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OF

THE CANADA FARMER!

THE FARMER'S OWN PAPER!

EVERY FARMER SHOULD HAVE IT!

THIS POPULAR AGRICULTURAL JOURNAL is about to enter on its Fourth year, with every prospect of increased success. The unprecedented reception which it has heretofore met with is undoubtedly owing to the fact that it has supplied an urgent necessity long felt by Canadian Agriculturists. They needed a journal specially devoted to the elucidation of questions in which they are specially interested as farmers and horticulturists, and they have found in THE CANADA FARMER what they required. THE FARMER has received the most flattering commendation from the chief farmers of the Province, from the press of Canada, and also from those who are perhaps the best judges—the agricultural Journalists of Great Britain and the United States.

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In the conduct of THE CANADA FARMER, the following ends have been, and will be zealously laboured for:

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- 2.—To stimulate the agriculturists of our country to adopt an improved system of husbandry, by blending the lessons of modern science with the practical experience of the Canadian Farmer.
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- 5.—To keep prominently under attention all that specially concerns the Dairy farmer and the Grazier—the best breeds of Cattle—the best systems of feeding—the most approved processes of cheese and butter making—the best mode of packing—and the best market to sell in.
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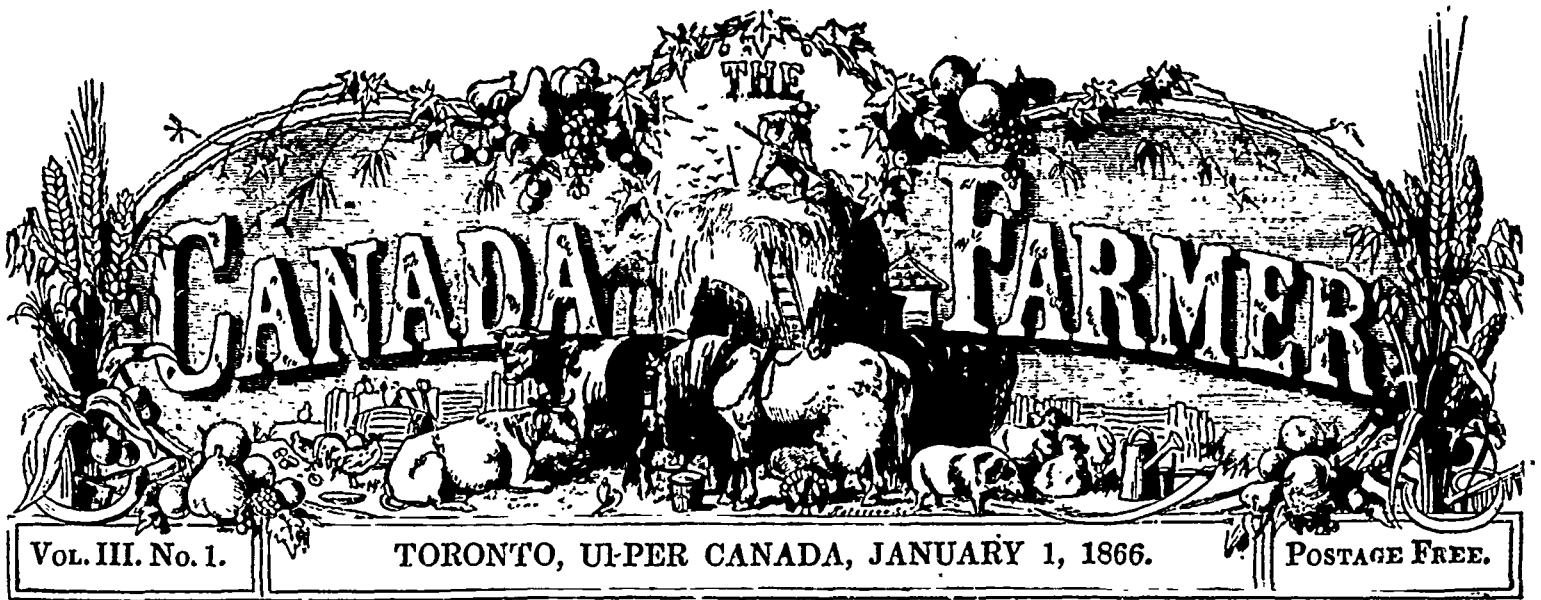
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The Field.

Steam Cultivation.

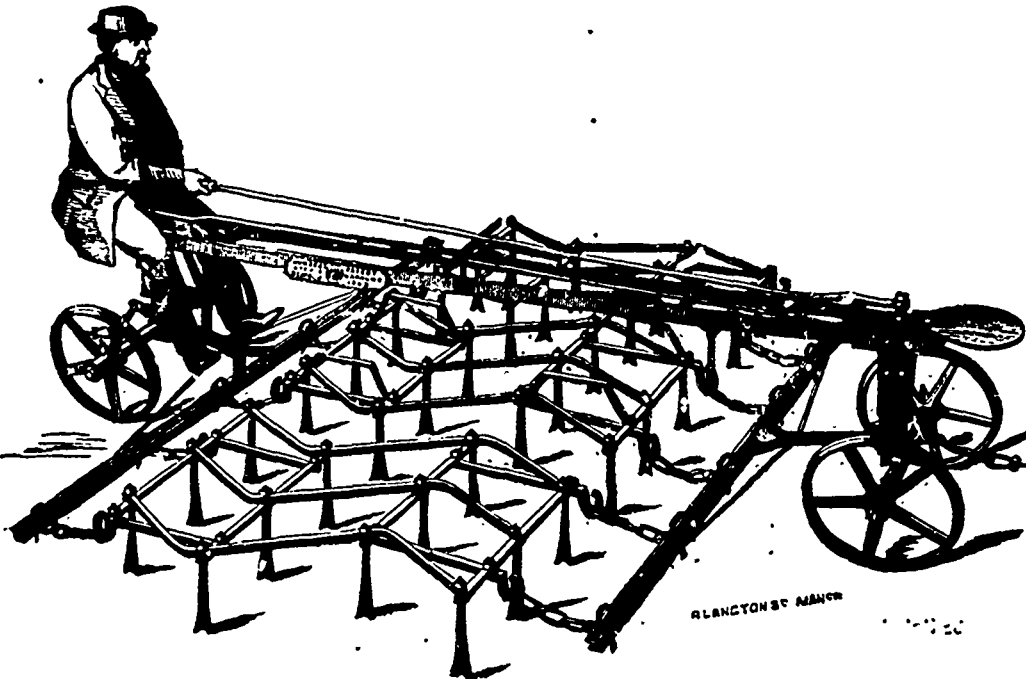
In order to secure the advantages enumerated in the concluding paragraph of our last article, steam ploughing apparatus should be:—

1. Simple in its construction.
2. Easily understood and managed by ordinary farm hands.
3. Readily adapted to work in any desired position.
4. Moderate in its first cost, and
5. Economical in wear.

These features are combined in a greater or less degree by the respective systems of Fowler, Howard and Smith. The implements of the last-named patentee, are of slighter construction than those of the other two makers; but the first expense of Smith's apparatus is about £500, while the cost of the engine and tackle of Howard or Fowler amounts to close upon £1,000. It is our opinion, however, that the manifest superiority and effectiveness of the stronger and more expensive sets, compensate for the extra price in the long run. The large outlay of capital necessary to procure a set of tackle will ever be a formidable obstacle to anything like a general adoption of steam culture. Many British farmers were stunned by the very mention of the amount required, and promptly dismissed the subject from their minds. The formation of district steam cultivating companies removed this obstacle, and the agriculturist derived from hiring, the advantages which he was unable to purchase. Besides the question of expense, there are other considerations which will tend to render the company system more popular than that of individual investment. Farmers are qualified to undertake the management of steam machinery. If a breakage occurs, they are ordinarily without facilities for having it repaired, while the area of single farms, in the majority of instances, is incommensurate with the demands of the steam plough. The last is an objection of extraordinary gravity. For, unless the engine and tackle can be kept fully employed, their advantages are not fully maintained. In the system of letting and hiring, a

competent inspector is usually appointed to take the superintendence of a district, and is responsible to the Company for the due preservation of the tackle, and for the proceeds derived from the work performed. By this means, somewhere in the neighbourhood of twelve acres per day are cultivated, and the system appears to give general satisfaction. We have before us quite a number of tabulated reports of the yearly working expenses incurred by Companies as well as by private individuals, who are working the steam plough. Several of the statements are by interested parties, and bear unmistakable evidence of being "cooked." We give the substance of a very instructive record of the pros and cons of steam culture which recently appeared in the

Having thus specified the sort of soil dealt with, and the course of cropping, it may in the second place be well to shew what work is usually performed in preparing for each crop. To begin, then, with the breaking up of the wheat or stubble, in September, for roots: If weedy, the plot is scarified and harrowed; and when the rubbish has been well weathered, it is turned down with a ten-inch furrow without difficulty. Manure is also covered in without difficulty, in the same way. The land, in spring, is ridged with horses; the dung is applied; and the ridge is split, and left for the deposit of seed. For wheat after potatoes, only one course is required; for oats, the land is skimmed before winter, and a six-inch furrow, with ten loads of manure, is given before sowing; for green rye, the land is scarified, dunged, and ploughed in September, and sown directly, so that it may be cleared from May to July following. As the rye is cut green, the land is dunged and ploughed (generally with horse-power) as it is cleared; and, so long as the season serves, the vacant place is filled up with cabbages, dibbed, and subsequently with turnips, rape, &c. If the cabbages are removed in March, the land is fitted for spring wheat with a single furrow, if in April, for barley. For wheat after seed, one furrow suffices. All this work, by reason of being done at the proper season, quickly done, thoroughly done, is now



columns of the *Mark Lane Express*. The apparatus has been used for six years, and the register, it is stated, has been most completely kept, by one who had no foregone conclusions to serve, and who took to steam on purely economic grounds. The history of the operations is thus summarised: The farm in question is situated in the neighbourhood of London. The soil is light, and rests on a chalk substratum. It consists of 600 acres of mixed land, but land mainly under the plough. Of this, 300 acres are under the seven-course shift—potatoes, wheat, oats or barley, green rye, peas or tares, and crop after, barley, seeds, wheat; 130 acres are under the six-course system—potatoes, wheat, mangels, wheat, seeds, wheat; 90 acres under the four-course, lie at some distance, and are worked for sheep. The soil, which varies in depth from six inches to six feet, is not drained, and under all circumstances can be ploughed with two horses.

effected by means of a ten-horse-power engine and apparatus, and nine horses. Formerly, that is to say, so late as 1858, twenty-two horses were employed in producing a result for inferior dimensions. The apparatus was supplied in the year 1859. (The name of the implement maker is not furnished.) The first attack upon the land was a formidable one, alike for the plough and the land. The soil was matted together with weeds, and the plough offered a great resistance to the thrust of the share. The work actually performed is stated as follows:—

For the crop of 1861—
 Land under tillage..... 400 acres.
 Days at work ploughing and scarifying.. 70 days.

The number of working days in this year would have been greater had not the wet autumn of 1860 interfered.

For the crop of 1862—
 Land under tillage..... 510 acres.

Days at work ploughing and scarifying.. 115 days.
Ploughing on hire..... 46 days.

For the crop of 1863—

Land under tillage..... 510 acres.
Days at work ploughing..... 81
" thrashing 21—105 days.

It may be remarked in passing that the whole crop was thrashed by the ploughing engine.

For the crop of 1864—

Land under tillage..... 510 acres.
Days at work ploughing..... 75
" thrashing 26—101 days.

Here again the entire crop was thrashed, and it may be further remarked that for these two last crops the work done in acres amounted to 575 in each year.

For the crop of 1865—

Land under tillage..... 510 acres.
Days at work ploughing..... 54
" thrashing 29— 83 days.

The foregoing statement clearly exhibits that there was a steady yearly increase in the number of thrashing days, with the same power employed each year. This plainly proves that there must have been a larger bulk of grain produced by the land. At the same time, the days occupied in ploughing and scarifying decrease in a similar ratio, thus indicating increased facility in working, less trouble with weeds, and improved fertility. During the whole of this period, we learn, that "the crops were visibly increasing, and at no time did the number of horses exceed nine." The actual accounts of the whole period, including the supply of several improvements made in the apparatus, are given, from which it appears that the average yearly cost was as follows:—

	£	s.	d.
Account.....	60	0	0
One year's coal.....	72	0	0
Oil.....	8	10	0
Depreciation and interest.....	100	0	0

£240 10 0

The account against the nine horses is as follows:—

	£	s.	d.
Cost for nine horses.....	183	0	9
Hay.....	103	0	0
12 acres of green meat.....	34	0	0
Depreciation and interest on nine horses, valued at £40 each.....	45	0	0

£420 0 9

Thus we see that the thrashing, cartage and tillage on this farm of 600 acres is done, so far as horse-power and steam are concerned, at an expense of £660.

The report then proceeds:—"Many men may be unprepared for such a case against horses on a light land farm, but such we are assured are the actual figures. It may be objected that no allowance is made for manure in the statement; but let it be remembered that the account, on the other hand, is not charged with the straw, the repair and depreciation of implements, and harness used with the horses. Here, then, without attempting to balance the two cases with exactness, is a power called in to displace and replace thirteen horses.

	£	s.	d.
The annual cost of the power substituted was.....	606	13	4
The annual cost of the substitute is.....	240	10	0

The apparent gain.....£366 3 4

There are three considerations which go largely to increase the sum which, after the above process of subtraction, is left as gain. Thrashing, when horse-power only was employed, and maintained at a cost of £1,026, was an extra; now that steam has displaced a considerable proportion of the horse-power, and reduced the expenditure of certain specified operations to £660, thrashing is included. The reasonableness and thoroughness of the tillage operations render altogether unnecessary the multiplied acts, which used to characterise every system of good husbandry. One deep steam stirring at the right season is made to take the place of several slighter ones. Every year the work becomes easier, more manageable, and the days spent in tillage operations fewer. Although no account has been kept upon this farm to measure the exact result of steam as

against horse-power in a total bulk of produce—and such an account, for the reason that horse-power and steam are used in conjunction, is impossible—yet the owner of the farm is perfectly satisfied. His stack-yard and his banking balance show a state of improvement that can only be attributed to the employment of steam."

The cut accompanying this article represents Howard's "New Patent Steam Harrow," which has already been described in our pages, (*vide CANADA FARMER*, Vol I., p. 99.)

Familiar Talks on Agricultural Principles.

INTRODUCTORY.

SOME little time ago, one of our correspondents wrote us asking for a simple explanation of certain terms used in agricultural journals and books, such as nitrates, potassa, phosphates, &c., and confessing that to himself and many of his brother farmers, much of their agricultural reading was little better than Greek, from want of acquaintance with the meaning of such words. We might, in reply, have given a glossary of terms used in scientific agriculture, but this course would only have met the case in a very partial manner, for the real difficulty is not so much in ignorance of words as in ignorance of principles.

Generally speaking the farmer is a mere manual labourer. He works according to a few simple traditional rules. Certain modes of culture have been found by experience to bring about certain results. But he cannot explain the why and the wherefore of them. He cannot show why it is and must be as experience has demonstrated. Hence he goes about his work mechanically rather than intelligently, and finds it far more of a task than a pleasure. To know the reasons of things, to be versed in the principles of agriculture, would convert drudgery into an enthusiastic study of nature, and lend a charm to an otherwise tedious avocation, for as the poet Shakespeare observes: "The labour we delight in physics pain."

No farmer should be content to toil, like a mole, in the dark. He should aspire to understand his business; to be familiar not only with its practical operations, but with the theories and facts on which they proceed. There is nothing abstruse, or difficult of comprehension about the principles of agriculture. Nor are they mere guesses and conjectures, but the results of patient inquiry, careful observation, and persevering research. They are thoroughly proved and established facts.

It is not, perhaps, to be wondered at that so few farmers are versed in the science of their business, when it is remembered that it is only very lately that agriculture could claim to have been reduced to a system and based on a theory. Little more than half a century has passed away since Sir Humphrey Davy applied chemistry to agriculture, explained the organization of plants, the nature of soils, and the influence of light, heat, electricity, moisture and the atmospheric gases upon vegetable formations. Previous to his day, the most absurd ideas were maintained, such as that all vegetable products were capable of being generated from water; that the soil contained all the nourishment of plants, and that by finely dividing it, any number of crops might be raised from the same land; and the like. The discoveries of Sir Humphrey Davy have been greatly improved upon since 1840 by Liebig, Johnson, Lawes, Morton, M. Ville, and others, until at the present time agriculture takes rank among the fixed or exact sciences.

There are aged patriarchs of the farm now living who have witnessed the birth of Agricultural Chemistry, and can tell of a time when not only its laws, but its very name were unknown. But though of comparatively recent origin, scientific agriculture has made remarkable progress, and it must not be forgotten that many much newer discoveries have come to be

perfectly familiar to every one. The past half century has been fruitful of discovery and improvement in every department of human activity, and it behoves the farmer to see to it that he is not in the rear of his age.

One great obstacle in the way of securing attention to principles, is the prejudice which exists against "book-farming." Many good farmers entertain this prejudice, and though it is ill founded and unfortunate, there is after all some excuse for it. Mere theory never made a farmer yet. The practical part of the business cannot be got from books, but must be learnt on the farm itself. There have been those who have supposed themselves through qualified farmers merely because they have become posted in the science as taught in books, but their efforts to reduce theory to practice have proved mortifying and mirth-provoking failures. When wise and experienced men have met with such cases, they have unthinkingly said, "Ah, this comes of book-farming!" In some instances too, practical men have been misled by theorists. What applies to a particular soil or climate has been made a rule for every soil and situation. Facts and experiments have been made public without the conditions of success being carefully laid down. A slavish imitation of processes described in a loose, general way, has often led to waste of time and money, and thus scientific farming has come into disrepute.

The relation between the theory and practice of Farming is aptly illustrated by Prof. Dawson, in chapter ii. of his admirable work, "First Lessons in Scientific Agriculture,"—a volume that deserves to be more widely known, and from which we expect to derive many suggestions in the series of articles we are now commencing. "A practical seaman," says Prof. D., "must be able to perform all the active duties required of him in the ship—to steer, to go aloft, to reef sails; and, a mere landsman may be quite helpless in these matters, however much he may know as to the theory of navigation. But the ship may be well manned with able-bodied and skilful seamen, and may yet lie helpless in mid-ocean, if there is no one on board capable of working out its reckoning and determining its course; and a landsman, a boy, or a woman, may be able to do this by means of the learning taught in the schools, though quite unable to perform any of the duties of the practical seaman. The ship is equally helpless without practical skill and without science. Both must be present. It is just so with farming; the farmer must know the practical operations of his art—how to plough, to harrow, to sow, to reap; but he may know and industriously practice all these, and yet be running his farm to ruin, as surely as the seaman would his ship, if he knew not his course and distance. Here science comes to the aid of the farmer. It teaches him the nature and composition of his soil, the materials of which he exhausts it in cropping, the various requirements of different cultivated plants, the nature and uses of manures, the causes of sterility and impoverishment, and the cheapest and best modes for remedying the one and avoiding the other; and the materials necessary to renovate lands that have been already exhausted."

It will be our object in these "FAMILIAR TALKS" to reflect some of the light which science has shed on the farmers' pathway of toil, and to draw attention to the laws by which an all-wise Providence directs the wondrous course of Nature. We shall affect no originality, but avail ourselves freely of all the helps within reach, by means of which our object can be promoted in the most effective, simple, and interesting manner. We shall hope to engage as listeners to these "talks," not only those of our readers who are actually engaged in farming, but all who take an interest in the forms of life and beauty with which the Creator has filled the earth. The principles of agriculture form an important and deeply interesting branch of natural science, well worthy the attention of every thoughtful mind.

Experiments in Top Dressing Grass.

In a communication to *The Farmer* (Scottish) a correspondent states some interesting particulars of the comparative effects of nitrogenous and phosphatic manures on a piece of pasture. The facts are briefly as follows: The field in question rests on the limestone formation, the soil being chiefly composed of old red sandstone drift of a loamy texture, and lying about 150 feet above sea-level. The field was laid down with a good selection of grass seeds in 1839, but the soil not being in sufficiently good condition, some of the better grasses were giving way to bents and wood rushes. In the last week of February, of the present year, the field was double harrowed with Howard's heavy seed harrows, and marked off into four divisions of two acres each. To the first lot 5 cwt. of Peruvian guano was applied; to the second, 2½ cwt. Peruvian guano and 4½ cwt. of super-phosphate of lime mixed; to the third, 9½ cwt. of super-phosphate; to the fourth, no manure of any kind was applied. The cost of the artificial manure applied to the lots was equal in each case. The field was then double-harrowed, and finished with a light rolling. The weather proved moist and favourable, and the effects of the respective manures soon became very marked. In about three weeks the guanoed portion was well defined. The portion on which guano and super-phosphate had been mixed and applied, showed no sign of improvement over the lot which had received no manure, but was even a shade more backward. On the portion on which the super-phosphate had been applied alone, the pasture was completely burnt up, and was as conspicuous by its bareness as the first lot was by its verdure. In the month of May, No. 1 had a great lead, No. 2 was equal to No. 4, while No. 3 was much inferior. The writer then proceeds to remark: "Although I had great faith in the super-phosphate for improving pastures, I must confess that I wavered somewhat at this period, although I was the last to do so, as every person who saw the plots had long concluded that super-phosphate alone in my case was worse than nothing; and the reason they assigned was, that there was more lime in the soil than I anticipated, although the field was not limed for fifty years before. However, time was in this case, as in all others, the best test, and when June came, a thick sward of white clover might be seen springing up in No. 3, and it almost suddenly became the favourite feeding and lying ground of the sheep, which thus doubly improved it. To lots No. 1 and No. 2 the cattle and sheep also gave a very evident preference over No. 4." At the end of the season it was observed that although the quantity of grass grown on No. 1 was much heavier than on No. 3, it yet contained a large proportion of bents and wood-rushes. No. 2 yielded somewhat less per acre, but contained less of coarse grasses and weeds than No. 1; while No. 3 although yielding scarcely more in bulk than No. 4 had a fine sward of fine grasses and clovers, without the slightest trace of weeds or wood-rushes, and promises doubly better for the coming year than No. 1. We give the conclusions at which the writer has arrived, from the results of these experiments, in his own words. They are as follows:

"1st. That top-dressing grass land with artificial manures pays.

"2d. That the general results of Lawes' experiments on top-dressing grass land, are borne out on soils resting on the limestone formation.

"3d. That for the permanent improvement of pastures, super-phosphate of lime is better adapted than guano.

"4th. That in proportion to the coarseness of the herbage the per centage of phosphatic manures should increase, and vice versa; and.

"5th. That from the effects which I have observed, it would appear that not only did the super-phosphate indirectly check the growth of the finer sorts, but that it directly impeded their growth, and evidently disagreed with them almost from the period of its application."

Ploughing Green Crops in in the Fall.

EDS. PRANS FARMER: I noticed in a late number of your paper a communication from F. H. Miner, on "Fall Ploughing." The writer appears to assume the position that the practice is surely impoverishing the country. That fallow land is always losing, while land in green crops is always improving, is a point almost invariably admitted by every agricultural chemist from Prof. Liebig down. The statements then of Mr. Miner are orthodox. In theory he is correct, practically, I say he is wrong. Wrong, because in my own experience, I have always found that a green crop turned under in the fall, no matter how early, fits the soil in a much more thorough manner for the succeeding crop than the practice of letting the same remain till spring. Three years ago, in August, I ploughed under a portion of a field of clover; the balance of it was neglected till the following spring, when it was ploughed, and the whole planted to corn. The result was that the spring ploughed land produced corn that looked for all the world as though it had the jaundice. One thing is certain, if the soil where it grew had, during the fall or early spring, been "appropriating the riches of the atmosphere" and taking in "supplies of carbon," that corn failed to draw them out. More than double the corn grew on the fall ploughed land than did on the same amount of the spring ploughing.

I also obtained results, the past season, precisely similar to these with a crop of wheat. A growth of weeds had taken possession of the soil. A portion of them was turned under last fall, in a green state, the balance was left till spring.

This is not only my own experience but that of scores of others in this vicinity. So prevalent is the opinion here in regard to the efficacy of fall ploughing that in renting land it is generally insisted on, as a condition of the lease, that the land designed for small grains especially, shall be fall ploughed. Mr. M., in one part of his communication, admits that ploughing under a green crop has a "renovating effect" on the land. Precisely so. The question then is when shall this operation be performed? I argue while the crop is still green and growing, and not after it has become withered and dead. In the one case we secure to the soil whatever elements of fertility the crop may contain—in the other, some of them at least, judging from results, seem to be lost.

—D. C. THOMAS, in *Prairie Farmer*.

Preparation of the Land for Flax and other Spring Crops.

THE unusual dryness of the weather during the past autumn has given every facility to effect that great desideratum in modern husbandry—the autumn cleaning of the land; but though we may say modern, the best practical men of more remote times have insisted upon it as the best and most effective time to effectually cleanse the land for future cropping; and the only excuse offered for not doing so, both then and since, is the want of time and absence of good weather to effect it. As very few of our farming friends can make such excuses now, we trust that many of them have done so, which will tell immeasurably in their favour during the next season's campaign. Some we know and have seen to do so, and have gained large heaps of stubble, &c., which has and will turn too much profit in bedding their cattle, and the consequent manufacture of large quantities of manure; and, judging by the tenour of the numerous queries in our columns, many that we have not seen have done so also.

The cleansing of the surface of the arable lands having been effected, the next operation to perform is ploughing the land, which should be effected at once, and as deep as possible. For flax and green crops 9 to 10 inches deep is necessary, if the staple of the land will afford it. It should be left in the rough state during the winter to enjoy the ameliorating and enriching effects of the winter's frosts, snows, thaws, and rains.

As the production of flax is now becoming an important item in farmer's crops, and as it requires a deep, friable soil, of equal composition and texture, not too loose, on this account it is inimical to the flax crop to plough the land deeply again in the spring. A single grubbing or good harrowing, not more than three inches deep, is sufficient; for if the soil below that depth is loose or unconsolidated the flax plant will not have sufficient root-hold, and will be likely to lodge prematurely, to the great detriment of the crop. A compact, homogeneous, deep soil, with a well pulverised, fine surface, is therefore, necessary to grow the plant to perfection; and when this is obtained the seed should be sown, and covered with three turns of a light, fine harrow, first one way,

then across, and finished angleways, to ensure an even distribution of the seed.

In like manner, in preparing the land for root crops, the land should, after the first deep ploughing, be left rough all the winter, to get ameliorated and disintegrated, and enriched by exposure to the weather; and early in the spring, as soon as it is dry enough, the harrows and grubbers should be put to work, to level and pulverise the surface, to be followed immediately after by the plough, lest wet weather come on between the harrowing and ploughing, which would run the surface together and render it most difficult to pulverise again. Should the land in the necessary subsequent grubbing, harrowings, and ploughings, turn up rough and lumpy, the use of a roller of sufficient weight facilitates the operation. The subsequent ploughings for land intended for root crops, contrary to that intended for flax, should be deep, but not quite so deep as the first or autumnal ploughing, in order to ensure a deeply pulverised soil for drilling, the even deposit of the seed, and close covering, without which an even or perfect braird cannot be expected.—*Irish Farmer's Gazette*.

Wire Fences.

WIRE fences in certain localities are preferable to those of wood, both from their cheaper construction (where lumber is scarce) and their requiring less labour to build and keep in repair, while if properly made they are as good, or a better safeguard against unruly stock than wooden fences.

In building a wire fence, it is necessary to have a large post well braced at each end, to withstand the strain when the wires are drawn stiff. These posts should be nine feet long, 15 inches or more across, set four feet in the ground, inclining slightly from each other, and the holes filled in with small stones. They should each be braced with two poles 10 or 12 feet long, and 8 inches across, the small end beveled, and placed in a notch cut near the top of the post, and the butts spread three feet apart, and planted firmly against a block placed below the ground 6 or 8 inches. Then dress the side of one post (opposite the braces) so as to make a flat surface 10 inches wide from top to bottom. Bore the holes for the wires horizontally at a distance from each other as follows: The first 8 inches from the ground, the next 8 inches from the first, the next space 8 inches, the next 10 inches, and the next 11 inches. The small posts may be round, and set at equal distances of two rods. They may be fastened with small stones if convenient, as they are not so liable to heave out by frost, as when filled in with earth. The wires should be No. 6, annealed, and fastened to the posts by small hooks or staples, made for the purpose, not so closely, however, as to prevent the wire from moving freely when drawn. Pieces of wire may be spliced, by securing the ends in a pair of tongs, and twisting the end of each around the other. To draw the wires, secure one end to one large post, and the other pass through the holes bored in the other, and the wire-hole of the roller. The wire may then be wound upon the roller by a pair of bars, until it is of a proper tension. The roller for drawing is a "native" of New Jersey, and as it is not generally known, I will try and describe it as well as I can without diagrams. It is made of cast iron, 8 inches long and 2½ inches in diameter; but four inches of the middle is but 2 inches in diameter, thus leaving a flange 2 inches in width at each end, and as the wire is wound around the middle in drawing, the friction all comes upon the end, which serves as a kind of journal. Through the small part, near one end, is a half inch hole, to hold the end of the wire; and through each flange is an inch hole (the two being at right angles) for a pair of bars to be entered while turning the roller, withdrawing one while winding with the other. The roller weighs about five pounds, which may be prevented from turning back and unwinding the wire, by putting a wooden pin 6 or 8 inches long in the bar-hole. An inch pin placed in the post, under each end of the roller, will keep it in its place while winding. No. 6 wire weighs two pounds per rod. The hooks or staples, for securing the wires to the small posts may be malleable or wrought iron. They can generally be procured at the hardware store.—*Cor. Rural American*.

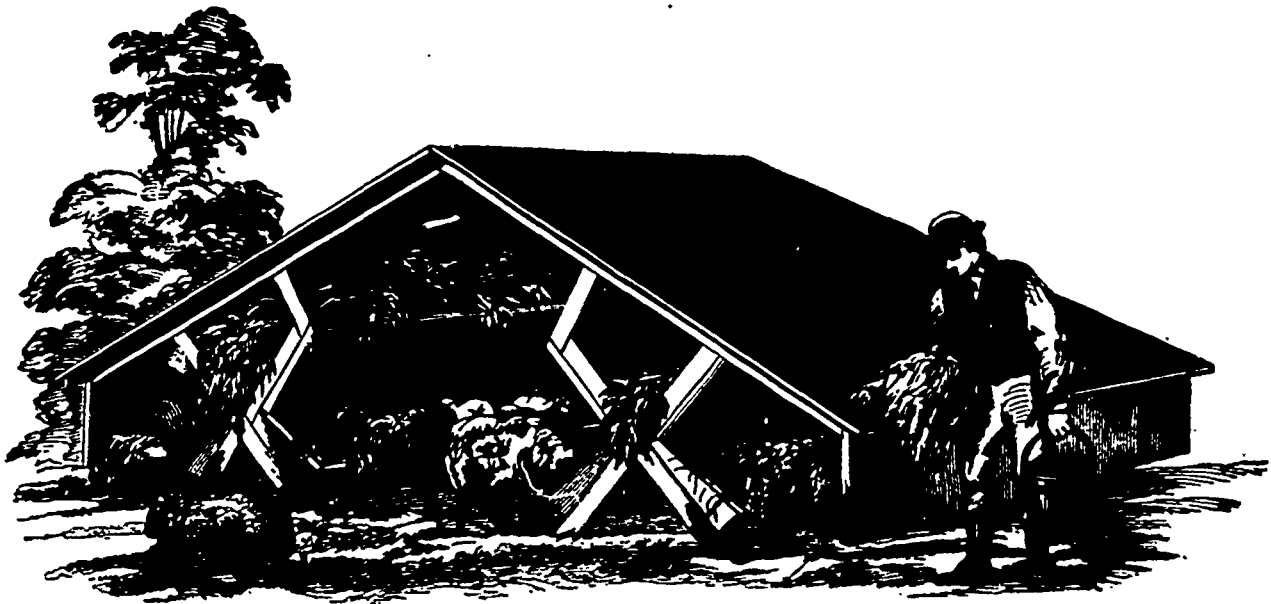
REASONS FOR NOT SOWING TIMOTHY.—"Why did you not sow timothy with the clover?" Because I intend to break up the land in two years, and sow wheat; and I have a theory that timothy being a cereal, robs the ground of those elements most needed for wheat. This is not the case with clover, peas, and other leguminous crops. So that on wheat land, and when the hay is to be consumed, as it should always be on the farm, I think the less timothy and more clover we can grow, the better. Clover impoverishes the soil less than timothy, and makes richer manure.—*Gen. Farmer*.

Stock Department.

A Combined Shed and Sheep-Rack.

The accompanying illustration represents a simple and economical contrivance for feeding and sheltering sheep. The inventor and patentee is Mr. C. Kinney, of Dereham, Co. Oxford, C.W., who thus enumerates the advantages of his Portable Combined Shed and Sheep Rack, "Good shelter in all weather, economy in feeding, whereby a saving of from 15 to 20 per cent. is effected, is an invaluable retreat for ewes during the lambing season; forms an excellent shearing table; is portable; and last but not least, any farmer with 500 feet of common lumber, can make one for himself, in two days, capable of feeding and sheltering forty sheep."

The price of County and Township rights to use, and any other particulars, may be obtained from the Patentee by addressing as above.



A COMBINED SHED AND SHEEP-RACK.

Satisfactory Explanation.

In the sheep department of the *Rural New Yorker* for Dec. 16, we find the following paragraph, in reference to an enquiry raised by us in THE CANADA FARMER of Dec. 1.

"THE CANADA FARMER.—This excellent agricultural journal, quoting our remark, made some weeks since, that "American farmers who live well, and educate their children, and pay government taxes, cannot compete in cheap wool production with serfs, and demi-savages, and dirt-eaters of other descriptions in other countries," asks who are these serfs, demi-savages, &c.? We will assure our contemporary of one thing, viz.: that we never intended to apply these terms to the people of Canada."

So far, so good. But having told us who these "serfs," &c., are not, would our excellent contemporary further oblige us by informing us who they are? Our interest in free trade makes us very curious to know more about the competition in the wool market, which is so much to be dreaded by American farmers. We should like to see them putting on a bold face, and defying the world. Or if they must knuckle down, let it be to a more respectable and formidable class of rivals, than "serfs, demi-savages, and dirt-eaters."

VERY EARLY LAMBS.—A few days previous to yearling time, confine the ewes in a box stall, or apartment here they will be protected from cold and storms. Feed with good hay and corn stalks, and let them have access to salt and water. Grain and roots previous to parturition tend to induce garget. As soon as lambs appear thrifty and strong, and take all the milk, one pound of roots and half a pound of meal daily, for each ewe, will make the lambs grow like weeds.—*Am. Ag.*

Points of a Good Hog.

It may not be amiss to group together what is deemed desirable under this head. No one should be led away by mere name in his selection of a hog. It may be called a Berkshire or a Suffolk, or any other breed most in estimation, and yet, in reality, may possess none of this valuable blood. The only sure way to avoid imposition is, to make name always secondary to points. If a hog is found possessing such points of form as are calculated to ensure early maturity, and faculty of taking on flesh, one needs to care but little by what name he is called; since no mere name can bestow value upon an animal deficient in the qualities already indicated.

The true Berkshire—that possessing a dash of the Chinese and Neapolitan varieties—comes, perhaps, nearer to the desired standard than any other.

The chief points which characterize such a hog are the following:—In the first place sufficient depth of carcass, and such an elongation of body as will insure a sufficient lateral expansion. The loin and breast should be broad. The breadth of the former denotes a good room for the play of the lungs, and, as a con-

most esteemed breeds. If the hair is scant, black is desirable, as denoting connection with the Neapolitan; if too bare of hair, a too intimate alliance with that variety may be apprehended, and a consequent want of hardihood, which—however unimportant, if pork be the object—renders such animals a hazardous speculation for stock purposes, on account of their extreme susceptibility of cold, and consequent liability to disease. If white, and not too small, they are valuable as exhibiting connection with the Chinese. If light, or sandy, or red with black marks, the favourite Berkshire is detected; and so on, with reference to every possible variety of hue.—*Jennings.*

Ayrshire and Jersey Cross.

By SANFORD HOWARD, ESQ.,
Secretary of the Michigan State Board of Agriculture

A FEW years since, Mr. Telfer, of Ayrshire, Scotland, kept a dairy of twenty-five to thirty cows for the production of butter. They were kept wholly on the soiling system, and were always sheltered, except when in the yard for exercise and change of air. The herd was mainly Ayrshires, bred in the neigh-

sequence, a free and healthy circulation, essential to the thriving and fattening of any animal. The bone should be small and the joints fine—nothing is more indicative of high breeding than this; and the legs should be no longer than, when fully fat, would just prevent the animal's belly from trailing upon the ground. The leg is the least profitable portion of the hog, and no more of it is required than is absolutely necessary for the support of the rest. The feet should be firm and sound; the toes should lie well together, and press straightly upon the ground; the claws, also, should be even, upright and healthy.

The form of the head is sometimes deemed of little or no consequence, it being generally, perhaps, supposed that a good hog may have an ugly head; but the head of all animals is one of the very principal points in which pure or impure breeding will be most obviously indicated. A high-bred animal will invariably be found to arrive more speedily at maturity, to take flesh more easily, and at an earlier period, and, altogether, to turn out more profitably than one of questionable or impure stock. Such being the case, the head of the hog is a point by no means to be overlooked. The description of head most likely to promise—or, rather to be the accompaniment of—high breeding, is one not carrying heavy bones, not too flat on the forehead, or possessing a snout too elongated; the snout should be short, and the forehead rather convex, curving upward; and the ear, while pendulous, should incline somewhat forward, and at the same time be light and thin. The carriage of the pig should also be noticed. If this be dull, heavy, and dejected, one may reasonably suspect ill health, if not some concealed disorder actually existing or just about to break forth; and there cannot be a more unfavourable symptom than a hang-down, slouching head. Of course, a fat hog for slaughter, and a sow heavy with young, have not much sprightliness of deportment.

Colour is, likewise, not to be disregarded. Those colours are preferable which are characteristic of the

bourhood. Trials were, however, made with the Channel Island cows, under which name those from Guernsey, Alderney, and Jersey are known in Britain. The chief object in their introduction was to impart more richness to the milk and higher colour and flavour to the butter, and these objects were attained to a certain extent.

While the trials with the full-bloods from the Islands were going on, crosses were made between them and the Ayrshire breed, and the females of this cross were reared, and at proper age took their places in the dairy. I saw the herd several times, in different seasons, after the trials with the full-bloods and crosses had been carried on some years. The proprietor told me he should not continue the trials, but should discard the Channel Island cows and their progeny, for the reason that they had not so much constitution as the Ayrshires; would not last as long, and required more food in proportion to their returns in the milk and butter.

It will be observed that this result agrees with the opinions expressed in the articles in the *Ploughman*, before alluded to, and also with the quotation from Stephens. It should be noticed, also, that the trials by Mr. Telfer were made under circumstances more favourable to the constitution of the Channel Island cow, than if they had been subjected to the ordinary exposure of Ayrshires in Scotland. I heard of various other instances in Scotland, in which a cross of the breeds alluded to had been made, and the cross-bred stock rejected for want of constitution.

The conclusion of Professor Low and others, that the modern Ayrshire breed owes its peculiar characteristics in part to an admixture with the "dairy breed of Alderney," may be correct; but experiments seem to have shown that a further infusion of Jersey and similar blood, does not render the Ayrshire more valuable under the circumstances in which it is kept in Scotland. It does not necessarily follow that the same results would ensue in all cases, especially where less hardiness of constitution is required.—*Mass. Ploughman.*

Entomology.

The Hessian Fly in the County of Huron.

We have received some specimens of fall wheat from a correspondent in the County of Huron, "illustrative of the process of destruction going on in that part of the country." He states that "fields that a short time ago were green and luxuriant, are now nearly red, and almost worthless."

On examining the plants sent us, the leaves of which were almost entirely withered, we discovered between the base of the leaves and the stalk, a number of small pupæ of some insect, which had done the mischief in its larval state. From the situation of these, their form, and the fact that the hard outer pupa-case contained a soft white maggot, quite undetached and free from its shell, we judge that they are undoubtedly pupæ of the far-famed and justly dreaded Hessian fly. (For a brief description of the insect, vide CANADA FARMER, vol. ii. p. 205—

The recent mild weather has enabled these destructive insects to prosecute their work unimpeded, and to complete their transformation into the state in which they pass the winter, before the severe frosts have come on. How to prevent their coming out in the perfect form next spring, and producing new broods, is a difficult problem to solve. Should the crop appear to be completely destroyed, of course the best remedy would be (weather permitting,) to plough it under twelve inches or so, and prepare for putting in a fresh crop in the spring. But we hardly think such extreme measures need be resorted to, for most wheat when thus injured possesses the power of tillering, as it is termed, and throwing out new shoots to replace those that have been destroyed. From the specimens sent us we should judge that such would be the case with our correspondent's crop, and that he need not altogether despair of deriving from it some return, though probably a diminished one, for his labour.

A DANGEROUS ENEMY.—The northern parts of France are at this moment suffering from a pest which to them is about as disastrous as an invasion of locusts in southern latitudes. Vast and innumerable swarms of lepidopterus insects, belonging to the family of Noctuidæ, will settle down on a field of beet, and will not leave it as long as there is a fibre of the food left. Fire, acids, and every other powerful agent have been tried against them in vain; notwithstanding the most unremitting toil and care, the insect multiplies to an alarming degree, so as to threaten the total destruction of beet, endive, and cabbages, fortunately the only vegetable it chooses to attack. The *noctua segetum* is a pretty butterfly, measuring about four centimetres, with outspread wings, the upper ones being of a yellowish brown, with a double undulated border. This butterfly lays its eggs in the earth, and in the following spring, about the time when beet is in good condition, the larvæ are hatched. They are greenish caterpillars, about four centimetres in length; their body is smooth and shining, each of its rings having a sort of wart in the middle. They do not issue from their hiding-places until night-fall, when they immediately repair to the beet-plant, settle upon it, and with their sharp mandibles commit frightful havoc all round the neck, without touching the leaves; so that at first sight no one can suspect the field of being otherwise than in the most flourishing state. It is only in pulling up the plant by the roots that the effects of the visitation become apparent. The mischief done, the larvæ creep into the earth, where they remain at a depth of a couple of inches. Here each builds itself a nest which it lines with silk, and when this work is done, becomes a chrysalis, which in the following spring changes into a butterfly. Among the various remedies tried; there was one which promised success. It consisted in driving a number of fowls into the fields. The caterpillars were indeed devoured, but it seems they possess poisonous qualities, for all the poultry died of the effects of this food. There appears to be no other remedy but that of picking up the chrysalides one by one as they are brought to light by the plough.—*Optimant.*

Orchard Caterpillar.

OWNERS of orchards who remember many of the large, wobby nests which disfigured the trees last summer, should also remember that those which were not destroyed, spun themselves into a cocoon, and subsequently came out into a brown miller. These millers laid each about 400 eggs in the form of a ring or belt around the smallest shoots of the trees. They appeared to be aware of the fact, or at least governed their practice in accordance with it, that confined air is a poor conductor of heat, for they covered these eggs with a wax proof varnish containing innumerable vesicles of air. Now every such belt of eggs thus protected, will come out early next spring in minute little caterpillars, at first as fine as a thread, but afterwards growing into large, coarse eaters, and forming a large nest to each collection of eggs. The course to be adopted is very obvious—look diligently through every tree, and cut off every twig which has an embryo nest upon it. After a little practice they are very quickly detected; and a small pair of pruning-shears, worked by a cord on the end of a pole, or a very sharp-hooked blade on a pole, will enable the operator to cut them off for burning. Now is the time for this work—select any day when the sky is not too bright for this purpose.—*Country Gentleman.*

Veterinary Department.

Successful Operation of Lithotomy in the Horse.

BY D. McEACHRAN, M. D. C. V. S., WOODSTOCK, C. W.

STONE or gravel in the bladder, which is so common in man, is of rare occurrence in the horse, owing no doubt to the more active habits of the latter, promoting more regular digestion and assimilation, and also the size of the urinary organs, and their relative position, favouring the escape of calculus nuclei before they have attained much size. Veterinary pathology is rather deficient, therefore, on the subject of urinary deposits and calculi, but the teachings of Ferguson, Miller, and other learned authors of the medical profession, and the researches of Dr. Goulding Bird, and others, on the microscopic and chemical composition of these deposits, remove all grounds why the qualified veterinarian should be at a loss when a case of calculus disease comes under his notice. Not only is the occurrence of stone in the bladder rare, but recovery after its removal by surgical operation is also very unusual, although a few successful cases have occurred in England and France, within the last ten years. As your journal is, no doubt, read by most of the veterinary surgeons in the Province, I trust that an account of the following successful operation may prove useful to them, and perhaps interesting to the general reader.

On Wednesday, 25th October, a grey pony five years old, and standing about 14½ hands high, was brought to my stable. A stated by the owner (Mr. James Gunn, of Ingersoll), he had been troubled with his water for nearly six months, and was gradually getting worse, till about a month ago, when he became unfit for work, rapidly lost condition, with frequent involuntary emissions of urine, producing excoriation of the sheath and legs. He had frequent doses of nitre and other drugs, rude bougies were thrust up the urethra, and other cruelties were forced upon the poor animal, until he became very much emaciated, and from the frequent torture to which he was subjected, he became so vicious that he had to be fed over the stall, and approach to him was dangerous.

I found him reduced almost to a skeleton, the prepuce excoriated, the legs wet, and the hair in front rough and discoloured, from the urine dropping on them. From his viciousness, closer inspection was impossible. I ordered him some hay, with a light bran mash.

Thursday morning.—I had him cast with the hobbles, and a closer inspection and examination, per rectum, at once confirmed my suspicions of stone in the bladder; a stone about the size of an egg could be distinctly felt filling up the neck of the viscus.

The noticeable symptoms, therefore, are emaciation, constant dribbling of urine and its consequences, straddling gait, and frequent ineffectual efforts to stable, the stone being readily felt by the hand introduced into the rectum. Having communicated this fact to the owner, and obtained his consent, I proceeded to prepare him for the operation by physic, bran mashes, and small doses of bicarbonate of soda, to neutralize the acidity of the urine.

OPERATION.

Tuesday morning, 31st Oct.—Everything being ready, and the necessary instruments, sponges, legatures, &c., at hand, with the valuable assistance of Dr. Turquand, who very kindly volunteered his services, we had him cast, and proceeded to operate as follows:—

Placing him on his back, in which position he was held by assistants, I emptied the rectum with the hand, and again satisfied myself of its presence in the neck of the bladder. I passed a gum-elastic catheter with an ebony point, which on entering the neck at once struck the stone, notwithstanding which I introduced a curved bougie, and feeling the curvatum at the bulb of the penis, I made an incision about two and a half inches long, in the perineum, on the left side of the raphe, and carefully dissecting down on the instrument, slit open the urethra, and withdrawing the bougie, inserted a straight grooved sound, which at once impinged on the stone, and could be distinctly heard by the assistants. Passing in a straight probe-pointed bistoury in the groove of the director, with the cutting edge directed outward and downward, I made an incision large enough to admit the forceps, when with one hand in the rectum and the forceps in the other, it was easily taken hold of, but, from its size I had to enlarge the opening, in so doing severing, as was anticipated, a transverse branch of the Pudic artery, and a lesser perineal artery and vein. These being taken hold of and ligatures applied, the stone was again seized, and with a vacillating motion was brought to the opening, but being encysted necessitated a further use of the knife to sever its attachments, when it was entirely removed.

The debris being scooped out, and the bladder washed out with water, a single suture was put in the upper part of the incision, a male catheter, large size, was introduced, and retained by tapes and bandages. On being released he got up and walked to his box apparently but little the worse. He was ordered bran mash, with an ounce of bicarbonate of soda night and morning, and thin gruel drinks, *ad libitum*.

AFTER-TREATMENT.

Next morning I removed the catheter, and passed in a large female catheter by the wound in the perineum, and injected some tepid water, which washed out some more gravel, threw up a soap and water enema, and left the rest to nature. The treatment now consisted in maintaining and regulating a free evacuation of urine, and keeping the bowels open by glysters. The appetite scarcely failed, and very little fever ensued. For a few days the most of the urine escaped by the wound, but it gradually returned to the natural outlet. On the tenth day the ligatures came away, and the wound granulated nicely. I continued the alkaline carbonate for four days, when I substituted drachm doses of nitro-muriatic acid twice a day.

The diet consisted chiefly of bran mashes, with a little oil-cake, carrots, &c., with fluid drinks frequently, occasional washing out of the wound and glysters; and after the first week, occasional gentle walking exercise. He rapidly gained condition, the wound suppurred nicely, and in fourteen days from the date of operation he was so far recovered as to be able to be removed to the owner's stable, a distance of ten miles.

THE STONE.

The stone was about the size of a small egg, ovoid in shape, imperfectly laminated, of a light clay colour, granular and tuberculated on the surface, and emitting a strong uric odour. On analysis I find that it consists principally of oxalate of lime. It weighs 1260 grains.

REMARKS.

From this case it would appear that low condition is favourable to the operation, and that but little interference is required with the wound afterward, and that in the hands of a qualified veterinary surgeon, who knows the anatomy thoroughly and has self-confidence enough to be prepared for exigencies in the operation, it is perfectly justifiable. I may add that the recovery and progress he made in condition, and the docility and kindness of his disposition towards his attendants, was more marked than in any instance I remember, and shows the great influence kindness with firmness has, in subduing a vicious horse.

The Dairy.

Making Cheese from the Milk of a few Cows.

William B. Johnston, of Miami county, Ohio, desires simple condensed directions for making cheese in a private family where sixteen gallons of milk are obtained daily.

We shall endeavour to comply with the request, though it may be remarked in the outset that full directions cannot be embraced in a brief article. The making of good cheese depends upon a skillful manipulation of the milk and curds, and it is greatly facilitated by having a good dairy or cheese-making apparatus. The small-sized vat and heater of W. Ralph, of Utica, with its recent improvement for equalizing and distributing the heat through the milk and curds, is one of the best that has yet been invented. To make a nice quality of cheese, good rich milk is required, and during the process of manufacture, a slow even heat should be studied in conducting operations. Presuming then that our correspondent has got a good vat and heater, and that the night's and morning's meal of milk are added together in the vat, we commence operations. The milk is raised gradually to a temperature of 88 degrees, and a sufficient quantity of rennet put in and mingled with the milk to coagulate it in about 40 minutes. The rennet should have been previously prepared by soaking and rubbing three sweet healthy rennets in three gallons of water, containing sufficient salt to keep it from tainting. The skins, after having been rubbed out and soaked for several days, may be taken out and the liquor strained and bottled. Its strength should then be tested, and if good old skins have been used, a half teacup or less will be enough to curdle the milk. The coagulation of the milk having been perfected (which is determined by lifting a portion of the curd with the finger, when it should readily split apart, showing a clean fracture), then cut the curd lengthwise and again crosswise of the vat, leaving it in perpendicular columns, say half an inch thick. In the best dairy districts a curd-knife, composed of a gang of long thin blades, double edged and one-quarter inch apart is used.

The curd is then left at rest some twenty minutes, or until it settles and the whey begins to look clear. Then a gentle heat is begun to be applied, and the curd very carefully lifted and the columns broken with the hands. This part of the operation should be done very gently and very carefully, otherwise the oily particles will be worked off. The application of heat should be very slow, and very little manipulation is required in breaking, beyond keeping the curd from packing at the bottom of the vat. When the mass indicates a temperature of 92 deg., shut off the heat and let the mass stand thirty minutes or more, occasionally gently lifting or stirring the curds to keep from packing. At the expiration of that time start the heat and raise to 95 degs., the curd being stirred gently, as before, to keep from packing. It may now stand another thirty minutes, with only occasional stirring, when heat is again applied, and the mass raised to 100 deg. No more heat, or at least this is the highest point to which it should be raised. After standing an hour or more, if the curd does not harden up, nor the whey begin to have a little acid smell, and the temperature has fallen, a little more heat may be applied, but not to raise it above 100 deg. We should remark that in coolish weather a cloth should be thrown over the vat, when the curd is remaining at rest, to prevent heat from passing off.

To make a nice flavoured cheese, the whey near the close of what is termed 'cooking' the curd, should have a little acid odour. It then should be drawn off, and the curd if right will have an elastic feel, and on taking a handful and compressing it, will, on opening the hand, readily fall again in pieces. Some dairymen try it between their teeth, and if the curd squeaks it is in condition to whey off. Where a vat is used, the whey being drawn and the water removed from under the vat, the curd is drawn to one end and worked over, so as to facilitate drainage, the vat also being canted up. Sixteen wine gallons of milk, well handled, will make about sixteen pounds of curd, and after it is worked over and properly drained, and cooled, say to 86 deg., nice fine salt is worked in at the rate of 2½ pounds to 100 of curd. Some use 3 pounds of salt for 100 of curd. After the salt is properly incorporated through the curd, it is at once dipped into the hoop and put to press. For a 16 pound cheese, a hoop about 10 inches in diameter may be used. If it is desired to have a larger cheese, a 15-inch hoop may be taken, and the curds of two days put together. The manner of doing this is as

follows: Press the first day's curd, and let it remain in press till the following day, when the hoop is slipped off and a thin rind from the upper side of the cheese trimmed off with a sharp knife, the edges of the cheese also being pared off. The top is then scarified with a fork, and the cheese returned to the hoop in a clean cloth. On this the new curd is placed, and the whole put to press. In a couple of hours it is taken from the press, bandaged and turned, and again put to press till the following morning, when it is taken to the dry-room and the top and bottom oiled with whey butter.

Where there is no convenient dairy apparatus for use, the milk may be strained in a tub. For heating, place a five pail kettle upon an arch or stove and have a large tin vessel made in the shape of a tin pail to set in the kettle, so as to be surrounded with water. A portion of the milk is dipped into the tin vessel, which should always be surrounded with water while being heated, and the milk raised to the desired temperature by being returned backward and forward in the tub. And so in heating up the whey and curd (a strainer being thrown over the tub) the whey is dipped into the tin vessel, and then back again to the tub, and the various degrees of temperature as described, effected in this manner. When a tub is used, a rack and sink is needed to properly drain the whey from the curd. Colouring matter is now generally used in the dairy districts. It adds nothing to the flavour or quality of the cheese, but makes it look richer. A nice article of carbonized liquid annatto can now generally be had at the shops for colouring the milk—or the crude annatto may be cut with lye and strained through a cloth. A quantity may then be added to the milk at the time of putting in the rennet, sufficient for any desired shade for the cheese to assume.

We have given here briefly the process of making first-class cheese. The whole art cannot be explained in one short article, but if the above outlines are followed, a little experience will in a short time enable the "new beginner" to make good cheese from a few cows.—*Country Gentleman.*

Poultry Yard.

Artificial Incubation in China.

M. Dabry, French Consul at Han Keoo, in China, has just published an interesting paper in the Bulletin de la Societe d'Acclimation on the process employed by the Chinese in hatching eggs artificially. The places where this trade is practiced are called Pao-jiang; each consists of a mud hut, three yards in height, exclusive of the roof, made of tiles, the inside of the hut measures eight by four, and its entrance is situated due west; the north-east wind is provided against by a layer of straw applied to the wall; the door is made of planks, and measures one yard by two. Light is admitted through four apertures in the roof. Within, there are eighteen brick stoves, two feet and a half high, along the wall and close to each other. Each of these stoves supports a large earthenware dish, sunk into the brick work and just above the fireplace, and inside this dish there is a basket of nearly the same shape, resting on a layer of ashes about two inches and a half deep. It is in this basket the eggs are to be hatched; 1,200 in number are arranged in three layers, and the whole covered with a cane lid half an inch thick. Nine of the stoves are lighted at a time, but only eight have eggs, the ninth being intended to regulate the temperature of the room, which must be maintained the same throughout. The combustible employed is charcoal, and the temperature in the basket never exceeds 38 degrees Centigrade. The eggs are shifted five times during the 24 hours, viz. four times during the day and once during the night, the upper layer going to the bottom, and the bottom becoming the middle one.

On the fifth day a small hole is pierced through the door, and by the pencil of light penetrating through it each egg is examined, in order to ascertain which of them are in course of incubation. On the twelfth day the eggs are taken out of the baskets, and arranged on shelves above the stoves, provided with layers of straw, two inches thick, and mats over them. Upon these the eggs are laid with a cotton quilt nearly three inches thick between each layer, and another quilt just above, the whole being well secured by means of a thick straw rope to prevent the air from getting to the eggs, which are regularly shifted as before, five times a day. As soon as the eggs are taken out from the baskets, the fires are put out in the stoves which have been used; the nine

other stoves are lighted, and the process re-commences with a new batch of eggs. On the 21st the former lot is hatched, yielding about 700 chicks for every 1,000 eggs. Every egg is paid 6 sapeks, and each chicken obtained is sold for 14; the sapek being the 150th part of a franc.

Fowls of the Barnyard.

Most every farmer is down on the hens. More trouble than they are worth—cost more than to buy the eggs—no use to have them round. Such is the talk which the good housewife hears from the sturdy farmer: she bears it meekly, well knowing that he would grumble more if the cake was wanting the eggs, or if he was required to pull his purse every time they were used by the cook. Hearing often these complaints, is the reason that induced me to write this homily on the fowls of the yard. Edward Holmes, Esq., of Greenland, N. H., who, as a poultry-ter, stands as standard authority, says forty-eight pounds of corn, with the addition of some meat, will suffice for food for one year. He says that he placed corn and barley before them and there kept it; that at the end of a specified time, by looking at his books, he arrived at the result. He also says, after thirty-two years of experience, in the mean time having met every known variety, that he finds the black Spanish superior to any other breed for laying; that they produce the largest number of eggs, on an average 225, per year, while others not over 125. For meat, there are other varieties superior. As a general rule the eggs transported, however short a distance, will not hatch; that he considers it a much cheaper mode to buy the fowls for the purpose of propagating a species than to send any distance for the eggs. That a change of crower ought to be made every two years, and then from a flock at some distance.

The common duck which is generally reared in New England, produces annually about fifty-five eggs, which are worth ninety-two hen's eggs, so that ducks are not as profitable for eggs as hens. For poultry they bring about two dollars per pair, while chickens bring one. One peck of corn will fatten a pair of ducks sufficiently, after they have their growth, for market. Mr. Holmes says that the food ought to be kept constantly near, so that the fowl can have free access; that he prefers a mixture of barley, corn and rye. Hens are naturally industrious birds if you will but notice them when there is plenty of food before them, they are on the scratch, and will not take but a few kernels at a time, but if fed at stated hours are apt to overload their crops and put them in pain.—*Cor Maine Farmer.*

REARING CHICKENS ARTIFICIALLY.—A subscriber to the *Journal of Horticulture* has published the following account of his experience in rearing chickens artificially:—"Being only a half-believer I did not incur much expense in the matter, merely procuring a stout box made with the lid on hinges, and close-fitting, cut on a slope like a melon-frame, one-half of the lid only being glazed, and there was a hole in the side, with a sliding door. In this box I put two low stools with a thick, fleecy top, for artificial mothers, and I placed the box close beside a sparero large garden frame, which stood on dry ground. I had the chickens close to my flower-frames, and looked after them chiefly myself. This frame, to which I admitted them at pleasure by drawing the slide, answered for their covered run or 'day room,' till they were a few weeks old, when I used to allow my pets to take a run in the garden several times a day. It was quite curious to see how fond they became of the frame, and how they used to flock to me from all sides to be let in, and to bask on the warm gravel under the glass. I took each chick from the hen the day it was hatched. I had not one sickly or drooping chicken the whole summer. The advantages I found in this system, even trying it in a small way, were these: First, they did not cost in feeding nearly so much as when carelessly fed in the fowl-yard, where stronger fowls, dogs, &c., robbed them of their milk and food. Secondly, they threw quicker and feathered better a great deal, from getting the full share of that food appointed for them, as well as from the genial and uniform warmth of the frame, instead of often being weary and wet, when enticed by the hen to walk about about all day through grass and elsewhere. Thirdly, I found the hens too so little in condition by merely twenty-one days sitting (being well fed once every day), that they laid and hatched a second time early in summer. These advantages ought to make the system worth a trial, even by those who might not count it, as I did, an amusement.

The Household.

Homedale Farm.

"Well," said Mr. Perley, with a smile of unmixed pleasure, as he joined his family circle one evening, "The old homestead is ours at last. I have concluded the purchase, and the title-deed is at the registry-office."

"O, good! good!" exclaimed several happy juvenile voices, and amid many expressions of delight, the young folks proceeded forthwith to concoct and talk over their plans for life in the country.

Mr. and Mrs. Perley too, had a long consultation, the result of which was a determination that with the settled weather of the coming spring, they would take up their abode on the newly-acquired property, to which they gave the name of "Homedale Farm."—The purchase of this estate, and the removal of his family to it as a quiet, healthful country home, had long been a cherished object with Mr. Perley, and the hope of accomplishing it, had cheered him during many a weary hour of business toil in the city. The farm just bought was situated in the township of Burford, some ten miles West of Brantford, one of the pleasantest and most fertile agricultural regions in Canada. It had been his father's before him, and he loved it as his childhood's early home. The old log-house in which he first drew breath, was still standing, though considerably dilapidated, and its surroundings in spite of Time's many changes, were the familiar scenes of his boy-hood. His father, a pushing, enterprising man, had embarked in too many business enterprises, and his death at a time when the property was encumbered, and his affairs rather involved, compelled the sale of the homestead, and scattered the family. Mr. Perley was the eldest son, and old enough when he left the home of his youth, to feel a strong attachment to the place, and to vow that he would, if possible, buy it back some day, and have it for his own. His footsteps were directed to the city of Hamilton, where he learnt the Dry-Goods business, and by dint of industry and perseverance, became a prosperous merchant. Thus it was that he was enabled at length to accumulate the means of accomplishing the object of his long-cherished ambition, and he accepted it as a rich reward for his many years of anxiety and hard work in the city, to be able to purchase and stock "Homedale," and commence life there as a farmer. With a natural fondness for rural scenes, and a high opinion of farming, as the most healthful, independent, and delightful of occupations, he had employed his leisure moments during the years of business occupations in reading books and periodicals that treated of agriculture and rural affairs. As opportunity permitted, he had from time to time paid visits to acquaintances in the country, and these visits, with occasional journeys on business, had enabled him to maintain a pretty correct idea of the state of agriculture in the older and long-settled parts of Canada. The information thus acquired, and the practical familiarity with farm-work gained in his boyhood, qualified him in a high degree for the successful management of the estate he had purchased. Being a man of strong common-sense and great energy, he was not likely to find any special difficulty in the way of adapting himself to his prospective circumstances. He was weary of the dry, hard, monotonous details of business, and had felt for years like a caged bird, longing for the time to come when he would be free to lead a country life again.

Mr. Perley was very desirous too, that his children might grow up with a relish for farming, and a love of rural scenes. He had seen enough of business to satisfy him that the chances for successful engagement in it grew fewer and smaller as the country became older, and he well knew that for one merchant who prospers, there are ten who barely make a living, and ten more who cannot get on at all. He regarded the tricks of trade with supreme contempt, and was very

loath to subject his sons to the temptation of practising them. The state of society in the city was not much to his mind. Its formality, slavish bondage to custom, hollowness, want of simple, hearty cordiality, and especially its caste feeling, disgusted him; and he longed for the rustic simplicity, the hearty friendliness, the liberty and equality that mingled so pleasantly with the memories of his boyhood. Moreover, he believed that farming, if rightly managed, can be made to pay,—that a farmer need not be an ignorant clodhopper,—and that by interspersing intellectual pursuits, and well chosen recreations with the more rugged duties of the farm, home-life in the country can be made attractive, comfortable, improving and happy. The hope of doing something toward elevating an occupation too much despised, and making the name of farmer more honoured and honourable, had something to do with shaping his chosen course. It was his purpose to order his rural household in such a manner as to show convincingly, that, away from the fashionable follies of city life, there may be intelligence and refinement, along with rural simplicity and diligent industry.

Many cosy talks in relation to these matters had the Perley family enjoyed by their city fireside, until the youngest child able to understand what was going on, was all enthusiasm to get out to the farm. Pleasant pictures were drawn of watching the lambs; feeding the chickens, ducks, and turkeys; taking care of the garden; riding on horseback; romping in the hay-field; rambling in the wood; fishing in the creek; gathering apples; storing away nuts, and so on. Mr. Perley well knew it was not all pleasure and poetry on a farm, but he forebore to check rudely the anticipations of the juveniles, choosing rather to let the young hearts dream on, until contact with the reality of farm-life, would enable them to revise their imaginings, and exchange day-dreams for actual experiences.

Are You Vaccinated?

In an article in a late number of Dr. Hall's *Journal of Health*, the writer thus discourses on the necessity for re-vaccination. It is a subject in which all are interested. We therefore bespeak for the following pertinent observations, the careful attention of our readers:—

"The matter of small pox impregnates the air immediately around the person or bedding of the patient; and any unvaccinated individual, or one who has not had the small pox, who comes within ten feet of such person or the bedding, is very sure to have the pimples appear within a fortnight.

"In some cases vaccination wears out, and ceases to be a protection against small pox, and exposure to it gives varioloid. The longer a person remains from small pox after vaccination, the more severe the attack will be, if it is taken at all.

"Those vaccinated in infancy are most likely to have varioloid between the ages of sixteen and twenty-five. This being so, a most important practical inference is to be drawn, that the occurrence of puberty in some way diminishes the power of vaccination against infection; hence it becomes the imperative duty of every parent to have the child vaccinated on entering the fifteenth year. If it does not take, no harm has been done; if it does take, the chances of an odious and fearful disease have been with great certainty removed. This revaccination should be repeated at two ty-five, especially if that a fifteen did not take.

"In order to fix in the reader's mind a strong and clear idea of the value and necessity of a revaccination, a single fact will be stated. The Prussian Government, more than any other, enforces vaccination and revaccination. In 1837, of forty-seven thousand soldiers revaccinated, the full effect took place in twenty-one thousand; and of these last, although the small pox prevailed all over Prussia that year, not one single soldier took it.

"Revaccination should be entrusted to the family physician, who should be sacredly enjoined to procure the matter from the arm of one whom he knows to be a child of healthy parents, so as to avoid, as far as possible, the introduction of baneful diseases in the constitution of the revaccinated. Every parent should place this article where it may be frequently seen."

How to Cook and Make Sausages.

A correspondent of the *Home Journal*, who has been "out of town," thus discourses about sausages:

The sausages must be well cooked; if they incline to be a little crispy, reminding one just a trifle of the cracklings of roasted pig, it is not amiss. You should be cautious, though, as to where you obtain your sausages; if you have ever so slight an acquaintance with the woman who makes them, it is well, provided you have confidence in her. Confidence in your sausage-maker is an excellent thing. One of the best ways for possessing this confidence, is to have your sausages prepared in your own house, with materials furnished by yourself. Pork, two-thirds lean and one-third fat, chopped finely, is, of course, the foundation of all sausages; but a boiled beef's tongue and heart may, with a good result be added. Salt, pepper, summer savory and sage, should be the chief seasonings—though curry and spices may be effectively joined thereto. The mixing of these various ingredients—so that no one savour predominates—should be as carefully wrought as in making a salad. It is not every one who can properly accomplish this, any more than can every one create a salad. It requires judgment in preparing the combinations, and skill in putting them together. Then it should be made into small cakes, and fried slowly and kindly in its own fat.

Our Receipt for Curing Meat.

To one gallon of water,
Take 1½ lbs. of salt,
1 lb. of sugar,
1 oz. of saltpetre,
1 oz. of potash.

In this ratio the pickle to be increased to any quantity desired. Let these be boiled together, until all the dirt from the sugar rises to the top and is skimmed off. Then throw it into a tub to cool, and when cold pour it over your beef or pork, to remain the usual time, say four or five weeks. The meat must be well covered with pickle, and should not be put down for at least two days after killing, during which time it should be slightly sprinkled with powdered saltpetre, which removes all the surface blood, &c., leaving the meat fresh and clean.

Some omit boiling the pickle, and find it to answer well; though the operation of boiling purifies the pickle by throwing off the dirt, always to be found in salt and sugar.

If this receipt is properly tried, it will never be abandoned. There is none that surpasses it, if so good.—*Germanstown Telegraph*.

The Apiary.

Management of the Apiary for January.

BY J. H. THOMAS.

ANY stocks that are likely to require feeding should now be examined. If short of honey, they may be fed with white sugar made into syrup, by adding one quart of water to 3 lbs. of sugar, and bring the mixture to a boiling heat. Stocks that need to be fed must be in a warm place while feeding, at least. If they are wintered out of doors, they may be brought into a warm room or cellar, fed a few pounds, and then returned to their stands. This must be repeated occasionally during the winter. If such stocks are in my moveable comb-hives, the honey box being removed, a dish containing feed may be placed in the passage through the honey-board on the top of the frames; the bees will soon carry the feed down and deposit it in the combs. If common hives are used, they may be inverted, and the dish containing feed placed on the combs; the hive must then be covered, so that the bees cannot escape. As often as the dish is emptied, fill it again, until they have been fed a quart or more of syrup, made as above. Strong stocks will require little or no attention, especially if housed; if not housed, see that the passages for ventilation are not blocked up with snow or ice. If, however, my hives are used, there is no danger, because they are so constructed that the ventilation cannot be affected by ice or snow.

Now is the time to commence preparing hives for the coming spring. Suitable lumber should be provided. See that it is well seasoned before being made up, especially if moveable comb hives are to be made. After the hives are made, they should be well painted; it adds to their durability, and greatly improves the appearance of the apiary.



Beech Nut Pork.

To the Editor of THE CANADA FARMER:

SIR,—We, the undersigned, pork packers and pork dealers, beg leave to call the attention of farmers to the heading of this letter. There is a very large crop of beech nuts this season, but we had thought that any warning on our part was unnecessary, till we received authentic accounts, from different parts of the country, that many farmers were so very incautious and unwise as to allow their hogs to run at large in the woods, and feed on them, intending as they hinted, to make sale of such hogs alive, well knowing it could not be done when dressed. But "to be forewarned is to be forearmed" for this question. A few samples of this beech nut pork have made their appearance at the Hamilton market, but found no one to as much as ask the price. Farmers, for their own credit's sake, as well as for their own profit, should not damage the good reputation of Canada pork, in this way. Even for store pigs, such feed is very poor economy, as with it they often choke up and die, and it also forms a permanent contraction of the intestines, the effect of which is seen in the slow growth of the animal, when put on a change of food. Though the store pig in spring be reduced to ever so low and thin condition,—an absolute necessity if he is to make good pork,—still unmistakably oily traces in the meat will remain.

T. DAVIES, Ontario House, Hamilton.

Samuel Nash, Hamilton.	And. McFarren, Toronto.
F. W. Fearman, "	D. Cowan & Co., "
M. Young, jr., "	Gardner & Ramsay, "
Charles Hardy, "	Neil Johnson, "
Philip Martin, "	James Duff, "
John Campbell, "	H. W. Cuff, "
William Davies, Toronto	
Packing House, "	

BLACK-LEG IN CALVES.—"Joseph Forbes," of Clapham writes as follows:—"A peculiar and fatal disease has, within the last few years, been very common among calves in this district. The disorder is termed 'black-leg,' and usually begins in the hind leg, going up one side between the flesh and the skin. A calf of mine died of the disease a few days ago; and I would be particularly obliged if you could inform me how the disease should be treated."

ANS.—BLACK LEG in young cattle is a very fatal disease, and is most common during the spring and autumn months. It appears to consist in a congestive fever, causing an extravasation of blood. It attacks those textures which are loose and soft, and hence we often find it confined to the cellular tissue in the region of the loins, hind quarters, and shoulder. Soft swellings arise, which if pressed with the hand, emit a crackling sound, owing to the gas evolved from the decomposing blood. The strength fails rapidly, and death often ensues in from six to twenty hours. We find young animals that are growing rapidly, most liable to this disease. Exposure to cold and damp is also a common cause of it, as the circulation is impaired, and a large quantity of blood is driven towards the internal organs.

Black-leg runs its course in so short a time that the treatment of the malady must necessarily be anything but satisfactory. If large, soft diffused swellings have taken place, with general prostration, and laborious breathing, treatment at such a stage, is almost useless. If caught in the beginning, we recommend Epsom salts, combined with ginger and nitrous ether, to be given in the following proportions, for an animal under eight months old. Six ounces of Epsom salts, of ginger and nitrous ether each one ounce. This dose to be repeated every eight hours, until the bowels respond. Also support the strength with stimulants, such as ale, gin, &c., combined with the carbonate of ammonia, to be administered in cold gruel; if swellings occur, scarify them freely.

Whenever a case occurs amongst a stock, we would recommend as a means of prevention, a change of food for the healthy animals, and small doses of laxative medicine, say once a week, and allow linseed tea, or oil cake daily.

SHORT HORN HERD BOOK.—"Belmont," of Oshawa, "would be glad to know when the Canadian Short Horn Herd Book will be published, as it is now nearly two years since it was promised to the public? Short Horn breeders are anxiously looking for it."

GRAPE GROWERS' SOCIETY.—"G. T. W." of St. Catharines, communicates the following:—"A Grape Growers' Society has just been organized in this town, and it is proposed to form a joint stock company for the manufacture of native wine. From the interest exhibited at the primary meeting, the affair will undoubtedly be a success, and will greatly stimulate that particular branch of fruit culture in this district."

The New Volume.

We commence with this number a New Volume, and beg to solicit the earnest co-operation of officers of Agricultural Societies, and the friends of Agriculture generally, in increasing the circulation of "The Farmer." We believe the Paper is doing a good work among the agricultural community; but to obtain the full benefit of its publication, its circulation must be extended until every farmer in the country is numbered among its readers. Terms of subscription will be found elsewhere.

Bound Volumes.

The present volume of "The Canada Farmer" is now ready, consisting of 24 numbers, and comprising 384 pages of reading matter in a bound form. The binding will be charged 30 cents in addition to the subscription price, making \$1 30 in all for the volume. Parties desirous of having their Nos. for the past year bound, will please send them to us, securely packed, with their name and address, together with 30 cents in stamps or otherwise, and we shall return them bound, free by post. Vol. 1, containing the numbers for the year 1864, may also be had at the same price.

The Canada Farmer.

TORONTO, UPPER CANADA, JAN. 1, 1866.

The New Year.

With a barn-full of produce, and a pocket-full of money—or what is equally a source of satisfaction—with debts paid, and the pleasant reflection, "I owe no man a dollar," one feels much more like exchanging the compliments of the season, and wishing, or being wished, "A happy New Year," than when, as twelve months ago, with scant crops and unpaid accounts, the present could only be scanned with troubled feeling, and the future anticipated with gloomy apprehension. We are glad to believe that the New Year dawns on the farm homesteads of Canada with a clear, bright sky, and that, along with present comfort, plenty, and enjoyment, there is so much reason to expect a run of better times, than the past few years have brought us. Though no precise law on the subject has been discovered, a cycle of plenty would appear to succeed one of scarcity, with considerable uniformity, and hence there is a general feeling of hopefulness that, as our fortunes have taken the prosperous turn, we may see some years of abundance. Most sincerely do we join our readers in the wish that this may be the case, and participating fully in the cheerful, sanguine state of feeling that pervades the country, we greet them all with "A Happy New Year."

We take the opportunity also of reminding our readers that the New Year is a most opportune time for the formation of new plans, and for commencing needed improvements in personal habits, and business management. We take leave to ask every farmer, whose eye lights on this paragraph, "Have you a plan of work for this year?" If not, we urge you to adopt one. Sit down and think long and carefully about the state of your farm, your business,

and your affairs, generally. Leave nothing at loose ends. Put everything straight. Know how you stand with the world, and with your farm. Make out a list of your debts and your assets. Settle what expenditures you can afford, and wherein you must retrench. Resolve upon and begin a system of improving agriculture—a system that shall gradually work up your farm to a high state of culture and productiveness. Break off old, slovenly, makeshift ways. Be determined to master your business, and drive it with intelligence and vigour.

This matter of farm accounts is of the greatest practical importance, but yet is very generally neglected. The distinguished Liebig, in his most recent word, laments this greatly, and rightly urges that farming will never be a thoroughly well-managed business until an accurate debtor and creditor account is kept with every acre of land. In other industrial pursuits it is found necessary to keep exact accounts—why is it not just as necessary in farming? We are persuaded that if some simple plan of keeping his accounts were adopted by every farmer, the satisfaction derived from it would ensure a continuance of the practice.

It will be our aim during the year now beginning, as it has been during the two years just past, to keep our readers informed of whatever may help in the more efficient and successful prosecution of that calling, on which more than any other, the prosperity and growth of the country depends. We hope it may be our good fortune to chronicle substantial progress during the year now opening, and that its close may find the farming population, and the country generally, in a condition of still greater prosperity than at present. Under Providence, this will depend very much of the use we make of our facilities and opportunities; and now that affairs have begun to brighten with us, it will be our wisdom to "make hay while the sun shines," and prepare for those adverse times which may yet be in store for us, in the days that are to come.

New Features in "The Canada Farmer."

With this issue, the first for 1866, we commence a series of articles under the head of "FAMILIAR TALKS ON AGRICULTURAL PRINCIPLES," intended to simplify and explain the laws of husbandry, and to form when complete a sort of farm manual. We also open a department of NATURAL HISTORY with an engraving of the Beaver, and an account of the characteristics and habits of that interesting animal. Descriptions of Canadian animals, birds, reptiles and fishes, with illustrations, will appear from time to time in this department. Under the head of "THE HONEYCOLD" will be found the first of a series of papers entitled "HONEYCOLD FARM." In a lively, entertaining style and in the attractive form of a story, descriptions of farm and garden management will be given, with a special view of interesting boys and girls in rural pursuits. It is hoped that these new features will increase the interest felt by its readers in this journal, and add to its usefulness.

"THE CANADIAN BEE-KEEPERS' GUIDE."—We are glad to find that the sale of this useful manual of Bee-Keeping has been so large as to exhaust the first edition of a thousand copies already. This is gratifying as an evidence of the interest which is being awakened in apiary matters, and it is particularly satisfactory to us, from the part we took in urging the author to issue the work in question. Several persons have informed us, that by following the directions given in the "Guide," they have been able to handle bees with perfect ease and safety, and that they would not be without it for ten times its cost. Any parties who wish to begin bee-keeping, can do so without difficulty by taking this little work as their adviser. Copies are on sale not only by the Messrs. Thomas, but at the book-stores of Messrs. Bain and Shewan in Toronto, and arrangements will shortly be made to have the work on the shelves of all the leading booksellers throughout the country.

Rinderpest in Sheep.

In an editorial on the Cattle plague, which appeared in our issue of Nov. 16, we directed the attention of our readers to a letter addressed by Professor Simonds to the Clerk of the Council, in which it was stated that a disease similar to the Rinderpest had appeared among a flock of sheep in Norfolk. The opinions of practical farmers in Britain were divided as to the trustworthiness of this report. A series of careful experiments were, therefore, conducted in Edinburgh and Glasgow, with a view of proving whether or not the ovine, as well as the bovine race, were liable to the fatal plague. Notwithstanding the severity of the tests applied, the experiments proceeded without the sheep exhibiting any of the ordinary symptoms of the malady. Public confidence was, therefore, in some measure restored; and the immunity of sheep from the fatal rinderpest has been not unjustly regarded as one of the redeeming features of the present crisis in Britain. Agriculturists have accordingly been busily engaged in introducing sheep for the consumption of the turnip crop; and in districts where the disease has proved particularly fatal, and where the pole-axe has been in full swing, this change has been going rapidly forward. Unfortunately, a case has recently occurred in the neighbourhood of Edinburgh, which renders the immunity of sheep from the plague not only doubtful, but absolutely groundless. The facts are briefly as follow: In a lea-field in the neighbourhood of that city some 260 three-parts bred lambs were pastured. Turnips were regularly supplied to them, and the same carts which were used to convey the turnips were employed in carting cow refuse from the town byres to a manure heap, in a corner of the same field. No precaution seems to have been taken to disinfect, or even properly clean, the carts after being filled with manure, before they were used for turnips. The animals soon began to manifest unmistakable symptoms of the plague. Some thirty or forty died, and the remainder, after veterinary inspection, were slaughtered.

Of the nature of this attack there appears to have been no doubt. All the pathological symptoms of the plague were present, and on dissecting the deceased animals the well-marked traces of the fatal disorder were unmistakably revealed. It now only remains for agriculturists to accept the fact—that sheep are not exempt from rinderpest. The best European authorities have emphatically declared that the ovine race is liable to its ravages. The careful experiments before mentioned, taken in conjunction with the virulent attack near Edinburgh, seem to prove that sheep are less subject to the disease, and that it is less fatal in them than in cattle. The whole subject however, demands a more thorough investigation than has yet been given to it. The world-wide interests of agriculture entail a responsibility on scientific men, who have the opportunity of ascertaining correctly the facts, bearing on this outbreak of rinderpest in a flock of sheep.

RODDEN'S PATENT SNOW SHOVEL.—This useful implement deserves to be more generally known. Light, cheap, and effective for its purpose, every householder and especially every man of business ought to have it. It is scraper and shovel in one, and enables you in a very short time to obey the By-Law requiring the removal of snow from the front of your house or shop. For cleaning off skating rinks also, it is just the thing. It may be had of any hardware merchant in our towns and cities, or from the patentee W. H. Rodden, Toronto.

IMPORTED STOCK.—We are informed that Mr. John Snell, of Edmonton, has purchased from G. M. Bedford, Esq., of Paris, Bourbon Co., Kentucky and imported to Canada, the short-horn bull "Duke of Bourbon." Calved December 31st, 1864; got by Clifton Duke, 3760; dam, Queen Mary 4th, by Duke of Airdrie, 2743. Also, a three-year old cow, Queen Mary 5th, by Grand Duke, 2933; dam, Queen Mary

Agricultural Intelligence.

Notes of an Agricultural Tour.

To the Editor of THE CANADA FARMER :

Sir,—Having just completed an agricultural tour in the County of Brant, and addressed the various agricultural societies, on subjects relating to the improvement of their important pursuit, a few remarks relative thereto may be interesting to some, at least, of your numerous readers. I met and addressed the members of the following societies:—South Dumfries, Burford, Oakland, Onondaga, and Brantford, and enjoyed the pleasure of much private and social intercourse with the leading agriculturists of the county. The meetings on the whole were well attended, and while I have obtained much valuable information, there is reason to hope that a stimulus has been given to these societies that will be productive of some good. My chief objects are to bring clearly before the minds of farmers, the provision made by our Provincial University, and the Board of Agricultural, for the study of the science of agriculture, and the veterinary art; to impart a new life, and open up a wider field to agricultural societies, by inducing their members, in addition to their annual exhibitions, to hold stated meetings during the comparative leisure months of winter, for mutual improvement, and the discussion of such subjects as have an immediate bearing on the improvement of their local agricultural practice. I am also desirous of collecting material for a Provincial Agricultural Museum, as ample provision has already been made by the Board in providing the necessary accommodation.

Although the soil of the County of Brant is necessarily various, the prevailing characteristic is a light loam, in some places, as in parts of Burford, approaching a dry, poor sand. Limestone gravel extensively prevails, with a good depth of vegetable mould, forming the most valuable and easily cultivated land for general purposes, and requiring little or no artificial draining. The soil over large areas is rich in both carbonate and sulphate of lime, and large beds of the latter, of superior quality, are worked in different localities. The oak plains, which so extensively prevail around Brantford and Paris, formerly attracted no notice—being regarded as comparatively worthless—are now among the most productive lands of the Province. This land is easily cleared and cultivated, and produces an excellent quality of wheat, and the more valuable agricultural grains, roots and clover, and is consequently well adapted to sheep husbandry, which is extensively followed. I was particularly struck with the well cleared up farms and good homesteads, where the wilderness prevailed only thirty years ago; and the finished appearance, with thrifty orchards, good roads, and here and there some ornamental planting, indicate the taste and comfort of the people.

This county has been distinguished from its earliest settlement, for its grain raising capabilities, especially wheat, with which extensive areas have been frequently cropped. Experience begins to show that this practice has been carried too far, as in other parts of this Province, and the most intelligent farmers are now devoting more attention to cattle and sheep, as a means of better sustaining or increasing the fertility of the soil. The prevailing breeds of sheep are the Leicester and Downs, with here and there the Merino. The cattle have generally a dash of pure blood, principally of the Durham, and many of them are large and useful animals. The Hon. David Christie, who has long farmed very extensively in this county, has already formed the nucleus of a Shorthorn herd, which bids fair in a few years to occupy a foremost rank, not only in Canada but on this continent. He has spared neither pains nor expense in procuring specimens of the best British stock, which have attracted so much attention of late

at our Provincial Exhibitions. Mr. Christie contemplates the formation of a flock of pure Cotswold sheep, and he is decidedly of opinion that less grain and more live stock is the sure and only practicable way of permanent agricultural improvement. In this manner root crops will be more extensively cultivated, and as much larger quantities of manure will be produced, a farm may be made by cultivating and manuring a smaller area more liberally, to yield as much grain in the aggregate as under the former and more exhaustive system.

These and other topics were brought under notice at our meetings, with regard to which there was, on the whole, a striking unanimity of opinion, and there can be no doubt that our hitherto exhaustive system of cultivation is about to receive a salutary check. The light which scientific researches have of late thrown on these matters, is already aiding practical experience in bringing about a better state of things. I had much pleasant intercourse with many of the leading farmers, at their homes, from whom I received both information and encouragement.

The West Brant Agricultural Society have now perhaps, the best grounds and permanent buildings for exhibition purposes, of any county in the Province. Some fourteen or fifteen acres, situated in the flats immediately contiguous to the town of Brantford, were purchased a short time since, and a convenient and capacious building erected, and the enterprising directors are about adding another five acres adjoining, which will make their grounds not only more extensive, but likewise more complete and picturesque, by including a larger amount of undulating surface, and some fine old forest trees. The Grand River forming the Eastern boundary of the grounds, adds much to their beauty, besides supplying cattle with an abundant supply of pure water. The town Council, I believe, afforded assistance to the Agricultural Society in procuring these grounds, which are thrown open to the public free, for holding pic-nics and other pleasant and health-giving exercises. But during the Exhibitions of the Society, a small charge for entrance is imposed on all but members, and the handsome sum of six hundred dollars was thus realized by the last autumn show. These facts, it is hoped, may prove useful as suggestions to other societies. Agricultural Exhibitions certainly admit of great improvement in their management, and from want of sufficient attention to arrangements, and by being made too cheap, they are frequently but imperfectly appreciated.

I had the pleasure of spending some time with Mr. Chas. Arnold, of Paris, who for many years has devoted himself to horticultural pursuits. He has been for several years experimenting on grapes, and among a number of new varieties, Mr. Arnold has produced a few which promise to be better adapted than those hitherto cultivated, to the climate and wants of Canada. One of the more promising of these was figured and described in a recent number of THE FARMER. His great object is to produce a grape hardy enough to endure our climate, a good table fruit, and sufficiently sweet to make palatable wine, without the addition of any sugar, an object which he seems in a fair way of speedily obtaining. Mr. Arnold's garden and nursery are situated on an elevation above the Grand River, the soil being dry and calcareous, produces exceedingly healthy trees, and therefore well adapted to the purposes of transplantation. His flower garden and ornamental grounds are quite unique, and are situated on the slope of an embankment, and beautifully worked into terraces and winding paths, which give to the whole a neat and picturesque appearance. It is a pity that our older residents do not begin in earnest to surround their dwellings by a little ornamental planting, and by laying out with taste the grounds by which they are encircled. It is pleasing, however, to observe here and there, in passing through the country, evidences of progress in this direction. I observed in various parts of the County of Brant, a number of

young and thriving orchards, of well selected varieties, and both soil and climate seem well adapted to the raising of most kinds of fruit.

I am under many obligations to a number of leading farmers in this fine county, for their hospitality and readiness to afford me information and co-operation. I shall long remember this journey with pleasure and satisfaction, in the hope that it has been mutually beneficial. To-morrow I leave for Oxford.

Yours, &c.

GEO. BUCKLAND.

Paris, Dec. 15, 1865.

Gleanings from the Little Falls Farmers Club.

We learn from the *Utica Weekly Herald*, that there was a spirited meeting of the above club on a recent occasion, at which there was a discussion on various topics. We extract the following:

SEEDING MEADOWS IN FALL.

The practice of Herkimer county farmers has been to put down meadows in the spring, with some kind of spring grain, oats, barley, or spring wheat; winter grain is not largely sown. Sometimes meadows are seeded in fall with winter grain. But the plan suggested by members of the club, at this meeting was, seeding in fall, after a spring crop has been taken off. The question was introduced by Mr. Brown, of Fairfield. He has a field which was nicely fitted for meadow last spring and sowed to oats. The stones had been picked, the land properly ploughed and levelled, but grass seed was not sown at the time of putting in the grain. He asked the question, whether it would be advisable to sow seed now, or wait until the approach of freezing weather? He did not propose to plough the land, but set the teams, with harrows, scarifying the surface, and getting the land in condition to receive the seed.

Mr. Lewis, of Frankfort, advised waiting as long as possible, before the ground froze up, then sow seed and top dress with fine manure well divided, and evenly pulverized over the surface with a brush harrow.

Canal Commissioner Skinner would sow now. He was preparing a piece of ground for meadow, by pulling out stumps, burning over and levelling, and should sow grass seed immediately.

Mr. Whitman thought the two pieces of land referred to, were not of the same character. He had always observed that lands that had been burned over, were in good condition for seed. The ashes and burned debris were good protectors to the young grass roots.

Mr. Lewis had been seeding down a meadow this fall. It was an old meadow rather rough, and grass not of good quality, and not producing satisfactorily. The piece was mowed as usual, and after haying, ploughed, levelled, and put in good condition, and on the 8th of September, sowed with timothy at the rate of one-half bushel of seed per acre. The land was in condition to seed three weeks before it was seeded, and would have been put down had it not been exceedingly dry. He waited for rain and as soon as the ground was moistened, sowed the seed. It was now looking exceedingly fine and promising, and he expected a good crop of grass next season.

Mr. Lewis, and other members, advised top-dressing with fine manure at the same time that seed was sown. Manures gave vigour to the plants, and served as a protection through winter, rendering a crop of grass the succeeding year more certain. This feature in seeding was regarded as important. The advantages of fall seeding for meadows on the above plan, are these: Grass can be carried right along from year to year, and it does not break in upon the herd, as perhaps it might if grain is to be raised. Again, a lesser quantity of manures is required, since the fertility of the soil is not reduced by a grain crop. This manner of treating meadow lands is somewhat new in the farming operations of Herkimer, and is suggestive. The plan is said to work well.

WHICH IS SWEETEST AND MOST NUTRITIOUS, WHITE OR YELLOW CORN?

On this question there was a variety of opinion.—Several members insisted that one variety was as nutritious as the other. Some preferred white corn as being more palatable, and others the yellow.

Mr. Brown was confident that the yellow was sweeter, and that pudding or bread from the white made a poor, white, insipid food, compared with the rich yellow.

Mr. Whitman knew of many who preferred the white, and would not eat food made from yellow meal, if white could be obtained.

Dr. Isham said yellow meal, when old, was apt to have a bitter taste. Yellow corn contained more oil than white, and when the meal was kept some time, the abundance of oil had a tendency to become rancid, hence, the bitter taste of the meal. Various other questions were discussed, called out by the fine display of fruit, corn, cabbage, onions, potatoes, &c.

Mr. Whitman showed four samples of corn of different varieties, white and yellow, and three varieties of sweet corn, all excellent. He has one variety of sweet corn quite noted for its excellence in the markets of Little Falls. He grows the cannon-ball and wingstat cabbage, specimens of which on exhibition, were almost solid enough to serve for cannon-balls, and if propelled even with moderate force, would "knock a man down," if it did not kill him.

A Large Crop of Mangolds.

In the *Country Gentleman* of November 9, 1865, John Johnson, the well-known farmer of Geneva, gives the following account of a field of mangolds:—

"Last spring I put a fence around a small piece of land in the field on the west side of the highway as you come from Geneva. 1,886 feet I planted with mangolds. I took them up the other day, cleaned the earth from them thoroughly, weighed, and found them to weigh 2,880 lbs. Now if 1,880 feet give 2,880 lbs., what will one acre give—say 43,560 feet? I make the amount per acre, 33 tons, 739 lbs. I am not so sure in figures as I was when young, but think I am right, I allowed 2000 lbs. to the ton. They were planted in rows 18 inches apart, and 9 or 10 inches apart in the rows. My man John said, 'Sure they would never grow that way at all—in Ireland they put the rows 30 inches apart, and 12 in the rows.' Now he says he never saw more grown on so small a piece of land in Ireland itself."

SHEEP-WORRYING.—We learn from an attentive correspondent that Mr. Robert J. Black, Garafraxa, had seven sheep killed by dogs, recently. Farmers should be careful of their flocks. A bell attached to sheep is said to prevent the attacks of mutton-loving dogs. Try it.—*British Constitution*.

AN ALDERNEY COW.—"P. E. L.," of New Rochelle, N. Y., states that he imported an Alderney cow six years since. From March 1st, 1864, to March 1st, 1865, her record is as follows: She raised her calf, produced 351 lbs. butter, 78 quarts milk sold, and 447 quarts used in the family. There was no extra effort made; her only food during the grazing season was grass, and in winter half a bushel of coarse bran per day, besides coarse fodder. No roots were fed.—*Ex.*

GROWING TEA IN AMERICA.—A man who has been cultivating tea, as an experiment, since 1860, writes to the *Savannah Herald* that most of his plants grow finely, that his tea is of good quality, and the plants will do quite as well in Georgia as in their native country. The plants require no culture after the third year. If well taken care of, by that time they will be large enough to commence the manufacture of tea from them. The yield to the acre is from three to four hundred pounds, and the plants produce good crops for eighteen or twenty years. The growth of tea is not affected by dry or wet weather or by storms, and insects will not molest the plants.—*Ex.*

ICELAND CORN CROP.—The only approach to a corn crop cultivated by the Icelanders, and that only in favoured localities, is what they call Melur, which is *Elymus arenarius*. Its seeds are highly appreciated, and besides being eaten raw, are made into porridge and thin cakes not unlike a bannock. It is much cultivated at the foot of Mount Kekka, and certainly seemed like matter out of place, springing as it did from the white volcanic sand, on all sides surrounded by lavas and ashes, devoid of the faintest traces of vegetation. Curious to know how it got there, and observing that it always grew on the summit of little sand cones, I asked my friend the farmer. He said it was planted there on account of the warmth and shelter. This species of grass has the appearance of rye, for which some travellers have mistaken it. The peasants gather it in August, but being seldom ripe it requires to be dried before it can be used.—*Forbes' Iceland.*



The Clinton Grape.

To the Editor of THE CANADA FARMER:

SIR,—Mr. D. W. Beadle, in a recent communication to THE CANADA FARMER, on the "Adirondac" Grape, says:—"Mr. De Courtenay, at Cooksville, has already established an extensive vine-yard and wine cellar, where he is manufacturing several thousand gallons of wine from a grape that very much resembles the Clinton &c."

The italicised words are those to which I would draw attention, as in them Mr. Beadle casts a doubt on Mr. De Courtenay's vines being the Clinton or not, which was quite uncalled for, as the Clinton is of such a distinct character in foliage and fruit, as to be at once recognized by any experienced pomologist. The vines came from my establishment,—the "Toronto Nurseries," and I warrant them to be the genuine Clinton, which I consider the very best *Wine Grape* for Canada, yet tested.

Yours, &c.,

GEO. LESLIE.

Leslie P. O., Dec. 9th, 1865.

Yellow Flowers.

The prevailing colours of flowers in the garden are the white, and the various shades of red. Blue flowers are not common, although they are much wanted for bouquets. Yellow flowers are not common either, but a few sorts should be found in every garden for variety, and also to use in bouquets, though they should be employed sparingly for that purpose.

One of the best yellow flowers is the double *Chrysanthemum*, which is very ornamental and showy in the garden, and being very double is good for use in bouquets. Another fine yellow annual is the *Cereopsis* or *Calliopsis*, flowering profusely for a long time. Many of the varieties of Marigold, particularly the dwarf sorts, although despised by many persons, are yet very showy and desirable in the garden, though not particularly attractive in fragrance. The *Nasturtium* of the improved varieties, is a fine plant and very attractive. The dwarf sorts, not over a foot in height, and much resembling a dwarf scarlet geranium in form, are very excellent bedding plants. The *Gaillardia picta* is a showy perennial, but may be treated as an annual, flowering freely the first season if sown in a hot bed. The flowers are yellow and crimson, and the plant is well worthy a place in the garden. Other good yellow annuals are the *Eschscholtzia*, *Portulaca*, *Centaurea* *su-* *ans* or *Yellow Sweet Sultan*, and *Golden Barts*.

Of climbers, the Canary bird flower running *Nasturtiums* are the best.

In everlasting flowers, the *Helichrysum* contains several varieties of a yellow colour, which are in demand for use in winter bouquets.

Of perennials, *Oenothera frazerii* is a good variety and remains in flower a long time. Some of the Irises have yellow flowers, generally striped, however, with other colours. The *Mimulus* or *Monkey flower*, in a moist and shaded situation, is a very showy flower, the ground colour yellow, and blotched or mottled with crimson or scarlet. Many pansies are found of this colour also. There are a number of varieties of the Lily bearing yellow flowers.

In bulbs, the *Jonquilles* are of this colour. There are also yellow *Hyacinths*, *Tulips*, *Crocuses*, and *Crown Imperials*.

Of shrubs, the yellow *Roses* occupy a prominent place. The yellow flowering *Currant*, *Corniflorus* or *Kerria*, *Forsythia viridissima* are other sorts.

The yellow *Honeysuckle* is the only hardy climber which I can now recall.

The above list I find is quite extensive, and from it enough may be selected to afford an agreeable variety in any garden, which may be deficient in plants bearing yellow flowers.—*Ex.*

Time for Pruning Apple Trees.

For several years it has been my custom to record, when pruning, the age and condition of the tree or trees, the quantity of wood removed, the date, and weather at the time. This is convenient, for if a tree falls, or does badly, it is only necessary to turn to the record to settle the question so far as pruning is concerned. I have found September to be a favourable time for the removal of large branches from old trees. When so done I think the wound, though it does not heal, seasons, becoming so durable as to last so long as the tree lives. December is recommended by some as a proper time, and it may be so, but such has not been my experience with reference to the latter part of the month. In 1859, I trimmed some in the early part of this month, and the trees have done well—old, large but thrifty trees from which I took much wood—they having been for years neglected. About Jan. 1st, 1860, I trimmed a part of an old orchard, the trees vigorous, showing few signs of decay. They have done miserably; that spring after, the bark started from the trunk,—in every case on the north side. Two have since died, and the others are not much better than dead. Other trees in the same lots, not trimmed at that time, did not suffer in this respect; consequently, I consider the pruning given them the cause of the harm done. That winter the complaint was general. What makes me the more positive, I pruned two others in another place, and they too have nearly died—these being all thus affected on the farm. The weather at the time was warm, followed by an extremely cold snap. Like others I formed and rejected many theories in relation thereto, not worth laying before the public. In regard to November pruning, or rather from the 20th of Oct. to Nov. 20th. I have never seen any bad results follow. The weather is often favourable at that season, and work is not pressing. Some of the best fruit growers advise this as a proper season. But if the weather is warm I am not sure of its propriety. This fall, during the fine days from the 1st to the 9th of Nov., I trimmed some old trees, and it was noticed that there was quite as full a flow of sap as early in April. It certainly cannot be proper to remove a limb under such circumstances. No doubt June is the most fit time of all seasons for pruning young trees, as Sept. or Oct. is old ones. Some contend that June is the only month. Of one thing there is no question, and that is that April is the worst, or say from March 20th to June. Above all, never cut a branch of any size in May, or even such as might be taken off with the knife, without applying shellac solution. I have found from Feb. 1st to March 20th a very good time for the work, and have been successful so far.

If people generally took as much care of their fruit trees as they do of their other crops—never letting a branch grow larger than a knife will cut easily, and giving the tree as much manure and labour if no more, as they do a hill of corn, annually, it would matter little at what season pruning was done, as there would be scarce any to do. But so long as trees are neglected for years, and one wants to remedy that neglect at once, care must be used to choose the best time. In my experience it is as above; still, others of larger experience may not see it as I do. As regards June pruning of large trees, I can say nothing growing out of my own experience; from what I have seen, I do not think favorably of it.—*A. in Boston Cultivator.*

Rotation in the Garden.

In some of the best managed gardens rotation of crops is successfully practiced. The cultivation of crops in drills, which is the ground work of improved agriculture, was first commenced in the garden and afterwards transferred to the field. The potato and turnip, mangel wurzel and all kinds of beet, pea and bean, and every kind of vegetable were for a long time confined within the narrow limits of the garden, and here a miniature rotation was established, the value of which soon became apparent.

Mr. London, in that excellent work, the *Suburban Horticulturist*, lays down the rule that crops or plants belonging to the same natural order, or tribe most nearly allied to them, should not follow each other. Thus turnips should not follow any of the cabbage tribe, sea-kale or horse-radish; peas should not follow beans.

Plants which draw their nourishment chiefly from the surface soil, should not follow each other, but should alternate with those which draw their nourishment from a deeper source. Hence carrots should not follow beet, nor onions potatoes. Plants which take much of their nourishment from the soil, should succeed, or be succeeded by those that take less. Hence a crop grown for its seed, such as the pea, or for its roots or bulbs as the potato or onion, should

be followed by such as are grown solely for their leaves, such as bore cole, kale, lettuce, spinach, etc. Those plants which remain for several years in the soil such as the strawberry, rhubarb, asparagus, etc., should be followed by those of short duration. Hence in well managed gardens, the strawberry is changed every third year until it has gone the circuit of all the compartments, and the same treatment is applied to the asparagus and sea-kale compartments.

Plants, the produce of which is gathered in summer, should be followed by those the produce of which is collected in winter or spring, so as to prevent two exhausting crops from following each other. Plants which are allowed to ripen their seeds exhaust the soil very much. Two crops of this description should not be permitted to occupy the ground in succession.

Some crops need the application of fresh manure, while others succeed best in soil wherein the manure has been perfectly decomposed, consequently they should be sown after a manured crop. Plants of every kind do better in drills than when sown broadcast, because they can be regularly spaced and the soil between them can be worked with the hoe and kept free from weeds. Vegetables of nearly all kinds may be grown in a young orchard without injuring the trees. Here a regular rotation may be established, every kind of crop being raised in drills and cultivated by horse labour. If the trees have been set far enough apart, it will be some years before they attain a size sufficient to impede operations and low growing vegetables, such as turnips, carrots, parsnips, cabbages, beets, etc., are less likely to damage young trees than corn or any other tall crop. Asparagus is generally raised in deeply tilled beds which have been excavated and filled again with great labour and considerable expense. Yet this vegetable can be successfully grown in drills, if the soil is well manured and tilled sufficiently deep. Melons and cucumbers are generally cultivated in hills, yet some of the most extensive growers of these fruits have abandoned that mode of culture and adopted drills, because they found that hills are the favourite resort of the striped bug and it is almost impossible to dislodge them from their strongholds. It is now considered the best plan to raise them in drills, six feet assunder, the plants from eight to twelve inches apart in the drills, by this means the vines will be distributed evenly over the ground, the soil can be kept free from weeds, and the fruit exposed to the rays of the sun, so as to ensure their ripening in proper season.

If the trees are so far advanced in growth in the orchard that vegetables cannot be raised between them, a small field near the house should be made available for a vegetable garden, and by the proper economy of manure, excellent crops can be raised without encroaching on the manure that is required for other parts of the farm. Here early potatoes, tomatoes, cabbages, onions, parsnips, carrots, corn, etc., may be raised without trespassing on the roots of fruit trees or being overshadowed by their branches. If a liquid manure tank is in operation, any quantity of muck can be saturated and be thus converted into very valuable manure.—*Western Rural.*

How to Raise Peaches Every Year.

By the following method peaches can be raised in Iowa as well as in New Jersey. I raised this season one bushel of choice peaches on one tree four years old. By the same method I have seen one tree in Iowa bearing fruit every year for the last ten years. Any one can do the same by strictly following these directions, viz:—When quite young, set the tree in the ground with all the roots running north and south, and thin the tree to a fan shape, with edge in the same direction as the roots. When the tree is past three years old, after the leaves are off in the fall, lean it towards the west till the branches nearly touch the ground. This can be done easily, as the roots which run north and south will be only slightly twisted. This should be the permanent position of the tree, never should it be righted up. The suckers or water sprouts should be kept stripped off during the summer, or the vitality of the tree will run to sprouts.

The end of all the branches should be clipped about the first of August, to force the sap into the fruit buds.

Every fall, before cold weather sets in, cover the tree with brush to keep the tree close to the ground, and with straw over the brush to protect fruit buds from the cold—and uncover in the spring about the 10th of May.

Thus by a little care and labour, every year, an abundance of that delicious fruit can be raised at home, affording a great pleasure, and saving expense of exporting from a distance.—*H. B. S., in the Home-stead.*

The Crocus.

As one of the earliest ornaments of the flower garden, it is a universal favourite, being neat, dwarf, and compact in growth, and varied in all the essential shades of colour for producing harmony of effect, either separately or blended together. The principal adaptation of this bulb consists in its suitability for planting sufficiently near to the margin or edge of flower-borders, beds, &c., as not to require removal, or in forming lines or edges entirely of such, in their relative colours, which, after blooming, may be removed as the leaves show maturity of growth by fading in colour (the bulbs being stowed away dry and cool until the following autumn,) and the same spaces being again occupied by summer flowering plants.

The principal months for planting are October, November and December, in ordinary rich garden soil, placing the bulbs about two inches deep, and four to six inches from the margin or edge, each group of six to eight or more bulbs being planted in its own relative colour, or otherwise in blended varieties, as taste may prefer. These all improve in beauty for some years, if not disturbed.

To secure a succession of blooms in pots commence early in the first-named month, with six or eight bulbs in each well-drained pot, using the same rich soil about an inch deep; and thus planted, place the pots upon a surface of ashes, covering them over one inch deep with soil, tan, dry leaf-mould, or sand, until the leaves appear through the soil, when they may be removed to the house.—*H. A. Dreer, Philadelphia.*

The proper way to deal with Bulbs.

As soon as any bulb shows signs of growth, the sap has begun its seasonal movements, and it needs the support of nutriment obtained by the roots. Therefore the first act of the sap, when its autumnal movement commences, should be the formation of roots; therefore, also, it should be in contact with moist earth, before the movement of the sap commences, in order that when the roots begin to protrude from the base of the bulb, they may be in contact with the soil, which is the only natural medium for their growth and usefulness. What should we say of a propagator of roses who should put in cuttings, and at once drive them into growth by atmospheric heat and moisture, without waiting till they had callused and began to form root fibres? We should say he had adopted a killing process, and had better buy roses ready rooted than attempt to obtain them in such a ridiculous fashion. But this is the way the greater part of autumn-planted bulbs are dealt with. They arrive in this country in fine condition of ripeness, and begin to sprout in the warehouses and seedsmen's windows long before the public think of making purchases. They form incipient roots at the base, and plump green shoots at the crown, and these succulent growths are elaborated at the expense of the bulb, and, by the process of transpiration, the atmosphere sucks the life out of them, through the tissues of incipient roots and plump green shoots.

When planted, they have to make roots at the expense of the already exhausted bulb, and then have to recover from those roots sap to sustain the growth above the bulb, which is already in advance of the roots in its stage of development, and thus the balance between supply below and exhaustion above is never restored, and the second season after purchase the bulbs are fit only for the muck-heap.

The laws of vegetable physiology plainly point out that all the hardy bulbs which sprout in autumn should be in the ground before that effort is begun. The equable temperature of the soil, and its moist condition at 6 inches below the surface, provide the very best conditions possible for promoting immediate root action, and retarding the growth of the foliage—two desirable results both for the bloom in the spring following, and for the preservation and increase of the stock.—*Hibberd's Gardener's Magazine.*

AN ARABIAN LAUGHING PLANT.—For the first time I met with a narcotic plant, very common farther south, and gifted with curious qualities. Its seeds, in which the deleterious principle seems chiefly to reside, when pounded and administered in a small dose, produce effects much like those ascribed to Sir Humphry Davy's laughing gas; the patient dances, sings, and performs a thousand extravagances, till after an hour of great excitement to himself and amusement to the bystanders, he falls asleep, and on awaking has lost all memory of what he did or said while under the influence of the drug. To put a pinch of this powder into the coffee of some unsuspecting individual is not an uncommon joke.—*Palgrave's Central and Eastern Arabia.*

How to Plant a Tree.

The best time for planting all hardy trees in mild climates, is after the first killing frosts—November and December being the months in which the operation is most successfully performed. Transplanted at this time, they throw out small fibres from the roots during the winter, and start with the opening season into healthy growth. Still, they can safely be set out at any period from the first heavy frost until the buds swell, but if an early period within these bounds be selected for planting, the more vigorous will be the growth of the tree—unless it be like the fig, liable to be injured by the severity of the winter, or as some evergreens, to be blown about and loosened at the roots by the winter gales. If planting cannot be done before Christmas, all trees do better late in February, than if planted in the severe cold of mid-winter.

When you have the ground properly prepared, and the holes dug, take up the trees with care, not cutting in the roots with the spade too near the trunk. To do this, dig around the tree, at a distance more or less, according to its size, a semi-circular trench, the proper depth being a little below the horizontal roots—cutting them off at the extremities merely, in forming this trench, instead of mutilating large roots. When this trench is formed, reach under with the spade, and cut off the tap root if there is one; then bend the tree over towards the trench, and finish the circle by cutting around the tree vertically with the spade. The tree can then be lifted, and if near the place, can be taken with the ball of earth attached to the roots, and set in its new location, or if it is to be carried any distance, when the earth is shaken out, the mass of fine unbroken roots will ensure its safety in its new position. A tree can be taken up in this careful manner as quickly as in the ordinary random haphazard way.

When taken up, carefully protect the roots of the tree from the frost, sun and drying winds. Thousands of trees are thus nearly or quite ruined, or at least a year's growth thus lost. The roots, after taking up, should be kept covered with loose earth, near where they are to be set out, taking out a handful of trees at a time, as wanted in planting.

Prepare the ground for your trees by deep and thorough tillage, and a few days in advance of planting, make holes fully two feet square, and one and a half or two feet deep, and in making them, throw the good top soil out on one side, and the poor on the other. Loosen up the bottom with a grubbing hoe; throw in about two inches of good soil, to lighten what is to be thrown in, as if clay comes directly upon clay, it will harden and become impervious to water. Now break in roughly all the sides of your hole, to fill up the bottom therewith as much as practicable, adding the good soil laid one side, and if necessary other good earth sufficient to fill the hole to the proper depth for receiving the tree. Place the tree now in position, and let its general inclination be in the slightest degree possible to the South-west, for all trees have a tendency, if not checked, to recede from that point, and incline to the North-east, forming most of their wood in that direction—a tendency that must be guarded against, both in planting and pruning, while growth toward the south-west side of the tree is to be encouraged, in order that the tree may preserve its balance and beauty.

Trees must not be planted too deep, which is the great error with nearly all planters. After a hole is entirely filled with loose earth, by taking out one good spadeful, you will have room enough for the roots of a common nursery tree. Sight your tree when in position, and see that it is in line, and that the rows are perfectly straight, and then plant, covering the roots with good friable soil, and shaking the tree quite lightly and repeatedly, until it feels firm, by the earth settling among its roots; then press the earth lightly with your foot, and scatter the poor soil thrown out from the bottom of the hole upon the field, and the tree is ready for the rain. In our hot climate, a little extra earth is thrown upon the roots the first winter, to protect them, which the summer rains will wash away.

In spring transplanting, the soil must be beaten about the roots much more firmly than in fall, as at that time the winter rains will beat the soil in about the roots. Fall planted trees should be examined in spring, to see if they lean, and should then be restored to the proper position, a little inclining to the Southwest.

After the tree is taken up, it must be pruned and fitted for its new condition. The roots have been necessarily considerably reduced, and the branches must be reduced correspondingly. In all cases, then reduce the top. The French gardeners, in planting quite young trees, cut them down to twelve or eighteen inches from the ground, and allow them

to make their own system of branches on the spot, ("faire bois neuf sur la place.") In planting older trees, more care has to be taken to prune sufficiently, following the same principle of keeping up the equilibrium between the roots and branches. Let the roots, however, always have the advantage. With a good system of healthy roots, it is easy to restore the top. Prune these older trees in pyramidal form.

Apple trees should have three or four substantial roots, and not be all fine hairy roots, or they will never make a fine substantial orchard tree, but always be loose in the earth, and finally blow over, unless anchored by strong substantial roots.—*Southern Cultivator*.

Some Hints on Orchards.

EVERY farm that is made the home of a family should have on it a good orchard. If in a favoured fruit growing district, it will become one of the chief sources of profit. The incomes derived from good orchards during the past few years, will be sufficient stimulus to future planting, where there is a reasonable hope of success. Many will determine this winter to plant in the spring, but before a tree is set out they should consider well some of the chief points which will materially affect their future profits.

The space between the trees should be determined by the system chosen for future cultivation—whether the planter resolves to devote the ground wholly to the orchard, or intends to include the field in the ordinary farm rotation, and grow therein grains, grasses, roots, &c. If the land is to be given up wholly to the orchard, twenty-five to thirty feet apart each way will be enough for apple trees; if it is to be cultivated with other crops, forty to fifty feet space between the trees should be given.

Devoting the land wholly to the orchard, seems to be the best method, for the following reasons: If included in the ordinary farm rotations, the soil will be subjected to the double burden imposed by the crops and trees. To keep up its fertility will require more manure than can be spared from the rest of the farm. In the future, orchards will be mostly planted on fields long cultivated and exhausted of the original fertility. Old orchards have been prolific, without much manuring, because they were planted and grown on land that had not been previously cropped to much extent. Hereafter, the fruit growers must use more manure.

Cultivation is essential to the rapid and thrifty growth of an apple tree. But it is not necessary to plough and hoe the entire area of the field in which the young trees are planted. The fruit books say that for the first five years the ground should be planted with potatoes, beans, or some low crop that may be hoed; and not laid down to grass. The difference between the size of the trees thus cultivated, at the end of five years, and of those allowed to stand in grass, will be greatly in favour of the former. True; but it is not the land we wish to cultivate, but the tree; it is not potatoes and beans we desire to raise, but to fit the soil in such manner that hereafter it will give food enough to the tree, to enable it to raise large crops of apples. The fruit books say, likewise, that on a space around the trunk of the young tree, equal to the spread of the top, nothing should be grown; the ground should only be hoed, and weeds and grass kept down. This, too, is sound doctrine. But if the surface of the ground, through which the roots extend, is all that the well-being of the tree requires to be cultivated, what harm to the orchard if the rest of the land is in grass? Instead of cropping it and exhausting the fertility, is it not more reasonable to lay it down to grass, and feed the growth off with stock, or let it rot on the ground, so as to enrich it, and accumulate food for the future wants of the trees? Each tree should be tilled like a hill of corn. Yearly, as the roots extend, a wider space around the trunk should be cultivated. It should be spaded and hoed, mulched and manured.

Meanwhile the area in grass would accumulate fertility, without the use of manure drawn from other sources than the field itself. Following this method the whole field would be brought under cultivation when the trees attained to proper size, and as good results obtained as though more labour and money were expended in tilling ground and growing crops that did not favour the orchard.—*Rural New Yorker*.

VERBENAS.—We give the following from an article in the *Horticulturist*, by a correspondent, on raising seedlings of this plant:—"One of my greatest novelties, on account of size, is a verbenia with, I think, the largest umbel I ever saw. It measures 1 1/8 inch across, while 'the Banner,' which is a good sized flower, measures 6-8. After I had finished planting my bed, I had some seed left, which I scattered on the ground—no covering at all—and it germinated better than much of the seed which was planted, although I generally try to give a very light covering."

Plants for Hanging Baskets.

What plants are most suitable for *Hanging Baskets* is an enquiry we have before us. We have no special love for *Hanging Baskets*, unless they are well got up and kept in good condition. Most of the *Baskets* we see around are unsightly things, and look as though hanging wasn't much better for *Baskets* than for other folks. In forming *Ornamental Baskets*, it is well to remember in the first place that they will not bear neglect. A quart or two of earth placed in a basket will very soon become as dry as powder, even if not exposed to the sun. Watering must, therefore, be attended to frequently and regularly. The amount of water and the frequency of application, depend a good deal upon the plants grown. A basket of *Portulacas* will endure drouth without suffering, that would be sufficient to destroy many other plants.

What we want in *Hanging Baskets* are plants of fine foliage and a constant supply of flowers. For graceful foliage there is nothing better than the trailing *Moxer Wort*, *Tysimachi Mammularia*, with dark, glossy leaves and plenty of yellow flowers at blossoming time.

The *TRICHBERGIAS* are not excelled by any plants we are acquainted with for baskets and all like decorative purposes. They are trailing plants, foliage good, flowers abundant, white, yellow and orange, with a dark eye. There is only one difficulty with them, and this is not serious—the seeds germinate rather slowly, and always best in a warm place.

ANEMONA UMBELLATA is a beautiful plant, with clusters of sweet scented flowers, rosy lilac, in clusters like the *Verbena*, which the plant in its habit resembles very much. Flowers freely for a long season. The only difficulty with it is a lack of foliage, but this defect is easily remedied by other plants that abound more in leaves and less in flowers.

The *LOBELIAS*, all the trailing varieties, are splendid for basket work, and in fact all in-doors ornamentation. They will not bear the sun, but this is not expected of basket flowers, and require a good deal of moisture. When well treated they give a profusion of flowers.

All the *IPOMEAS* and *CONVOLVULS* are desirable for baskets, and as they are not exposed to the sun or usually to a bright light, the common *Morning Glory* will have expanded blossoms nearly the whole day. All such strong running plants can be pinched back, and thus made dwarf in their habit for basket and other ornamental work. The *TRIPLODENDRONS* may also be treated in the same manner, and will give good satisfaction.

The *LOASAS* are very curious plants with singular and pretty flowers, but the branches are armed with stinging hairs that will speak more emphatically to intruders than any sign, "hands off."

The above are all trailing plants, and sufficient to suit all tastes, though others could be added. Many no doubt would prefer the *Verbena* to some mentioned, and the *Madeira vine* may be made to run up the wires by which the basket is suspended, with fine effect. For the centre of the basket, plants of more erect habit will be needed to give a full rounded appearance. These should be depended upon mainly for show of brilliant flowers, while the trailing plants furnish the drapery.

The *MEMORIALS* are very desirable; prevailing colours white and blue. *PETUNIAS* and *PHLOX DRUMMONDI* are unequalled for brilliant show. *FENTILLA DIANTHIFLORA*, a most delicate free-flowering little plant six inches in height. Flowers reddish lilac with crimson centre. *LEPTORRHONS* are excellent. For fragrance a little *MIGNONETTE* or *SWEET AYLSSUM* will be necessary.

Although we have given a pretty long list to select from, we would not advise crowding plants. Plenty of room should be given for development.—*Rural New Yorker*.

MUCK WATER FOR INDIAN CORN.—Muck water, taken from a trench from which peat had been thrown and was nearly as black as ink, gave, when applied to Indian corn, according to a correspondent of the *Horticulturist* better results than unleached ashes or strong barn-yard liquid. The latter was probably too strong and would have done better had it been somewhat diluted. When we have so many facts in favour of dressing and watering garden plants, vines, &c. with liquid manure, we wonder it is not more largely practiced. For grapes, small fruits, &c.—in short for everything that grows—it is the only true method of applying manure. The trouble and expense attendant upon it is the only thing against it, and we are not sure but what even then the plan will pay better than the ordinary methods.—*Maine Farmer*.

Canadian Natural History.

The Beaver.

(Castor Fiber.)

In commencing a series of popular articles in THE CANADA FARMER, for the purpose of illustrating Canadian Natural History, the beaver is clearly entitled to the first place on the list. Apart from considerations of its marvellous sagacity, unwearied perseverance, and engineering skill, this curious animal has been appropriately selected as the Provincial representative emblem.

The Beaver is amphibious, and belongs with the musk rat, which in shape it resembles, to the Rodents, or gnawing animals. This familiar and somewhat destructive family of animals derive their name from the peculiar formation of their teeth, which are specially adapted for biting or gnawing their way through timber or other hard substances. Beavers are common to North and South temperate latitudes both of Europe and America. At no very remote period they were abundant both in the United States, and in

what are now settled portions of Canada. The gradual clearing up of the country has, however, compelled them to retire, mile after mile, before the inroads of encroaching man. A few solitary specimens have been captured in Upper Canada during recent years; but at the present time they are scarcely to be found on this side of the streams which have their origin in the Rocky Mountains. Beavers are not gregarious during the summer but form themselves into societies at the approach of winter, when

they build their huts and dam, and provide their stores of food. Some beavers live on the banks of large rivers and lakes, and where the water is plentiful and of sufficient depth they do not build dams. In such favourable conditions, their holes are formed in the banks, with their entrances under water, and their huts constructed in front of them. These are usually termed bank beavers, although they are perfectly identical with their dam-building brethren. Where a small stream has been chosen for their habitation they sagaciously provide themselves with a regular and unvarying depth of water, by the construction of an ingenious dam. Mud, stones, tree-branches, and any available substance at command, form their building materials. Careful provision is made for resisting the pressure of the water, by building the walls of the dam much wider at the bottom than at the surface of the water. When various parts of the stream flow with unequal velocity the construction of the dam is a triumph of skill and perseverance. Wherever the stream moves gently, the dam is built straight across it; but, in positions where the current is rapid, the dam is built with a convex curve up the stream. Preparatory to the construction of their dam, the beavers commence by cutting

down, with their teeth, trees of all sizes, varying from those of ten inches in diameter to the smallest brushwood. These are again cut into pieces of about three feet in length, to admit of transportation by a single animal, and are then conveyed to the site of the dam. The stakes are placed horizontally, and secured by a covering of mud and stones. In extensive dams, and where there is a considerable depth of water, it will be obvious that an immense number of such logs will be necessary. Dams have been known to measure upwards of three hundred yards in length, with a breadth of twelve feet at the bottom, two feet at the summit, and with a height varying from six to ten feet. After the dams are built, but before they are frozen over, the beavers lay in their winter stores, which consist of the bark of various trees, such as the willow, aspen, poplar, birch and alder. They fell these trees with their teeth, cut them into sections and sink them in the water near their huts. During winter when their ponds are frozen over, they enter the water from below by the holes at the bottom of their huts, peel the bark from those trees as it is required and convey it to their dwelling. The "lodge" or beaver house is generally built closely adjoining the dam. They are curiously and substan-

respect to domestic arrangements we are informed that the beds are arranged against the walls—each beaver having his own, while the centre of the dwelling is unoccupied.

In form, the beaver is low and squat, measures about two and a half feet in length, and bears a considerable resemblance to an enormously magnified musk rat. The head appears somewhat compressed, the muzzle is oblique and blunt, and the upper lip is divided or cleft as in the hare. The eyes are placed rather widely apart, and are bright and small. The ears are placed somewhat far back on the head, and are likewise small. The teeth are amazingly sharp and strong, the jaws are of massive construction, and are evidently possessed of immense leverage power, when the size of the animal is considered. The fur is soft and close, and interspersed with longer bristly hair, which increases as the animal grows older. When the beaver walks the hind and fore feet seem short in proportion to its size. Like most animals of the Rodent family, it leaps or stands up, and supports itself with its hind legs, which are longer than the fore ones. In the use of its feet in walking, it combines two distinct habits. With the forefeet it walks on the toes only,—a peculiarity which is technically

known as "digitigrade;" while on the hind feet it is "plantigrade," or walks on the entire length of the sole. This peculiarity imparts an apparent stability to the fore feet, which the hind feet do not seem to possess, and, at the same time, gives the whole animal a kind of wriggling gait. From these circumstances the beaver is only an indifferent pedestrian. The tail is a very peculiar feature of this curious animal. Compared with other parts of the anatomy, it is very large, being usually from 10½ to 12 inches



tially constructed of moss, mud, and branches, and usually measure internally some seven feet in diameter, by three feet in height. The walls and ceiling are of immense thickness. The exterior dimensions, therefore, form a very inaccurate index to the interior accommodation. The roof is evenly plastered with mud, in quite a workmanlike manner, and the process is repeated every year. In this lodge some seven or eight animals usually live together, thus forming a very interesting co-operative society, whose members eschew work during the day, but industriously ply their teeth and their paws under the shade of night.

The breeding season of the beaver commences in April or May, and they have from two to four young at a birth. The rising generation remain under the parental roof for three years, and in the fourth start a new colony, and begin the world on their own account. The youngsters have the assistance of the elders in constructing their huts, and as the various lodges usually open into a deep surrounding ditch, so that the inhabitants of the colony can pass from one dwelling to another without difficulty, it is to be presumed (?) that they maintain friendly relations, and live altogether a very sociable sort of life. With

length. It is oval in shape, and is flattened out at the upper and under sides. With the exception of a small portion at the root, it is not covered with fur like the rest of the animal, but with horny scales. This strange caudal appendage is not, as has been supposed, used as a trowel, spado, hammer or any other tool. It is chiefly used as a prop when the animal stands up and works with its fore paws. In swimming it serves as rudder and oar, and, being swung from side to side with great power and rapidity, the operation resembles the sculling of a boat. In building the dam, or lodge, when a portion of material is placed satisfactorily the animal turns round and gives it a slap with his tail, similar to that which, when disturbed, he gives on the surface of the water before diving. Near the root of the tail are situated two small glandular sacs which contain a remarkable odiferous secretion termed "castoreum." From this substance, part of the scientific name of the animal at the head of this article is derived, and by the attraction of its powerful scent the poor creature is drawn to the trap of the hunter, who always carries a supply of "castoreum" wherewith to perfume the end of a stick placed near the baited trap. The flesh of the beaver is eaten by the trapper, and bears some resemblance to indifferent pork.

British Gleanings.

INTERNATIONAL HORTICULTURAL EXHIBITION.—We learn from a British exchange that "at the Great International Horticultural Exhibition and Congress, to be held in London in May next, the celebrated botanist and botanical author, M. Alphonse De Candolle, has agreed to act as President of the Botanical Congress."

A CLEVER FOX.—The *Scottish Farmer* says: "A gamekeeper on a moor at Lochgoilhead trapped a large fox a few days ago, and finding it to all appearance dead, he removed it from the trap, and threw it aside while he rebaited the trap, when, to his astonishment, the fox scampered off up the hill and escaped."

UNHOUSED IN GLASGOW.—We learn from a British exchange that "21,480 persons will be turned out of their homes should the Glasgow Improvement Bill be passed. This number does not include a goodly population who will be removed by the proposed alterations of the 12 streets to be widened. No provision is to be made for the unhooused."

CONDITION OF THE ENGLISH FARM LABOURER.—We gather from a British exchange that at the recent quarterly meeting of the Eye Farmers' Club, the subject of discussion was "Farm Labourers." The Rev. F. G. Holmes, of Denham, introduced the topic by reading an able and elaborate paper, in which he contended that "the present condition of the labourer was miserably below what it ought to be and what it might be—a blot on the fair fame of this highly-favoured country, and a disgrace to a nation standing first among all others in commercial greatness, prosperity, and wealth."

THE SEWAGE PLANT.—The *Scientific Review* has the following:—"This fungus, the production of sewage, constitutes the great difficulty experienced in the filtration. It fills up the filters, preventing the passage of the fluid through them; and it coats the sides of sewers and drains. It is never found in water which does not contain organic matter. It is globular in form—unless when attached to fatty or other organic matter, when it becomes flocculent—and varies in size from that of a small seed to several inches; and is of a drab colour, passing into black. When broken, its smell is very disagreeable; and it appears to purify the sewage by absorbing the offensive gases. When, as in summer, the sewage contains a minimum quantity of these gases, it disappears, but is produced abundantly in the cold parts of the year."

A SABBATARIAN.—The *Kelso Mail* relates the following:—"Some time ago a young man, when travelling on a border moor, one Sunday, saw a fine salmon lying in a shallow stream. Owing to the sanctity of the day, conscientious scruples would not permit him to kill the lonely and helpless fish, although he was exceedingly anxious to get it into his possession. His ingenuity, however, hit upon what he seemed to consider a very safe compromise. Seizing the salmon, he carried it away to a retired pool, and there built a dry stone dyke around it, so that it might remain secure and unmolested until he found a convenient opportunity during the week to return for his fine prize. His scheme succeeded; in a few days he returned, and, free from all Sabbatarian pangs, took possession of the much coveted salmon, which he found safe and sound."

THE USE OF SAWDUST AS A LITTER.—A correspondent writes to *The Farmer* (Scottish) as follows:—"The fear of importing the *Rinderpest* through straw carted from farms at a distance, has induced me to litter my cows with sawdust. I should be glad to know through the medium of your columns what admixture would most speedily decompose the sawdust, and thus improve the manure as a fertilizer of land." Whereupon the Editor replies:—"Sawdust in its natural state is not easily decomposed, but it is an excellent absorbent for liquid manure, and when well soaked with urine, ferments readily. It is, therefore, a valuable material for bedding cattle, and no difficulty will be experienced in getting it to decompose, provided it has been thoroughly saturated. At one time we had the command of a large quantity of sawdust, which we used with great advantage as litter, and also for mixing with the night-soil of some extensive public works, for which purpose it answered admirably in every respect. It is stated by chemists that sawdust, during decomposition, forms certain acids, which act as excellent fixers of ammonia, and that when well mixed with dilute sulphuric acid, it is one of the best materials which can be employed for fixing the ammonia given off in stables."

THE RAT INVASION AT BRAEMAR.—The rat invasion in the Braemar district, which we noticed in a recent issue, continues to engage a particular amount of public and private interest in the north. A late number of *Bell's Messenger* contains the following additional particulars:—"An incessant and universal war is everywhere waged with merciless fury against the destructive vermin; even shooting has been in many instances resorted to as a speedy expedient. The use of poison even, in several cases has hitherto proved a failure, the otherwise voracious creatures avoiding contact with the deleterious food. Trapping has met with most success, but even that, after a few trials, has proved unfeasible, from their keen sagacity and acuteness. It has been observed that mice have all but disappeared wherever rats have fixed a lodgment. A severe storm of snow and frost may possibly produce a great diminution of their numbers and ravages, but as yet there is little, if any, abatement of their progress."

DROUGHT IN SOUTH AUSTRALIA.—A British exchange gives a sad account of the disastrous drought in the "Far North" of South Australia:—"From Port Augusta to Nuccaleena the country is destitute of either vegetable or animal life. The Kanyaka and Edlowie stations are entirely deserted. Of 12,000 sheep on Mr. Peter Ferguson's station, it is expected that not one will be alive in a month's time. The settlers generally are abandoning the country. Messrs. Dunckel and Lockit, who bought the Chambers Creek station some time since with 4000 head of cattle upon it, have only 2000 left, and they have not branded a single calf or sold a head of cattle. They have abandoned the head station, and are living under the utmost privations in a hut constructed on the sand near a well. Hay at Hokina is £20 per ton, and oats 13s 6d per bushel. Even the tufts of saltbush are reduced to mere heaps of powder, and the remains of Kangaroos starved to death are scattered about the country."

A CANADIAN MARMOT IN A LONDON CELLAR.—Mr. Bartlett, the superintendent of the Zoological Gardens, lately received a note, dated from the Minorics, stating that the writer had discovered a strange animal in the cellar, which was unknown to any of the naturalists in that region. Mr. Bartlett immediately dispatched two assistants from the gardens with all the appliances necessary for the capture and safe conveyance of the mysterious quadruped. "On reaching their happy hunting ground," says a correspondent of the *Field*, "the men succeeded in securing their spoil, and returned with it in triumph to the park. When there it was discovered to be a Canadian marmot. The question may be asked, how came it in a cellar in the Minorics? Subsequent enquiry elicited the probable solution of the mystery. Late last autumn a sea-captain lodged in the house; he had some specimens of living animals; there is no doubt but that the marmot was amongst them, and, on escaping, found the cellars to afford comfortable winter quarters in which to hibernate. It must have had a pretty long sleep, which, perhaps, may be accounted for by the circumstance that the heat of our summer took some time to penetrate to his subterranean abode. In spite of his long trance, however, he was found in very good condition, and now appears to enjoy his quarters at the Zoological Gardens quite as well as his cellar in the Minorics."

THE CAT RINDERPEST IN FORRES.—The *Forres Gazette* is responsible for the following:—"A disease has been prevalent in Forres for several weeks among the feline species, which has cut them off in every direction. The animals appear to be disinclined for food for a day or two, then they have running of water at the mouth and nose, dull beared eyes, and great prostration of strength. They lounge about the earth or in by- corners, and do not touch food of any kind for days. They generally die on the eighth or ninth day." The *Edin Current*, with quiet humour, supplies the consolatory information that the fatal plague is on the decline. Thus: "It gives us very much pleasure indeed to be in a position to state that the cat plague in Forres, regarding which many paragraphs have appeared in newspapers all over the kingdom, is upon the decline. Several of the cases have terminated fatally, but the number of recoveries is now proportionably greater than was the case some ten days ago. The premonitory symptoms have changed. The pupils of the eyes have assumed quite a different aspect. The sneezing, in a great measure, has subsided, and the spasmodic motion of the fore paws has given place to a tremulous motion of the whiskers, which have an unnatural rigidity. In some cases, it has been observed that the animal, while labouring under the secondary symptoms of the pest, makes gyrations with amazing rapidity, as if in pursuit of its caudal appendage, a part of the animal often very seriously affected by the disorder."

Miscellaneous.

Agricultural Regions.

(BY J. M. DECOURTENAY.)

WEALTH OF HEAT.

A COMBINATION of unfortunate circumstances has tended to depress this country to a standard far beneath its natural position. The original system of French Colonisation was altogether military, and for the last century emigration has been drawn from climates in no way resembling our own. The Norvegian, Scotchman, or Northern Englishman, may feel at home during our winters, but no class of emigrants is prepared for the heat of our summers, and none know how to profit by the wonderful wealth of that heat, which appears to our populations only as an inconvenience to be apologised for. Had we endeavoured to obtain even a limited emigration accustomed to the broiling summers, and rigorous winters of the slopes of the Alps, Pyrenees, or Appenines, or many similar climates from Hungary to Crimea, we should long since have discovered that our lands had other resources, and other riches, than could be extracted from them by the "ne plus ultra" of our agricultural imagination,—a Scotch farmer.

Take away from France her wine, oil and silk, and imagine what would remain of her thirty-five millions of population, of her splendid army, of her Imperial Government. As long as Canada does not produce wine, oil, silk and hemp in abundance, she may be considered in comparatively the same condition of an imaginary France, reduced to the miserable resources of ordinary field crops. It appears to me to be a matter of the greatest importance that our meteorological position in relation to Agricultural productions should be well understood in Europe, where an appeal should be made to capital as well as to labour. It also appears to me that our great staple commodity is land, and our only hope an abundant flow of emigration, and that the question of "to be or not to be," depends upon our capacity of demonstrating that our land is equal, if not superior to any other such commodity upon this continent. Should we feel ourselves unable to solve that problem, we may in vain assure the world that we are a hard working people, enjoying a very healthy, although a very unpleasant and unprofitable climate, where a stout heart and hard muscles are required to support the apprenticeship of hardships, represented as the inevitable doom of those who must only expect to acquire a plain living in exchange for hard labour.

I do not believe that a sufficient appeal has been made to other than the most inferior class of labouring emigrants. It has certainly become a by-word in the country that only that class of men can succeed. A man, they say, must march against the forest—his axe upon his shoulder—and he alone can make it recoil. The result of such a system is the wilful destruction of our magnificent forests; poverty in the present, disorder, disaster and bankruptcy in the prospect; and all reason without examining the first principles of political economy, the relative position of capital and labour, and the absolute necessity of their union in order to develop our immense latent wealth, and create anything worthy of the attention of a really valuable portion of the European population. It would be our interest, I am satisfied, to demonstrate, that our Agricultural climate is equal, if not superior to any other in Europe, or upon this continent; and this I have endeavoured for years, by theory and practice to establish.

My practical efforts are known to most persons in this part of the Province, and I feel most grateful for the countenance and support I have obtained in Upper Canada, and hope to merit so much kindness by redoubling my efforts in a cause, which I am confidently persuaded will ultimately become an inexhaustible source of national prosperity and wealth.

My theories are few, and I should have hoped easily explained and understood—and are, "That we enjoy the most favourable agricultural climate upon this Continent, or perhaps in Europe." My authorities are the best Europe can afford. The very celebrated Count de Gasperes in his "Cours D'Agriculture," vol. 4th, p. 639, declares—

"We can conclude that the climates most favour-

able to the vine are those where the season of vegetation is the *shortest*, and where, during such season the total heat is the most elevated; where the difference between the solar heat and the minimum heat is the *greatest*, and where, consequently, vegetation proceeds by *shocks*, and not by a *uniform march*."

I believe, therefore, upon this undoubted authority, that our climate (especially that of Lower Canada) is (as that authority declares) "the most favourable to the Vine;" and therefore, belongs to the most favoured of agricultural regions, for I can demonstrate that the richest agricultural productions ever accompany the vine to its ultimate limit. Thus M. de Gasperies assures us—that "the mulberry accompanies the vine to its last limit in altitude, and we do not doubt in latitude this will be found the limit of its useful cultivation."

"It would be difficult to exaggerate the advantage Europe obtained by the adoption of this industry. Three hundred and twelve millions of francs is what the mulberry produces to France, which is one-third of the productions of the vineyards."

These productions amount to :

Wine,..... 934 millions.
Silks,..... 312 Do.

Making a total of..... 1246 millions of francs; or of 250 millions of dollars.

As to the production of oil, I can only speak here of that which is furnished by the wall-nut, which is at least equal in quality to that of the olive.

Again, I quote the same author, vol. 4th, p. 753—"The same region of mountains in the centre of our temperate region, that obtains its bread, all prepared, from the chestnut, receives its oil from another tree, the wall-nut, which furnishes nearly half the oil that is obtained in France; more than three times the quantity received from the olives, and three-fourths of that produced by oleogenous grains."

Before the Empire many wall-nuts incapable of producing oil were grown in France; but Napoleon the First ordered that men who understood the grafting of this tree should be sent all over France, and in two or three years every barren wall-nut changed its nature, and became a fruitful source of wealth; in the Vaucluse especially (which was covered with black wall-nut and butter-nut) this measure changed the face of the country, which can easily be imagined, when it is considered that an average tree will produce 100 francs, or \$20 worth of oil every year and without labour. De Gasperies calls it "Labour of Nature." Nothing could be more easy to accomplish in Canada. In the Eastern section we have thousands of butter-nut; in the Western, as many hickory and black wall-nut. What a change a few grafters would make, and how easily accomplished.

Hemp is the fibre of a hot and bright climate, as flax is that of a moist and cloudy one. It is grown all over France and Italy, for the production of linen, but in the centre of Italy, a coarse kind supplies the cordage used on the shores of the Mediterranean. The profits arising from its cultivation are immense, but that is only a small part of the blessings it confers upon the countries of its adoption, where it enters into the rotation of crops, and prepares the land for grain in so remarkable a manner that the entire agricultural system ameliorates, and the value of real estate increases in proportion to the extent of its cultivation.

Introduced into Central Italy early in this century, by Napoleon the First, it shortly centupled the productions of grain, and rendered abandoned flats of the Romagna; rivals of the richest plains of Lombardy, whose value might be estimated by their taxes, amounting to over sixteen dollars an acre, under the Austrian Regime. Many other examples I shall furnish of the *wealth of heat during the season of vegetation*, and hope to be able to demonstrate how every farmer in Canada may practically profit by it.

* De Gasperies, Vol. 4th, page 697.

PHILOSOPHY OF HANGING.—The late Archbishop of Dublin once inquired of a physician, "Why does the operation of hanging kill a man?" "Because," replied the physician, "inspiration is checked, circulation stopped, and blood suffuses and congests the brain." "Bosh!" replied His Grace, "it is because the rope is not long enough to let his feet touch the ground."

A cat caught a sparrow and was about to devour it, but the sparrow said, "No gentleman eats till he washes his face." The cat, struck at this remark, set the sparrow down, and began to wash his face with his paw, but the sparrow flew away. This vexed puss extremely, and he said:—"As long as I live I will eat first and wash my face afterwards," which all cats do, even to this day.

Artemus Ward's Experience as a Farmer,

(FROM ARTEMUS WARD'S NEW BOOK.)

THE Barclay County Agricultural Society having seriously invited the author of this volume to address them on the occasion of their next annual Fair, he wrote to the President of that Society as follows :

NEW YORK, June 12, 1865.

DEAR SIR,—I have the honor to acknowledge the receipt of your letter of the 6th instant, in which you invite me to deliver an address before your excellent Agricultural Society.

I feel flattered, and think I will come. Perhaps, meanwhile, a brief history of my experience as an agriculturist will be acceptable; and as that history no doubt contains suggestions of value to the entire agricultural community, I have concluded to write you through the Press.

I have been an honest old farmer for some four years.

My farm is in the interior of Maine. Unfortunately my lands are eleven miles from the railroad. Eleven miles is quite a distance to haul immense quantities of wheat, corn, rye, and oats; but as I haven't any to haul, I do not, after all, suffer much on that account.

My farm is more especially a grass farm. My neighbours told me so at first, and, as an evidence that they were sincere in that opinion, they turned their cows on to it the moment I went off 'lecturing.'

These cows are now quite fat. I take pride in these cows, in fact, and am glad I own a grass farm.

Two years ago I tried sheep raising. I bought fifty lambs, and turned them loose on my broad and beautiful acres.

It was pleasant on bright mornings to stroll leisurely out to the farm in my dressing gown, with a cigar in my mouth, and watch those innocent little lambs, as they dandled gaily o'er the hillside. Watching their saucy capers reminded me of caper sauce, and it occurred to me I should have some very fine eating when they grew up to be 'muttons.'

My gentle shepherd, Mr. Eli Perkins, said, "we must have some shepherd dogs."

I had no very precise idea as to what shepherd dogs were, but I assumed a rather profound look and said :

"We must Eli, I spoke to you about this some time ago!"

I wrote to my old friend, Mr. Dexter H. Follet, of Boston, for two shepherd dogs. Mr. F. is an honest old farmer himself, but I thought he knew about shepherd dogs. He kindly forsook far more important business to accommodate, and the dogs came forthwith. They were splendid creatures—sauf coloured, hazel eyed, long tailed, and shapely jawed.

We led them proudly to the fields.

"Turn them in, Eli," I said.

Eli turned them in.

They went in at once, and killed twenty of my best lambs in about four minutes and a-half.

My friend had made some trifling mistake in the breed of these dogs.

These dogs were not partial to sheep.

Eli Perkins was astonished, and observed :

"Wall, did you ever?"

I certainly never had.

There were pools of blood on the green sward, and fragments of wool and raw lamb chops lay round in confused heaps.

The dogs would have been sent to Boston that night, had they not rather suddenly died that afternoon of a throat distemper. It wasn't diphtheria. It was a violent opening of the throat, extending from ear to ear.

Thus closed their ill-stories. Thus ended their interesting tails.

I failed as a raiser of lambs. As a sheepist I was not a success.

Last summer Mr. Perkins said "I think we'd better cut some grass this season, Sir."

We cut some grass.

To me the new mown hay is very sweet and nice. The brilliant George Arnold sings about it, in beautiful verse, down in Jersey every summer; so does the brilliant Aldrich, at Portsmouth, N. H. And yet I doubt very much if either of these men know the price of a ton of hay to day. But new-mown hay is a really fine thing. It is good for man and beast.

We hired four honest farmers to assist us, and led them gaily to the meadows.

I was going to mow myself.

I saw the sturdy peasants go round once ere I dipped my flashing scythe into the tall green grass.

"Are you ready?" said E. Perkins.

"I am here!"

"Then follow us!"

I followed them.

Followed them rather too closely, evidently, for a white haired old man, who immediately bowed Mr.

Perkins, called upon us to halt. Then in a low, firm voice he said to his son, who was just ahead of me, "John, charge places with me. I bain't got long to live, anyhow. Yonder berryin' ground will soon have these old bones, and it's no matter whether I'm carried there with one leg off and terrible gashes in the other or not! But you, John—you are young." The old man changed places with his son. A calm smile of resignation lit up his face as he said, "Now, sir, I am ready!"

"What mean you, old man?" I said.

"I mean that if you continue to bran'ish that blade as you have been bran'ishing it, yo'll slash the life out of some of us before we're a hour older!"

There was some reason mingled with this white haired old peasant's observations. It was true that I had twice escaped mowing off his son's legs, and his father was perhaps naturally alarmed.

I went down and sat under a tree. "I never know'd a literary man in my life," I overheard the old man say, "that know'd anything."

Mr. Perkins was not as valuable to me this season as I had fancied he might be. Every afternoon he disappeared from the field regularly and remained absent some two hours. He said it was headache. He inherited it from his mother. His mother was often taken in that way, and suffered a great deal.

At the end of the two hours Mr. Perkins would reappear with his head neatly done up in a large wet rag, and say he "felt better."

One afternoon it so happened that I soon followed the invalid to the house, and as I neared the porch I heard a female voice energetically observe: "You stop!" It was the voice of the hired girl, and she added, "I'll holier for Mr. Brown!"

"O no Nancy," I heard the invalid E. Perkins soothingly say, "Mr. Brown knows I love you, Mr. Brown approves of it!"

This was pleasant for Mr. Brown!

I peered through the kitchen blinds, and, however unnatural it may appear, the lips of Mr. Perkins and my hired girl were very near together. She said "You shan't do so," and he *do-soed*. She also said she would get right up and go away, and, as an evidence that she was thoroughly in earnest about it, she remained where she was.

They are married now, and Mr. Perkins is troubled no more with the headache.

This year we are planting corn. Mr. Perkins writes me that "on accounts of no skare krows bein put up krows cum and digged fast crop up but soon got another in. Old Bigsbee who was fraid youd cut his sons leggs off says you bet go and stan up in field yerself with dressin ground on and gesses krows will keep away. This made boys in store larf. No More terday from

"Yours respectful
ELI PERKINS.
"his letter."

My friend, Mr. D. T. T. Moore, of the *Rural New Yorker*, thinks if I "keep on" I will get into the Poor House in about two years.

If you think the honest old farmers of Barclay County want me, I will come.

Yours truly,
CHARLES F. BROWNE.

BACKBONE PEOPLE.—It is with men as with animals; you may divide them into two classes, vertebrated and invertebrated. Animals remarkable for dignity and elevation in the scale of existence are vertebrated or backboneed; their backbone gives them eminence and place: all animals to which we apply the term "inferior" want this backbone, and they can only crawl or creep, because they are invertebrated. We have often thought, when looking among men, that this is the great distinction we notice between the successful and the unsuccessful, the principled and the unprincipled, the true and the false. The schoolmaster, as he bids farewell to his pupil about to enter the great world of action and business, says, "I know they will never make anything of that boy—there is no backbone in him." Jenkins, the grocer, looks doubtfully at his apprentice, and says, as he shakes his head, "Ah I wish I had never had anything to do with that lad; I doubt there is no backbone in him." And Thomson, the architect, refuses to have anything to do with building the row of houses, "For," says he, "there is no knowing where to find Williams, who wants me to build them: he has no backbone." These are customary modes of speech, and they represent the simple truth of life. We recoil instinctively from the touch of the spider and the wasp, the leech and the slug; and we recoil as instinctively from that large class of persons of whom these little creatures are a sort of moral analogy, because they have no backbone. They can sting sometimes; they can weave a brittle web sometimes; they leave here and there a slimy trail; they can draw blood; but the instincts of society and humanity recoil from them. They have no backbone.—*E. PARSONS HOOD.*

Contents of this Number.

THE FIELD: Steam Cultivation; with an Illustration. Familiar Talks on Agricultural Principles. Experiments in Top-Dressing Grass. Flooding Green Crops in the Fall. Preparation of the Land for Flax and other Spring Crops. Wire Fences. Reasons for Not Sowing Timothy. STOCK DEPARTMENT: A Combined Shed and Sheep Rack, with a spirited Cut. Satisfactory Explanation. Very Early Lambs. Points of a Good Hog. Ayrshire and Jersey Cross. ENTOMOLOGY: The Hessian Fly in the County of Huron. A Dangerous Enemy. The Orchard Caterpillar. VETERINARY DEPARTMENT: A Successful Operation of Lithotomy in the Horse. THE DAIRY: Making Cheese from the Milk of a few Cows. POULTRY YARD: Artificial Incubation in China. Fowls of the Barn-yard. Rearing Chickens Artificially. THE HOUSEHOLD: Homedale Farm. Are You Vaccinated? How to Cook and Make Sausages. Our Receipt for Curing Meat. THE APIARY: Management of the Apiary for January. CORRESPONDENCE: Beech Nut Pork. Black Leg in Calves. Short Horn Herd Book. Grape Growers' Society. THE NEW VOLTAGE. BOUND VOLUMES. EDITORIAL: The New Year. New Features in THE CANADA FARMER. The Canadian Bee-Keepers' Guide. Rinderpest in Sheep. Rodden's Patent Snow Shovel. Imported Stock. AGRICULTURAL INTELLIGENCE: Notes of an Agricultural Tour. Gleanings from the Little Falls Farmers' Club. A Largo Crop of Mangolds. Sleep Worrying. An Alderney Cow. Growing Tea in America. Iceland Corn Crop. HORTICULTURE: The Clinton Grape. Yellow Flowers. Time for Pruning Apple Trees. Rotation in the Garden. How to raise Peaches every Year. The Crocus. The Proper way to deal with Bulbs. An Arabian Laughing Plant. How to Plant a Tree. Some Hints on Orchards. Verbenas. Plants for Hanging Baskets. Muck Water for Indian Crops. CANADIAN NATURAL HISTORY: The Beaver, with a splendid Illustration. BRITISH GLEANINGS: International Horticultural Exhibition. A Clerger Fox. Unhoused in Glasgow. Condition of the English Farm Labourer. The Sewage Plant. A Sabbatarian. The Use of Saw-dust as Litter. The Rat Invasion at Invermar. Drought in South Australia. A Canadian Marmot in a London Collar. The Cat Rinderpest in Forres. MISCELLANEOUS: Agricultural Regions: The Wealth of Heat. Philosophy of Hanging. Artemus Ward's Experience as a Farmer. Backbone People.

Oats quiet, at 30c to 32c. Rye 65c to 66c. Provisions—Improving; Butter from 15c to 18c for keg; choice dairy, 18c to 20c. Cheese—American prime, 14c to 15c. Eggs—market steady, with fair supply, selling at from 18c to 20c for packed; 20 to 25c for fresh. Hogs—selling at \$7 00 to \$7 40 per cwt.; pork quiet; mess, \$20 to \$25 per brl; prime do., \$19 to \$21. Hay—from \$8 50 to \$10 00 per ton. Live Stock.—The market is moderately active and prices are firm. The figures here given are offered by the butchers and drovers in this market per 100 lbs., dressed weights.—Cattle, 1st Class, \$6 50; do. 2nd class, \$5; do. inferior, \$5 to \$5 50. Calves, \$5 to \$6. Sheep, prime heavy, each, \$5 to \$6, do. light, each, \$4 to \$4 50. Lambs, each, \$2 50 to \$3. Fat—Apples, farmers' packed, \$1 50 to \$2 50; good shipping barrels, \$2 to \$4. Montreal Markets, Dec. 27.—Flour—Receipts 1,800 barrels, market quiet and steady, with little doing; extras and fancy, nominal; superfine, \$5 25 to \$5 75 for No. 2; \$4 90 for fine; \$4 25 for middling; 4 bags, at \$2 75 to \$2 95. Wheat, corn, peas and ashes—no sales. Dressed Hogs—weather unfavourable for sales. Confined to retail lots at about 7 1/2c to 7 3/4c. Guelph Markets, Dec. 29.—Fall Wheat, per bushel, \$1 10 to \$1 20. Spring Wheat, 92c to 97c. Oats, 27c to 30c. Peas, 50c to 53c. Barley, 60c to 68c. Hides, per 100 lbs., \$2. Beef, per 100 lbs., \$5 to \$6 50. Pork, per 100 lbs., \$7 to \$7 25. Straws, per load, \$3 to \$3 50. Hay, per ton, \$8 to \$10. Wool, per lb., 40c to 42c. Eggs, per dozen, 10c to 12c. Butter, per lb., 15c to 16c. Apples, per bushel, 75c.—Herald. London Markets, Dec. 29.—Fall Wheat—Inferior, \$1 to \$1 05; ordinary samples \$1 12 to \$1 20, good to extra \$1 30 to \$1 40; Spring Wheat \$1 05 to \$1 08. Barley—bright malting, 65c to 68c. Peas—Sound white 60c to 55c. Oats 26c to 28c. Corn, 62 1/2c to 66c. Buckwheat 40c to 45c. Flax seed \$1 60 to \$1 75 per 60 lbs. Butter—prime dairy, 20c; No. 1 store 16c to 18c; fresh, by the basket, 20c. Dressed hogs, \$1 to \$1 50 per 100 lbs.—Free Press.

Advertisements.

1866.

THE CANADA FARMER; A FORNIGHTLY JOURNAL OF AGRICULTURE, HORTICULTURE, & RURAL AFFAIRS.

This Journal is about to enter, under the most favourable auspices, on the third year of its existence. It has amply fulfilled the hopes of its well-wishers. It is now universally acknowledged to rank among the best agricultural papers of America, and to supply just what was needed for the improvement and development of Canadian agriculture. During the past year, a department for BRITISH GLEANINGS has been introduced. Special attention has also been given to ENTOMOLOGY, a subject of great importance, in view of the losses occasioned of late by the farmer's insect enemies. These features will be continued, and in addition to them the following new ones:—1. A series of articles on the philosophy of farming, to be entitled: FAMILIAR TALKS ON THE PRINCIPLES OF AGRICULTURE. These will explain in a simple and practical manner the why and the wherefore of agricultural operations, and will form, when completed, a valuable farmer's manual. 2. A natural history department, consisting of descriptions of Canadian animals, birds, reptiles, and fishes. Life-like illustrations will accompany these articles. 3. Under the head of THE HORTICULTURIST, a series of articles on farm and garden management, with a special view of interesting the boys and girls in moral pursuits. 4. In compliance with the wish of a large number of subscribers, a table of contents will be furnished in each issue. A very large sum has been spent on illustrations—larger than in any other similar publication—and this feature of the paper has been exceedingly attractive to all classes. Efforts will be made, during the coming year, to secure as much variety as possible in this department, and no expense will be spared where the labour of the artist and engraver can aid in making clear any agricultural or horticultural subject. THE CANADA FARMER remains under the same editorial management as heretofore, and all the utmost pains will be taken to add to its corps of contributors and correspondents.

MILLER'S

Infalible Tick Destroyer, FOR SHEEP.



A CERTAIN cure for Tick, and all skin affections in Sheep. No flock master should be without it. Prepared only by HUGH MILLER & CO., Chemists, Toronto. v3-1-11 Toronto, Jan. 1.

SITUATION WANTED.

A THOROUGH PRACTICAL GARDENER, or GARDENER and STEWARD. A married man (English), age 40, fully understood in his business, and highly recommended. Address T. FARRANT, Georgeville, Lake Metapho Magog, E. T., Canada. v3-1-11 January 1, 1866.

A YOUNG STALLION!

AND

AYRSHIRE CATTLE FOR SALE.

THE Subscriber offers to sell a splendid Young Horse, coming 3 years old, "dark chestnut," perfect symmetry, action, and temper, nearly 16 hands, the very picture of his grand sire "Suffolk Punch," and out of a mare, part thorough-bred, and "Old Sovereign" blood. His general appearance indicates strength, action, and durability, is in perfect health, and without a blemish.

Also a one year old Ayrshire Bull, several Young Cows and Heifers, Bull and Heifer Calves, with certified pedigrees.

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Markets.

Toronto Markets.

"CANADA FARMER" Office, Jan. 1, 1866.

We have little to say about markets, for there have been few transactions. Our merchants seem to have laid aside for the present the cares of business life, to devote themselves entirely to the more pleasing, social duties connected with Christmas and its festivities. In the absence of transactions prices must be considered merely nominal.

The cattle market has been thronged during the past fortnight, and the Christmas show of meat is said, by competent judges, to have been inferior to no market for many years past.

Flour—nominal, no demand, and few transactions, No. 1 \$5.00, Extra, \$6.00 to \$6.25; Double Extra, \$7.00 to \$7.50. Fall Wheat dull at \$1 to \$1.25. Spring Wheat—Sales at \$1 00 to \$1 05. Barley—prices ranged from 60 to 65c. Fat quiet, at 65c to 60c.