Country Gentleman* recommends Norway spruce for the purpose, and says that, planted two or three feet apart in good medium soil, it will make a screen twelve or fifteen feet high in five years. As the trees grow older, the lower branches are cut off on the side away from the wind, up to a height of six or seven feet, and the branches above trained to grow down in the form of a shed roof. By tying them down when young, the branches may be made to take a drooping shape, and to shed the rain like a sloping roof. Our native balsam or cedar will answer a similar purpose, and our farmers would do well to surround their barn-yards with an evergreen enclosure. Besides acting as a wind-break, such an evergreen screen would be highly ornamental, and would enhance the value of any place on which it grew.

Benefits of Light and Ventilation.

Some persons think that in winter the domestic animals have sufficient light and ventilation through the chinks and joints of the logs and boards which compose their houses or sheds, and it must be confessed that in many instances this is true, and that they sometimes experience too much of those good things in the straw yard. Yet it will be admitted that great numbers of horses, cattle and sheep are confined in stables, houses or sheds from which light and pure air are wholly or partially excluded; and that these have a wonderful influence on the health of animals and plants the following illustrations will show.

Sir James Wylie mentions a remarkable instance of the influence of light. He states that the cases of disease among the horses on the dark side of an extensive cavalry barrack at St. Petersburg, have been uniformly, for many years, in the proportion of three to one of those which were kept on the side exposed to a strong light.

Light has a powerful influence on the health of the human body, as the following illustration will show: The late Baron Dupuytren, one of the most eminent surgeons of Paris, mentions the case of a lady whose maladies had baffled the skill of the most eminent practitioners. This lady resided in a dark room, into which the sun never shone, in one of the narrow streets of Paris. After a careful examination, the Baron was led to believe that her complaints arose from the absence of light and recommended her removal to a more cheerful situation. The change was made and immediately followed by the most beneficial results—all her complaints vanished.

Diseases which arise from a want of ventilation are sometimes perfectly cured by the admission of a plentiful supply of fresh air. A few years ago there was a great mortality among the horses of the British cavalry in some of the extensive barracks near London. On investigation it was discovered that the disease which proved so fatal was caused by imperfect ventilation. The defect was remedied and the mortality ceased.

Professor Johnston mentions the following case, which is worthy of attention:—A farmer had a large number of sheep, housed, and fed on mangel wurtzel, but a great many of them sickened and died, and he declared that it was the food that had killed them. A veterinary surgeon, however, who happened to be aware of the consequences of defective ventilation, pointed out the remedy—a better ventilation of the houses, which were over crowded. The defect was then remedied, the sickness and mortality ceased, and the sheep thrived well on the mangel wurtzel.—*Western Rural*

THE HAMPSHIRE DOWN ENGRAVING IN OUR LAST.—Through an unaccountable omission, which we much regret, no mention was made in the article on "The Hampshire Down," which appeared in our last issue, of the fact that the accompanying illustration was a portrait of the choice animal which took the first prize in his class at the late Provincial Exhibition. The engraving is an admirable likeness, and, notwithstanding the omission referred to, was doubtless recognized and identified by many of our readers who were at the last Provincial Show. This fine Hampshire Down ram was bred and exhibited by Mr. Joseph Wixson, of Claremont. At the time of the show, he weighed 254 lbs. He took the highest premium in "Class XVI: Shropshire and Hampshire Downs," as the "best ram, two shears and over."

Quantity of Stock on a Poor Pasture Farm.

F. G. says:—Would you give me an idea of the proper amount of stock for a 200 acre farm, 50 arable, 150 of poorish grass land, in good heart? Should you consider twenty-five dairy cows, with their female produce, say altogether fifty, of all ages, and 150 ewes, too heavy a stocking? My farm was originally all arable. On the convertible system, I have now, at considerable expense, laid three-fourths down to grass in very good heart. I sell fifty ewes every year, having taken three crops of lambs for others to take lamb and dam off, and supply their places with fifty shearling half-bred Cheviot and Leicester bought in. I sell all my lambs.—[It is somewhat difficult to give any decided opinion without some better personal knowledge of your farm than we can have from your description of it. But considering it is "poorish grass land," we are inclined to think the quantity of stock perhaps fully more than the land can well carry. Caird found that in Cheshire, on thirty-six farms, containing 6,000 acres, 2,200 of which were in tillage and 4,400 in pasture and hay, a stock of 1,176 cows, besides the necessary quantity of young cattle, was kept, in these proportions:—1st class, 600 acres, at 3 acres per cow, kept 200 cows; 2nd class, 800 acres, at 3½ acres per cow, kept 226 cows; 3rd class, 3,000 acres, at 4 acres per cow, kept 750 cows. In other dairy districts with which we are acquainted, where the keep of the cows, summer and winter, is pasture and hay, it requires from 3 to 3½ acres to keep a cow. You should assist the produce of your farm in keeping cows, by the use of artificial food, cake, &c., and endeavour to improve the pasture by top-dressing it with farm-yard dung, or phosphatic manures. Highly satisfactory results are obtained by top-dressing with the latter.—*The Farmer (Scottish)*.

How to Judge the Character of a Horse by Outward Appearances.

I offer the following suggestions, the result of my close observation and long experience. If the color be light-sorrel or chestnut, his feet, legs and face white—these are marks of kindness. If he is broad and full between the eyes, he may be depended on as a horse of good sense, and capable of being trained to anything; as respects such horses, the more kindly you treat them the better you will be treated in return. Nor will a horse of this description stand a whip if well fed. If you want a safe horse, avoid one that is dish-faced. He may be so far gentle as not to scare, but he will have too much go-ahead in him to be safe with everybody. If you want a fool, but a horse of great bottom, get a deep bay with not a white hair about him. If his face is a little dished so much the worse. Let no man ride such a horse that is not an expert rider; they are always tricky and unsafe. If you want one that will never give out, never buy a large over-grown one. A black horse cannot stand heat, nor a white one cold. If you want a gentle horse, get one with more or less white about the head, the more the better. Selections thus made are of great docility and gentleness.

Leyden, N. Y.

—*Cor. Country Gentleman.*

CHAS. L. THEYER.

Hints to Horse Keepers.

Never feed grain or give water to a horse when warm from exercise. Sweat is not always a sign of warmth; place the hand on the chest for a test. Water given after a meal is safer than to give it before.

Never drive fast or draw them hard immediately after giving food and drink.

Never drive faster than a walk with heavy loads.

Do not let horses stand long in the stable, at any time of the year, without exercising.

Feed regularly, and in quantity according to the appetite of the animal and the labor it performs.

Do not drive or work long in storms.

Do not let the horses stand in the stable cased in boots of dried mud, and coats of matted hair. Groom them.

At all times of the year make your horses comfortable when tied in the stable. They cannot help themselves there.

Teach your horses to trust and have confidence in you rather than fear.

TO PREVENT HORSES KICKING.—Having a horse that would kick everything to pieces in the stable, that he could reach, and having found a remedy for it, (after trying many things, such as fettering, whipping, hanging chains behind him for him to kick against, &c.) I send it to you. It is simply fastening a short trace-chain, about two feet long, by a strap to each hind foot, and let him do his own whipping if he cannot stand still without it, and he will not need to have boards nailed to his stall every day.

VALUE OF SHEEP IN OHIO AGRICULTURE.—A correspondent of the *Ohio Farmer*, in controverting the statement that "there is no one agricultural interest in Ohio equal to that of wool-growing," makes the following quotation from official statistics:—

Value of Sheep in Ohio in 1866,	\$20,391,212
" Cattle " " " " " " " " " " " " " "	29,674,519
" Horses " " " " " " " " " " " " " "	47,490,428
Value produced by sheep, in 1865, about	12,000,000
Value of Wheat crop " " " " " " " " " " " " " "	20,000,000
" Corn " " " " " " " " " " " " " "	35,000,000
" Hay " " " " " " " " " " " " " "	22,000,600

DOCKING LAMBS.—The sheep which carries a natural tail, or only half a one, is very certain not to take that care of it in regard to cleanliness, which it ought; on the contrary, it is often seen with large accumulations of dung attached to it, and presenting anything but a tasteful aspect. But the sheep is not to be blamed for this, for, unlike all other domestic animals, it can and does void its excrements in a lying posture, and a huge tail will not be removed on such occasions without an extraordinary effort. Hence it is that concretions of dung are formed, which attract the maggot-fly, and unless a timely discovery is made by the master, the sheep dies a horrible death. Thus the life of an animal is often jeopardized, and, therefore, is it not humane to deprive it of so poisonous an appendage?—*Morrill's American Shepherd*.

LOOK OUT FOR LEAD PAINT.—E. W. Hudson, Esq., of this town, recently lost two nice young heifers, by being poisoned from licking lead paint. The heifers had been running about the buildings where the painters had been at work, the owner not thinking of them licking the paint. As soon as they took the poison on their tongue, it was absorbed into the system, causing partial paralysis, and ending its work in convulsions and death. This case makes the third that I have seen this season. All three proved fatal. There is no known cure for this disease, and people should be very careful about having their cattle where they can get at this deadly poison; for it is certain death.—L. F. Gerald, Veterinary Surgeon, Woburn.—*Middlesex Journal*.

POWER OF A HORSE'S SCENT.—"There is one perception that a horse possesses, to which but little attention has been paid, and that is the power of scent. With some horses it is as acute as with the dog; and for the benefit of those that have to drive nights, such as physicians and others, this knowledge is invaluable. I never knew it to fail, and I have ridden hundreds of miles dark nights; and in consideration of this power of scent this is my simple advice; never check your horse nights, but give him a free head, and you may rest assured that he will never get off the road, and will carry you expeditiously and safely. In regard to the power of scent in a horse, I once knew one of a pair that was stolen, and recovered mainly by the track being made out by his mate, and that after he had been absent six or eight hours."

RULES FOR MEASURING FAT CATTLE.—M. R. A. C. writing to the *Farmer (Scottish)* says:—Can you furnish a calculation by which the weight of fat stock can be ascertained from their measurement? My impression is, that upon a calculation which would be quite correct for farmers' ordinary fat stock, an allowance must be made for extra fat show stock, and also for any animals very deficient behind the shoulder, and as these will weigh more than measurement would indicate.—[Take the girth immediately behind the shoulder, and the length from the top of the shoulder to a line perpendicular to the buttocks. Multiply the girth by itself, and that product by the length, and again by the decimal .07958; divide that product by 573; the result will be the weight of the four quarters in imperial stones. You can get tables which will give you the result without the trouble of calculation, by ascertaining the girth and length as described. Care must be taken that the beast stands straight when measured, and that the measurements are correctly taken, as the difference of an inch will tell considerably on the result. An allowance must be made for extra fat animals, and the same deducted when the beasts are not quite up to the mark. The proportion to be added or deducted is usually stated at 1-20th. Considerable practice is required in order to measure correctly, and the judgment must be exercised as to the condition of the animals. See further the *Illustrated Farmer and Gardeners Almanack* for 1867, page 39.]

The Dairy.

Dairying in England.

At the recent Dairyman's Convention held in Utica, New York, Mr. X. A. Willard gave a very detailed and full account of dairy matters in England, which country he visited, as the agent of the American Dairyman's Association, for the purpose of collecting information. We condense the following account of his address from the analysis of it given in the *Utica Herald*.

Mr. Willard gave a description of the dairy districts of England—the appearance of the country, the character of soil, grasses, and manner in which farms are generally conducted. The dairy farmers of America had much to learn in the management of farms. English farming was vastly superior to ours. It may be compared to our garden culture. Weeds are not permitted to get possession of the soil. The English farmer uses more capital in his business than we do. His rents and taxation are often more than the whole receipts of a farm of the same number of acres with us, and yet he pays these and makes a large profit.

The speaker described the stock kept upon the dairy farms and the way they were managed. The production of meat has become a science in Great Britain. Nowhere in the world will you find such excellent beef and mutton. The animals are bred with particular reference to this object.

The English dairy farmers do not wear out their cows and then sell the carcass of skin and bones, as is customary here, but when the cow begins to show signs of failing in milk she is fattened and sold at a profit. Mr. Willard described his tour through the great Cheese District in the south of England, giving a particular account of the manner of making cheese in Wiltshire, Gloucestershire and Somersetshire. He did not think there was anything in the Wiltshire or Gloucester process that would be of any advantage to American dairymen. The cheese was generally inferior to our factory make. The quantity made annually per cow was less than in our best dairies, but the Cheddar dairymen did better. They often made as much as 100 pounds per cow, annually. The Cheddar cheese took its name from a small village in Somersetshire, situated at the foot of the Mendip hills. It is a thick cheese, 15½ inches in diameter, and from 12 to 14 inches high, and bears the highest quotations of any in the English markets. The shape was originated about one hundred years ago, the farmers of a neighborhood combining their milk, and making the cheese at each other's houses in turn. It is a very high character of cheese, and its excellence has never been surpassed in American dairies. The distinctive features of excellence in Cheddar cheese are embraced in the following points:

1st. Mildness and purity of flavor; 2nd. Quality, which consists of mellowness and richness under the tongue; 3rd. Long keeping qualities; 4th. Solidity or freedom from eyes or holes; 5th. an economical shape as regards shrinkage, handling and cutting.

A minute description of the process of manufacture was given, as Mr. Willard saw it in the Somerset dairies. He was at some of the most noted dairies in the country. Was at Mr. Gibbons', who took the gold medal for the best cheese at the International Exhibition, at Paris. He was at Mr. Josiah Harding's, at Marksbury, the great exponent of Cheddar cheese making in England, and with Mr. Adam, of Gorsty Hill, Cheshire, who has written an essay on cheese making, and was the means of introducing this process into Scotland and Cheshire. This process, Mr. Willard thought, was the only one from which suggestions of practical utility could be drawn, that would be of value for the cheese makers of America.

The leading features of the process consisted in an early expulsion of the whey, exposing the curd a long time to the air, and allowing it to come to maturity heaped up in the tub or spread out in the sink. This, together with the grinding of the curd, salting and pressing, differed from the process usually adopted at our factories. He thought the early drawing of the whey an advantage, since the whey often contains taints of the worst character. The

sooner it could be got rid of, consistent with necessary operations, the better it would be. The curds should undergo the proper chemical changes after the whey was drawn. We can not give in a brief abstract all the peculiar features of this process, or the many valuable and interesting suggestions offered by the speaker. To the cheese makers present, this part of the lecture must have proved of the greatest utility.

Mr. Willard gave high praise to the English dairymen for the perfect neatness and cleanliness of their dairies. Nothing in English cheese making struck him with so much force and admiration as the cleanliness in which everything is conducted. The milking is very carefully performed in tin pails. The dairy is located out of the reach of bad odors, or anything likely to taint the milk. The milk rooms have stone floors, the joints of the flagging cemented, so that no strops or decomposed milk can find an entrance. The utensils and everything about the dairy are kept as clean as the table and crockery of the most fastidious housewife. This feature of cleanliness, the speaker said, he found wherever he went, from the Royal Dairy, at Windsor, and radiating from thence all through England. He believed it was this cleanliness and the untainted condition of the milk, together with the even temperature of curing rooms, that were the leading causes of the fine flavor which is characteristic of some of the English cheese.

The cheese makers of America have a hot, bad climate to contend with. Much of the milk in hot weather was spoiled before it reached the factory. The practice of putting warm milk in cans, and covering closely, and then taking it a long distance to the factory, was objectionable; the milk should be cooled and divested of its animal odor before leaving the farm. It was a well-known fact that milk right from the cow, shut up in a vessel, soon becomes putrid in hot weather. Many cheese manufacturers complain that milk, often, when it reaches the factory, has a fetid, sickening odor. Here is the commencement of bad flavor. When the weather was unfavorable, with such milk, manipulated as it often is among the bad odors about the factory, it was impossible to make a fine flavored cheese. It was this putrid condition of the milk that was a fruitful cause of the early decay of American cheese.

In testing cheese abroad he had been mortified to get the taste of tainted rennet and the drippings of the stable. It was unpleasant to speak of these things, and doubtless unpleasant for dairymen to hear them, but the truth must be told. A reformation in this respect must be had, or we should never reach the standard at which we were aiming. In regard to appliances for making cheese, we were greatly in advance of the English. Our manufacture as a whole was better. Our cheese was richer in butter. English dealers spoke in high terms of the improvement that the factories had made in the texture and solidity of our cheese. The greatest fault complained of was bad flavor. The speaker gave several other causes of bad flavor, and spoke of the injury our cheese often received by being sent off in hot weather, and put into ships freighted with grain, oil cake, or other substances, from which taints were absorbed. The outward appearance of American cheese abroad was generally good. The nicer grades of cheese stood high in the English market. Some of our cheese was considered quite equal in flavor to the best, and was richer than the Cheddar. There was prejudice against American cheese, but it was fast wearing away. As to the real merits of the cheese of the two nations, the Cheddar was the only style that could compete with us.

The speaker gave a description of the manner in which Cheshire cheese is manufactured. There was nothing in the process adapted to America. Our factories are in every respect greatly in advance of the Cheshire dairies.

The styles of cheese demanded for the trade were then discussed at length with reference to the various markets. The Cheddar shapes as a whole were most popular, though in some of the markets there was no objection to the flat cheese. The Derby shape, if of rich quality and good flavor, would command the highest prices in London.

In the matter of color, advice was given which the speaker said would save our dairymen thousands of dollars. He described the colors required in the different markets of England, and the methods employed by the English annotto manufacturers for making their celebrated liquid annotto.

Mr. Willard gave a vivid picture of English farm life, the homes of the peasantry and of the wealthier classes. He took his hearers upon Mr. Harding's farm, introduced them to the proprietor, and told them how he managed a poor farm of 300 acres, paying in rents and taxation \$3,500 in gold, and yet was able to keep up a good establishment; and make an annual profit of over \$3,000 per year.

Mr. Willard said he had no fault to find with the English. He found them a generous and hospitable people. He received many acts of kindness from some of England's most distinguished men. He spoke of the friendly manner in which he was received by Dr. Voelcker, of London; Professor Gilbert, of Rothamsted; Mr. Frore, of Cambridge, editor of the *Journal of the Royal Agricultural Society*; Professor Gamgee, the great Veterinarian, and many others. He was many times urged to write for the *Journal of the Royal Agricultural Society*, and had intended to do so, but the work of the Association and of his letters home, left no time at his disposal for the purpose.

The lecturer closed by reviewing the condition of the English markets; the effect of the cattle plague in Cheshire; the English as a cheese-eating people, and other topics, in which was introduced much interesting and useful information, not hitherto presented by other writers and speakers. Mr. Willard travelled through England, Scotland, Ireland, France and Switzerland, but his lecture treated mostly of English agriculture and matters pertaining to the dairy husbandry of that country.

The Sidney Cheese Factory—The Profits of the Trade.

THE annual meeting of the stockholders of the "Front of Sidney Cheese Factory," was held on the 3rd January inst. The following is an abstract statement of the summer's business, which we commend to the careful perusal of the farmers of this county:

Cost of Factory, including building, vats, machinery, waggons for drawing milk, cans, &c., &c., \$2,250. The number of cows from which milk was received was 220, and the quantity of milk received 581,371 pounds, during 165 days. The amount of cheese made and sold was 59,498 pounds, which realized \$7,706 80. Expenses of manufacturing, including making, drawing milk, boxes, freight, commission on sales, etc., \$1,654 83, leaving a net balance of \$6,151 97, which was divided among 19 stockholders, each man receiving a cheque for his money. The Factory commenced operations on the 10th of May, and closed on the 15th of November. No milk was received at the Factory on Sunday, the milk obtained on Sunday was retained by the stockholders. We may here mention that the stockholders consist exclusively of those who furnish milk, each cow representing one share, so that every man furnishing milk has a proprietary interest in the Factory. The success which has attended this Factory has given the liveliest satisfaction to every stockholder, proving, as it does, that the manufacture of cheese not only pays, but is highly remunerative, and therefore cannot but be an incentive to others in different parts of the county to establish factories: it will render them to a great extent independent of the grain market, and at the same time improve the land. The more advanced farmers have learned that it is time to adopt some system by which their lands can be reclaimed from the exhausted state to which the constant cropping has reduced them, and there is no more effectual way of doing this than by establishing dairies. Many have been under the impression that the selling of milk to, or of sending it to a Factory was not as profitable as manufacturing butter and cheese themselves. Those who have supplied the Sidney Factory, have come to a different conclusion. The summer's business has convinced them that the most profitable use to which they can put their land is to stock it with cows, and supply milk to a Cheese Factory. The figures which we have given above show that each cow has netted, in cash, within a fraction of \$28 to its owner, from the 10th of May to the 15th of November, and one day's milking besides. But if we had the exact time that milk was furnished from the cows, it would show an income of over \$30 per cow, because in the figures given above we have made the calculation upon the assumption that milk was obtained from 220 cows for the whole time, when the fact is the full number of 220 cows were not obtained until the middle of June. The best illustration we can give of the success and profitability of cheese making is one in connection with this same factory. A man in the spring borrowed money and bought cows, and sent the milk to the Factory during the summer. This fall, when the division was made, he received sufficient money as his share to pay for the cows, and to pay for his stock in the Factory, of \$4 for each cow, thus giving him his stock on his farm and in the Factory for the trouble of pasturing and milking during the summer. If this is not sufficiently profitable we know not what is.

The Hon. Robert Read has presented the Company with the bonus of \$100, which he offered a year ago for the establishment of the first Cheese Factory in the county.—*Bellefleur Intelligencer*.

Veterinary Department.

Injuries Incident to Frosty Weather.

INTERFERING.

THE inside of the leg and fetlock joint is frequently injured from the horse striking or interfering. When the cut is situated high-towards the knee, it is called speedy cut. This injury may occur at any time, but we find it most common during the winter months, when high and sharp heels are necessarily applied to the shoes to prevent slipping. Some horses are more apt to interfere than others, and this greatly depends on the conformation. Horses with out-turned toes and narrow chests are exceedingly apt to strike their fetlocks when trotting, and this proves a serious objection to horses used for driving or saddle purposes. Young horses are often liable to interfere in the hind fetlocks, from their awkward manner when put to work; and also, if driven long distances when not in condition, they become tired and sluggish in their movements, and very seriously injure their legs. During the cold weather these injuries are very apt to be followed by acute inflammation, and the joint becomes very much swollen, the swelling extending upwards towards the hock or knee joint, as the case may be. The parts are exceedingly painful and hot, and the animal is very lame; the inflammation increases, and very often terminates in suppuration. Abscesses form, which burst and discharge large quantities of matter. In some cases the joint becomes very much diseased, and proves a very tedious and troublesome complaint. We have met with cases where abscess and sinuses extended from the knee to the fetlock joint. These injuries are often very much aggravated by the irritant dressings applied, with the view of keeping out the cold. A common dressing is what is generally known as Black Oils, which contain turpentine, oil of vitriol, and other powerful ingredients. This being applied to a recent wound, sets up violent inflammatory action, which often leads to very serious results.

In the treatment of those inflammatory swellings produced from interfering, the horse should have perfect rest, and the parts should be washed with soap and water. A poultice should then be applied over the parts, which greatly tends to allay the local irritation. When the animal is very lame, there is generally considerable constitutional disturbance; and it may be necessary to give a dose of purgative medicine, or instead a few doses of diuretic medicine, which proves beneficial, by increasing the action of the lymphatics or absorbents, thereby removing part of the effusion. When the pain and swelling increase, this shews that pus is forming, and the parts should be carefully examined, and whenever it feels soft and fluctuating the lancet should be freely used, so as to allow the matter to escape. If the lancet is used in proper time, it will often prevent a serious blemish. Poultices should be applied for several days, and renewed morning and night. As a cooling and astringent lotion, a solution of sulphate of zinc, or acetate of lead, is found to be a very convenient and useful application. If the suppurating sores present ragged-looking edges, a mild caustic must be applied, as the sulphate of copper, or nitrate of silver (lunar caustic).

TREAD.

Is a common injury during the winter, and consists in a bruise of the coronet betwixt the hair and the hoof. It is produced by the sharp heel or caulker of the shoe penetrating the parts. It is generally done in turning a horse suddenly, especially if amongst deep snow. Some horses do it when in the stable, from resting one foot upon the other. When the tread is deep, a great degree of inflammation is set up, and the animal is very lame; matter forms and burrows down under the hoof. In treating treads, or canks, the sore should be well cleaned, and, if extending under the hoof, the horn must be cut down so as to allow the free exit of any matter which may collect. A poultice of linseed meal should then be

applied, and the wound dressed morning and night with the compound tincture of benzoin. The horse should have perfect rest as long as lameness lasts. After recovery, a horny excrescence frequently grows betwixt the hair and the hoof, and although not injuring the horse in his action, it proves an eyesore. It may be removed by the knife.

To prevent treads, horses used for light driving need not be shod with sharp caulkers on the inside heel.

Poultry Yard.

Best Varieties of Poultry.

HAVING on many occasions been solicited by my friends to write a brief detail of the merits of the different breeds of our domestic poultry, I herewith send you the same in as clear and simple a manner as possible, with such practical remarks appended to each, that the birds most suited to the particular requirements of each amateur and breeder may be easily selected.

DORKINGS.—Grey, silver grey, speckled and white dorkings. Excellent barn-yard fowls; good layers and sitters; very good mothers; not calculated for confinement; unequalled as a table or market fowl; very large.

BRAMA POOTRA.—An invaluable fowl. Excellent layers; perfect sitters and mothers; so hardy they can be hatched and reared in any weather. These birds bear any confinement, and as winter layers excel all other birds.

BLACK SPANISH.—Very handsome birds—the aristocracy of poultry. Lay larger eggs than any other breed, and in great numbers; thrive in any locality, however confined; do not sit; their colour suited for any atmosphere.

COCHIN CHINA.—Seem to prefer a very limited space; capital layers; very hardy; seldom or never out of condition; good sitters; chickens very easily reared; pullets hatched in spring, are good winter layers.

HAMBURGS.—Very handsome birds; unusually good layers; bear moderate confinement well; do not sit; most attractive on lawns. Varieties—Spangled Hamburgs, Pencilled Hamburgs.

POLANDS.—Remarkably handsome birds; very good layers, but non-sitters; unfit for confinement. Varieties—Golden and silver spangled, and black with white topknots.

BANTAMS.—Useful to those who are fond of birds, and are deterred from keeping them by lack of accommodation; to those who have only a very limited space at command, I would recommend the different varieties of Bantams. The principal kinds are golden and silver-laced Sebrights, game, black and white, and Japanese.

DUCKS.—For table use exclusively, the Aylesbury stand first on the list. It attains early maturity and lays when no others do. The Rouen is a remarkably handsome duck, exactly resembling the wild duck in both sexes. Muscovy ducks are too well (and may I say unfavourably?) known to need description.—*Cor. Wilkes' Spirit of the Times.*

Turkeys—Chicken Hatching.

It is said that in France and other Continental states, a practice prevails in the business of chicken hatching which we believe has not yet been imitated here to any great extent, if at all. The process is to transfer the work of incubation to turkeys which are trained to or broke into the business. They are, at first, confined in boxes, with wire screens over them, in a dark room, till they become accustomed to the seclusion, when the screen is removed, and freedom of locomotion is accorded; when thus drilled, hens' eggs are placed in the box-nests and the process of incubation commences. As fast as the chickens come out they are removed and fresh eggs are supplied, and thus the hatching process is kept up for months without intermission. A traveller mentions a case where a turkey, had been setting and hatching for more than six months. Remarkable that the process seemed a cruel one, the owner replied that it was not so; that the turkeys came to like the business in time, and to prove it turned a turkey out and removed the eggs to one side of the nest. In a short time the turkey returned, calling plaintively for the eggs she had left, and on finding them seemed highly pleased with the discovery. Working them back into the nest, the business of incubation was resumed with evident marks of satisfaction.—*Rural New Yorker.*

The Apiary.

Large or Small-Hives.

To the Editor of THE CANADA FARMER :

Sir,—I have been much interested in the discussion on the proper size and shape of a bee-hive, by John Jewitt, of Lucknow, and "Bea Fancier," of Toronto. I see, also, in the last number of THE CANADA FARMER, a letter from your correspondent, "Briar," in which he says, referring to the discussion: "I was induced to conclude, backed by his [Mr. Jewitt's] experience of 26 years, that large hives were, after all, the right thing." But what does "Briar" call a large hive? I think we may infer from his letter that it is one affording room for the queen to deposit all the eggs she is capable of doing. Such a hive, however, would be a small one compared with Mr. Jewitt's No. 3 hive, which contains about 5,500 inches; whereas a hive containing 2,000 inches will, in nine cases out of ten, afford the required room. "Briar" takes the capacity of the Queen per day at quite too high a figure for a proper estimate. He says: "If we take the capacity of the Queen at 2,500 per day, 100 superficial inches per day for 21 days are required to receive her eggs." It is true that a very prolific queen will lay from 2,000 to 3,000 eggs in a day, but to continue to do that for 20 days is another thing. Where you find one queen that will lay 2,000 per day, you will find nine that will not lay 1,500.

The "Baron of Berlepsch," in the tenth chapter of his work on "The Bee and Bee Culture," speaking of a very prolific Queen, says: "I placed her on the comb and closed the hive. After precisely twenty-four hours I found 3,021 eggs in the cells." He then remarks: "But such enormous fertility is certainly rare, and, on an average, a queen will probably not lay more than 1,200 eggs a day, even in a very populous hive, during the most genial season." Again, he says: "I repeat that I do not estimate the average daily deposit of eggs, during the most favourable season, at more than 1,200. In most hives, I am persuaded, it is much smaller." "Briar" is also labouring under a mistake in thinking that Quinby, in the appendix to his work, advocates a movable-comb hive of 2,925 inches; for when we calculate the number of inches contained in a movable-comb hive, we do not take the measurement of the box, but of the frames; the hive, therefore, recommended by Quinby instead of containing 2,925 inches, only contains 2,160 inches. If "Briar" will examine Quinby's work, newly written last year, he will find that after 35 years' experience, he still advocates a hive containing 2,000 inches—and that a movable-comb hive. Quinby, moreover, is not a "bee-hive vender." He is not, however, the only "leading apiarian" that advocates a hive of this size. Metcalf, of Michigan; Lee, of Wisconsin; Mrs. Tupper, of Iowa; Flanders, of Ohio; Bidwell Brothers, of Minnesota; King, of Ohio; Kidder, of Vermont—all use hives containing about 2,000 inches. In fact, I am not aware of any leading apiarian in America using a larger hive, except Langstroth; and I am not certain that his improved hive contains over that. Dr. Bevan, an eminent English author, recommends a hive containing only 1,200 inches; also, D. Richardson, of England, author of "The Hog," "The Horse," "The Hive and the Honey Bee," recommends 1,400 inches. Such, however, are too small for this country.

As regards the shape of the hive, there can no longer exist a question. Even Langstroth, who uses a low hive, says: "Tall hives have some obvious advantages." "Briar's" quotation from Taylor's Manual is not of much weight, as Geheu wrote as early as 1829, and the fourth edition of Taylor's Manual was published in 1850, since which there has been sufficient time to settle the question. By reference to an article written by Mrs. Ellen S. Tupper, of Iowa, (see CANADA FARMER of Jan. 15.) the impracticability of low hives will at once be seen.

"Briar" is also mistaken in thinking that examinations, to be of any value, must take place weekly; for if the Queen-cells are cut out, and plenty of room given to work, either by removing frames, or putting on honey boxes, there will be but little danger of their swarming.

Brooklin, C. W.

J. H. THOMAS.



Question to Bird Fanciers and their Protectors.

Under this head a correspondent sends us the following:—

"Before these fruit-destroyers return, and in these long nights of leisure, might I ask some of the friends of the feathered tribe, what is the most effectual way to keep these thieves off the fruit trees? The writer has seen Messrs. Robin, Woodpecker, Oriole, Cherry-bird & Co., (in defiance of pieces of tin, old rags, hats, owl and cat skins, &c., suspended in terrorum) strip trees of their whole produce, and, after consuming all the cherries, attack and carry away harvest apples, and, lastly, strip off the choke-cherry and mountain ash berries. He has even seen them so bold as to take fruit from the tree in which a person was sitting. Now, an effectual remedy for the above will save more lives than all that can be preached about their melody or beauty."

We shall be glad to publish any useful suggestion on this subject that any of our correspondents may send us. In the meantime we would remind our enquirer that long experience in England, on the Continent, and in the United States, has so conclusively demonstrated the utility of these small birds in destroying myriads of insects and their larvae, that it has been deemed requisite to enact stringent laws for their protection. Admitting the annoyance of seeing the produce of one's choice fruit trees exposed to these depredations, we still believe the evil is a tax we pay for preservation from a much greater evil; and that were all the small birds destroyed, the insect pests that ravage our grain and garden crops would increase to an overwhelming extent; still, if any one can discover the means of diminishing the amount of tribute levied on our gardens by these voracious warblers, he will confer a boon of no small value on all cultivators of fruit. As the sympathy of a fellow-sufferer will, doubtless, be acceptable, and as our correspondent is himself somewhat of a humorist, he will be able to appreciate the following denunciation of the small pilferers. We extract from an American exchange:—

"The robin has been for many years a favorite with people in this country, who have stood between him and gunshot wounds, and encouraged his increase in our orchards, until of late a reaction has commenced against him. Cultivators of the vine denounce him as a greedy robber; orchardists complain that he has altogether too fine a taste for pears, and a chorus of farmers declare him a monstrous humbug, who spoils half a bushel of cherries for every curculio he swallows. Finally, that eminent philosopher, Josh Billings, speaks of him in these terms:—

"The red-brestid robbing is a burd muchly doted onto by Seminary girls and poits.

"Gentlemen farmers also encourtidge the robbing because he swalloroth insect when he cant get sno or anything else to eat.

"But practiceckle farmers and fruit growwists begin to dont see it.

"I was onct a gentleman farmaist.

"I am not so gentle as I was.

"I go in for real farming, making my pile of manoor and raising things to eat.

"I usted to listen for the robbing s lay and his evening carol, but I found out that he singed only to seduce femail robbings, and that where he et five in sex he et quartz of cherries, strawberries, currants, raspberries, and cetera, and then pitch into the mellest bartlett pairs.

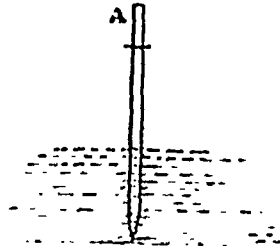
"I found that my fruit crop agreed too well with Mr. robbingses crop.

"His wobbling to his femail friends at evening didn't pay for his gobbling choice fruit all day.

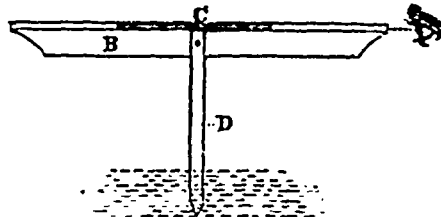
"And so, my friends, when the swete red brest gets fat on the eggspensive products of northern gardings and flocks southward to fill unsentimental vot pies, I bid him adoo without regret."

Draining Quicksand.

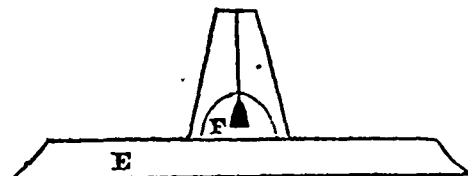
We have received from Mr. F. F. Payne, of Southwold, a communication on this subject, giving an account of his own successful practice. He says that he made enquiry through the medium of this Journal, in regard to the best method of proceeding, and that, through the same medium, he received two answers. Not having adopted the plan suggested in either of them, he feels bound to communicate his own mode of proceeding, which, to give his own account, was as follows:—"The fall of 1865 being very dry, enabled me to sink my ditch to the depth of four



feet on an average. I made my ditch the width of a common spade at the bottom. Then I cut sods of the same width as the spade, and laid them, grass side upwards, in the bottom of the ditch. I then laid the tiles evenly, with a gradual fall, taking special care to avoid any unevenness or irregularity in laying the tiles. Over these I laid other sods similar to the first, but with the grass side downwards, and trod them tight round the tiles before covering up with earth. This plan beat my expectations. Up to the present time, it has worked splendidly. The land is perfectly dry, and there is a constant stream of water half the size of the tile. The length of the ditch is 60 rods. The kind of tile I used was



pipe tile, made at St. Thomas, C. W., by Mr. Barnes. The size of the tile employed was 1 1/2 inch at the head of the ditch, followed by pipe increasing gradually in diameter to 2 inches, 2 1/2 inches and 3 inches." Pipe drains very often fail, Mr. Payne thinks, from being imperfectly laid down. They should be very evenly laid, without leaving irregularities or hollows, and the fall should not be less than half a foot to the rod. We should think this too little. In a sandy soil, particularly, the drain is very apt to be stopped up unless very carefully laid. Mr. Payne thus describes his home-made contrivances for ascertaining the level and grading:—"To level the bottom of the



ditch I use a long board level, similar to that employed by masons. First I take a narrow straight edge board, then screw to it another piece of board to stick into the ground. In the straight edge I cut a gutter with my knife to hold water, to show me when I have it level. I sight along this straight edge, a man being ahead with a stick to mark where my sight would strike on the stick. Then I measure from the top of the level to the ground, and measuring off the same length from the mark on the stick, the difference, of course, gives me the fall of the ground." Mr. Payne's description is illustrated by the accompanying diagrams of the implements used by him.

- A.....Stick with mark.
- B.....Straight edge.
- C.....Groove for water to show level.
- D.....Upright piece to put in the ground.
- E.....Level.
- F.....Plumb and line.

Sago and other Substitutes for Tea.

To the Editor of THE CANADA FARMER :

SIR,—I was somewhat interested in the article on Sage, at page 365 of last year. That it is held in such high estimation by the Chinese, or that they will exchange for it four times the weight of their best Tea (which by the way is worth its own weight in silver) or that it is valuable in ship loads from the south of England, I must for the present doubt. But that the vile stuff we are using under the name of Tea is injurious to health, and that we have leaves merely for the gathering which would be as palatable and more wholesome, though not nearly so costly, I have no reason to doubt.

Green Tea is made by the Chinese solely for exportation, and they would not think of using the coloured stuff themselves. When the East India Company commenced the cultivation of Tea in Assam, the method of colouring was unknown, and it was a special instruction to their superintendent that if Green Tea could not be prepared without the addition of any deleterious substance, he was not to attempt its manufacture. "When I was at Hang Chow" writes Mr. Fortune, "I determined to see the Chinese colour tea for exportation." A quantity of bluish mineral powder was scattered over the hot leaves, while the workmen turned them rapidly round the drying pan with the hand, which quickly changed the leaves from a dark olive to the well-known bluish hue. This mineral powder, we in Canada wash off, mix with sugar and milk and imbibe, some persons in enormous quantities, and then wonder that they are ill. I have tasted the pure and unadulterated beverage in the "Flowery land," and know that it does not require any additions to make it agreeable. I have also tasted a decoction of dandelion leaves, which to my taste (or perhaps owing to my want of taste) is decidedly more agreeable. The leaves of the Raspberry with a very slight sprinkling of Black currant leaves, are also very palatable.

The Chinese are very economical, and averse to losing anything; they therefore again dry the leaves they have used and colour them for the benefit of foreigners. I have seen a large establishment in a suburb of Canton where this process was carried on.

If anyone will point out a substitute for Tea, he will be conferring a great benefit, especially in our rural population. At the Provincial Exhibition at Brockville, in 1851, something was shown which was called Canadian coffee, I have not seen or heard of it since. Do you know what it was?

BRLAR.

County of Carleton, Jan., 1867.

COMPENSATION FOR SHEEP BITTEN BY DOGS.—Mr. Carr enquires whether farmers can claim compensation from the municipality for the loss of sheep bitten by mad dogs. We believe they can.

APPLICATIONS FOR SEED.—We frequently receive applications from subscribers, for agricultural and garden seeds. We should have thought it scarcely necessary to say that we have nothing of the kind for distribution; and that the proper parties to apply to are the agricultural seedsmen. Messrs. J. Fleming & Co. or Mr. Simmers, of Toronto, could, doubtless, supply the wants of our correspondents in this department.

DWARF WALNUT.—Dr. A. Francis enquires whether the dwarf walnut has been planted in Canada. It is found, he says, to do well in England, and to come into bearing in 6 or 8 years, the fruit being equal to the old kind.

ANS. We are not aware that it has been introduced into this Province, but it has been tried, and successfully, in some of the northern portions of the United States; it would probably succeed well here.

CROP REPORTS.—Mr. Philip Gregory, writing from Louth, submits the following plan for collecting, annually, reliable returns of crops raised in Canada. He suggests,—“that every person owning a thrashing machine should have the taxes remitted on his machine and teams, on condition of reporting monthly, or oftener, to the Clerk of the Municipality in which he is assessed, the amount of grain thrashed by his

machine." This plan, in our correspondent's opinion, "would be simple and reliable; and the first two or three months after harvest, would give a sufficient indication of the amount of grain in the country for all practical purposes; and at the end of the year nearly every bushel of grain raised in the country would be reported. This plan would, doubtless, require legislation to make it uniform and general; but the interest of the machine owners would prompt them to comply with its requisitions." We publish our correspondent's suggestion for the consideration of those whom it may concern.

AMERICAN BEE GAZETTE.—We are now enabled to give some information respecting this periodical, Mr. J. H. Thomas having sent us the following extract and comments thereon:

"The subscription list and good will of the *American Bee Gazette* having been transferred to the Editor and Proprietor of this journal, the papers have been united, and will henceforward appear under the combined title of the *American Bee Journal and Gazette*. It is hoped that this arrangement will be satisfactory to all interested, and tend to secure the permanent establishment in this country of a periodical devoted to bee-culture."

The above is an extract from Vol. II., No. 7, of the *Bee Journal*, published at Washington monthly, at two dollars per annum. The first volume of the journal was published in 1861, but the war breaking out it was discontinued. It was revived again in July last. It is of the same size as the *Gazette*, but double the price. I hope justice will be done towards Canadian subscribers to the *Gazette*, for which I was agent. I had no intimation that the *Gazette* was to be sold. I have not as yet been requested to act as agent for the journal, though I have written Mr. Wagner, the publisher, in behalf of Canadian subscribers.

LETTER FROM NEW BRUNSWICK.—Mr. James Dysor writes from Sackville, New Brunswick, under date 1st January, 1867, as follows:—"To the Editor of THE CANADA FARMER—Sir, I have been reading your paper only a few months, have shown a few numbers to some of my neighbors, who being favorably impressed with it, an attempt was made to get up a small Club, and I hope in another year we shall have a larger one. Can you inform me how to obtain any of the "Platt midge-proof" wheat, noticed in your issue of December 15th? I also wish to be informed whether the Upper Canada Herd Book is yet published, and where it may be had, and the price per copy? Our District Agricultural Society made a small importation of short-horned stock, the past summer, from Upper Canada. They are doing well, and I hope will prove to be of great advantage."

Our Society has also ordered the importation of a quantity of clover and grass seeds, and wheat and barley, from Canada, the present winter, in time for spring sowing.

ANS. We refer our correspondent to the last number of this journal, for all the information we can give respecting the Platt midge-proof wheat.

The Upper Canada Herd Book will be published shortly, and may be procured by application to the Board of Agriculture, Toronto. The price is four dollars per copy. We congratulate our enterprising friends in New Brunswick, on the steps they are taking to improve the stock in the country, and we believe they will not fail to derive advantage also from the importation of fresh seed for their grain and grass crops. We very heartily wish them success in their laudable efforts.

WHAT TO DO WITH MANURE IN THE SUMMER.—"A Subscriber," from Chinguacousy, writes as follows:—

"I saw in your valuable paper of the 1st of January, 1867, an article on surface application of manure, the statements of which I believe to be correct, as regards the application of manure in the fall; but I would like to know what is to be done with the manure in the barn-yard through the summer; for if it is

thrown up in heaps it will be in the way of the farmer drawing in his crop; and if it is drawn into the field, it is double trouble; as it has to be loaded again in order to the end in view. There will likewise be a certain amount of gas escape from the heap. How is this to be remedied? Then, again, if the manure is allowed to remain in its natural state in the barn-yard through the summer, it will not rot in the least; and I contend that it is essentially necessary that it undergo a thorough decomposition: especially in this country, where Canada thistles abound; for if the manure is taken into the field without going through the heating process, the seeds will surely grow of Canada thistles as well as other noxious weeds. How are these things to be remedied?"

ANS. In reply to the above communication, we refer our correspondent to an article in our issue of the 1st February, relative to Professor Voelcker's most recently published views on manures and the proper time and mode of applying them. He will there find the subject of his enquiries discussed by one of the ablest agricultural chemists of the day.

CROPS IN WAWANOSH. We have received from Mr. William Carr, of Westfield, Wawanosh, the following report of the crops in his neighborhood. Notwithstanding the wet summer, "a good deal of hay was secured in excellent order, but a large amount of grain was badly damaged, the yield, nevertheless, having been very good. Fall Wheat yielded from 20 to 45 bushels per acre; Spring Wheat, from 8 to 25; Oats were very much cut up by the grasshopper, which infested the field in immense numbers. The crop of Barley was good, but the color was dark. Turnips were almost a total failure, in consequence of the ravages of the fly. Potatoes were badly rotted. Several farmers raised none, whilst others lost about two-thirds of the crop." Mr. Carr wishes to know, from other correspondents, if any of them have experimented with salt as a manure, and with what results.

The Canada Farmer.

TORONTO, UPPER CANADA, FEB. 15, 1867.

Traction Engines.

It is wonderful that we do not hear more in Canada of these most useful and important inventions. Their use is now so well known and understood, that no important establishment in England which requires the slow moving of heavy weights, is without them,—all farm engines used for steam ploughing are now made Traction Engines, and are self-moving, as well as self-working. For our agricultural readers who may not keep up with the times by getting late English publications, it may be as well to describe what a Traction Engine is—

All persons now understand the locomotive as used on railroads. In locomotives, speed is paramount: the action of the steam cylinders applies the power direct to the driving wheels, so that each stroke of the piston rod causes the driving wheels to turn half round; one double or entire stroke causes the driving wheels to make a complete revolution. The number of revolutions, and the diameter of the driving wheels constitute the speed.

But in the Traction Engine all this is reversed; the piston rods of the engines move at a quick rate, but by a series of wheel work or gearing, the speed is lowered, so that about ten strokes of the piston rod accomplish only one turn of the driving wheels. This lessening of the speed gives enormous power; so that the Traction Engine moves along the common gravel, or earth road, at a speed of from 2½ to 4 miles an hour, and possesses, drawing, or traction power of a very high order, and it is from this power

that they are called "Traction Engines,"—these, as commonly used in England, vary from 7 to 14 horse power, and will haul on a common road from ten to thirty tons of dead weight. They do not stop at ordinary hills, but ascend them with their usual load at the above speed, provided the ascent is not more than from one in twelve to one in ten. Where the hills are steeper the load must be less; but they are serviceable on all common roads on which horses can drag loaded waggons. Most of these engines have the power of changing the gearing, so that when they come to a hill they put on (with the same power) a stronger speed, and thus are enabled to convey up a hill, at two miles an hour, the same load they can take on a level at four miles an hour. In this, as in all mechanical problems, what we gain in power we lose in time, and vice versa.

To guard against sinking in soft roads, the diameter of the driving wheels is made from 5 to 7 feet; and the breadth of the tire from fourteen to twenty inches; indeed, some of the farm engines that are required to pass over cultivated land in a moist and soft state, have driving wheels of the extraordinary breadth of twenty-seven inches. These engines pass over any ploughed field without difficulty,—the form of one of these engines was shown in THE CANADA FARMER of the 15th January, 1866, (Vol. 3, No. 2), to illustrate a notice of steam cultivation; but at that time, most of the engines were not self-moving; now all are made self-propelling. This great breadth of wheel gives an enormous holding power on the ground, and enables one Traction Engine to draw from two to four waggons which carry from five to seven tons each. Of course these waggons are made very strong, and capable of resisting great shocks. The wheels are large and broad, and are four in number—the fore wheels looking like our ordinary road waggons; they are constructed mostly of iron.

The Traction Engine is supported on four wheels, the hind wheels being the large driving wheels, and the fore wheels being the guiding ones. The fore wheels are made to lock one way or the other by various mechanical means, according to the fancy of the manufacturer. They are moved by a wheel and cog or chain work, like the steering portion of a steamboat or ship. A man or strong boy can guide them, whilst another man (the engineer) feeds the fire, and attends to the steam engine. Each Traction Engine carries its own wood or coal, and water for a distance of from 7 to 10 miles; they must then replenish.

The Traction Engine being all of iron, is enormously heavy. One of 14 horse power, loaded with fuel and water, weighs from 13 to 15 tons. All the dock yards in England have them, and they are in daily use on common roads throughout England and Scotland, hauling timber, stone, chalk, and other heavy matter. The cost of a train (that is, the engine and three waggons) is from £750 to £800 sterling.

Great numbers of these engines and waggons have been manufactured for Australia, Brazil, the East Indies, Egypt, and other places; but we are not aware that any have yet found their way either into Canada or the United States. Owing to recent improvements, the best-steam ploughing is now done with them. For this purpose each operator is provided with two, generally of seven horse power each. One is placed on the opposite headlands of the field to be ploughed, each being furnished with large winding drums and steel wire rope. The plough, (which consists of from three to six turn furrows) is then hauled by means of the rope from one side of the field to the other; thus avoiding the trampling of the ground, so to speak, by the engines. When all is done but the headlands, one engine is taken to one end of the headlands, and the other remains at the other end; the ploughs are again hauled from one to the other, and each headland being treated in the same way, the field is thus finished without the

aid of horses. When they have done their work, the engines move off to another place, and repeat the operation. Fuel and water is brought to them with a horse and cart.

But it will be said, "What have we in Canada to do with such expensive affairs? We cannot afford to purchase thirteen sets of iron machinery to draw a plough or waggon; nor can we afford to spend more than the value of a farm in an engine to cultivate it." We are perfectly aware of the fact; but farmers as well as every one else ought to know what is going on in the world; and although such an outlay as the above may appear extravagant, yet if they can once ascertain that for the value of two or three teams of horses they can obtain an engine that will do the work of six teams, they will soon find the means to obtain one;—once establish the want, the supply is sure to follow. Fifty years ago, a good watch or clock was worth as many pounds as it is now worth shillings (or at all events dollars). Canadian ingenuity is not below that of the English people;—and all that is required is to show that such machines will sell and are wanted, and we shall very soon find persons who will simplify, and reduce cost, until the machine is within the reach of all.

Twenty years ago, a mowing or reaping machine was not only almost unknown, but was considered beyond the reach of any except the most wealthy agriculturist, and was then called an experimental toy. Now, every one has them; and so will it be with Traction Engines. Within the next twenty years we may see them as common as horse teams; and in the mean time, the cost will be reduced to within a moderate amount.

Agricultural Products and Markets during 1866.

In reviewing the history of the past year as it respects the produce raised and sold by the farmers of Canada, the first matter that presents itself is the great change in our commercial relations with the United States, resulting from the abrogation in March last of the Reciprocity Treaty. Our chief customers, the American people, it was expected, would be to a great extent cut off from dealing with us in consequence of this revolution of affairs; and it was therefore feared that our produce trade would be materially injured. Such, happily, has not been the case. The markets of the United States have not been wholly closed against us. New openings for trade have also presented themselves. A good market has been found for our flour in the Maritime Provinces, and efforts are now being made for further extending the trade with these Provinces and the West India Islands by the establishment of a steamship company to trade thither. The languid state of the English breadstuff markets for several years, has this year been succeeded by an activity which, with the great demand from the Provinces, has relieved us from dependence upon the markets of the United States. The flour sent to the Lower Provinces has given great satisfaction—the quality being much better than the low grades of American flour usually shipped there. It is evident that we ought to manufacture as much wheat as possible into flour, thereby increasing the value of the commodity, as well as securing to the country the profits of the manufacture and transportation from the place of its growth to that of consumption. It is also desirable that millers should continue to keep up the quality of the flour which has secured for us so favourable and so large markets as those of the Maritime Provinces. The United States now consume a large proportion of our winter wheat flour, notwithstanding the protective duty imposed upon it by their Legislature. It is, however, desirable that we should be as independent as possible of the markets of the United States. In the West India Islands and South America there are equally valuable and more desirable markets open to us for our winter wheat flour, and these can be secured to us by the simple process of grain drying, which, we understand, has been already introduced into some of our largest mills.

In noticing the several articles of agricultural produce, we may begin with

FLOUR.

A most cheering revolution has taken place in the milling business of the Province within the last two years, but especially in the year just past. This can be accounted for from the excellence of our wheat crops, and the increased care and attention bestowed by millers on the manufacture; aided also by the introduction of new and improved machinery into our mills. The result is the manufacture of a superior quality of flour, bearing a high reputation in foreign markets. Millers have had great difficulties to contend with in the past, and it is now gratifying to find that this important interest of the country is in so prosperous a condition.

FALL WHEAT.

The active demand which has existed for two years for this grain in the neighbouring markets, has caused more than ordinary attention to be bestowed upon it. The crop was short in Michigan, the great white wheat-growing State, and in consequence the price advanced in our market steadily from \$1 25 and \$1 40 in January and February. Anticipating the abrogation of Reciprocity, large shipments were made by cars to avoid the duty; but so necessary was this grain to our neighbours, that the price still further advanced here, until in May and June it had reached \$1 90 and \$2 per bushel, and intended for the American markets. When our remaining stocks were mostly cleared out, there was a short cessation. The opening price for the fall was \$1 35 to \$1 40, which soon advanced to \$1 60 and \$1 70; at those figures the bulk of our fall shipments changed hands. These prices are so remunerative that it is incumbent on our farmers to use every precaution to prevent our losing this valuable grain, which from careless and improvident agriculture is in too many cases rapidly deteriorating. The prevalence of smut for some years in this crop, detracts very materially from its value, and if farmers would only take care to clean their wheat thoroughly, much more money would be realized than is received for it in its present too often slovenly condition. The fall wheat is fast disappearing from this locality, and but a small portion is now brought to market by teams. Those distant localities where wheat is now raised should take warning from the error of those around us, and endeavour to prevent a recurrence of so unfavourable a state of things with them. Midge-proof or red winter wheat is being more generally sown than formerly, and although much inferior to our white Soule's wheat in quality, is found from its peculiar nature better adapted to resist the attacks of the midge, so destructive to the other variety. It is gradually working its way with our farmers. With one exception, prices of fall wheat were never so high as last year.

SPRING WHEAT.

The large increase in the receipts of this grain over the previous twelve months is the most noticeable and gratifying feature. The same activity characterized the dealings in this, as in fall wheat, and although the quality, from a wet harvest, is not such as we could wish, it is fortunate for our farmers that in consequence of the very active demand existing, they have and are realizing as much for it as they have heretofore received for really choice grain. The increased demand, as well as the growing popularity of our spring wheat flours, both in the United States and in the markets of the Maritime Provinces, render it imperative that farmers should devote special care to the cultivation of this grain, and the increase already indicated is a step in the right direction.

There exists at the present time an active demand for England, and for those shipments made on owner's account good returns are anticipated. If we except the few weeks preceding harvest, prices have been steady and tending upward, and at the close of navigation there was not that decline in prices which usually takes place at that season, and which the numerous fluctuations likely to occur before we can get our grain to market, seems to us to warrant, for it ought to be borne in mind that a large portion of this grain is in very indifferent condition. The inferiority of the Western States wheat, as well as its apparent scarcity, is one great reason for our present high prices, and this may possibly justify the action of our dealers at present. As usual, the eastern millers have drawn their supplies principally from this market.

PEAS.

Peas were a good crop, and the high prices realized throughout the season made them a valuable addition to our income. There is always a good demand for peas in the English markets, which neutralizes the heavy duty we have to contend with in shipments to the United States. The pork fed on this grain is far superior to the corn-fed hogs of our neighbours, and is more sought after in foreign markets, and to supply the demand which has greatly increased for our lumber districts, which for years past have drawn their supplies from the Western States. This will increase the value of this grain to us for feeding purposes.

BARLEY.

The rapidity with which this grain has been adopted by farmers, especially in the old settled districts, to take the place of white wheat, is truly marvellous. The barley trade now occupies by far the greatest portion of the Fall, and it occasioned in this city through markets week after week, while navigation was open. The deliveries footed up as much on several occasions as sixty thousand and sixty five thousand bushels per day. The market opened late, in consequence of late harvesting and bad roads; the quantity to come forward was known to be enormous; and our position, from the abrogation of reciprocity, made our dealers act with caution; but notwithstanding the unusual good crop of this grain in the United States, and the heavy duty of 15c gold per bushel imposed upon our barley by Congress, the intrinsic quality of our grain as compared with that of the United States, caused it to go, as usual, largely into consumption, and at prices not lower than might have been expected from the excess in quantity over previous years. It was to the demand from England, however, that we attribute this consumption. Prices opened at 60c. and advanced to 60c., which may be regarded as about the average price obtained. Although the quality was inferior to that of last year's crop, it proved better than our dealers expected, and there was no difficulty in obtaining choice barley by a careful selection. The shipments to England were large, and first arrivals sold at good paying prices. Immense arrivals rapidly following each other broke down the home market for a time, but this depression is regarded as being only momentary. The receipts of barley at Oswego during the season were 4,254,118 bushels, of which 4,094,889 came from Canada. The receipts of last year at the same point, and which were largely in excess of 1864, were 2,735,116 bushels, of which 2,615,056 bushels came from Canada. So that the increase in the shipments of this cereal alone to that port is no less than one million and a half bushels from Upper Canada.

OATS.

These were a good crop, and fairly remunerative prices were realized during the year. The exports were light, a few shipments to England being made in the spring, and with satisfactory results. As usual, the bulk of our crop is required for home consumption.

FLAX.

The raising of flax is now taking an important position among the industrial pursuits of the farmer. For several years this crop was confined principally to the county of Waterloo, and it is due to the persevering Dutchmen of that wealthy county, and to the well-directed efforts of the Messrs. Perine and other scotch-millers there, that this production has been added to the list of what was already grown in Canada.

One peculiarity observable in this culture here is, that both the seed and fibre are saved and turned to use. In Ireland the seed will not ripen to advantage, while in warm countries, such as the East Indies, the plant is raised for that alone. On the whole, the crop has already been a profitable one; but as careful management is absolutely necessary to success, instances of partial failures are by no means rare. Indeed so much turns upon the amount of knowledge and judgment brought to bear upon the propagation of this valuable plant, that it may reasonably be a matter of surprise that, while all have been learners, so large a quantity of the product has been brought to market.

Partial failure of the wheat crop has prepared the way for the introduction of the flax plant, and has rendered its adoption to some extent almost a necessity. A little compulsion seemed almost needed to make the farmer turn from the field where the grain

fell in wide swaths before him, and as fast as he could walk, to the uninviting prospect of drawing out of the ground with aching back every individual stalk of flax, to be then carefully handled and as carefully bound. Let the farmer learn by actual experience how to place three tons on an acre of ground, and machinery for taking it in charge will soon make its appearance to diminish his labour and lighten the present expense. Four years since, the Messrs. Lyman, of Montreal, had there the only considerable flax seed oil mill in Canada, and they derived but a portion of the flax seed required from this country, while the fibre, roughly dressed, sought a market in the United States or in Ireland. At present there are several crushing mills in full work, whose supplies came this year entirely from within our own boundaries, leaving also a large surplus to find its way at high prices into the neighbouring country.

The fibre is now sought for and worked up at the large establishment of Messrs. Gooderham and Worts, of Streetsville; also by Messrs. Elliot, Hunt & Co., of Preston, and Messrs. Perine Bros., at Doon. Cordage and twines of all sizes are there produced in large quantities; but the most prominent manufacture as yet from these mills is that of seamless linen bags, which are, indeed, a novelty, but have proved a great success. Since the American war has raised the price of cotton, the grain-bags of that material, which had become a universal favourite, grew to be so costly that they were at last abandoned, and for some time past an inferior old country bag, or one made of imported linen, was substituted. These, although cheap at the outset, proved, from their want of strength, to be very dear in the end, for they sometimes did not last through a month's work. In this grain-producing country a good bag is a necessity, and we now have it cheap and good, and made by the willing hands of well-paid operatives.

FRUITS.

The trade in fruit during 1866 was very large, and generally speaking most profitable to shippers, making up in part for the heavy losses sustained by them in the previous year. The yield of apples last year was good throughout the whole country. Up till last year, Canada has always imported American apples, but a revolution has taken place in the trade, and the reverse is now the case. In the fall, large orders were received here from American dealers for good apples, and notwithstanding the American protective duty of 10 per cent., large quantities were shipped across the lines. The prices current during the year were from \$1 to \$1 75 per barrel, exclusive of the barrel.

The crop of peaches in the United States was large. Importations were considerable, though not so large as in former years. The quality, on account of the wet weather, was not so good as in the previous year. Wholesale prices ranged from \$1 50 to \$2 10 per basket for No. 1, and from 75c. to \$1 00 for inferior qualities. The importations of plums were small, there being a fair crop in the Province. The quality of the Canadian plum is every year becoming better. Some samples were this year remarkable both for size and quality, being, on the whole, very much superior to those imported. Prices ranged from \$2 50 to \$4 00. Pears are yet not much grown in Canada, the orchards being still young. The crop this season was, however, good, both as regards quantity and quality, being in excess of that of last year. From \$2 50 to \$1 00 per bbl. were the current prices for ordinary samples, and from \$7 to \$8 per bbl. for the best.

GARDEN AND FIELD SEEDS.

The trade in garden and field seed is gradually extending as the country is being opened up. During the past year a fair business has been done by our local dealers. Prices have ruled steady, the enquiry for timothy and clover has been about an average. Flax has met an improved demand, and there has been more raised this year than for many previous years. American buyers were in the market, and bought so largely that our local crushers had difficulty in obtaining supplies.

The following firms in this city make a speciality of seeds:—

Messrs. James Fleming & Co., one of the oldest and best known firms in the city. Messrs. Charles Daborn & Co., who are both growers and importers, and Mr. J. A. Simmers, near the market, who maintains his reputation for excellent seeds.

CATTLE.

The trade in cattle set in actively in the spring, and the American market being open till June, very high prices were paid up to that date, prime cattle bringing from \$9 to \$10 per 100 lbs., dressed weight. The number of cattle shipped to the United States, prior to the closing of these markets in June, was enormous. Hardly a day passed but heavily-laden cattle trains passed our station grounds en route for the Boston and New York markets. American buyers were to be found all over the country, buying up all descriptions of stock. The great demand then existing reduced stocks throughout the country to such an extent that it was even feared by some that a scarcity would be the result; indeed, it is generally admitted that although there is now a considerable number of ordinary cattle feeding throughout the country, but very few prime animals can be found. Butchers and drovers all agree that well-fed beasts must bring high prices during the coming year. There was during the past twelve months a large demand for beef for the English market, and large quantities were also shipped for Montreal and Quebec. The market has been well supplied with sheep, and prices have ruled steady from \$1 50 to \$5 50 each.

HIDES AND SKINS.

The trade in hides has been steadily on the increase. We notice that two years ago hides were as low as 3½c. per lb. Last year, during the fall and winter, they brought 5c.; whereas for a considerable time past they have been purchased at 6c. The supply has never been equal to the demand. Our market, which formerly had a very bad name for inferior hides, is now one of the best in the Province for tanners to make their purchases in, on account of the appointment of an inspector, whose duty it is to examine every hide before it is sold, and to stamp the quality as well as the weight upon it. Our butchers are now more careful to take off hides without cutting them as they formerly did.

WOOL.

The wool trade for the past season does not exhibit that prosperity which it has been our fortune to record for three years past; but when we carefully analyze the reasons for this change, we must confess that it could only be expected. The war in the United States in 1862, which, by a scarcity of cotton, immediately enhanced the value of all woollen fabrics, and our long combing wool being peculiarly adapted for the manufacture of army clothing, of which enormous quantities were required, and also of coarse cloths, &c., which were about the same time introduced into general wear among our neighbours instead of broadcloth, as heretofore, created so active a demand for our wool that the price advanced from 25c and 28c to 40c and 45c., and until last season these figures have been steadily obtained. The high prices which for three years gave so great a stimulus to the growth of cotton, wool, &c., and also to the manufacture of all kinds of goods, has caused an over production of the raw material, and a surplus of goods, both cotton and woollen (as may be seen from the constantly declining prices), but particularly the latter; and with these facts before us, and the imposition in March last of a heavy duty, when our Reciprocity Treaty expired, we ought to have anticipated a decline in the value of our wool. Orders were, however, received here last season from the manufacturers, and this to a certain degree misled some of our operators, who were thereby induced to follow them, and the result has been high prices paid to farmers—35c. to 37c.; but the buyer has in almost all instances been a very loser, some still holding large stocks. Some shipments have been made to England, but without any bright prospects.

The above remarks apply to dealers and operators, not to manufacturers, for it has been an unusually good year for them. We see in the steady growth of this business a cheering evidence of prosperity; and the success which has attended the enterprise of those engaged in it cannot but have a beneficial effect on the community, directing their attention to manufactures instead of speculation, to which our people are, as yet, too prone. From present appearances, we seem likely to have a large supply of wool for some time to come. We cannot, for the reasons already given, expect the high prices current for the last three years to be maintained.

The trade in provisions during the past year has been quite as extensive as that of the previous year; but, from various causes, prices have somewhat declined.

PORK.

The number of hogs marketed in Canada during the winter of 1865-66 was, contrary to the anticipations

of some, in excess of the previous year. The comparatively high prices ruling in 1864-65, doubtless, stimulated farmers in raising hogs. Immense droves were taken alive to the States, but still there was no depreciation in the number, but as we have said, an excess. The prices ruling at the opening of the season, 9c. to 10c., declined at the close to about 7½c. At these figures the Americans were buyers all through the season; but this year we are not favoured by their presence, owing to the duty levied by their Government. In no previous year did the shipping of hogs form such an important item. Many hundreds, bought apparently on Montreal account, were sent to the Boston market. Along the line of the Buffalo and Lake Huron Railroad the bulk of the hogs were bought for Buffalo, in which city it is estimated more Canadian hogs were packed than in Toronto. In Canada it is supposed that something like 25,000 brls. mess pork are annually consumed (on the Ottawa river alone about 12,000 barrels are used), which can be manufactured in our own country with a profit to the packer. \$2 per barrel is an effectual protection against the Chicago packers, who have hitherto supplied us. This past fall we had many enquiries from Ottawa and other places for mess. Several contracts were taken by our city packers, at prices ranging from \$5 downwards. And as the quality of our pork is quite up to American brands, our curers will doubtless supply much more before the close of the season, and in future years the bulk of all that is used in the country.

The present aspect of the pork trade is not cheering. Everything seems to indicate low prices at the end of the season for cut meats. From all quarters we hear of an immense "crop." In the United States, England, Ireland, and wherever the hog is raised—which, we suppose, is pretty much all over the world—we hear of the great supply. In England, at present, there is little or no demand whatever for American cut meats, the home supply being quite equal to the demand.

BUTTER.

The butter trade in the years of 1864-65 was very remunerative to our dealers, but the past year it has been emphatically a losing business. Everyone seemed to be intoxicated with the success of 1865 and the result was that before the season of 1866 had fairly opened, the country was flooded with buyers, and the market became "excited." As high as 21c. was paid at one point we know of for butter for the American market. Storekeepers throughout the country seemed to vie with each other in paying high prices. In the month of June there was a slight lull and then the demand became still greater. It seemed almost inflation to pay 16c and 17c for butter that could not go to the United States markets at a profit especially as the pasturage throughout the length and breadth of the land was of unequalled richness.

The quality of the butter manufactured evinced no improvement on that of previous years, and was decidedly worse than that of last year. In 1865, any thing called butter out of courtesy, when it was in reality grease, found ready buyers at high prices, and this made country storekeepers less discriminating than they might otherwise have been. Article after article has appeared in every journal in Canada, giving the necessary instructions how to make good butter. Storekeepers have been told how to pack it, but all to no purpose. It goes to England, and the lowest price has to be accepted. The best Canadian butter now only realizes 88s per cwt. in the English market.

CHEESE.

This staple of agriculture has fully doubled itself in Canada since our last report, and promises a further extension next summer. The American supply being cut off by the protective duty, a number of astute speculators combined last summer to control, and at the same time increase the cheese trade. The monopoly, like most similar ventures, collapsed, to the pecuniary loss of the principals. As a consequence of the combination referred to, prices ruled high early in the season, and the production of nearly all the factories of Oxford were "contracted" for at 12½c green. This figure was maintained through mid-summer, and then the supply exceeded the demand, and the market became weaker. Several shipments were made to England, but until the quality is much improved, shipping cannot be remunerative. Factories have been started in nearly all the best milk-producing counties, and if only a better article could be made, a ready sale awaits it in the English market. Anything like an accurate estimate cannot be obtained of the quantity produced within the past year; suffice it to say, however, that the trade is increasing rapidly, and our last year's prophecy of an export business promises well to be fulfilled.

Rural Architecture.

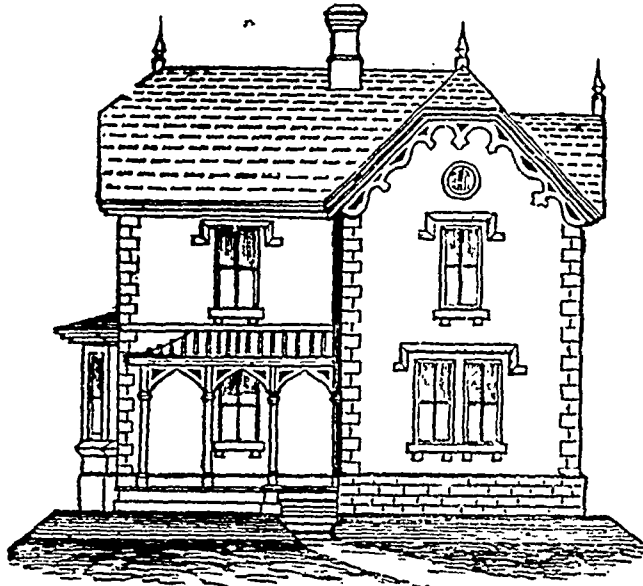
Cheap Country Houses.

The following designs, Nos. 1 and 2, have been specially prepared for THE CANADA FARMER; as it is thought quite time that our well-to-do farmers should study taste, as well as mere utility and convenience, in the erection of their homesteads. In the present

culture, keeping pace with substantial prosperity. Costly ornamentation is not always beautiful; true beauty consists in good construction combined with good outlines and fair proportions.

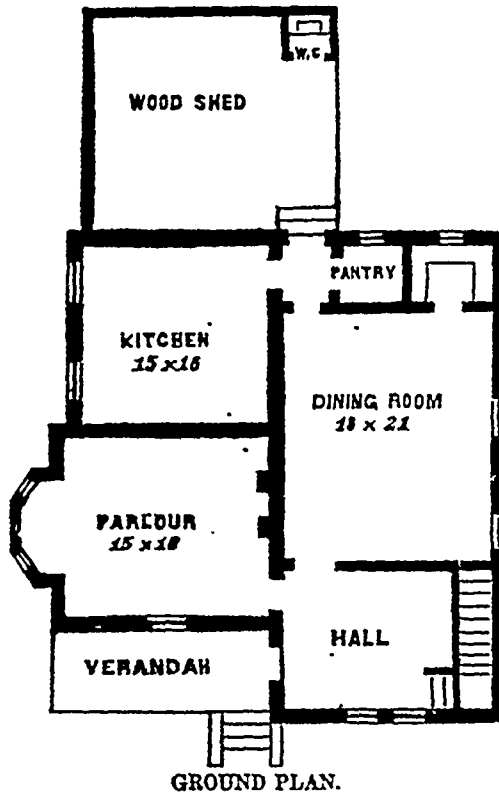
Design No. 1 shows the plans and elevations for a house about 38 feet square, having a projection in the front of one half of the house for a hall. It will be observed that no space has been lost in laying out the rooms. The front door is under the verandah, at one end of the projection forming the hall, which is

end the appearance of a bay window. On the left side of the hall is a bed-room or library, 9 feet wide and 14 feet long, and a kitchen 14 feet square, with a large pantry in the rear. The dining-room is entered from the kitchen behind the stairs, as well as from the front. This arrangement will prevent smells of the cooking getting into the hall. The first floor is similar in arrangement to the ground floor, and gives four large airy bed-rooms, and five wardrobes. The lowest part of the bed-room walls will be over



No. 1.—FRONT ELEVATION.

illustrations all these requisites have been attended to, without adding materially to the expense of the building; for it has been proved, time after time, that a clumsy, inconvenient house is far more costly and unsatisfactory, than a neat, elegant, and convenient structure. Our country is now about to take its place as one of the great Confederations of the earth;



GROUND PLAN.

let us show to the world that in our rural architecture, as well as our agricultural progress, we can hold our place on this continent at least. It has been well said that "a man's home is his son's best inheritance." Farmers, make your homes elegant and comfortable. Let taste and beauty deck your houses, and be the fair index of a higher rental

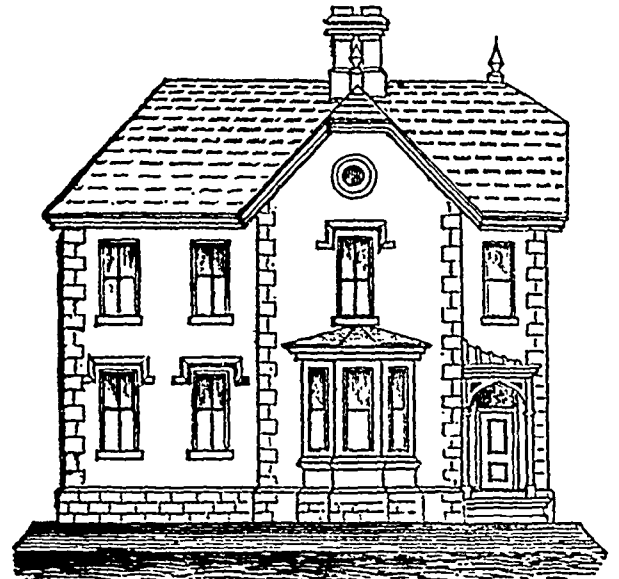
11 feet wide, by 18 feet long. The door on the left opens into the parlour, which is 15 feet wide and 18 feet long, with a handsome bay window in the centre of the end, and opposite the other end is the fire place. The other door from the hall gives access to a large dining-room, 18 feet wide, and 21 feet long, with a pantry or china closet at one end. There are two windows to the dining-room, and the ceilings on this floor are 10 feet 6 inches high. A short passage from the dining-room leads to the kitchen, and wood shed, which is conveniently placed in the rear of the kitchen. Off this short passage, and opposite the kitchen, is the kitchen pantry. A door hung with spring hinges prevents smells entering the dining room from the kitchen.

On the first floor we have four large-sized bed-rooms, a passage giving access to all the rooms, and two large wardrobes. The sizes of these rooms will be seen by referring to the plans. The ceilings will be 10 feet high. Over the bed-room doors, there should be fan-lights, hung on pivot hinges, to ventilate the bed-rooms when the doors are shut. The chimney is placed in the centre of the house, so that no heat is lost by this arrangement, and the flues are so managed that all the pipes can be conducted into them.

This house can be built of either wood, stone or brick, and would be suitable for almost any situation; but would require, at least, half an acre of ground round it. The gables are hipped off to give variety of outline to the roof. The windows are finished with stone or wooden drip mouldings. A building in this style would look best executed in good bright red brick, with white stone dressings to the doors and windows, and the cornices painted to imitate stone. In any situation where materials could be easily obtained, a house of this description could be built and plainly finished inside for about \$2,000.

Design No. 2 would be a cheaper house than No. 1, as it is only a story and-a-half high; the plan is similar in outline to the first, but is quite differently arranged; the front door is in the centre of the house, with the rooms to the right and left.

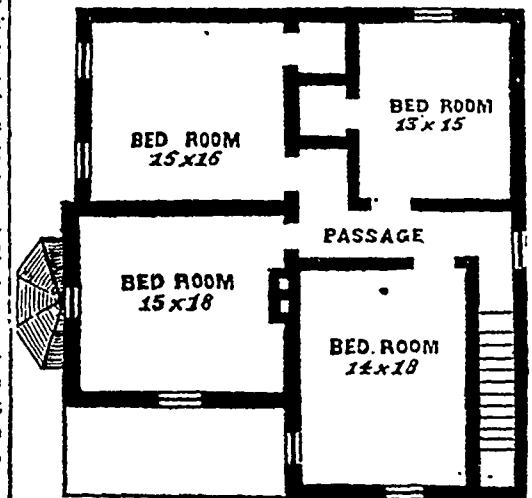
The parlour is 14 feet wide by 16 feet long, and the dining-room 14 feet wide by 18 feet long, with angle cupboards, an arrangement which gives to the



No. 1.—SIDE ELEVATION.

6 feet high, and to the ceiling 10 feet. The ground floor ceiling will be 10 feet 5 inches high.

This house, if built of red brick, in a favourable locality, would only cost \$1,600



CHAMBER PLAN.

The Household.

CLEANSING HAIR BRUSHES.—Soda, dissolved in cold water, is better than soap and hot water. The latter very soon softens the hairs, and the rubbing completes their destruction. Soda, having an affinity for grease, cleanses the brush with very little friction.

A STARTLING TELEGRAM.—Not long since a gentleman telegraphed to a friend at Cleveland an interesting family affair, as follows: "Sarah and little one doing well." The telegram reached its destination, when it read thus: "Sarah and litter all doing well." The recipient telegraphed back the following startling query: "For heaven's sake, how many?"—*Tribune.*

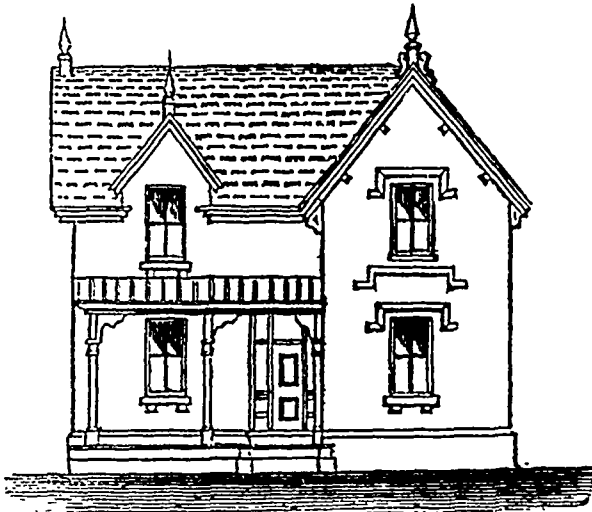
Miscellaneous.

The Beauty of Ice.

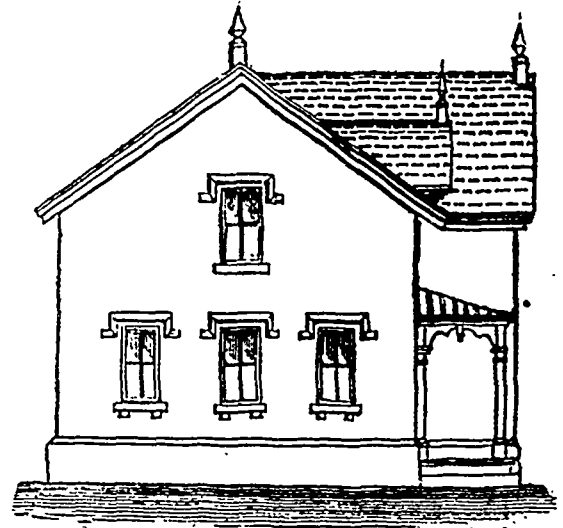
Witness the phenomena of crystallization, to appreciate which we need go no farther than the freezing

continues, the edges of the petals become serrated, spreading themselves out like fern leaves. Probably few are aware of the beauty latent in a block of common ice. Only think, continues our eloquent countryman, of lavish nature operating thus throughout the world! Every atom of the solid ice which sheets

COLOURED STARCH.—This, says a London paper, is the latest and greatest novelty of the season. It is made in pink, buff, the new mauve, and a delicate green, and blue will soon be produced. Any article starched with the new preparation is completely coloured—dyed we should have said, but as it washes



No. 2.—FRONT ELEVATION.



No. 2.—SIDE ELEVATION.

out, and the garment that was pink to-day may be green tomorrow, and buff afterwards, we can hardly say "dyed." It is intended especially for those bright but treacherously coloured muslins that are costly, wash out, and perplex their owners. If the pattern has been mauve, they only need the mauve starch, if green, green starch; and they can be rendered one even and pretty shade, thus becoming not only wearable again, but very stylish. White antimacassars or lace curtains may also be coloured in the same way, and infinite variety afforded.—*Journal of the Board of Arts and Manufactures, U. C.*

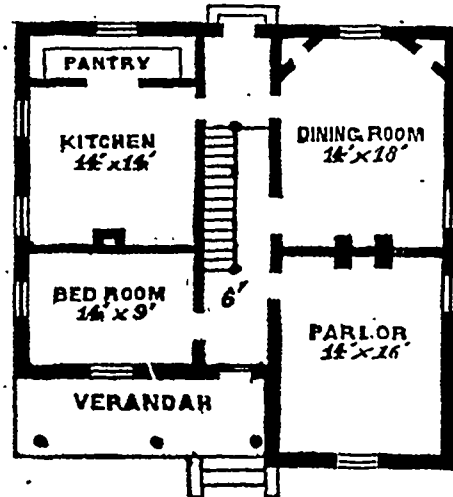
EATING HORSE-FLESH.—"The taste for horse-flesh," says *La France*, "is decidedly increasing in Paris. There are at present in the capital seven butcheries for the sale of that commodity, and which dispose of about 40,000 lbs. weight per week. The annual consumption may therefore be estimated at 1,000 tons, or more than ten times the quantity of meat distributed to the poor in the twenty bureaux de bienfaisance. So far horse-flesh has been exempt from the octroi duty, and sells at from 5 sous to 1 franc the kilo. of 2 lbs."

RHUBARB WINE.—George Warne, M. D., Independence, Buchanan County, Iowa, says: "The rhubarb wine cannot be dangerous if kept till it gets age. I have some that has been bottled six years; the corks were driven in and tied down, and then sealed with sealing wax, and made as absolutely tight as I could make it, and it has now resolved itself into a sweetened water. Guess what has become of the oxalic acid? Indeed, what has become of my wine? The ingredients are all there—the wine is not. It is a useless waste of time and material to make wine of rhubarb."—*Co. Genl.*

DRINKING AT MEALS.—When fat meats, or sauces composed partly of butter, are taken, and cold drink directly after, the butter and fat are rendered concrete, and separated from the rest of the aliment. This congealed oily matter, being then specifically lighter than the remaining contents of the stomach, swims on the top of the food, often causing heavy, uneasy, painful sensations about the cardia and breast, and sometimes a feeling of scalding anxiety; at other times, when the stomach regains its heat, the fatty matter is rejected, by little and little, from weak stomachs, in oily regurgitations, which are very disagreeable. In such cases a little compound spirits of hartshorn, with a glass of warm water and sugar, will convert the fat into soap, and give instant relief.—*Sir James Murray's Medical Essays.*

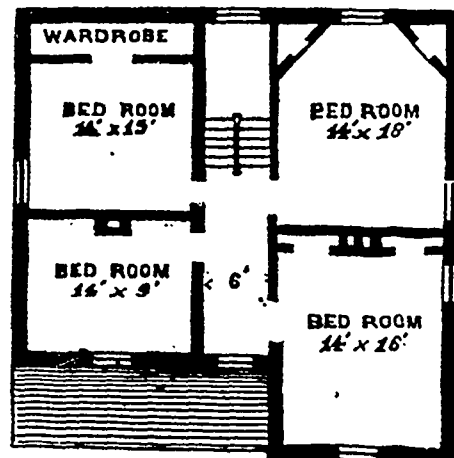
of water and formation of snow. Prof. Tyndall deftly and delicately dissects a block of ice by means of a beam from his electric lamp, pulling the crystal edifices to pieces by accurately reversing the order

the frozen lakes of the North has been fixed according to this law. Nature "lays her beams in music," and it is the function of science to purify our organs so as to enable us to hear the strain. To many persons a block of ice may seem of no more interest and beauty than a block of glass; but in reality, it bears the same relation to glass that an oratorio of Handel does to the cries in a market-place. The ice is music; the glass is noise. The ice is order; the glass is confusion. In the glass, molecular forces constitute an inextricably entangled skein: in the ice they are woven into a symmetric web of the wonderful texture just described.—*All the Year Round.*



GROUND PLAN.

of its architecture. Silently and symmetrically the crystalizing force had built the atoms up; silently and symmetrically does the electric beam take them down. Here we have a star, and there a star, and



CHAMBER PLAN.

as the action continues, the ice appears to resolve itself into stars, each one resembling a beautiful six-petaled flower. By shifting the lens to and fro, new star-flowers are brought into view; and as the action

Artificial Ivory.

Artificial ivory is now being made in France, from a paste of papier maché and gelatin. Billiard balls formed of this material, though only a third of the price of those made from real ivory, are yet so durable and elastic that they can be thrown from the top of the house on to the pavement or violently struck with a hammer without injury. With this same paste, to which the name of Parisian marble is given, among many other things, the finest and most complicated moulding for ceilings can be made, or capitals of columns can be constructed in any color so as to resemble the most valuable marbles.—*Journal of Board of Arts and Manufactures, U. C.*

KANSAS.—A clerical correspondent of the *Toledo Blade* sums up some of the "institutions" of Kansas as follows:—"But I must conclude by simply indicating a few topics on which I have much to say. The grapes of Kansas—the woods are full. This will be one of the finest wine States in the Union. The fish of Kansas—the rivers abound in several choice kinds. One was caught in the Republican a few days ago, that weighed one hundred and twenty pounds, ten pounds heavier than the wife of the writer. The prairie fires of Kansas—they are now raging in all directions, travelling at times faster than a race-horse, leaping rivers, overtaking deer, wolves, turkeys and prairie chickens, etc., and roasting them alive. The wolves of Kansas—one came a few nights ago within one hundred feet of our house and attempted to help himself to fresh beef. The prairie chickens of Kansas—they are a nuisance. They are plenty, but very shy and smart. They always manage to keep out of my reach, except when I am going or returning from church on Sabbath. Then they are painfully tame."

Agricultural Intelligence.

Officers of Agricultural Societies for 1867.

We publish the lists that we have received of officers of Agricultural Societies, for the current year. More will probably yet come in, either from correspondents or in local papers.

HALLOWM.—President, D. Thompson, Esq.; First Vice-President, J. R. Martin, Esq.; Second do., W. Musson, Esq.; Secretary and Treasurer, Jacob Young, Esq.; Directors, Cayuga, William Wilde, Esq.; Dunville, John Yocom, Esq.; Walpole, J. Atkinson and William Ryan, Esqs.; Rainham, William Kellam, jr., Esq.; Seneca, N. H. Wickett, Esq.; Oneida, George Fowler, Esq.

VICTORIA.—President, William Cottingham, re-elected; First Vice-President, John Connelly; Second do., Robert Graham; Secretary and Treasurer, W. J. Thirkell, re-elected; Directors, A. McQuade, James Blackwell, R. Demeray, W. H. McLaughlin, John Lithgow, John Knowlson, John Morrison.

LOUTH.—President, M. Y. Keating; Vice-President, Johnson Gregory; Secretary, C. Shure; Treasurer, David Crow.

MARIPOSA.—Samuel Methrell, President; John Barnard, First Vice-President; John Butler, Second Vice-President; E. A. Bowes, re-elected Treasurer; W. H. McLaughlin, re-elected Secretary; Directors, David King, Richard Demaray, James Thorndike, William Parkinson, John Butler, Joseph Mark, David Bateman, James Mark, and Wm. A. Silverwood.

YANMOUTH.—D. Black, Esq., President; George W. Mann, Esq., Vice-President; L. S. Leonard, Secretary and Treasurer; John E. Couse, George A. Couse, Jehial York, W. Parker, David Harvey, S. B. Mills, J. M. Davis, John McKillor, and James Scott, Directors.

WEST ELGIN.—Fred. Randall, President; Hector McPherson, Vice-President; Duncan S. McColl, Second Vice-President; J. A. Philpott, Secretary and Treasurer; Directors, Neil McColl, John Henry, John Pearce, sen., Thomas McColl, Archibald McIntyre, John Williams, John McLachlin.

SOUTHWOLD AND DUNWICH.—Samuel Williams, President; James Philpott, Vice-President; J. A. Philpott, Secretary and Treasurer; Directors, H. McPherson, J. Carswell, A. McLachlin, George Silcox, Peter Stevenson, Frederick Randall, Thomas McLachlin, Joseph Welch and Angus Campbell.

EAST MIDDLESEX AGRICULTURAL SOCIETY.—President G. G. Magee, Esq.; First Vice-President, John Wheaton, Esq.; Second do., Mr. Rowatt, Treasurer, Alexander Kerr, Esq.; Secretary, Mr. Henry Anderson, London Post office address; Directors, London Township, Mr. A. McKenzie; Westminster, Mr. Nixon; Dorchester, Mr. Craik; Nissouri, Mr. McKenzie; McGillivray, Mr. James Smith; Biddulph, Mr. John Atkinson; London City, Mr. John Elliot.

PRINCE EDWARD.—President, James Caren, Esq.; First Vice-President, Thomas Donnelly, Esq.; Second do., James McCraig, Esq.; Secretary and Treasurer, J. P. Robin, Esq.; Directors, S. Jones, I. Minaker, R. Storey, A. Diamond, A. Southard, A. Greeley and L. B. Stinson.

FRONTENAC.—President, Robert J. Dunlop, Esq.; First Vice-President, John Simpson, junr.; Second do., John Wilmot; Secretary and Treasurer, Isaac Simpson; Directors, L. W. Herebmer, Anthony McGuin, Edward Jackson, Alfred Ayerst, William Rankin, J. J. Bowerman, Thomas Stark; and that the following be Collectors; D. J. Walker, J. J. Bowerman, Thomas Stark, Edward Jackson, Anthony McGuin, Patrick McCallum, William Rankin, William Boyce, Marvina Holden, and Schuyler Shibley.—Carried.

WELLAND.—President, John Mitchell, Esq.; First Vice-President, Joseph Garner; Second do., Moses Betts; Secretary, Alexander Reid; Treasurer, John Rannie; Directors, Robert Spencer, of Thorold Township; William VanEvery, Pelham; T. McCredie, Willoughby; Edward Jones, Stamford; John H. Bradshaw, Wainfleet; John Schofield, Humberstone; and Almon Dickout, of Bertie.

CANADIAN SCOTCHED FLAX.—Mr. Quinn, the manager of the Simcoe Flax Works, has left at our office a specimen of scotched flax prepared at Simcoe. Mr. Quinn assured us that many farmers in the Simcoe district had raised three tons of flax to the acre, and in one instance as much as four tons to the acre had been grown. We hope these encouraging results will stimulate others to pay increased attention to the important subject of flax culture.

One Year's History of a Farmers' Club.

To the Editor of THE CANADA FARMER.

Sir:—The second year's proceedings of the Brighton and Cramahe Farmers' Club closed at its meeting in September last, and I am directed to send you the doings of this year, for publication.

The Club meets on the Tuesday evening before the full moon, every month. A lecture is delivered each evening, by one of the members, followed by a discussion on the subject of the lecture.

At the meeting in October, 1865, the lecturer was Mr. J. R. Irish, subject, The Preparation of the soil for the spring crop. Nov. 3rd. Discussions.

Dec. 6th. Subject: The Report of the Judges, D. T. Stephens, Esq., lecturer.

Jan 2nd, 1866 Subject The Hive, the Honey-bee, and the profits of bee-keeping, Mr. Arthur Elliott, lecturer. Feb. 6th. Discussions.

March 6th, Pigs, and their management, Mr. John Cumming, lecturer.

April 3rd. Subject: The Farmers' Spare Hours, and how to use them, Mr. John Chapman, junr., lecturer.

May 1st. Subject: The Dairy and its management, G. S. Burrell, Esq., lecturer. To the April and May lectures the ladies were invited, and large audiences assembled.

June 5th. Mr. Arthur Elliott continued the subject of the management of bees.

July 3rd. Subject: Sheep and their management—Mr. F. B. Spilsbury, lecturer. August 7th. Discussions.

Sept. 4th. F. B. Spilsbury, Esq., continued his lecture on sheep.

October 2nd. Professor Buckland, from Toronto University, delivered a lecture on the Improvement of Canadian Agriculture.

Two prizes were awarded this year by the Club: one to the member who conducted his farming the best, and one to the member who had the best kitchen garden.

The prize for the farm was awarded to W. G. Bidwill, Esq., lot No. 15, broken front, in the Township of Cramahe.

The prize for the garden was awarded to G. S. Burwell, Esq. The annual-picnic was held in October, which was duly noticed in THE CANADA FARMER. The officers for this year are, G. S. Burwell, Esq., President; D. T. Stephens, Esq., Vice-President; Mr. John Chapman, genr., Treasurer; J. C. Squier, Secretary.

Professor James F. W. Johnson says, in his Elements of Agricultural Chemistry and Geology, that "what we already know, as well as what we are every day learning, must be adequately diffused among the agricultural body, and in every district means must be adopted for promoting this diffusion, if the benefits which science is capable of conferring upon agriculture be fully realized. It is in vain for chemistry and the other sciences to discover or suggest, unless her discoveries and suggestions be fully made known to those whose benefits they are most likely to promote."

The Farmers' Association is a means of arousing thought and a disposition to study; also it is one means of accomplishing the objects which science promises or hopes to attain.

ISAAC C. SQUIER, Secretary.

WHAT MAY BE DONE IN NEW BRUNSWICK.—We have received from Mr. J. D. Dixon, of Sackville, County Westmoreland, N. B., the subjoined statement of "an experiment in clearing up and improving wilderness land in the County of Westmoreland, showing in some degree the agricultural capabilities of New Brunswick," which have perhaps been too much overlooked. Mr. Dixon tells us that the gentleman conducting the experiments is a practical man, of large experience, and his statements are worthy of implicit confidence. The following is the account sent to us:

Some twelve years ago, I hired men to chop forty acres on a new farm, which I burned off, and had a "good burn." I let it lie, hoping to find a purchaser for it in that state. I valued it at four dollars per acre in its wilderness state. When the land got fit to stump, I let it in lots of from one to five acres in the spring time, and the following autumn, I had thirty acres stumped and well ploughed. Last spring I sowed it in wheat, barley, and oats, with grass

seed. I sowed three bushels of wheat on the 10th of April, and the remainder on the first and second of May. When the grain was harvested the grass was a foot high, and I could have mown a fair crop of hay by the latter part of September; but I preferred leaving it on the ground. I have now several customers for the field at twenty dollars per acre. I append a statement of costs incurred and the quantity and value of the crop harvested. I have not charged for sowing, harvesting, and thrashing, as the straw, of which I have from forty to fifty tons, will sell for more than enough to meet those expenses:

Table with columns for EXPENSES INCURRED and amounts. Items include Chopping 30 acres, Stumping, Ploughing, 7 bushels wheat, 9 do barley, 63 do Oats, 120 lbs. clover seed, 10 bush. Timothy seed.

Table with columns for RETURNS and amounts. Items include 100 bushels wheat at \$1 60, 150 do barley, 700 do oats.

Total \$530

Margin of profit \$157

To which I may add increased value of land \$16 per acre 480

Making a total of \$637

Which I consider myself benefited by the operation. I consider the above rather an extra crop, but it shows what our land will produce if properly managed.

The first fatal accident, it is believed, which has arisen from the use of steam-cultivating apparatus, took place on Wednesday, 26th December last, upon the farm of Mr. E. Greene, near Bury St. Edmunds, England. Messrs. Howard's tackle was being worked, and one of the men was engaged in guiding the steel rope on the drum of the windlass. It is supposed that, while imprudently stepping over the rope, he slipped, was caught by the rope, which instantly carried him to the windlass, and wound him tightly on it. He was extricated as quickly as possible, but died shortly afterwards.

ILLINOIS WOOL GROWERS' CONVENTION.—At a recent meeting of the Wool Growers of the State of Illinois, it was resolved to memorialize the Legislature to pass a more efficient law for the protection of flock masters against the ravages of dogs. It was estimated that in the State of Illinois alone, the annual loss of sheep killed by dogs amounted to not less than \$200,000; and further, that the keep of the dogs in the State cost their owners at least \$5,000,000 per annum. The Convention also passed a series of resolutions very strongly in favor of a protective tariff, and amongst other proceedings, gave expression to the following odd but emphatic opinion:—"That we are opposed to our country remaining any longer the rag-bag of the world, and that Congress ought to put a stop to the importation of shoddy or woollen rags, either by direct law or such rates of duty as will effectually prohibit them."

SALE OF MR. SNELL'S STOCK.—We learn from Mr. Snell, that the sale of his thorough-bred stock came off on the 30th ult., and was very numerous attended by a substantial-looking class of men, who appeared to be both able and willing to buy. All the animals offered, with two or three exceptions, were sold, and the prices on the whole were quite satisfactory. The stock is distributed pretty evenly all over the Provinces, from Quebec to Sarnia. The snow storms which prevailed for a week before the sale, by blocking up the railways, probably prevented many from a distance from attending, and the heavy duties on stock kept American buyers back. The sale, however, notwithstanding all the drawbacks, was quite a success, realizing, in the aggregate, \$5,127. This is pretty good, when it is considered that the stock sold was only such as was not needed on the farm, and that Mr. Snell still retains a large and select stock, from which he hopes to supply customers in future. The prices of Short Horn Bulls ranged from \$100 to \$216 each; Cows from \$65 to \$250 each; Galloway Bulls from \$40 to \$150 each; Cows from \$68 to \$132; Leicester Ewes from \$25 to \$85 each; Ram Lambs from \$21 to \$39 each.



Toronto Gardeners' Improvement Society.

We have received a copy of the Fourth Annual Report of this Association, whose operations during the past year have been highly encouraging, notwithstanding the removal of some of its prominent members, and the interruption caused by the public excitement in the Province, in connexion with the Fenian raid—causes which must have had an unfavorable influence on the attendance at meetings, &c. The report states that at the various meetings during the year a number of important subjects have been discussed, and interesting floral specimens, some of them of novel character, have been submitted—amongst others a collection of Epacris, and select specimens of Azaleas, Camellias, Dahlias and Roses. As a means of encouraging the exhibition of new and rare specimens of horticultural produce, the committee suggest "that a show-case be instituted in some convenient and appropriate place, where any thing new and rare in the way of fruits, flowers, or vegetables might be exhibited. For such an exhibition the fittest place would be the Messrs. Fleming & Co.'s window in Agricultural Hall, Toronto. Any article exhibited in such a case, accompanied with a statement of its locality, mode of raising, habits, and peculiarities distinguishing it from other varieties, would thus come before the notice of all interested in the subject, would be noticed by the press, and become the subject of discussion at the meetings of the Society."

An important object contemplated by the Society was to bring within the reach of its members as many as possible of the best periodicals and other works on horticultural subjects. In furtherance of this object the following journals have been distributed:—*The Cottage Gardener* and *Journal of Horticulture*, the *Pomologist*, and *Gardeners' Monthly*. These, after having been in circulation are, now, complete for the last four years, in possession of the society. In addition to this, through the alliance effected with the Dialectical Division Society, the Gardeners' Association has been able to procure from England important standard works on gardening, which will, no doubt, prove a very valuable acquisition. The report thus concludes: "You have by united efforts been successful in restoring the summer exhibitions, as well as in forming the nucleus of a Horticultural Library, a want hitherto much felt in Toronto; and with such prospects before you, your committee re- assure, with the assurance that the beneficial effects of the Society will yet exceed the anticipations of its originators."

Address of Judge Logie.

PRESIDENT OF THE UPPER CANADA FRUIT GROWERS' ASSOCIATION, AT THE ANNUAL MEETING IN HAMILTON.

GENTLEMEN.—In performance of that part of my duty which requires me to deliver an address at the annual meeting, I shall on the present occasion confine myself to some general remarks on the progress made in fruit culture since the formation of this association.

It is not many years ago since it was almost impossible for those who had no gardens of their own, to procure any of the finer varieties of fruit. There were no fruit shops, and fruit was not cultivated for sale, with the exception of apples, which were cultivated, though not nearly to a sufficient extent to supply the demand. At present there are numerous fruit shops in every city and town in the Province, where the best varieties of fruit can be obtained, and I believe that by far the greater part of the fruit sold and consumed in Canada is produced in the country. In

fact Canada, particularly that part bordering on the head of Lake Ontario, is becoming what its soil and climate so well adapt it to become, a great fruit growing country. I believe that ere many years elapse, Canada will not only fully supply the demand arising within the country, but that large quantities will be raised for exportation.

In referring to the progress made in fruit culture I must particularly allude to the progress made in the cultivation of the Grape. It has long been known that the climate of Canada is admirably adapted to the cultivation of the apple, strawberry, raspberry, and some other varieties of fruit; but it is only of late years that it has been found well adapted to the cultivation of the Grape. So late as 1861, Dr. Hurlburt, then Vice-President of this Association, delivered an address before the members at the annual meeting, in which he compared the climate of Canada with the climates of several of the Vine Growing Countries of Europe, and showed that the summer temperature is as high and in some places higher than in some of the most favoured vine growing regions; and that as the vine only requires heat to bring its fruit to perfection, the vine should be cultivated successfully and profitably in Canada.

The results of the past six years have proved that the climate of Canada is well adapted to the cultivation of the Grape. Instead of there being but few varieties in cultivation, and those only in private gardens and on a small scale, we have now in very general cultivation a great many new and greatly improved varieties, and the cultivation is not limited to a few amateurs; there are now several large and many smaller vineyards, where grapes are cultivated extensively for sale, and for the manufacture of wine. And from these grapes in many places considerable quantities of wholesome and palatable wine is being made. So rapid has been the increase, and so general the taste for vine culture, that we may confidently expect that a part of Canada at all events will be known as a land of vineyards.

For several years past the attention of members of this Association has been directed to the discussion and examination of a great many new varieties of grape, and one of our most active and useful members, Mr. Arnold of Paris, has by hybridization succeeded in producing several new and very promising varieties of fruit.

During the past year we have had the usual number of meetings, and I think of more than usual interest, particularly the last one held at Grimsby, where members had an opportunity not only of seeing a very large selection of fruit, but also of examining some of the neighbouring vineyards.

While the science of pomology is thus making satisfactory progress, and while this Association has done something to aid the cause, much more could be accomplished if those interested in fruit culture in different parts of the country would join and take part in our discussions; a much greater variety of knowledge and experience being brought to bear upon the subject, much greater results would be attained. Another result of a large membership would be, that as the expenses of management would not be increased; we would have some money to spare, to devote as prizes, either for the production of new varieties of fruit, or for the best essays on subjects connected with fruit culture, or the money might be devoted to the publication of our proceedings and reports, whichever might be deemed best calculated to advance the cause of pomology.

I hope therefore that members will not only attend our meetings themselves, but that they will exert themselves to procure additional members by pointing out the advantages which will accrue to themselves as well as to the Association from attendance at our meetings.

KEEPING APPLES IN WINTER.—At the last State Fair in Utica, N.Y., Delos Randall had on Exhibition Russett apples grown a year ago. These apples were plump, fresh, and of a good flavor, quite as good as the same kind of apples are ordinarily on the approach of spring. We inquired as to the manner of keeping, and were informed that the apples were put in refusal boxes obtained at the groceries, and in the following manner:—A layer of dry sawdust was sprinkled at the bottom of the box, and then a layer of apples placed in it so that they do not touch other. Upon these was placed a little layer of sawdust, and so on until the box was filled. The boxes, after being packed in this way, were placed on the wall in the cellar, up from the ground, where they kept, perfectly retaining their freshness and flavor, until brought out and exhibited at the fair. He says that he has kept apples in this way some months later.

Report of New Hybrid Grapes.

Read by Mr. ARNOLD, of Paris, at the Annual Meeting of the Upper Canada Fruit Growers' Association, January 16th, 1867.

I THINK it quite necessary to preface the report that I am now about to give of my new grapes, by saying that the character of a seedling grape will generally require at least ten years to become fully developed, and according to my experience in grape seedlings, if I get a true hybrid, and it gives any promise of being good the first year of bearing, it will generally continue to improve for several years after. I thought it advisable to mention this fact, at this time, in order to prevent members, who may be raising hybrid fruit, from rejecting them too hastily, and because of the pleasing probability that when next called upon to report upon these grapes, I shall be enabled to give a more flattering account of most of them than I am at this time. I shall on the present occasion confine my remarks to seven varieties, and in describing the fruit will generally use the exact language of gentlemen who have examined it upon the vines, or to whom the fruit has been sent. Among the latter are Hon. M. P. Wilder, of Boston, and Thomas Meehan, Esq., Editor of the *Gardeners' Monthly*, Philadelphia.

No. 1.—Vine hardy, ripening its wood early in the season; very productive. Fruit ripens a little earlier than Delaware; ripened this year with Hartford; "bunch large, compact, handsome; berries large, round, rosy, bluish; flesh tender and juicy as a Black Hamburg; seeds small, separating easily with the pulp; flavour mild, pleasant, entirely free from the aroma of the wild Fox Grape; a variety of much promise."

The following six are all seedlings of the Clinton, mixed with Black St. Peters and the Golden Chasselas. In a private letter to me last November, Mr. Meehan, Editor of the *Gardeners' Monthly*, says of these varieties:—

"I think your grapes the greatest improvement we have ever made in grapes; I shall, however, say more in the *Gardeners' Monthly*. I have delayed to write to you about them, as I have kept them on hand till now, to show to every one who has called, and all are delighted with them."

No. 2.—Hardy; very early; long, compact shouldered bunch; berry larger than Delaware, round, rosy, bluish; thin skinned, sweet and good; considered very promising for wine; ripens considerably before the Delaware.

No. 5.—Vine hardy; ripens with Delaware or a little earlier; bunch long, sometimes shouldered; berry medium size, round, colour white, thin skin; flavour sweet and rich; seeds small; "the most promising white grape I have seen."

No. 8. This variety has a very distinct, deep lobed, dark coloured leaf; vine hardy; bunch large, rather loose; berries bluish, medium size, thin skin; flavour very peculiar, much admired by some for its singular taste, and by others thought to be good only for wine.

No. 11.—Vine hardy, and the fruit, when ripe, so nearly resembles Black St. Peters, both in appearance and flavour, that it is difficult to distinguish the one from the other.

No. 16.—This grape, both in fruit and vine, much resembles Clinton, and ripens about the same time; it is, however, of much richer flavour, and this season many persons have pronounced it the best flavoured grape grown in my grounds.

No. 17.—Similar to No. 16 in appearance of vine, but a much larger bunch, and an enormous bearer; the fruit is not so rich a table grape as No. 16, but much better than Clinton; ripens a few days later than No. 16.

In Malton market, (England), on Saturday week, and again on Monday, Mr. Muckell, a green-grocer, astonished his customers by offering "new potatoes, Christmas." The novelty was so great that some of the best tubers sold for over 1d. a piece. The potatoes had been grown in the open ground—*Farmer (Scottish)*

Advertisements.

MILLER'S INFALLIBLE



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THE undersigned offers for sale or to rent for the season 1867, the above thorough-bred stallion.

CAPTAIN BUFORD

is a rich chestnut, stands 15 hands 3 inches, very powerful, a sure foa. getter, his colts are of fine size, and he has the advantage of most thorough-bred horses in size, style, bone and speed.

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FEATHERS, FEATHERS, FEATHERS.

THE subscribers will pay 45 cents per pound for good

LIVE GEESE FEATHERS

delivered at their Warerooms, Toronto.

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JACQUES & HAY.

Markets.

Toronto Markets.

"CANADA FARMER" Office, Feb. 12, 1867.

The produce market is dull, with few transactions taking place. Large quantities of wheat have been offering on Change during the past week, but buyers could not be found except at lower figures than were before ruling.

This is to be accounted for by the very large receipts both by rail and teams, which have come to hand within the past few weeks, since the good sleighing set in. The proposal made to increase the American import duty has also tended to make wheat buyers cautious. Several of our merchants who have been purchasing on United States account have had their orders withdrawn since the change in the United States tariff was proposed, and they are now offering what they hold for sale on our market. This, with the causes above mentioned, has produced an unusual dullness in the market.

Prices are still very high here, in proportion to other shipping points. Farmers would do well to take advantage of this while they can, and at once send forward their grain to market. If the proposed American import duties are put in force, a decline in prices must be expected.

Flour.—Market steady; No. 1 superfine held at from \$6 65 to \$6 75, with sales of round lots at the latter price; extra and superior nominal.

Wheat.—Market dull; spring wheat held at from \$1 37 to \$1 42; with sales at from \$1 36 to \$1 41. Fall wheat nominal. No lots changing hands, and very little coming in by teams.

Oats unchanged at from 30c to 32c.

Barley.—No receipts; a car carload sold at 55c; very little offering on the street.

Peas.—No round lots changed hands; as high as 69c was paid for a few loads on the street market.

Dressed Hogs.—\$4 50 to \$5 50, with a few offering on the street market.

Wheat Markets.—Fall Wheat per bushel, \$1 60 to \$1 75; Spring Wheat, do. \$1 25 to \$1 29; Oats, do. 28c to 35c; Peas, do. 55c to 65c; Barley, do. 40c to 46c; Wool, per lb, 24c; Eggs, per dozen, 18c to 19c; Butter, per lb, 12c to 13c.

Galt Markets.—F. W. Flour per 100 lbs, \$4 25; Spring Wheat Flour, do. \$3 50; Fall Wheat, per bushel, \$1 70 to \$1 85; Amber Wheat, do. \$1 37 1/2 to \$1 60; Spring Wheat, do. \$1 35 to \$1 42; Barley do. 40c to 45c; Oats do. 28c to 31c; Butter per lb, 15c to 17c; Eggs per doz, 16c.

London Markets.—Fall Wheat, \$1 50 to \$1 65; Spring Wheat, \$1 35 to \$1 45; Barley, 40c to 48c; Peas, 64c to 68c; Oats, 28c to 29c; Rye, 70c; Dressed Hogs, \$4 75 to \$5; Wool, 25c to 26c per lb. Butter—prime distry-packed, No. 2, 11c to 12 1/2c per lb, fresh, in rolls, by the basket, 16c per lb; Eggs, 18c to 20c per dozen.

New York Produce Market.—Flour, market dull, and 5c to 10c lower; sales, at \$9 10 to \$10 10 for super State; \$10 45 to \$11 15 for extra State; \$11 30 to \$11 90 for choice do; \$9 10 to \$10 10 for super Western; \$10 25 to \$11 40 for common to medium extra Western; \$11 50 to \$12 50 for choice do; \$11 to \$11 90 for common to good shipping brands extra round hoop Ohio.

Wheat dull and in favour of buyers; sales, at \$2 13 for No. 3 Milwaukee; \$2 20 for No. 2 do; and \$3 15 to \$3 25 for white California; also, 20,000 bushels white California to go out of the market on private terms.

Rye.—Dull. Harley.—Quiet.

Corn.—Receipts, 40,000 bushels, dull and declining; sales, 32,600 bushels at \$1 14 to \$1 15 1/2 for mixed Western about, \$1 13 for do in store; and \$1 18 1/2 for handsome white western.

Oats.—Receipts, 2,700 bushels, market dull and drooping; sales, 13,000 bushels at 60c to 65c for Western; and 69c for State.

Provisions.—Mess Pork \$16 to \$17; prime Mess, none offering. Sugar-cured Hams 11c; Hams, dried, 9c; Rolled Bacon, 11c; Cumberland cuts 9c. Butter, dairy, 13c to 14c, store packed, 9c to 11c. Eggs, none offering. Dried Apples \$2 49 per bushel.

The Cattle Market.—The following are the prices current in this market for 100 lbs dressed weight.—First class cattle, \$7; second class \$6 50 to \$7; inferior, \$6 to \$6 50; Sheep, each; \$5 to \$6; Lambs, \$3; Calves, \$4 60 to \$6.

Hides, Skins and Wool.—Green, from but. hers, \$6, green salted, \$8 to \$8 25, calfskins, 12c; green salted, 15c to 16c; sheepskins, 90c to \$1. Wool selling at 30c.

Poultry.—Chickens, 30c to 40c; turkeys, 70c to 80c; geese, 50c to 60c, ducks, 50c to 60c per pair.

Hay and Straw.—Hay, \$9 to \$14. Straw, \$5 to \$6 50.

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