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FARMER'S ADVOCATE

AND HOME MAGAZINE

VOL. XVI.

LONDON, ONT., AUGUST, 1881.

NO. 8.

REGISTERED IN ACCORDANCE WITH THE COPYRIGHT ACT OF 1875.

THE EXHIBITION NUMBER

—OF THE—

Farmer's Advocate

AND HOME MAGAZINE

FOR 1881

WILL BE ISSUED ON OR ABOUT THE
21st SEPTEMBER NEXT.

60,000 COPIES!

Our fifth annual issue of this fast increasing and most successful advertising medium will be the best one ever issued. While thanking our patrons of former years, and the patrons of the ADVOCATE, for their confidence in our endeavors to promote their interests, we can assure them that our endeavors will not be relaxed, and that the increased facilities now in our hands will be used to the utmost for their benefit.

The circulation will be carefully divided among the leading farmers throughout the Dominion.

Prospectuses will be issued on the 15th July, and space can now be reserved.

Send for a Circular at once.

Premiums at Fairs.

In a large number of cases it is not the money value of the premium that gratifies the recipient. It is the fact that a premium was given at all. Now that fair prize lists are being—or should be—considered and published, we would suggest to those having the matter in charge, that a number of societies offer as premiums a year's subscription to the FARMER'S ADVOCATE AND HOME MAGAZINE. Those who have done this in a small way at first have found it so satisfactory that they have added to the number of premiums of this kind, and this custom is increasing. Such premiums do vastly more to promote the objects of the society than mere money prizes. Aside from the fact that one cannot fail to be greatly benefited by the teaching of the FARMER'S ADVOCATE AND HOME MAGAZINE, its regular coming once a month is a frequent reminder of the society and its fair, and thus the interest of the recipient of the prize in the fair at which it was given is kept alive the whole year. If the officers who have yet to arrange their premium lists will think of this matter, they will see that they can in no other way make the money at their disposal go so far, and at the same time do as much good, as to award a large share of it in the manner suggested.

FAIRS FOR 1881.

Several announcements of Fairs, with the prize lists, have already come to hand. We would suggest to the different societies to fix their dates as early as possible and issue their prize lists at once. Forward a copy of the list to this office.

On the Wing.

KIRKTON CREAMERY.

In the latter part of June Mr. J. S. Pearce, of this city, invited us to join him in a trip to the above-named factory. Twenty-two miles per G. T. R. to St. Mary's, and a ten-mile drive into Perth, took us to the factory, a neat frame building painted white, having green Venetian blinds on the windows. Instead of looking like a factory, it appeared like a neat little two-story house. We entered. The churn was in motion—a Blanchard. The sweeps, only two in number, were turned in the churn by a small steam engine. At each revolution the sweeps or dash might be distinctly heard giving a sound very similar to the sound of the old dash churn in slow motion, giving apparently a short rest between each stroke, but the motion is steady.

Mr. Geo. Browning, the manager of the factory, informed us that he never liked to produce the butter in less than one hour, and oftener he preferred to churn for one and a half hours, depending on the state of the atmosphere. He could produce the butter in a short time if he chose, but from his experience he finds it requires the time above mentioned to produce the best results. He informed us we had better get our dinners, and then watch the butter taken off the churn; so we left the churn in operation and went away for about three-quarters of an hour. On our return the butter was just ready to be taken from the churn. On opening the churn we were surprised to see the butter all in floating particles; we had expected to have seen it in lumps, as in most farm houses. Mr. Browning, with a ladle, took the butter from the churn and placed it on the working table. As he piled up the butter in a heap, each ladle full would roll open, showing the little bright globular-shaped particles, and having an effect similar to that produced by piling sugar, sand or grain in a heap. In this state we thought we had never seen butter look so rich, pure and nice; the globular appearance of the butter resembled a cauliflower head, excepting that the butter in this stage has the most beautiful golden or rich straw color, too beautiful to be described. The buttermilk would gradually run down after each additional ladle full of butter was placed on the pile. Mr. Browning we noticed handled the butter most carefully; he would not press it in the least, or it would stick together the same as all or nearly all farm-house butter will when taken from the churn. This careful handling preserves the natural grain of the butter, which grain is worked out or destroyed by the handling of the majority of farmers' wives and daughters.

The churn being emptied of the butter, a large, long, octagonal worker is attached to the lower end of the butter table. This Mr. Browning gently presses on the butter, holding the handle of the

worker with one hand; in the other hand he has a large dipper, from which he pours water on the butter. After one pressure of the worker, the table is placed in a slanting position: thus the water is constantly running off the butter, taking with it all the buttermilk. When the buttermilk is properly worked out of it, it is salted and laid away to be re-worked after a few hours, then packed in the firkins, and then placed in the store room, which is a nice cool room having a brick floor, as has the whole of the building. We inquired if concrete or asphalt would not make a better floor. Mr. Browning said he once thought so, but he found that the salt and water and the drip from around the working table would soon rot it away, therefore he preferred the brick floor.

When in this factory we learned a lesson. We had thought that there was no butter as good as fresh butter, but Mr. Browning will not let his butter go into consumption until it is ten days or two weeks old. Butter, we find, is like cheese; it must be kept to bring out its flavor in a proper manner. We tasted the new-made butter, then that a few days old, then that which was ripe. We never could have credited the difference, which is almost as great as that expressed in the old adage between "chalk and cheese." We ask our lady readers to try this. Keep your new butter from ten days to two weeks before you eat it. Just try the plan once, and give the FARMER'S ADVOCATE the credit of this hint when you are discussing the merits of your butter with your neighbors; when you are as well satisfied of its truth as we are, keep your butter ten days or two weeks before you supply your customers or before you exhibit it. You will gain in reputation and in wealth by careful attention to the above, and gain another march over those who say they know everything, that agricultural papers are of no use to them, or they cannot afford one dollar per annum for such.

In making your butter be sure not to smear it, as some do. Mr. Browning uses the Liverpool salt, and puts it all through a sieve before using it. He intends to give the chemically-prepared Goderich salt a trial this season.

When at the factory one of the cream gatherers trotted up in a covered buggy or light spring wagon, with a good top covering both the cream cans and the driver. How easy and comfortable this appeared when compared to the lifting and hauling generally done when delivering the milk at the factories! They use a peculiar can for setting the milk. We visited two farmers to see the process and enquire how they liked the plan. Those we spoke to were delighted above measure with the new plan, which is as follows: the cans are made about two feet high, rather larger in circumference than a good pail. They are made of tin, and have a hollow tube running through the centre. The cans are placed in water-tight boxes, and cold water is poured through the tube

in the centre of the can until the cans are nearly covered with water. Ice water is best, as it is upon the coldness of the milk that the rapidity of the rising of the cream depends. When properly attended to the cream rises off the milk in four hours. There is a glass gauge and a measure placed on the side of each can, so that the buyer and seller can both see how much room there is. The size of the can is computed so as to give on an average one pound of butter for one inch of cream. We believe this plan of raising cream rapidly in hot weather will be a beneficial one for many to adopt.

The farmers at Kirkton united and erected the factory. The cream is only gathered at this factory, and the farmers have the sweet milk at home for pigs and calves. The price procured for the factory butter was 22c. per pound, while the farmers' butter sold at the same time only realized 17c. There are some patents out on different cans for the rapid rising of the cream. Our opinion about them is that excepting in our hottest weather or in hot climates, the old English plan, 36 and 48 hours' setting in shallow pans will be found the best. No doubt we have much to learn. We may be called old fogies, but despite all the new plans we do not produce better cheese or better butter than were produced in our youth, half a century ago. But to handle large quantities to the best advantage in this climate, the factory system has done us good service and will still do better. Perfection is not yet attained either in our cheese or butter factories, but incomplete as they may be, we think them infinitely superior and more profitable than the old rule of thumb. We would like to see more of these creameries in the country.

A Drive in Westminster Township.

On the 6th of July a king of Canadian veterinary surgeons called at our office and invited us to take a ride to see the state of the crops. A shower had laid the dust; the rapid, luxuriant growth of everything at this season of the year is unsurpassed. The red cherries look tempting; the fragrance of the new hay and the fine fields of standing grain was pleasant. In some places the winter wheat is beginning to show a golden tinge, while the oats are just beginning to head out. Just the right time to see the country in its glory.

We called at Mr. W. Walker's. Mr. W. had been a country blacksmith and has ferged himself into a first class farm. The sight of his crops showed that although a blacksmith, he could produce crops and keep his place in such order that he was a pattern to the old slow coaches. Mr. W. is a native of Scotland, and the Lowlander set a pattern and is in reality a good school-master for farmers in his vicinity. We entered his house; the Marquis of Lorne and Princess Louise decorated his walls in place of the miserable red and yellow cheap chromos that are found so often in Canadian houses. Mr. Walker was in the act of putting a steel point on his gang plow when we went there. He felt proud in the success he had attained over his neighbors in getting a fine grove of pines to grow. The slow coaches had said they would not grow in clay land, and that he was a fool for planting them; but he had by practical demonstration convinced them of their mistake. It will be only a matter of time, and this township may yet be as well planted with trees along the road side as some of the concessions in other parts of Canada. On the whole we consider Westminster one of the finest agricultural townships in Canada; and taking into consideration the position of the township, it is the worst for road decorations. Let any one drive along the road from London to St. Thomas and they will be satis-

fied of this fact. But Mr. Walker has set them a pattern to follow in this respect.

After attending a sick cow at Mr. Walker's, Mr. Rudd (our veterinary friend) drove to his farm. Mr. Rudd takes some pride in his farming also; he has an excellent farm of 147 acres, which he got when in a rough state—we may say doubly rough state, for the former proprietor had received it and other property to the amount of about \$20,000, from his father. He was talked into the lightning rod business, went in with the sharpers, and was fleeced. The farm was purchased by Mr. Rudd from the Sheriff, and also the household effects. Perhaps this should caution some of our young readers to avoid patent-right men.

There is a little rivalry in Westminster among some of the best farmers. Mr. Rudd thinks he has a little the start on his neighbors with his Centennial Oats, as he thinks them earlier. He feels satisfied with his wheat, hay and meadow land; but his barley, we must admit, looked heavier than any other barley crop we have seen this year. The land had been in root crop last year, but he attributes considerable of the success of this and other crops to the use of gas lime. This he purchases at the gas house in the city at the rate of about 25c. per ton, and applies it at the rate of about three tons to the acre. This he considers the best and cheapest manure he can procure. Perhaps some of our subscribers may profit by this hint.

Mr. Rudd considers he has as useful a Durham cow as anybody else. His favorite cow is a very large coarse-boned animal. She is capable of carrying a lot of beef, and as for breeding, we might expect to see as large an ox from her as ever was exhibited. Perhaps the most remarkable point about her is her immensely large muzzle, or mouth and nose. We believe in this point, though many fancy breeders will condemn it. We believe her muzzle is larger than that of any bull exhibited at any exhibition in Canada that we can remember. No fancy breeder would have her on that account, but Mr. Rudd prefers beef and milk to symmetry, and he says these qualities should be the first qualification for animals, and paper pedigrees the second. But by far too many have built or tried to build too much on pedigree without the animal, and instead of building up have tumbled down. He says that from the dam of this cow they have sold 14 lbs. of butter per week, from the end of May until the middle of August, besides supplying a family of five persons with all the milk and butter they consumed.

We next drove to Mr. Frederick Shore's. Mr. Rudd had a sick horse to attend to there. As we approached the residence there was an evident touch of refinement to be seen far in excess of the majority of the places we had passed. The approach to the house was through fine pasture land, through which runs a small stream. Fine old trees were growing here and there in clumps or singly, giving a fine park-like appearance to the place, under the shade of which were seen some fine large sheep and lambs; the top knots and length of wool indicated that greater care had been devoted to their breeding than the sheep we had seen on many other farms. On passing through the park we enter another gate and drive over the gravel road to the house, a comfortable brick residence. In the verandah we notice Coleuses, Fuchsias, Geraniums, etc., etc., making as fine a show as in a city conservatory. A fine mound surrounded with rock-work and filled with flowers graces the lawn, together with rustic seats and rustic flower-stands, the latter drooping with a profusion of flowers. A neat rustic seat below a hawthorn tree

reminded us of England's homes of beauty. In the entrance hall we noticed a nice engraving of our Queen. The comforts of life were plainly visible in all the surroundings. Such places as this is where peace, plenty and happiness appear to be found in the greatest profusion, and well might we say, "Who would not be a farmer?" A visit to such a place must do good to all who see it. The calm, peaceful, retiring comforts of such a home are not surpassed by all the glitter and gild of city display.

We leave this enchanting spot and call at the adjoining farm, the property of Mr. Thomas Shore. Here is another scene; the park even looks more beautiful. Here is a fine herd of large, well-bred Durham cattle—some standing in the stream, others lying, and others contentedly grazing under the shade of the old elm trees, each animal apparently rivalling the others in beauty.

Well, such a luxuriant scene reminds us more of the home of the Kirkleavington stock at Berkeley Castle, in Gloucestershire, England, than any farm we have yet visited in America. The old latticed, ivy-covered castle may be absent, but the old loyal British spirit of honor and admiration reigns in each of these homes that we have just described, just as strong as in the hearts of those who occupy the old Baronial homes of Britain at the present, and they are just as strong and as firm as they were in the days gone by.

Mr. Frank Shore, his fork in hand, is helping to secure the fine hay crop. Near by is a large field of corn, perhaps the largest and best in the locality; in this field we notice the Sulky Corn cultivator, the only one in the township. By this implement Mr. Shore is enabled to do twice as much cultivating in a day as any other man can in the township. Well, brains will tell. Adjoining this field is a field of winter wheat which is claimed to be the best in the township; the seed of this was imported from the States last year. Some farmers have not learned as much about the advantages of the change of seed as Mr. Shore has. Some old fogies say that they know just as well about farming as anybody else; agricultural papers are no good to them.

On each of the farms we noticed a good crop of apples. We also noticed that none of them took near the pains to prune their orchards that the farmers in the Annapolis Valley, in Nova Scotia, do. All through this western section the trees are allowed to have nearly double the quantity of wood on them that the orchardists in Nova Scotia allow to remain. The Nova Scotians are celebrated for their apples, and say that one bushel of fine fruit is worth more than four bushels of scrubs. The climate and richness of our soil may be offered as an excuse for the density of wood on our trees; but it is our impression that the pruning knife might be used to a greater extent than it is with profit to Middlesex farmers. Quality is what we should aim at.

Fall Wheat.

The usual questions are poured in on us—Which is the best kind of wheat to sow? Any new variety this year? etc., etc. We have heard of no new kind to be introduced this year; in fact many of the varieties that have been introduced as new varieties in previous years have been old wheats that have been in cultivation previously, and have run out or become apparently extinct. But they have been cultivated in some localities perhaps thousands of miles away, perhaps in another country, and thus with apparently a new vitality given by the climatic change, have been brought into general cultivation again. This climatic change has a most astonishing effect on

wheat and potatoes in America. For instance, where is the Blue Stone and Soules wheats? Where are the Pink Eye and Peach Blow potatoes? These were the best varieties known a few years ago, and perhaps may in a few years take their places as the best varieties again; but should they do so, they would be introduced under a new name. In the State of Ohio, in the vicinity of the Iron Mines, the Democrat wheat was originated; from there it has spread, and as a hardy, productive wheat, of the best milling qualities, in our opinion there is none to surpass it at the present time. This we say judging from what we have seen, heard and tasted. It is a bearded variety and of an amber color. We have seen it growing on Mr. F. Shore's farm, in Westminster township; Mr. S. thinks his is the best field of wheat in his township. Others speak very highly of it. Still as it resembles an old variety so closely, we should be inclined to take it for an old variety were it not claimed that the originator was a careful person, and some Americans claim there is a difference in the grain.

The Democrat wheat we first introduced into Canada last year. The old Scott wheat, beardless and having a white chaff and a red grain, is a safe, reliable wheat that makes excellent flour. These two varieties we consider will, on an average, be found unsurpassed, taking all things into consideration. The Fultz wheat some claim to be equal or superior to the above varieties. It is a good wheat and should be tried. The Clawson we consider the safest white wheat to sow, but as the flour is not of as good a quality as that made from the wheats above mentioned, we do not commend it. The weakness of the flour made from the Diehl wheat has undoubtedly tended to reduce the standard of our flour. The Gold Medal, Victor or Soules varieties do not appear to gain in favor.

If you have the Michigan Amber, the Silver Chaff, the Mediterranean, or any other old variety that is doing well with you, by all means sow it. Any fresh variety should be introduced with caution.

Agricultural Education.

In a recent number of the FARMER'S ADVOCATE we urged our educational authorities to introduce into our common schools the elementary principles of those sciences with which agriculture is so intimately connected, and that in grounds attached to our school house the pupils should become conversant with the principles of horticulture, forestry and botany. The subject is, we find, attracting attention at the great centres of education in Great Britain. One of the topics of the highest importance brought before the meeting of the Royal Agricultural Society of England was that of instruction in the rudiments of agriculture in primary schools. The committee of the society had received letters from Canon Girdlestone, one of the most eminent educational authorities of the age, and from Mr. Williamson, of Harrow, that venerable seat of learning, the first on teaching the knowledge of common things in agriculture, and the second on teaching the elements of gardening in primary schools.

That practical agriculture can be most thoroughly learned on the farm, and from a farmer who knows and practices it, we have always maintained, and we also assent to the views expressed by Canon Girdlestone, "that it is very desirable that reading books on the common things connected with farm labor should be used in rural schools, and that a knowledge of these should be added to the special subjects, for which a grant may be obtained." We would not by any means deprive the pupils of the opportunity of acquiring general in-

formation. Such opportunities they now have; but why, we ask, should even the rudiments of a knowledge of those subjects that will engross their energies during their approaching manhood be excluded from their early education? It is justly insisted on that there should be provided suitable class reading books on farm life, which would be read as a matter of course by those young people, who would in a very few years be the farmers, the yeomanry of the country, and on whose present education and training the prosperity and independence of the Dominion will mainly depend.

In our High Schools and Collegiate Institutes the pupils are now trained in the rudiments of military discipline, thereby marking the country's recognition of the great advantages to be derived from an early education preparatory for possible future events. How much more practicable and really useful would it be to make our common schools subsidiary to the science and practice of agriculture, that is certain to be the life-long pursuit of the great majority of our Canadian youth.

This agricultural education would not be wholly limited to the elementary books. The teachers would be able to make it more practical. Many of them at present have some knowledge of the science, and they who have not would soon acquire it so far as to enable them to impress on the minds of the pupils the lessons studied.

At a meeting of the committee of the above mentioned society a fear was expressed that an attempt would be made to give technical education, and that the best education boys in the rural schools could have was a good general education up to 12 years of age, and then go to work. The idea that such a measure as we propose would not be of universal utility is entirely baseless. Even in the employment of farm labourers we all know the superior advantage of employing skilled labour; and surely none can deny the much greater necessity for the employer of labour to be master of his business than for the mere workmen. For the farmer as well for persons in other professions a good education in all that pertains to his business is as advantageous, we might say, as necessary, as a sufficient capital.

Let there be demand for such elementary school books as will direct the young enquiring mind in agricultural pursuits, and they will be soon forthcoming, the demand will bring the supply; so have they found it in England, so would we find it here. Canon Girdlestone, who has been prominent in this progressive movement, has been in communication with an eminent firm of publishers, and they have under consideration the bringing out of books suited to the requirements of the case.

Let our Boards of Education take up this subject; Canada, always eminent for her educational system, let her in this matter, pursuing the example of England, make her education more practical, that it may bring to maturity the fruit it is so well qualified to bear.

English Letter. No. 28.

[FROM OUR OWN CORRESPONDENT.]

Liverpool, July 20.

The other day I called on your respected government agent here, Mr. Dyke, and found him excessively busy preparing and arranging samples of cereals, natural grasses, soils, woods, &c., &c., from various parts of the Dominion, and intended for exhibition at the Royal Agricultural Show, which is to be held shortly at Derby. I intend being present at the show, and shall make a point of jotting down anything that will interest your readers, and especially, of course, the Canadian stand, which will be to the right of the main avenue, and in a capital position. I have previously had occasion to point out the immense benefit of such exhibits; and those of you who have choice specimens of grain or any other natural products will be greatly strengthening Mr. Dyke's hands and doing a substantial service to the Dominion by transmitting samples to him for exhibition at the shows here during the coming autumn and winter.

English farmers are a hard-headed matter-of-fact race, and a good sample of grain or roots—anything which shows, in fact, what the country can do, is a more powerful argument in their minds than a cart-load of reports and statistics.

The season here continues moderately favourable. Hay making is now general throughout the southern and western districts, and wheat and other grains are gaining strength and shooting fairly well. The fly has been rather mischievous amongst the turnips, but otherwise farming operations in this country seem to be in a fairly good way. Unfortunately for them, however, outside competition is so severe that they can only just hold their own in the best of seasons, and when a bad one comes, there is no reserve from good years to fall back upon. No wonder, then, that the feeling in this country in favor of some measure of protection for home trades is steadily gaining ground. If Canada and our other chief colonies or dependencies could only be brought into a sort of commercial federation with the home country, to the prejudice and confusion of all outsiders, what a great thing it would be for them and for us! It would secure a magnificent market to you for all you had to sell; a good and growing market for our manufacturers, and afford a chance for the English tillers of the soil to get a decent living.

I am sorry to say that the cattle markets during the past month have been very unsatisfactory, and must have resulted in severe loss to the importers of Canadian cattle. As bearing on the above remarks, I should think a margin of say 20 per cent. in your favour, as against all outsiders, in the English markets would be good enough for you to give us free trade for all we could send you in return. Reciprocity is much abused here by those enlightened beings who think that we can go on forever on the principle of growing everything, and receiving nothing in return; but I am persuaded that the time is rapidly coming when our free trade must be limited to those who give us free trade in return, and I think the Dominion, above all others, will be supremely wise if it puts its affairs in order, so as to be ready to make the first and best bid when that inevitable day comes.

The present depression in the cattle trade is, however, in some degree due to the "cornering" of the trade last spring. The syndicate then formed engaged all the shipping then obtainable at very high rates in the hope of their being able to purchase cattle from the farmers at their own prices, whereas cattle are now being shipped from the Canadian ports by outside steamers at about 50 per cent. under the rates paid by the "syndicate." It will now have been proved to their satisfaction that a trade of such magnitude cannot be controlled by any clique; and perhaps it is better for all concerned that it is so. It may also be of interest to your readers to learn that although certain steamship companies have been receiving \$25 to \$30 per head, a rate which it is anticipated they will never see again, a prominent line of steamers running from Boston offer their available space for the remainder of this season, at £1 or \$5 per head from that port to Liverpool. The plain fact of the case is that a portion of the space occupied by cattle could not be utilized for any other purpose, and it is stated that stock has been brought across the Atlantic for the absurdly low freight of 15s. or less than \$4 per head.

I note by the Canadian papers that your farmers of the Maritime Provinces have been much agitated recently by the cattle and meat trade, and as an outcome of this agitation a very extensive order has been sent to Mr. Simon Beattie by parties at St. John, New Brunswick, for cattle, sheep and pigs, which are to be despatched immediately after the Royal Agricultural Show at Derby.

A shipment of several hundred bags of wheat was recently made from Manitoba to London (England,) consigned to the Hudson Bay Company, with the view of making its quality known upon the English markets. A portion of this wheat was exhibited by the Canadian Government agent at Liverpool on the Corn Exchange, and distributed among the principal millers and importers. They state that it is, without exception, the strongest sample of wheat ever offered in Liverpool, and that although the Californian wheat is of very fine quality, it lacks the properties which the Manitoba sample possesses in such a marked degree, rendering it exceedingly valuable for mixing purposes.

Sir Alex. Galt and family left by the Sarmatian S. S. on Thursday last, for Canada. I understand that he will proceed to Winnipeg, where he will be joined by his son, and will then make an extended tour in the North-west territory, visiting the Bow and Belly River districts near the Rocky Mountains, and returning by the Union Pacific Railway. Sir Alexander is expected to return to London about the middle of October.

The Ontario Agricultural College.

The distribution of prizes took place at the above College on the 7th ult.; a large number of visitors were present. Mr. Mills, President of the College occupied the chair. With him on the platform were the Professors of the College, Prof. Buckland, of Toronto; the Revs. Messrs. Howie, Panton and Westmacott; Dr. Bryce; Mr. William Johnston, ex-President of the College, and Mr. Jas. Innes.

Mr. Mills spoke highly of the students, and said the competition for the higher honors had been very keen, especially for the Governor-General's medal, which after a keen conflict had been awarded to R. J. Phin, of Waterloo. Out of the whole number of marks of 5,000 there was less than a difference of a hundred. Second, and close to Phin, was Motherwell, from Lanark, and third on the list was J. G. Ross, of Montreal. Close behind them came Ballantyne, of Stratford, and Grindley, of Montreal. He spoke highly of all these young men, whose ability and diligence reflected credit on themselves and on the institution.

The following students of the second year having passed successfully in all the prescribed subjects received diplomas: R. Phin (medallist), Motherwell, Ross, Ballantyne, Grindley, W. E. Phin, C. S. Dickinson, Robbins, H. Pope.

The Cankerworm and its Ravages.

A knowledge of the foe with which we have to engage in combat is of the greatest importance in warfare, and it is well on our part to make ourselves as thoroughly acquainted as it is possible with those hosts of insect enemies with which we have incessantly to contend in farming, gardening and fruit growing. When we are thoroughly conversant with their habits, we can with the greater certainty preserve from their depredations the fruits that we labour to produce.

There is none of the many insects which infest our fruit trees which equals the cankerworm in the complete destruction it works. We have recently read of the destruction caused by them in an orchard. The orchard was sixteen acres of as good land as could be selected. The trees were of few and choice varieties; they are of a good bearing age and are planted well apart. The orchard had before the inroad of the worm been paying a good profit for the outlay incurred, large shipments of fruit having been made yearly for some time.

The cankerworms made their appearance in the orchard about five years ago, and now the whole

aspect is changed; the luxuriant foliage the fragrant blossoms, the fruit bending down the boughs have almost wholly disappeared. When seen at a distance it seems as if a prairie fire had scorched almost every vestige of vegetable life. Examine it closer and you see the canker worm has been there. The branches, stripped of every vestige of green, are covered by the webs left by the worms. The withered remnants of the leaves adhere to the webs as they fall, the petioles having been gnawed off at the twigs. Almost all the trees have suffered, not one per cent. of them escaping, and these being on the outside of the orchard, the worms having worked out from the centre. Trees which have been attacked for several years are killed, and in the middle of the orchard there is a large area from which the dead trees have been removed. Many of the trees may bear leaves again this season, but there will be no crop of apples. It is doubtful if the proprietor will have in the orchard of sixteen acres enough apples for his own use.

What enemy has done such injury? The cankerworm, the caterpillar of a small insect or moth. The species that has ruined the orchard spoken of is the spring cankerworm; none of the autumn species were seen. The females of the moths from which cankerworms proceed are wingless. The males have antennae or "feelers," with a downy edging on each side; the wings are large and silky and when at rest the forewings entirely cover the hind wings; the forewings are ash colored, with a whitish spot on the front edge near the tip, and two irregular white bands crossing them with black dots along the sides and outer margin; the hind legs are pale ash with a blackish dot near the middle. The expanse of wings is about 1½ inch. The European species is smaller and darker than the American.

Early in spring the females creep up the trunks of the apple trees, having emerged from their winter quarters beneath the surface of the soil. Their ascent in the spring is for the purpose of depositing their eggs, which they place in small masses under the edge of the bark, in clusters of 60 to 100, the numbers usually laid by the female, and are attached by a water-proof varnish. The eggs are hatched in May, about the time of the flowering of the red currant, and the starting of the young leaves of the apple tree; the young worms creep into the buds and blossoms. At first they make but small holes, but afterwards devour all the pulpy part of the leaves of the tree. They do not confine their ravages to the apple tree, they prey upon the cherry, plum, elm and other trees. The worms vary considerably in color, even in the same species. After eating for about four weeks they begin to quit the trees on which they have fed; some creep down, but most let the bodies down from the branches by threads. They burrow immediately into the earth from two to six inches in depth, according to the nature of the soil, and are changed within twenty-four hours into chrysalids, the females being the largest. The chrysalis may remain till the following spring, or it may, in mild weather cease in the autumn. They come out of the ground mostly in the night. The females have no wings and bury themselves beneath the tree from which they descend; but accidents have extended them to remote localities. Their ravages are not very apparent till June, when they are most voracious. Preventing the cankerworm from ascending the trees to deposit their eggs is the most effectual means of exterminating them. For this purpose many methods have been resorted to. Viscid substances have been applied to the trunk on the bark, or on strips of paper or cloth. It is applied in November and removed daily as long as the worms come forth. Tin troughs filled with cheap oil a few feet above the ground have been tried with success on a small scale. Melted India rubber has been recommended in England. When the worms are on small trees they may be destroyed by dusting air slack lime

on them when wet with dew. Showering with a mixture of whale oil soap in water, in the proportion of one pound of soap to seven gallons, will kill the worms without injuring the leaves or the fruit. After they have entered the ground they may be killed by digging or ploughing under the trees. Scattering a few grains of corn and turning hogs into the orchard, they will root up and destroy the chrysalids. Every available means should be used to destroy the cankerworm; something can be done for that purpose throughout the year, merely except the period when the ground is frozen. They can be destroyed in their winter burrows; when emerging from the ground; when creeping up the trees; when feeding on the leaves; when descending from the branches, and on the ground before they have succeeded in concealing themselves. It has not extended its ravages much in Canada as yet, but it has made itself known in some instances, and it is necessary that we be prepared to meet its invasion. The Colorado potato bug invaded the Dominion from the neighboring republic, and we need not be surprised if we have to suffer from a similar invasion by the cankerworm.

Is the Crow Useful or Injurious to Farmers?

The crow is generally accused of being the cause of great mischief, robbing the ground of seed corn when sowed and committing sundry misdemeanors. But hear what a New England farmer says of him in the *Connecticut Farmer*:—

I know the crow does some mischief, but 25 cts. worth of tar will protect all the corn nearly any one in New England raises. Then can we do without them? They are good scavengers to help get rid of decaying animal matter that helps breed disease in hot weather, besides the thousands of worms and insects they destroy that are injurious to the farmer. This year I plowed an old pasture that had not been plowed in many years, the grass had partly run out and briars had run in; the land was very light and full of cut worms. I planted some of it to corn with the hoe and some I sowed for the crows. When planting I told the boys that the worms would be likely to destroy the crop if we were not after them often, but we put in seed on purpose for the worms and crows, and if all should grow the crows could some of eat it. I concluded that in going for the worms often we could see what the crows could do, for I knew they loved worms better than corn, and one day in going for the worms we scared off quite a number of crows thinking we must apply the tar, but in going through the corn we found a very few hills pulled, but found where they had scratched and pecked, in for worms even between the hills. I concluded to let them work, and we soon started the cultid vator and found but few hills missing; the corn stands well, and looks well.

A Russian Mulberry for the Western Plains.

Mr. G. F. Clark, of Beatrice, Nebraska, sends an interesting account of the promise of serviceableness afforded by a sort of mulberry brought by the Menonite immigrants from arid plains in Russia—the steppes of the Volga, in latitude about 49 deg. There this mulberry is the best source of wood for farm supply, and so valuable and indispensable that the new settlers brought along seeds which grow well and, like other sorts of mulberry, very rapidly when young. The full height of the species is claimed to be about 40 feet. As in other mulberries, too, the leaves of the seedlings vary in being more or less lobed; some of these are cut as much as those of any oak, and these varieties are propagated as trees for ornament as well as use. They will, no doubt, make pretty lawn trees, for the foliage and figure of all sorts of mulberry trees in unbroken health are pleasing. The fruit is said to be edible and good, but the pale mulberries are generally inferior both in size and flavor to choice specimens of the dark sorts.

Mulberry wood is very durable, although apparently open-grained and soft. Botanically it is cousin to the Osage Orange, also a very durable wood, and also having fleshy, yellow roots, soft but tough. Undeveloped mulberry wood was found by Mr. Layard in the ruins of Ninevah, and mummy cases of the same wood are still in the museums, still sound and fresh to the very chips. This durability renders the trees, even though small, very useful to farmers for stakes and posts.

Poultry.

Poultry Items for the Farmer.

BY R. A. BROWN, CHERRY GROVE, ONT.

Proper feed for chickens and all young poultry will make them grow fast.

We have been trying all kinds of food and fixtures. When a chick just emerges from the shell, hard boiled eggs or bread wet and crumbled finely are the best food for a few days; after a week or two they may be fed on a mixture of ground wheat screenings, corn meal, and whole buck-wheat, or whole wheat screenings added, and enough fresh water to slightly dampen this mixture, I have found this to be the best food for chicks and all young growing fowl from a week old up to full grown. I always mix fresh twice each day. I feed in a long trough which is placed in front of their coops on the grass, which I have placed out at a distance from all buildings and fences, in order to be free from rats and other vermin which are to be feared.

Always keep fresh water near, as all poultry like to get a drink immediately after eating; especially ducks and goslings will take a few mouthfuls of food and then of water, so it is necessary to have sufficient water troughs handy by.

Young turkeys want to be carefully watched and given extra feed now, just when shooting the red, as that is the most critical period of their lives. Sometimes at that stage of their lives, if neglected, they will die off by scores and the owner does not know what is the matter. Such are at the age of puberty, and need twice the care and feed for about two weeks, after which they may be allowed to roam over the fields in search of insects at their own "sweet will"; but all should be looked after every night and well fed before going to roost, the same when coming off in the morning.

Old hens want fresh water once or twice each day, and require it more now than in winter; this hot weather all fowls get thirsty the same as any other animals; but hens that are laying require more water than when they are idle, for there is nearly one third of an egg made up of water, so do not expect hens to lay eggs when composed so much of this element on dry rations of small wheat or dry corn. Eggs are a good price; this year they have never been lower than 12 cents per dozen in St. Mary's, and are now eagerly sought after at 15 cents. I presume that markets are equally as good everywhere in Ontario. It will not pay for the farmer to put his fowls on short rations. The better hens are fed the better they will lay, and be of more profit to their owners. Young chicks ought to be well looked after and pushed ahead; there is going to be a good demand for them this season; the prices are higher now than they have been for a number of years before at this season of the year.

Those intending to exhibit any poultry this fall had better commence now to make the little combs grow to large ones by extra feed. Keep them healthy by keeping their apartments neat and clean.

Selection of Breeders.

There is much in the selection of the cock for breeding purposes; the quality and the proper number of hens to be given the cock are very important matters to consider.

To breed good fowls of any of our improved breeds is no child's play, but on the contrary requires study, skill and close observation. The cock, in all cases, should be a model of his class, of good size, perfectly healthy, bold and lively, clean made, with close, glossy plumage and a bright eye. He should be broad-breasted, his thighs muscular and firm, should carry himself with a proud yet graceful air, and exhibit the distinctive characters of the breed to which he belongs.

The good qualities of the hens, whether intended for laying or breeding, are of no less importance than those of the cock. They should be chosen to combine generous size, color even and pure, of good constitution and symmetrical form. From among their product, select the best pointed and most perfect in general characteristics for future breeding, and you will be largely successful, as a rule, in the end.

Hints to Amateurs.

Every spring and fall a large number begin rearing poultry. Some try one breed and some another, but in this respect taste generally dictates which kind to get.

We admire the young poulterer who is governed by taste in the choice of poultry stock. It is much better and safer than picking up fowls in a haphazard way. Taste is usually accompanied with a love for fowls, and every experienced person knows that a real love for the birds you keep is a great element of success, for the kind and loving keeper is always zealous for the well-being of his stock, and will not wilfully neglect them, though he may injudiciously feed them.

Begin in spring or fall, but begin slowly and surely at first and learn by degrees the art of caring and feeding; and when these are mastered, if you have suitable accommodations, you may increase your stock. We advise you to make the keeping of poultry a secondary pursuit in the beginning, until you have every reason to know and show that you have found in it a more agreeable, pleasurable and better-paying occupation than the one you first followed.

Begin with good breeding stock, although you may have to pay a big price for it. You must remember that this is like putting your money to good interest. As you get started, their care or keeping will cost you no more than if keeping common stock, and the profits from the sale or use of the eggs, besides the value of their progeny, either for ornament or utility, is much more than from the best of the common sorts.

Veterinary.

Urticaria—Nettle-rash in Horses—Surfeit.

BY JAMES LAW, F.R.C.V.S.,

Professor of Veterinary Science, Cornell University.

Among the skin eruptions of horses, none is more sudden in its appearance, and to the inexperienced more threatening, than the so-called *nettle-rash*, or *surfeit*. Though it may occur at any season, yet summer is the season *par excellence* of its development, mainly because this is the time when abrupt and extreme changes in food are made, and when the system generally is relaxed by the heat, and the tone of the digestive organs and the powers of digestion are more or less impaired. A suggestion of this last named cause—lack of appetite and tone—is obtained from the habit of feeding stock in winter. If the cold is steady and even, the appetite is good, more food is consumed, and more flesh is gained in a given time. If, on the contrary, a *cold spell* is succeeded by a *thaw*, or if these two conditions frequently alternate with each other, appetite fails, the digestion is impoverished, the food remains uncared-for in the manger, and the gain is but slight. The failure is not altogether due to the heat, inasmuch as that in the steady warm weather of summer cattle on rich pasture will gain steadily and rapidly, and the more so that there is less outlay for the maintenance of animal heat. It is the sudden transition rather than the mildness of the season that makes the difference. The power of bearing heat or cold is to a large extent a question of habit. If the animal system has been exposed for a length of time continuously to a certain temperature, be it high or low, its habits or powers accommodate themselves to that temperature, and it can resist its evil effects with far greater certainty than if suddenly exposed to this temperature from the extreme opposite one. William Edward's experiments on frogs in winter and summer showed that when subjected to the same low temperature in winter and summer respectively, the heat of the body was lowered further by several degrees in the latter season than in the former. The same cause operates upon man and beast alike in producing the general *malaise*, or *spring fever*, so common on the return of mild weather. True, in

animals there is the additional disturbance attendant on the shedding of the winter coat and the growth of the new, which makes a severe drain on the system, and renders the skin specially sensitive and irritable. Nor should we forget the effect of a thaw or sudden rise of temperature in setting free frozen or chilled organic matter, in passing it into putrefactive fermentation, and developing hurtful gases, that lower vitality and undermine health. In a summer like the present, when great heats alternate with unusual cold, most of these conditions operate with unwonted effect, and the systems of men and animals are laid open to diseases of various kinds to an unusual extent.

With these preliminary considerations we are prepared to comprehend how slight changes of diet and irregularities of digestion should at times induce such alterations in the blood, and secretions of the skin, as will give rise to inflammation and eruption. Very many diseases of the skin, which are more tardy in their development and more persistent, are directly connected with indigestion, and are only to be cured by correcting the function of the stomach. These are mostly connected with persistent mistakes in diet or work, but in *urticaria* it is the sudden extreme and transient change of diet, work or temperature that produces the speedy derangement.

A change from dry feeding to grass, or above all to soiling with green clover, rye, corn, esparcet, alfalfa, &c.—a sudden change of diet to new hay or oats, to grasses run to seed but not yet fully matured nor cured—to partially ripened tares,—will often lead to such disorders as produce the sudden skin eruption.

The subject becomes somewhat feverish, the temperature is raised, the mouth gets to be dry and clammy, and there appear on different parts of the body swellings varying in size from a bean to a walnut, standing out abruptly from the skin and not gradually sloping off to the sound integument, as in ordinary inflammation. When handled these swellings are only slightly tender, and are felt to make one body with the skin, neither standing out on its surface nor rolling beneath. When very extensive many run together into one great patch, so that the whole side of the chest or abdomen, the thicker portions of the limbs, or the head and neck, may have the skin increased to an inch in thickness. When this happens to the head, the swelling of the lids may close the eyes, the thickening of the nostrils may threaten suffocation, or that of the lips may render it impossible to take in food or even to drink without the greatest difficulty. These swellings are often as evanescent as those of *nettle-rash* in the human subject, and may appear, disappear and reappear in the course of a single day.

The prevention of this affection consists mainly in avoiding the sudden changes of diet, in withholding all partially ripened but imperfectly cured hay and grain, in making all necessary changes by slow degrees, to allow the system to habituate itself to the new food, and in special care at the seasons of moulting and growth of hair.

Treatment consists first in the clearing out from the bowels of any irritant food by a smart purgative, as 5 drachms Barbadoes aloes, or 1 lb. glauber salts, and following this up with teaspoonful doses of carbonates of potassa or soda, repeated morning and night. To improve the lost tone, the following may also be administered twice a day:—Powdered gentian, $\frac{1}{2}$ oz.; powdered nux vomica, 10 grains; sulphate of iron, two drachms. As a rule the swellings will disappear as soon as the physic affects the system, and even before the bowel evacuations become loose and copious; yet there is left a susceptibility and lack of tone of the stomach and skin, that is best corrected by the employment of the second prescription.

It is, of course, all-important to thoroughly correct the diet, with a view of the immediate and permanent relief, as otherwise all medicinal measures will prove futile. A few soft bran mashers are often useful until the lost tone of the stomach has been restored, after which the horse may be returned to sound oats and hay, or more gradually to grass.

Dairy.

Creameries for Ontario.

BY PROF. L. B. ARNOLD.

It is but a few years since the prairies of the West were of all places on the continent the most notorious for bad butter. Now the West and Northwest rival the best localities in the East in the excellence of their butter product. The change which has come over the character of Western butter is due to the introduction of creameries—a result common to their introduction. Wherever the co-operative system of butter-making has been adopted similar consequences have followed invariably, though not always in so marked a degree. It is not because as good butter cannot be made in families as in creameries that the average product of the latter so much excels that of the former. It is because the latter are conducted by trained experts, who are provided with the best facilities and most approved apparatus for doing the work, while in families butter-making is generally but one of a thousand household duties to share the attention of the housekeeper, usually with but poor facilities and little or no training.

Butter-making in Ontario now approximates somewhat the former condition of that art in the West. Its general product is heterogeneous in quality, and the average character is too low. There are localities and individuals here and there that have devoted special attention to butter-making, that turn out goods fine enough to grace a royal table. These examples stand out in bold relief as indications of the capacity of the Province for assuming a high standard in the butter-making world. What is wanting is the introduction of creameries. In these there is now a sad deficiency, there being but very few yet introduced. I have seen enough of Ontario to know positively that there is no good reason why it may not reach the highest pinnacle of fame in the production of butter. Grass is nowhere sweeter or more abundant, and nowhere does it retain its freshness for a greater portion of the season, and water is everywhere plenty and good. Nature has done all that is necessary, if dairymen will only do their part as well.

The co-operative system of cheese-making, coupled with an application of the best skill and intelligence and enterprise, has given to Ontario a proud distinction for the excellence of her cheese. No better cheese is made on the American continent than is now annually turned out of the factories of Ontario. The same distinction might as certainly be reached in the production of butter if the same skill and efficiency were applied to that branch of the dairy industry.

To make such an advance, the co-operative system must be applied the same as it is in cheese-making. It can never be attained by the slack and unequal skill which prevails in private dairies. Whenever the creamery system is adopted it will be found that an improvement in quality, and consequently in price, will speedily follow, with no increase of cost in the manufacture. This should be a sufficient inducement to strive for them.

In the States the existence of creameries has proved a great controlling agent in regulating the relative production of butter and cheese. So many factories contain both cheese-making and butter-making apparatus, that they can easily change from cheese-making to butter-making, or the reverse, to such an extent as to prevent a very excessive production in either. Whenever a given quantity of milk will net more turned into butter than it will made into cheese, it is converted into

butter; but if cheese nets the most, it goes into cheese. This easy change from one to the other is often the occasion of larger returns to the dairyman than he could otherwise obtain. The aggregate profits of dairying are thus increased, and the annual returns rendered more certain and even. The dairymen of Canada may as well avail themselves of this advantage as their neighbors in the States, and it would be very gratifying to see them do so. Co-operative butter-making is the necessary agent to effect such a result.

Cream Gathering vs. Whole-Milk.

This important subject, which is bound to revolutionize our dairy system, and which will be a god-send to the producer and consumer alike, is attracting the attention of all our enterprising dairymen, both East and West. Prof. H. E. Alvord, one of our most prominent and reliable dairy writers of the day, has made a thorough investigation of the system of cream gathering, and in an article to the *Country Gentleman* on this all-important subject, says:—

Those who object to the Fairlamb creamery system, say that where the cream is separated on the different farms, with more or less variation in the conditions, it is impossible subsequently to gather and mix the cream, and then make from it a butter of as high grade as where all the milk is received at the factory and controlled by the butter maker from the time of cooling. Hence it is broadly asserted that the cream gathering plan results in butter of at least second grade. There is doubtless some truth in this, theoretically, but the position cannot be sustained upon a practical test under average conditions. A close comparison of this newer system, with the whole-milk method, is very favorable to the former.

If the milk could always be delivered promptly at the factory, in perfect condition, and thenceforward be treated with entire uniformity and the utmost skill, the butter produced might be expected to be a finer article than if the same milk were handled on the Fairlamb plan. But there is no certainty of the milk reaching the factory in such perfect condition, in the case of nine creameries out of ten, where the whole-milk is received. Take an average example, an "all-the-milk" creamery with fifty patrons. The rule is that the milk from fifty scattered farms is handled by more than fifty different persons—and just about as they please—before it reaches the creamery. Regulations there may be, but no enforcement, an inspection of the farms of the patrons by a factory official being exceptional. On the cream-gathering plan there is no miscellaneous hauling and handling of the milk; it remains on the farms; the cream only is hauled (a very small part of the whole bulk), and that always by one or two agents of the factory. The milk is cooled in fifty different places, in charge of as many different persons, but in vessels exactly alike, under strict rules to insure uniform treatment, and—most important—an officer of the creamery visits every farm every day and sees that everything is right. The truth is, opportunities for the carelessness and accidents which injure the quality of butter, are more numerous in the practical operation of the whole-milk creamery system than in the cream-gathering plan.

But if we admit, for the sake of argument, that the butter produced by the older system is likely to be a shade better than that made on the newer plan, there remain other considerations which, in a comparison of the two methods, show the latter to be, in most localities, far more economical and satisfactory than the former. The disposition of the skimmed milk is of the utmost importance. Let it be remembered that cheese factories and cheese-making districts are not under discussion; the question supposed is, in starting creameries in a butter-producing district, where farm dairying has prevailed, is it best to a range for all the milk to go to the factory, or only the cream? If the whole milk goes to the creamery, the skim milk must be either hauled home again or lost from the farm. In the first place, the extra hauling becomes an item of labor so great as to more than offset all possible advantages of handling the milk at the factory. In the second case, few butter dairying districts can afford to sell all the milk from the farms every day in the year, at rates at all usual at butter factories. At present prices of approved fertilizers, the manurial equivalents of 1,000 pounds of skimmed milk, delivered on the farm, cost about \$1.20; so that skimmed milk is worth at least one cent a gallon for use on the compost heap! Its feeding value on any farm where there are young and growing animals, in-

cluding chickens and children, is much greater; close estimates very generally place it at about one cent a quart. The localities are few where skimmed milk will net the producer more than this, used in any other way. Hence, as a rule, the draft upon the fertility of a farm incident to selling the whole milk produced, cannot be afforded; while all the cream produced on the same farm may be sold off for years without perceptible loss of fertility. Another fatal objection to the whole-milk system is the failure to satisfactorily discriminate at the creamery between the butter values of the different lots of milk. Within certain limits, fixed as the standard for purity, all milk is received and paid for as equal. Yet two lots of 100 pounds each, so treated, and which might appear alike by the ordinary factory tests for milk might produce—one, three pounds of butter, the other, five or six pounds. A difference of one pound of butter to 100 pounds of milk, when the lots of milk appear alike, is not uncommon. No such vital defect exists in the cream-gathering system. The richest milk—which at an "all-the-milk factory" would weigh the least—gives, when set in uniform cans, the greatest number of inches of cream, and the owner derives no benefit of having good butter cows. Of course there is some difference in cream, and two or twenty inches of cream measured and skimmed from the cans on one farm, may not have exactly the same butter value as the same quantity taken from like cans on another farm; but there is nothing like the difference in butter value of cream that exists in milk, and practical experience in handling cream from different farms and herds, in quantity, proves that if the milk is uniformly treated the cream is substantially equal, pound for pound, or inch for inch. This is not true in theory, nor is it shown by samples of cream treated experimentally.

Fine theories are not always practicable, however. If one wished to obtain the greatest quantity of butter from the milk of 300 cows, the product of those of different breeds and on different farms should not only be kept separate, but the milk of every cow should be set by itself, and the cream of every cow churned by itself. To obtain the very highest theoretical quality of butter, every milking should be skimmed three times, several hours apart, and these skimmings separately churned. This is reducing good theory to a practicable absurdity, on account of the labor involved. In practical dairying, the labor consideration necessitates stopping short of what may seem perfection, lest it cost more than it comes to. The line must be drawn somewhere. Let it be at this cream-gathering plan of creamery practice and you attain the best combination of equity, economy and good results which has yet been discovered. Other advantages of the Fairlamb system are the cheapness of the factory itself, the simplicity of its management, and the great extent of territory which it is possible to cover in the operations of a creamery of this kind. The hauling is reduced to a minimum, and is done wholly by teams from the factory, which are on the road all day; this difference alone makes this system practicable and advantageous in many localities where the distances between the farms and factory preclude the establishment of a whole-milk creamery.

The large eating capacity of a good dairy cow is proverbial, which will be easily understood if we make a cursory examination of her production. Suppose a cow weighing 900 lbs. yields 6,000 lbs. of milk in nine months. This milk would contain 780 lbs. of dry matter, counting it 87 per cent. water. Here she yields 6 $\frac{2}{3}$ times her own weight in milk, and the dry substance in the milk is twice that in her own body. The cow is the most remarkable food-producer among animals. She produces twice as much food in her milk as does the beef animal of the same weight in its gain in flesh during the same time.

DOES IT PAY?—It always pays to read about what others do, and say, and think, in the same line of work or business. If one does not find direct information specially applicable to his own work, yet the thoughts and methods of others incite new thoughts and plans in the reader's own mind, that lead to profitable results. The reading, thinking man makes his head help his hands. Brains tell everywhere, and in nothing more than in farming, gardening and housekeeping. And the fewer brains one has, or thinks he has, the more anxious should he be to get all the facts and suggestions he can from other people's thinking and experience.

Stock.

Mr. Seegmiller's Sheep.

In reply to our article in June number of the *ADVOCATE*, concerning the death of a number of pure-bred sheep, we have received the following letters from Mr. J. S. Mills, President Agricultural College, Guelph:

SIR,—From a general statement of symptoms, without seeing the animal, it is very difficult to decide either as to the disease or the causes; but judging from the facts given in your paper, our veterinary surgeon, Dr. Grange, thinks that Mr. Seegmiller's sheep died from what the French call *Charbon*, and the English *Black Quarter*—a disease which is sometimes brought on, not only by the causes mentioned in Dr. Grange's answer, but also by over-feeding on too rich food.

It is undoubtedly true that farmers sometimes feed fresh mangolds freely to sheep without any bad results; but nevertheless it would seem to me very imprudent to give such large quantities of them to highly bred animals early in the season. Men of experience, and especially scientific men, say that turnips should be fed first, and the mangolds afterwards, when they have mellowed or sweetened somewhat, as they undoubtedly do by lying in a pit or cellar.

For an account of the symptoms, causes and treatment of *Charbon*, see Teller's "Diseases of Live Stock," page 343 to 346.

The following letter from E. A. A. Grange, V. S., Veterinary Prof., Agr. College, Guelph, was enclosed with Mr. Mills':

In reply to your request, I have carefully considered the article in the June number of the *FARMER'S ADVOCATE* concerning a number of sheep which died in the neighborhood of Goderich, and from the description of the disease I am inclined to think that they suffered from a condition termed *Charbon*. I have arrived at this opinion from the presence of two of the most prominent symptoms of the disease, viz., peeling off of the wool, which is due to rapid decomposition; and the blackness of various tissues is one of the characteristic symptoms of the malady. I may add that to treat or prevent so formidable a disease without a knowledge of the causes, which are numerous, would I am afraid be useless, but in hopes of throwing some light upon the subject I append several of the commonest causes.

These are arranged under four heads, viz., atmospheric influence, stagnant water of ditches, etc., forage tainted with decomposing animal or vegetable matter, or what is often called mouldy; and lastly, contagion. With regard to the weather, it has been often observed that high temperature preceded by moist atmosphere is a fertile source of this disease. With regard to the water, it has also been observed that in low-lying clay lands where the soil opposes the infiltration of the water that the disease is prevalent; but to arrive at any definite conclusion it would be necessary for a thorough investigation to be made by qualified men.

Summer Parasites.

While most parasites attack their victims indiscriminately at all seasons, there are some which confine their ravages to summer only, or find their way into the animal system in summer as an essential condition of their survival through the coming winter. Some of these may be shortly noticed under the heading of summer parasites, as it is in the hot season that they begin or carry on their destructive work, and that is the time when they can be most effectually headed off and prevented.

BOTS.

First among these may be classed the bots, which inhabit various internal organs of horses and other solipeds. Of these there are no less than six separate varieties, which may be named in succession.

1st. The common bot is the larva of the large bot fly of the horse, a yellowish brown insect, with black, white, or yellow spots. In the female the tail is prolonged into a conical process, which serves to deposit the eggs, and when the fly approaches the horse, is curled forward for this purpose. The full grown larva or bot, as found attached to the lining membrane of the stomach, is a

little over half an inch in length, and of a yellowish-brown color.

2nd. The second bot is the product of a large bot-fly, of a brownish-black color, and short, grey wings. Its larvæ, which inhabit the stomach, are about half an inch in length, and when expelled mature are usually of a deep red color. It is equally hurtful with the common bot, when present in large numbers.

3rd. The red or fundament bot is the larva of the red-tailed bot fly, a small fly colored from before backward in successive zones of gray, black, white, black-and-red. The larva or bot is found in the stomach, or, exceptionally, in the throat or duodenum. When mature it is of a green or bluish-green color, and has acquired its name from its propensity to hook itself on to the margin of the anus when passing out with the dung.

4th. The duodenal or salutary bot is the young of a fly, having a yellowish-black or chestnut thorax, followed by zones of white, black, and sometimes orange. The bot of a yellowish-white color, and half an inch in length when mature, is found adherent to the mucous membrane of the duodenum (the first intestine from the stomach), and rarely in the stomach itself. It is frequently found hooked on to the margin of the anus when passing out in summer, and then causes a stiff straddling gait, and switching of the tail.

5th. The unarmed bot was found in horse dung by Drauer, and from it the fully-developed fly was raised.

6th. In tropical regions the *E. floripes* attacks solipeds, and the larvæ are taken in and developed in the stomach.

Transformations.—All of these insects undergo similar metamorphoses, and all make the same provision for the preservation of their progeny and the perpetuation of their species. The female parent fly ready to lay approaches the horse with its prolonged ovipositor curved forward at the front of her body, and bearing on its tip an egg and a quantity of an adhesive secretion by which it sticks to the first hair it touches. The instinct of the fly leads it to deposit the eggs on the long hairs about the shoulders and fore limbs, that can be easily reached by the animal's tongue; or between the branches of the lower jaw, whence the hatched grub may fall directly into the manger or drinking trough, and be taken in with the aliment. Each egg has an opening at its fore end, closed by a lid, which is easily raised and the grub extracted by the damp tongue, when the horse licks itself to relieve itself of the annoyance caused by the matting of the hairs. The minute grub, on reaching the throat, stomach, or first bowel, hooks itself on to the mucous membrane by means of two hooks at the anterior end of the body, and there it remains throughout the winter, growing and developing and fitting itself for a new external existence on the return of warm weather.

In early summer, when fully matured as larva, the bot lets go its hold and is carried out through the intestines and discharged with the manure. Having gained the outer air, it ensconces itself among the horse manure or in the soil, where it emerges in from three to eight weeks, as the full-grown fly.

It is needless to enter into a discussion of the loss of condition, lack of vigor and endurance, the colics, indigestions, and inflammations caused by the bots when present in large numbers; by popular estimation the evil effects are usually overrated rather than underrated. It will suffice therefore to note the various methods by which the ravages of the fly may be restricted, and the evil consequences obviated.

PREVENTIVE MEASURES.

The flies are most active by day, yet some species fly also by moonlight; and they live in coal mines where sunlight never penetrates. Shutting up in the stable during daylight is therefore no perfect protection. The removal with scissors of the long hairs from the lower jaw, shoulders, and fore limbs, is an excellent precaution, as it is to these especially that the fly agglutinates its eggs. The application to these parts of a daily inunction of camphorated oil will tend to prevent the attacks of the fly or the adhesion of the eggs in case the attempt is made to deposit them. Soap-suds will serve the same purpose, but is hurtful to the hair. During the fly season every horse that has been exposed to attack should have the lower jaw, shoulders, breast and fore limbs sponged with water or soap-suds on each occasion when it returns to the stable. The damp cloth or sponge raises the lid of the egg and extracts the grub as surely

as would the tongue of the horse, and though the empty egg-shells remain adherent to the hairs, there is no longer any danger to be apprehended. Many horsemen prevent the deposition of eggs beneath the jaw by hanging a cloth across beneath, attaching the same to the bridle at each side. Finally, decoctions of walnut leaves are popularly held to ward off the attacks of bot-flies as well as other flies, and the same is, to some extent, true of weak solutions of carbolic acid in water, or mixtures in oil.

Even when taken into the stomach the bots are at first soft, white, and easily destroyed by various agents. An ounce of oil of turpentine in half a pint of linseed oil will often succeed. Two teaspoonfuls of carbolic acid in an equal amount of oil would serve the same end, as would also various other vermifuges.

GRUBS IN THE BACKS OF CATTLE—WARBLES.

These, which are so common in cattle in certain regions, are but larvæ of a gadfly spending the winter in a safe, warm habitat that it may become a full grown insect and multiply its species in the summer. The metamorphosis is nearly the same as in the bot-flies of horses—the larva gradually enlarges throughout the winter, and in early summer, having attained its full growth, it drops from its living home, in the skin, burrows in the soil, changes into a chrysalis, and in thirty or forty days emerges as the full-grown fly. The attacks of the fly in summer and autumn are often most injurious to growth, fattening or milking, as a single fly in the vicinity will throw a whole herd into a panic, and send them off at full speed to the nearest water, where they can protect themselves by lashing their bodies with their wet tails.

Several species of fly attack domestic animals and deposit their larvæ in the skin.

PREVENTION.

The attacks of these flies may be, to some extent, warded off by washing the back frequently with agents obnoxious to the fly. A very efficient dressing is camphor, assafœtida, and oil of turpentine mixed with twice their volume of whale or lard oil. Solutions and infusions of walnut leaves, wormwood, rue, aloes, or carbolic acid may also be used with advantage. In districts subject to this pest, each herd should have the shelter of a shed, or of running or standing water, into which they may retreat when assailed by the fly. The most obvious and efficient precaution, however, consists in the destruction of the larvæ during the winter or early spring, by squeezing them out from the backs of the animals and crushing them under foot.

GRUB IN THE HEAD.

Another species of *Cetrus* passes the winter in its larval form in the nose and adjoining cavities of the sheep, from which it emerges in the spring to undergo its further transformations in the soil, and emerge as a full-grown fly. This is the *Cetrus ovis*, (*Cephalemia ovis*, sheep bot-fly,) a yellowish-grey, two-winged insect, little bigger than a common housefly. It deposits its grub on the margin of the sheep's nostril, whence it creeps up into the nose and nasal sinuses to revel during winter in their mucous secretions. The sheep, when attacked, push their noses into the earth, or collect in a solid mass with their heads towards the centre and their noses down, so that the fly cannot reach the point where alone it could deposit its young with a certainty of its survival. Denied these sources of protection, the beleaguered sheep will run from place to place in the field to escape the persistent efforts of its enemy, and will suffer proportionately in condition and thrift.

PREVENTION.

The sheep is much more easily and certainly protected from its gad-fly than are the horse and cow from theirs. The best measure is, to furnish a log bored with auger holes 2½ inches in diameter, the edges of which are kept constantly smeared with tar, while the bottoms are filled with salt. The sheep go daily or oftener to lick the salt, and on each occasion smear their noses with the tar, than which there is nothing more obnoxious to the insect. The following are less efficient, though reasonably satisfactory measures. Turn up a furrow, at intervals, over the sheep pasture, so that, in case of attack, the animals may easily reach this and bury their noses in the fresh earth. Supply every pasture with a partially darkened shed, into which the sheep may retire during the heat of the day, or when attacked.—(*National Live-Stock Journal*.)

Founded 1866.

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—AND—

HOME MAGAZINE.

WILLIAM WELD, Editor and Proprietor.

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A Visit to Powell Bros. "Shadeland," Springboro, Pa.

Their farm is located in the broad and beautiful Spring Valley. The place is amply supplied with all the necessary buildings to carry out the business of a stock farm on a large scale, and is also tastefully adorned with gardens and flowers, and fountains and purling rills, and orchards to an almost unlimited extent. Having previously visited the stock farms of Hamlin and the Jewett Bros. at Aurora, N. Y., as well as other large breeding establishments in various sections of the country, I was somewhat prepared to see something nice, but not as elaborate and finished as I found them here. The Jewett Bros. have one barn, the arrangements of their stables and paddocks are much better, and the best in many respects of any I have ever visited, but here I found things on a so much larger scale, the Jewett Bros. doing a retail business, while the

Powell Bros. are wholesale operators. The farm contains over a thousand acres, and they have a good half-mile track, where the horses can be exercised and trained. For road and track purposes they believe in breeding the trotting bred horse to trotting-bred mares, without the further addition of running-bred blood. I first looked at some broodmares, and one particularly attracted my attention. She was a large, fine-looking bay mare, sired by Rysdyk's Hambletonian, and has a record of 2:22. She belongs to Bolls Bros., of Boston, Mass., and had been sent on here to be bred to Satellite. Several other mares were shown that had been sent long distances to be bred to Satellite. Next I was shown some of their own, as fine brood mares and as well bred as can be found anywhere. One of the number shown is an exceptionally fine and strong-looking mare, sired by Thorndale and dam full sister to Volunteer. She is in foal to Satellite. By the way, they manifest quite a decided liking to Volunteer mares, on account (they say) of the indomitable will-power, energy and pluck, and ability to train which the Volunteers possess. They own and breed a goodly number of Volunteer mares. They have no faith in the theory of securing strength and endurance by engrafting more running-bred blood into the trotter, but say, if we need endur-

ance, give us Volunteer, Belmont, Almont, or horses of like stamina and breeding. I was shown a superb two-year-old filly by Satellite, dam by Volunteer, for which \$1,000 was offered and refused. I never before saw finer action nor so great speed in any untrained filly as she exhibited. But the fairest looking filly, by all odds, was a blood bay three years old, by Satellite, dam by Volunteer. She was a good size and very fine in every respect; she has been sold to some parties in Scotland, and was to be sent across the ocean in a few days; she will do credit to her sire, Satellite, and to the sire of her dam, Volunteer. I was also shown some very fine colts and young stallions, the produce of Satellite, and all showing fine action at the test. All over the entire farm the fences are strong and high, and the two and three year old stallions are turned loose together in the pasture, where they run peaceably all summer, a thing which I never heard of or saw practiced in any other place. I then drove to the barns where the Clydesdales are kept, passing on the way the Holstein and Devon cattle.

The large horses that I had previously seen were ungainly fellows, and often with poor limbs and feet, but when I came to see the Clydesdales I was surprised to see their flat, strong limbs and excellent feet, which I am told is a characteristic of the breed. In weight they range all the way from 1,500 to 2,000 lbs., and now and then one tips the beam at 2,400 lbs. They are fine looking, more active and better travellers than I expected to find them. As a breed they seem remarkably free

ter to stick to the sides and bottom, whereas with a non-absorbent material it would not near so readily adhere.

The joints should be made with cement and clean sand, care being taken to withdraw any particles that may fall inside the pipes in so doing by previously inserting a pad or brush fixed to a handle and passed beyond the joint about to be made. As each joint is completed the pad must be entirely withdrawn, bringing with it any fragments of the jointing material that have dropped inside.

Neither clay as a luting, nor mortar, are reliable to make watertight joints. The pipe trench should have an unyielding bottom, when otherwise a layer of ground lime or cement concrete is desirable.

The fall or inclination of both main carrier and branch drains must be considerably more than for ordinary house sewage, which latter is assisted in its passage by intermittent flushings of sink water and slops. The fall must be regulated by circumstances, but should never be less than 2 inches in 10 feet. Care should be exercised that the gradients are uniform throughout; the bad effects of some pipes being through carelessness laid level, is not compensated for by succeeding ones having double the proper fall. Branch drains should never be connected to the main drain by making a hole in the latter and plastering the junction with cement; nothing is surer to create a block. Junction pipes only ought to be employed, and such as have the arm or junction inlet at a sharp angle to the pipe itself, commonly known by workmen as "skew out" junctions, as distinguished from "square out."

Junction pipes should be laid to have their branch inlets pointing up, so that the contents of the branch drains are discharged into the main drain at a somewhat higher level. By this arrangement any small deposits that may exist in the main drain at these points do not create a corresponding deposit in the branches.

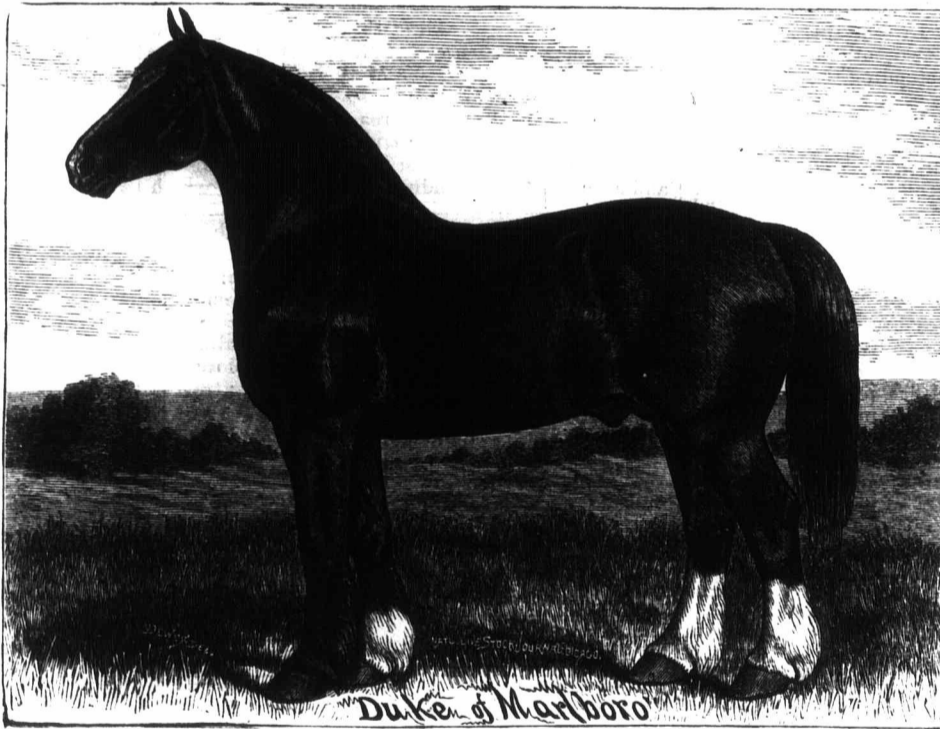
No traps, whether known as syphon or P traps, S traps, or bell traps, should be employed, for although serviceable in lines of drains connected with dwellings, they are unnecessary in a liquid manure drain, serving only to pen up the gases contained therein, and a certain means of creating a stoppage through solid matter resting in the lower portion of the trap. When these conditions are observed 6 inch pipes are sufficient for the main carrier of the largest farm buildings, and 4 inch ditto for branches. For safety in long leads 5 inch would be better; but it is a size very rarely made.

All lines of drains should be laid as straight as possible; where curves are necessary, the longer the radius the better. Under no circumstances should elbow pipes be used, but "bends," or curved pipes. Where junctions or curves are made, pipes for opening the drains should be fixed, to permit examination of the drains at these points without disturbing the drain proper.

Some means for an occasional flush of water is desirable. This may be often obtained where a water trough is dear by bringing a rain-water pipe to empty into the latter. A plumber's 3 inch plug and washer with chain attached, inserted into the bottom of the trough, and connected to the liquid manure drain at its head or commencement, is an excellent way of doing this. When full of water, the plug being lifted, the contents are rapidly discharged into the drain, and a scour right through takes place. For diluting the liquid manure in tank as much as may be required and no more, this is also a simple arrangement, clearing the drains at the same time.

A fault is committed in not having the receivers or catch pits for the liquid manure sufficiently deep. No doubt this is so in many cases, but no matter how deep, unless careful attention is given, they are sure to be left till the mouth or dead-end

(Continued on Page 189.)



THE PROPERTY OF POWELL BROS., SHADELAND, SPRINGBORO, PA.

from unsoundness, such as splints, ringbones, spavins, etc. For heavy draught, for the farm, and for the general work-horse they are destined to supersede all others. For the farmer it seems as though it were far better to dispense with a team that can only turn a narrow furrow and draw a load of a ton when he can get a team that can turn three good furrows at a time, and draw from three to four tons at a load. When the horses are once bred that can handle large things lively and well the machinery for their use will be supplied. On the farm there are over two hundred horses, consisting chiefly of Clydesdales and Hambletonians.

J. J. M.

Utilisation of Liquid Manure.

The best method of saving, storing, and distributing the liquid manure accruing from stock buildings is apparently a simple matter, and easily dealt with, but it is essentially one requiring practical as well as theoretical experience.

Drain pipes to act as carriers for liquid manure only should not be of ordinary red ware, for although cheaper than the kind known as "glazed socket stoneware," they are not so strong and being absorbent take up a good deal of the moisture passing through, causing the more solid mat-

Garden and Orchard.

Drying or Evaporating Fruit and Vegetables

Is fast becoming an important business in America, and Canadian farmers should look closely into this business and see whether it may not be added to their home industries. Every enterprise which will add to the profits of the farm should receive its share of attention. Throughout the Dominion large quantities of fruit, especially apples, go to waste nearly every year, or are sold at prices that do not pay the growers. But we believe a change is about to take place, and that it will be an advantageous one to the farmer. Canning establishments are being founded in various sections, and fruit dryers or evaporators are doing a good work where used.

Dr. Rider, in his pamphlet on fruit-drying, says:

The prices realized during the past two years and up to this time for domestic evaporated fruits, should invite the careful investigation of every farmer and orchardist.

In 1874 the total amount of American dried fruit exported was less than one and a half million pounds. In 1880 the exportations increased to two million pounds per month, notwithstanding the greatly increased consumption at home, owing to the superior quality of the product.

The old custom of exchanging two pounds of domestic dried fruit for one of imported has been more than reversed. Even our wild raspberries and whortleberries, properly evaporated, stand at par with many of the far-fetched luxuries of Smyrna and Italy. One pound of evaporated peaches commands in our markets a value equivalent to three pounds of raisins, four of Zante currants, and five to eight of figs, prunes or dates. Current prices of all kinds of domestic evaporated fruits, rated on a specie basis, are higher than ever before, with perhaps the exception of apples, which is due to the large stock of perishable fresh fruit—green apples—crowding our markets. This, however, will only tend to open up new markets—where they will be indefinitely retained—and increase the demand for evaporated apples in the future.

It would be difficult to estimate the importance of this industry, which is essentially American in conception and development, without making reference to the increased interest in fruit growing in this country within the last few years.

In 1876, when at the American Centennial, we met E. McFarland, who is well posted in all matters concerning the evaporating of fruit, and since then we have corresponded with him. On the 27th of last month he wrote us the following private letter, which we take the liberty of using:

It will be to the interest of all farmers to have one evaporator at least, if only the family size. It is only a question of time when the farmers themselves will do the evaporating of the crops of fruit and vegetables, in place of the factories. The farmers can produce and manufacture cheaper.

I have been corresponding with parties in Brantford, Ont., who wish to cure corn. Some using the dryers last year made more by drying corn than with apples, and as sugar corn is a sure crop nearly every year, there is not much risk in purchasing a machine to follow the business. The corn should be planted at succeeding periods of about one week apart, so that it would come along and get at the proper stage as they wish to cure.

Stowell's evergreen sweet corn is the best variety, and a No. 1 article of that grade com-

mands from 18 to 25c. per lb. The loss by evaporation of apples and peaches is 88 per cent.; they each weigh 50 lbs. to the bushel. Water and waste of corn 90 per cent. Black-cap raspberries pay well; they weigh 50 lbs. to the bushel green; 1 lb. evaporated is equal to 4 qts. green.

By actual trials it has been shown that the cost of drying peaches in a first class evaporator is 65c. per bushel, allowing 40c. per bushel for the fruit. One bushel of green fruit will weigh when dry 5 1/2 lbs., and if sold at 25c. per lb., will bring \$1 34 1/2. The cost of evaporating apples, allowing 20c. per

Table with financial data: No. bushels apples bought... 6,755; shrinkage... 337; evaporated... 6,418; Average cost of apples per bushel, 17 cts.; No. pounds made from above, 382,790; Total received for sale of fruit... \$4,598 00; Total expense for fruit, storage, handling and manufacturing... 1,989 00; Leaving net profit... \$2,609 00; Average number lbs. per bushel, five ninety-six one-hundredths; average cost of drying and preparing per bushel, 11c.

The skins and cores were utilized for vinegar to December 1st, after which time we dried them, and sold them for 3 1/2c. and 4c. per lb. delivered on cars. During the time we dried them the cores and skins paid all running expenses. Have sold vinegar to the amount of \$138, and have enough on hand to make the amount reach \$200, which added to the profit on apples with the cores and skins will make a total net profit for 1879 of over \$2,800.

The evaporator shown in our illustration is very highly recommended. All interested would do well to write to the proprietors for full particulars.

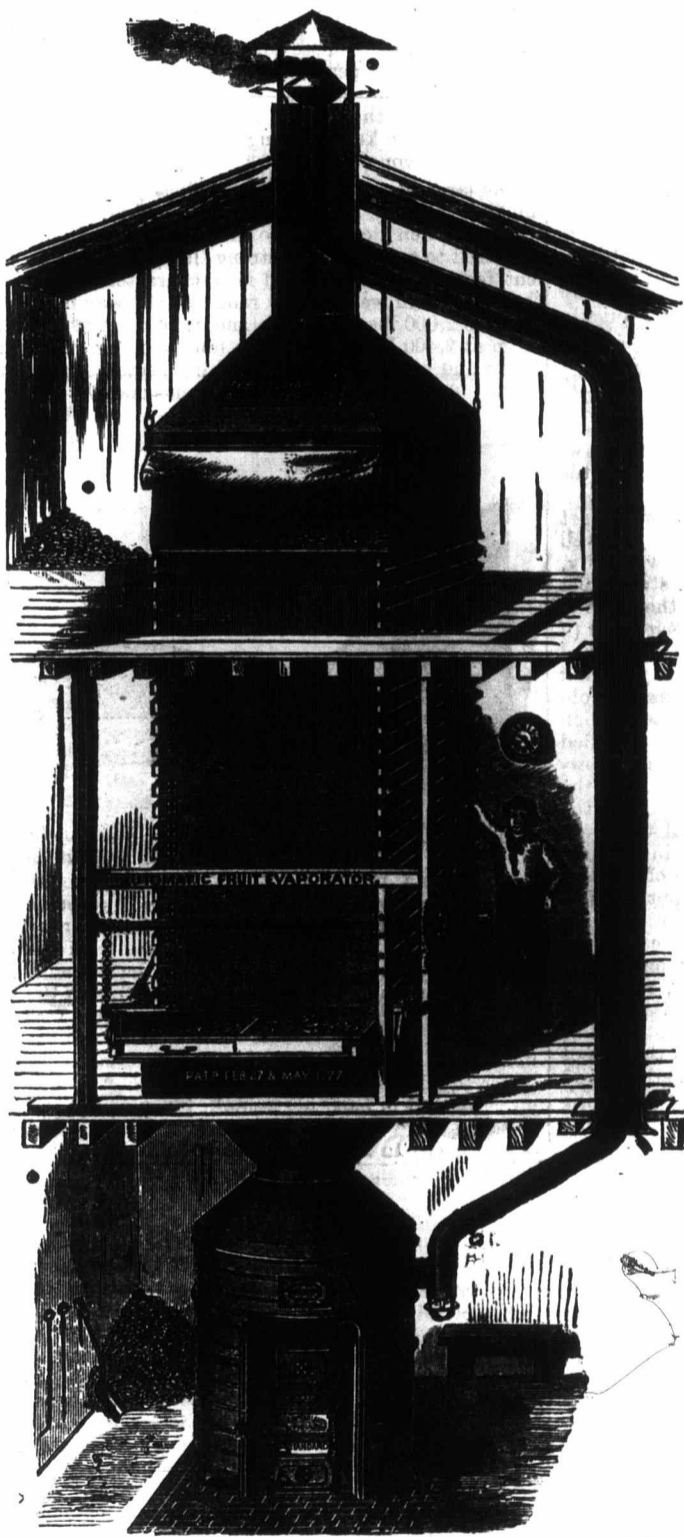
Orchard Planting.

The superintendent of the grounds of the U. S. Department of Agriculture at Washington advises the following plan of setting fruit trees. He says:

It is a common observation that the outer rows of trees in established orchards are finer and more productive than the trees in the interior of the plantation. This superiority is all the more conspicuous if the orchard is bordered by cultivated fields, and it is fair to presume that the extra luxuriance is owing to the trees having a greater extent of unoccupied soil for the ramification of their roots. Something is also undoubtedly due to the greater space available for the expansion and spread of the branches; but it is in accordance with all experience in the cultivation of plants that a rotation of crops is absolutely essential toward securing the best results of the fertility of the soil. Keeping these facts in view, it is suggested that an improvement upon the present method of planting orchards would be gained by planting two rows of trees from 18 to 25 or more feet apart depending upon the nature of the trees, and alternating the plants in the rows. Then allow a space varying in extent from 300 feet to any greater distance, before planting another series of rows, and so increase the plantation as far as may be desired. The intervening spaces between these double rows of trees would be available for the cultivation of the ordinary crops of the farm. The roots of the trees would not only participate in the benefits of cultivation, but would also have, practically, unlimited room for extension before meeting with other roots of their kind. Immediately under the trees, and for a distance on each side of the rows, as the branches spread, the surface could be kept in grass. If not sown down immediately after planting, which might not be desirable in all cases, it should be done after the trees attain a fruit bearing size, or from five to seven years after setting out. The shelter which will be afforded to other crops by these orchard belts will be found valuable as protection from winds as well as in forwarding early crops. This method is particularly applicable to apple and pear trees.

The bulb of the tuberose never blooms but once. They require a sandy soil.

Thyme will grow anywhere, but it prefers a dry, poor soil. If the ground is rich, the plant will grow too luxuriant, and lose its aromatic qualities.



Automatic Fruit Evaporator, made by McFarland & Wilt, 112 North 5th Street, Philadelphia, U. S. A.

bushel for them, is estimated at 36c. per bushel. One bushel of apples will equal 6 lbs. dried product, which if sold at 15c. per pound, will bring 90c. From the above figures it is easy to calculate what the profit would be, viz., on peaches there would be a clear profit of 60c. per bush., on apples a profit of 54c. per bush.

From the Report of the Commissioner of Agriculture and Arts for the year 1880, we take the following account of the work done in one season by an evaporator:

The Best Varieties of Vegetables—How to Set Strawberries.

Among beets, Mr. Henderson says the Egyptian matures at least five days before any other variety, except the Old Bassano, which was too light in color to suit; in cabbages, the Early Summer; and in cauliflower the Snowball; in celery the Golden Dwarf; and the next season is likely to develop a great improvement in the New White Walnut Celery, a stout, solid kind, having a rich walnut-like flavor, and graceful feather-like foliage. In lettuce, the Black-seeded Simpson and the White Summer Cabbage Lettuce now lead all the out-door varieties; in muskmelons, the Hackensack, of which many thousands of acres are grown for New York market, is almost exclusively planted. In peas, a great improvement is developed in the dwarf variety known as American Wonder, though for a general early crop the Improved Daniel O'Rourke is best. Potatoes vary so much in different localities that it is difficult to say which of the new sorts are most valued. We are very glad to see that Mr. Henderson finds that in the general trade more of Beauty of Hebron is planted than of any other of the new sorts. In radishes, the New Round Hard Red is now the main favorite, while next in order comes the "White-tipped Turnip." In spinach, the Savoy and the New Thick-leaved are the best for general crop; though the Savoy should not be sown in Spring as it runs too quickly to seed. Though every year brings out new claimants for favor in tomatoes, it is Mr. H's conviction that we have not advanced one day in earliness (unless in such varieties some what improved in quality. Quite a number of our market gardeners are now getting to grow strawberries in this manner, alternating them with the vegetables.

The process may be described as follows: Just as soon as the fruit is gathered, the beds are well forked up, and the runners begin to grow rapidly, so that, in the vicinity of New York, strong pot layers may be obtained by the 11th to the 15th of July. These, if then planted out, never fail (if properly cultivated and the runners kept pinched off,) to give a full crop by June of next year; not only a full crop, but finer fruit than is usually obtained by the other methods. The pots, which should not exceed 2½ inches in diameter, are filled with the soil in which the strawberries are growing, and "plunged" or sunk to the level of the surface; the strawberry layer is then laid on the pot, being held in its place with a small stone; the stone not only serves to keep the plant in its place so that its roots will strike into the soil of the pot, but it also serves to mark where the pot is; for, being sunk to the level of the surface, rains wash the soil around the pots, so that they could not well be seen unless marked by the stone. Any good workman, after a little experience, will layer 2,000 per day. In 10 or 12 days after the strawberry layers have been put down, the pots will be filled with roots; they are then cut from the parent plant, taken up, and placed close together, and shaded and watered for a few days before being planted out. If so treated, not one plant in a thousand need fail.

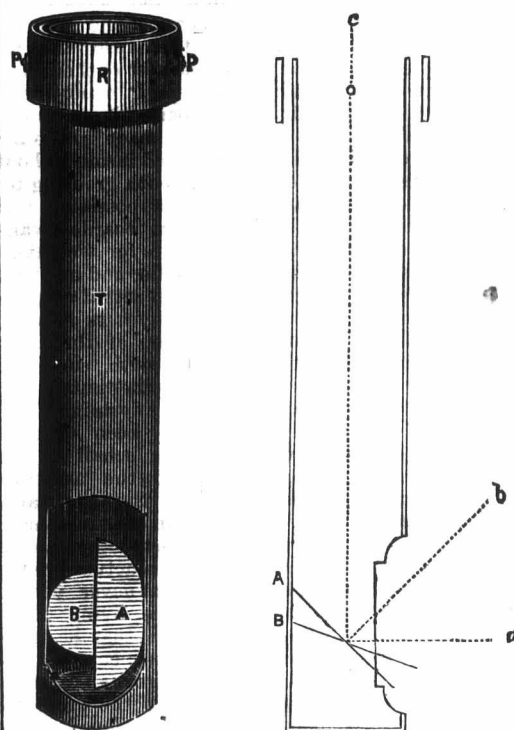
Larch Plantation.

Thomas Lake, of Illinois, writes to the Rural New Yorker that he has been very successful in raising plantations of the European larch, in the following way: The first experiment was made by ordering from the nursery 4,500 young trees from 12 to 15 inches high and as large as black-lead pencils. They were set out in straight lines, four feet apart each way, in deep, mellow soil, made so by thorough ploughing. Two grains of corn were planted with each tree, and all cultivated together. This course was pursued two seasons, when 4,500 more were ordered and similarly treated. All succeeded well, and the trees grew so well with side branches that a horse could not be passed between the rows to cultivate them the third year. At present, in five and six years from setting they are from 16 to 18 feet high, and are 6 inches in diameter 5 feet above ground. The European larch is a rapid grower and makes good timber on upland. We have trees set 22 years ago, which now measure seventeen inches in diameter and are 50 feet high.

Potash is an excellent fertilizer for the grape vine. Fork around the roots a few pecks of wood ashes. Cow-dung contains a large portion of potash and but a small amount of nitrogen; consequently it is a better fertilizer for the grape vine than horse manure.

A Dendrometer.

This instrument is made thus:—A tube, T, about 2 inches in diameter, and nearly or quite a foot in length, is supported in a vertical position by two pins, P P, near its upper end; and these pins rest upon a ring, R, forming a simple gimbal which allows the tube by its own weight to assume an exactly vertical position. In the lower end of the tube two mirrors, A and B, are placed side by side, each occupying one half of the section of the diameter of the tube. One of these mirrors (A) is inclined at an angle of 45° to the horizon when the tube is in a vertical position, and the other (B) has an inclination of 22½°. One side of the tube is properly cut away (as shown in the accompanying figure) so that when it is held vertically the mirror A shall transmit to the eye (at c) at the top of the tube the horizontal ray a, and the mirror B the ray b, which makes an angle of 44° with the



horizontal. The method of using the instrument is simple. By holding the supporting ring, R, in the hand in a proper position, the centre of the mirror, A, can easily be brought into the same horizontal line as the base of the tree (represented by a); then, by moving towards or away from the tree, its top (represented by b) may be brought into view as it is reflected to the eye (c) from the mirror B. When both apex and base of the tree are seen at the same instant the distance from the instrument to the tree along the horizontal line x—a is equal to the altitude of the tree. A simple measurement of this horizontal, by placing the distance, or by other means thus gives the height of the tree. In our illustration a front view of the instrument is shown, and a vertical section of the same, side view.—C. E. BESSEY, Ames, Iowa, in the "Bulletin" of the Torrey Botanical Club.

Irrigating Strawberries.

In wet seasons, the results from irrigating are not so striking as in times of drouth. We have seen the size of the berries at a dry time doubled in 48 hours by the slow discharge from a water cart. C. A. Green made an interesting experiment last year, a stream of water being turned across the head of the strawberry plantation, and thence down in small channels between alternate rows. The water was allowed to run 24 hours till the soil was well saturated, and then turned off. This was repeated often enough to keep the ground so wet that it turned the adjacent corn plants yellow. The crop of strawberries was enormous, piled one upon another in masses. P. T. Quinn of Newark, N. J., drew about 500 tons of water on his strawberry plantation during the severe drouth last year, getting as fine berries as he ever grew, and he thinks it paid him well. He applied 800 gallons to a row four feet wide and 400 feet long, at a time. Mr. Hale says: "The secret of success in growing large berries is water—water, and then more water." He has found it in a small way to double the size of the fruit in 36 hours, and he would rather have 10 acres of strawberries which could be irrigated at moderate cost than a 100 acre farm.

The Melon Worm.

The melon worm (*Phakellura hyalinatalis*) is about an inch and a quarter in length, when mature, of a light yellowish-green color, and nearly translucent. The moth is remarkable for its beauty, its wings being pearly-white, bordered with a narrow band of black, its legs and body white, and the abdomen terminated with a feather-like tuft tipped with white and black.

This insect is proving to be, in many parts of the country, a most destructive enemy to melons, cucumbers, pumpkins and other cucurbitaceous plants. It goes to work in an exceedingly business-like way, making skeletons of the plant leaves or excavating numerous cavities in the fruit when it appears. Sometimes it forces its way into the melon until out of sight, though more frequently it makes a shallow cavity an eighth of an inch or more in depth, and in this pursues its work.

Efficient remedies for this pest are still wanting. Paris green and London purple would probably prove effective, but it is not safe to use these, on account of their liability to poison those who eat the fruit. Pyrethrum, or Persian Insect Powder, might prove as effective in ridding the plants of the worms, and it has the advantage of being entirely harmless to human beings. Whatever poison is used, it should be applied to both foliage and fruit, inasmuch as the destruction of the former will prevent the latter from coming to maturity. Early planting, so that the fruit may be picked early, or before the most destructive brood appears, is a preventive, and if the worms be destroyed on their first appearance on the foliage, before the fruit begins to form, there will be much less danger to the fruit crop.

White Grape.

Charles Green says:—The Niagara Grape overshadows all other new white grapes as completely as the great Falls, bearing the same name, overshadows other like natural scenery. This is, in part, owing to its great merits as displayed at its home, and in part to the fact that other formidable rivals have not been very shrewdly placed before the public. There are three new white grapes offered, possessing remarkable characteristics—Niagara, Lady Washington and Pocklington. No person knowing these varieties equally well, would hastily pronounce on any one as possessing more points of merit than the others, yet all have their weak points. There are many other new white grapes of great promise, of which I have not seen enough to enable me to report of their merits; but I believe the day is not far distant when white grapes will be as plentiful and grown as cheaply as those of any other color.

Powdered Coal for Unhealthy Plants.

In a communication addressed to the *Revue Horticole*, the writer states that he purchased a very fine rose bush, full of buds, and after anxiously awaiting their maturing, was greatly disappointed when this took place to find the flowers small, insignificant in appearance, and of a dull, faded color. Incited by the suggestion of a friend, he then tried the experiment of filling in the top of the pot around the bush to the depth of half an inch with finely pulverized stove-coal. In the course of a few days he was astonished at seeing the roses assume a beautiful red hue, as brilliant and lively as he could desire.

He tried the same experiment upon a pot of Petunias, and soon after all the pale and indefinite colored ones became of a bright red or lilac, and the white Petunias were variegated with beautiful red strips. Some of the lilac Petunias became a fine dark blue. Other flowers experienced similar alterations; those of a yellow color alone remained insensible to the influence of the coal.

A new remedy for noxious insects is announced by a farmer of Napa, Cal. For five years past he has used it till every vine is freed from phylloxera, and every fruit tree cleared of insect pests. He bores a small hole in the lower part of the trunk, slightly slanting, pours in a small quantity of quicksilver, and plugs with putty. Sulphur has been used in the same way with success. Also, petroleum; but the latter injures the trees. Mixed with castor-oil, however, petroleum is a sovereign remedy for scale bugs and other insects which destroy plants, but it should be administered moderately.

Agriculture.

"Shall I Build a Silo?"—Advantages and Objections.

BY DR. G. C. CALDWELL, CORNELL UNIVERSITY.

Some of our readers are doubtless seriously asking themselves and their neighbors, just now, whether they shall invest a part of their surplus gains in a silo; they feel that they cannot afford to sink money in expensive pits in the ground, which, if not profitably used for the intended purpose, are good for little else. A brief summary of the observations, results and discussions, based on the trials of the system that have been made by a number of farmers in different parts of the country during the past year, may furnish some help to an answer to this important question. In the beginning, then, what may be considered as *clearly settled points* in regard to the matter? 1. There is no doubt but that green fodder may be packed away at once by this system, and kept without any serious alteration for a long time, provided that the inclosure is not opened—that it may easily be kept through a season, and that it has been kept even for four years without losing its value. 2. There is no question but that cattle of all kinds will eat the fodder readily, and that they thrive on it; this is the testimony of all, so far as we have seen it, who have put the matter to actual test, and the test has been applied to many hundred head of cattle, and especially milch cows. 3. The butter made on ensilage fodder is superior in quality, resembling June more than winter butter, and the yield of milk is fully equal to or even better than that on other usual feeding for milk. 4. These good results have been obtained in feeding on ensilage alone, on ensilage and meal, an excellent material with which to make up for the deficiency of albuminoids in the ensilage. 5. The cost of harvesting and packing the corn fodder need not exceed \$1 per ton of contents of the silo; some estimate it at half as much as this, while others affirm that their own figures have shown that \$1 per ton will cover the whole cost of the crop and packing, and interest on the cost of the silo; but \$2 for the total cost of each ton of ensilage fodder is nearer the general estimate. 6. The system therefore provides a fairly cheap and safe means of securing a supply of succulent, palatable fodder for winter use, out of a crop which may be made to yield a very large quantity of nutrients per acre, and which is often not otherwise easily cured and prepared for fodder.

In respect to *objections*, there is, without doubt, some loss of nutrients by fermentation. In ordinary earth silos, such as have hitherto been mostly used in Europe, it has been shown by analysis that over half of the carbohydrates and a third of the albuminoids may thus be lost; but that, in the masonry pits, and under the enormous pressure put on their contents in the Goffart system, which is also the American system, there is not so much fermentation and so great a loss of nutrients is not proven; that there may not be such a loss is shown by the analyses of Goffart's ensilage, where it was found that the proportion of carbohydrates in the dry substance of the ensilage was very nearly the same as in that of the green plant from which the ensilage was made. And if we compare the analyses made at the New Jersey Experiment Station, of nine samples of American maize fodder, given by Dr. Jenkins in the Report of the Connecticut Experiment Station for 1879, as set out in the following table, it appears to be plain that there can be no serious loss in nutritive value:—

	Maize Fodder.	Ensilage from Maize.
Water.....	86.8	82.0
Nitrogenous substance.....	1.1	1.1
Fat.....	0.2	0.6
Carbohydrates.....	6.5	9.4

The comparison is not a fair one, for there seems to be an actual increase in richness greater than is due to the loss of water; this is of course impossible, and we can only suppose that the green maize from which the ensilage was made was better than the average; but for all that the comparison is so defective, it is the best that we can make as yet, since no analyses have been made in this country of the green crop and the ensilage from that crop; and it answers our purpose to a certain extent; taken together with the analyses of Goffart's ensilage quoted above, it justifies our opinion that quite too much has been made by some writers

here of the results of Austrian analyses of ensilage, and that it is not altogether fair to charge American ensilage, made in quite a different manner, with so great a loss as these analyses have indicated.

It has been argued that the use of ensilage will in the long run cause the teeth to drop, or an epidemic of pleuro-pneumonia, or something else that is disastrous. But this is not such an altogether new method of preserving fodder as to leave us in ignorance in regard to this matter; it would certainly not have found continually increasing approbation in Hungary for twenty-five years past, and in France for eight or ten years, if it led to any such ruinous results as these. Another doubting Thomas sees "great chemical danger in it," whatever that may mean; something that will explode or poison is probably the most common idea of a chemically dangerous thing; but no body who has tried properly manufactured ensilage has ever yet found any such thing in it, and nobody ever will. Objection is made to the cost of the masonry silos. But those who have used them insist that the cost is well repaid, and as an earnest of their belief they often go on and build more. In many places concrete walls might be cheaper while just as serviceable. Or large bins may be made in the barn cellar, of timbered walls boarded inside and out, with the space between filled in with grouting to make the sides as nearly airtight as possible; and some have even used nothing but boarded walls with success. Instead of the stones for weights, which are somewhat costly to handle, and must make an unsightly pile when not in actual use, the follower may be screwed down by nuts on rods reaching from the bottom to the top of the silo; in one instance where this was tried with success it was only necessary to tighten up the nuts once every two or three days for the first fortnight.

Objections have reasonably been urged against the extravagant claims on behalf of ensilage, amounting in some cases to the assertion that nutrients can be created in the silo, and more taken out than was put in; in one instance such a claim is apparently supported by an analysis according to which there is an actual production of albuminoids in the silo—a feat never yet successfully attempted except by the living plant. Nobody need believe, in order that he should look favorably on ensilage, that two cows can be well and cheaply fed on ensilage from an area of land that would without ensilaging the crop at its best keep only one cow, nor that ensilage has in general brought the millenium in farming. Grandeaun did find that the albuminoids in the ensilage were more soluble than in the green fodder; and so far there is some scientific support for the opinion that ensilaged fodder will go further than dry fodder from the same crop; a good supply of digestible albuminoids is essential in the production of milk; there is much testimony to the effect that the flow of milk is increased by ensilage, and as long as the claim is moderate it may be just. Leaving out all extravagance of assertion, and allowing wide liberty in the manner of constructing the silo, I think that experience thus far in this country has clearly shown that there are many conditions under which it will be found to be profitable and therefore prudent to build a silo somehow, and to devote a part of the farm to the production of corn fodder for ensilage, and that will especially be the case where milk farming is profitable, and the land is well fitted for corn, and there is manure enough to spare to produce a heavy crop on the area devoted to it; but while it will be wise to do this, it will be foolish to give up the production of good hay as one of the staple crops of the stock farm. It is ever the part of true wisdom to hold fast to that which is good and what is old and tried, as well as to make an intelligent use of what is good among new things.

Hill vs. Flat Culture for Corn.

An experienced corn grower says:—What is the advantage of hilling up corn? We should much like to know. Until two years ago we, in common with the farmers about us, planted our corn in checks and hilled up. Two years of experience with level cultivation have well nigh convinced us that drilling in the seed in rows and level cultivation are to be preferred for the generality of seasons, for light lands at least. There is a belief among farmers that hilling up helps to support the corn plant, and consequently prevents lodging by high winds. Our experience does not confirm this belief. Though we have grown higher-growing kinds than our neighbors—and though we had high winds while the corn was in bloom, and again when the grain was glazing—our corn stood fully

as well as theirs. Does hilling up give support to the stalk? Before answering this question, one should consider what part the lateral roots take in supporting the plant, as it is from about these that the soil is taken to heap about the stem. If these lateral roots are severed by plowing, hilling up may be advantageous; but when shallower cultivation alone is followed, the stalks receive all of the support which a full, natural root system can give; and hence it is, we believe, that our plants ten feet high stood as well as our neighbors', which were not so tall by a foot or so.

Great crops of Indian corn have been produced by plow cultivation and hilling up. But possibly, had the cultivation been shallow and level, those crops would have been greater. It may be admitted that land is sometimes so rich that root-pruning (plowing) serves to repress stalk and leaf growth, and to favor the formation and development of grain. We do not know, never having had a field so rich. But if it were otherwise we should, with our present experience, still pursue the drill-row system and the flat cultivation, though careful to plant our seeds and to mark our drills further apart. We have full faith that the sun and air and thorough shallow culture would effect all that any interference with the roots would effect.

In drill-row cultivation, of course, neither the cultivator nor plow can be run but one way. The narrow belt on which the plants grow must be hoed or the weeds suffered to grow. But it may be considered that if the rows are straight the cultivator may be run so near to the plants that very little hoeing is really necessary. This narrow belt which demands hand labor is the only objection to drill-rows that we have yet discovered. It is plain, on the other hand, that corn plants one foot apart in the drill will thrive better than when three or four plants are crowded together, as in the check system. Very likely on hillsides level cultivation would prove impracticable, and as our experience has been only in the cultivation of ground level or nearly so, it is of this alone we speak.

Tillage a Manure.

BY C. HARLAN, M. D.

In estimating the expense of raising green crops for manure we must not deduct the cost of plowing and harrowing from the value of the green dressing, because tillage is manure, and often the very best manure, which we can apply to many fields, particularly to heavy clays.

Liebig says:—"The influence of the mechanical operations of agriculture upon the fertility of a soil, however imperfectly the earthy particles may be mixed by the process, is remarkable and often borders upon the marvellous."

The truth of this declaration has often been established by the experience of many observing farmers. Here is one case:—

"I knew a farmer," says Mechi, "who took a good farm wretchedly out of condition and full of weeds. He fallowed every acre of it, taking care to allow time between each plowing for the vegetation of the seeds. The result was a crop of wheat, averaging 5½ quarters (44 bushels) per acre, and other crops in proportion."

Now in connection with this good tillage had he put on the field somebody's "nitrogenized superphosphate of lime," it is very likely all the credit would have been given to it, and we might have had his certificate that 44 bushels of wheat per acre were actually obtained by using only 300 pounds on each acre of this wonderful fertilizer.

With such facts before him we are not surprised that Mechi says:—"Frequent tillage is our best and cheapest manure."

The farm of Joseph Harris has enough of clay in the soil to require frequent plowing and harrowing to bring out and unlock its highest productive capacity, hence he has discovered the great benefit of thorough pulverization. He says:—"That tillage and manure are one and the same thing, is a great truth."

Taking this natural and rational view of the subject, it would be very unjust to any green crop which is intended for manure to charge it with anything but the seed. And this will reduce the expense of this mode of improvement to a very low figure.

Harris also says:—"On heavy land we have not yet been able to dispense with summer following." John Johnston, rich as he has made his land, is yet in the habit of summer following more or less every year.

His practice has been to top-dress his clover

land in the fall, and the next spring to plow it up, and prepare the land for wheat by plowing it twice more, with repeated harrowings, rolling, etc. In other words, he manures the land in the fall and then gives it a good old-fashioned summer fallow.

Here, you perceive, are three plowings, and enough of harrowing to seed the ground with two green crops, and to turn them in when grown, without any extra expense. And this tillage is never done all at once. It is said that there should always be six or eight weeks between each plowing. This method would be very accommodating to nearly all kinds of green manures.

Observe how careful Johnston is to neglect nothing that will ensure him a large crop of wheat. No wonder he often raises 50 bushels to the acre! We see here that the whole of one year is devoted to the preparation of the soil. He does not confine himself entirely to this mode. And notwithstanding he makes from 500 to a 1000 tons of the very best manure every year, he does not compel his fields to produce a crop, of either grass or grain, to be removed every year. And that is the true philosophy of farming—every other year devoted to the entire restoration of the soil. On light, sandy land much tillage is not required, only to subdue the weeds. And for this purpose, to assist the plow and hoe, there is nothing to be compared to green crops.

The way these act in the destruction of weeds is not as freely acknowledged as it should be, because not clearly understood. When a quick growing crop is put in the ground all weed seeds that are on or near the surface sprout and make a feeble growth, but do not mature enough to form a blossom or a seed. In this way tens of millions of noxious weeds will germinate and perish beneath the dense shadow of a green crop.

Urine as a Fertilizer.

The farmers of this country generally show a want of appreciation of the value of the urine of their animals. Only a very few make any provision for saving it. I have seen a loosely laid floor for a horse stable over a stone heap, which prevented saving any urine, except the little absorbed by the droppings, and this was planned by a man of intelligence, who prided himself on his success in farming. So far as I have seen, the farmer who makes provision for saving and utilizing the excrements, generally thinks he is doing well; and the one who shows an appreciation of the value of the urine is an exception.

The superiority of poultry manure over others is, that it always contains the urine. Next to this comes the manure from the hog pen; this is especially valuable because so highly charged with the elements of fertility, and because the working propensity of the hog keeps him rooting over the contents of his pen, so that his urine is absorbed and saved. Then, too, the quality of the hog's urine places it before all others, on account of the salts it contains. In it are phosphates not found in the urine of the horse, ox or sheep. The urea of urine, which imparts so great a value to this liquid, is richer in ammonia than either flesh or blood. By chemical analysis a hundred pounds of urine of cattle contains four pounds of urea. That of the horse only seven-tenths of a pound. The urine of the horse, while so far wanting in urea, contains an excess of nitrogen, which makes up richly for its deficiency in this, by its ammonia producing power. The saline substances are five and three-tenths per cent. That of a sheep has two and eight tenths of a pound. That of a man contains three pounds. The hog's contains five and sixty-four-hundredths pounds. Besides the urea contained, the various salts of urine add largely to its value; and when all are absorbed by loam or peat, the fertilizing value exceeds that of the solid excrements.

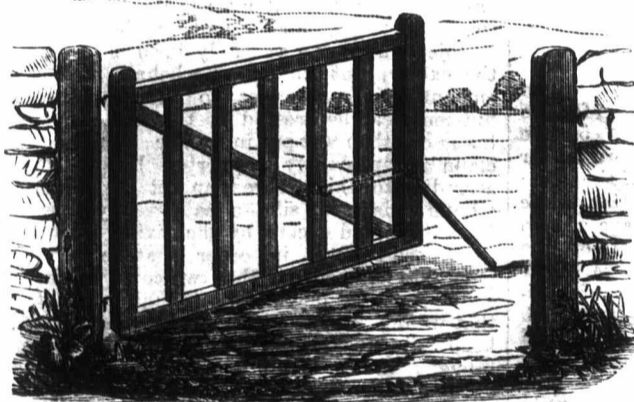
The chemical composition of animal urines vary with the age, food and season of the year. The more water drank the poorer the urine. There is more of the urea in summer than in winter. Putrefaction converts the urea to ammonia, and hence is reckoned equal to it. In the fermenting or putrefying process, which lasts at least a month, it is all the while giving off ammonia, and unless mixed with some substance which will form a fixed salt with ammonia, there will be a loss of that in a gaseous form. The escape of ammonia in this gas is quickly noticed in the urine of the horse, and in privy vaults. The most convenient thing to fix it

is plaster. Coppras and oil of vitriol are handy to add if it is in a tank in its liquid condition.

Prof. Dana says: "Each pint of human urine will produce a pound of wheat; each pound of ammonia is equal to a bushel of grain. Whatever may be the food, it is evident from the above statements that rivers of riches run away from farms from want of attention to saving that which ordinarily is allowed to be wasted." If each family would save the suds from their washing, and combine with this the chamber slops, applying the mixture to the compost heap, or directly to the soil in its liquid condition, the increase in fertility would surprise them.—[Cor. New England Farmer.

The Prop for Farm Gate

Shown in our engraving is used on a few farms in Ontario, and very much liked where adopted. Our illustration shows the prop in use and also how it is fastened to the gate. The dotted lines which run across a portion of the gate show the position of the prop when not in use. It is held in this position by a hook made large enough to remove and hold it. The prop may be of any length, according to the length the gate is above the ground, but in any case it must be long enough to securely hold the gate in place where in use; it may be either of wood or iron. If of wood two staples will be required, one to drive in the end of the prop and the other in the head of the gate; but before making both fast, they must be looped together so



as to form a secure connection. If the prop is of iron a hole must be drilled close to one end, large enough to work very loosely on a staple. Through this hole pass the staple to be driven into the head of gate. The whole is so clearly shown in our engraving that further particulars are not required.

Sugar Cane for Feeding Cattle.

Of the great intrinsic value of Sugar Cane for the production of sugar, many American agriculturists are quite confident, and not unreasonably so. It is claimed also in favor of the more general cultivation of this plant that it is of very superior quality for stock feeding. A farmer who tested the Minnesota Amber Sugar Cane last year, reports as follows:—

My soil is a dark, rick intervalle, underlaid with a stratum of flat limestone, and equal, perhaps, to any. I gave it the same culture as corn, planting in rows both ways, putting in 12 to 15 seeds in a hill. I used phosphate, dropping a large spoonful in each hill. As the seed was late reaching me through the mail, I did not plant until the 2nd of June. I gathered the seed on the 1st of October: it ripened earlier. The crop grew from 8 to 10 feet high, and as to quantity and quality, I should say it would produce double the yield by weight of corn, all things being equal, and it is twice as nutritious for feeding stock as green corn. There are several facts which I think I have demonstrated by my test with this distinct and very early variety of sorghum: 1. It is as much better for feeding cattle than sweet corn, as sweet corn is better than common sowed corn; and every man ought to know that sweet corn planted in hills, and allowed to stand until ears are developed before feeding, is twice as valuable as any sowed corn, either green or dried, for fodder. 2. If this early cane is planted as soon as May 10th, it will be fit for fodder as soon as July 10th, and it will then yield a second crop equal to if not greater than the first. I did not begin to cut and feed my

crop until after August 10th, and yet suckers sprang out from the roots or stubs of that which was cut down, numbering from three to five from each old stalk. I exhibited, at the Washington County Fair, a bundle of this second growth which measured five feet in height, and was in tassel. Again, that it is the best soiling feed for milch cows, is a fact demonstrated beyond question with me. My cows ate it with avidity and it kept up the flow of milk during the dry, short pasture in summer, affording the richest milk and making the best butter I ever produced. The seed, of which it yields large quantities, makes good food for animals, and is especially valuable for poultry.—[Country Gentleman.

A Cool House and Dry Cellar.

The great advantages of a dry, well ventilated cellar have of late been better appreciated. For our own health's sake, as well as for the preservation of such articles of food as are generally kept in cellars, we should not grudge a little expenditure of time and money on these under-ground store-rooms. A damp, moldy cellar is too often used as a milkroom, and is one cause of Canadian butter being frequently condemned as unfit for human food. And the sickness of a family may often be traced to the foul air from the cellar. From the *New York Times* we take the following:—

"Much comfort may be secured by keeping the house cool in the hot days. This may be done by closing all the windows about 8 o'clock in the morning and opening them only after 6 in the evening; dark green window shades being inside of the white ones will keep out the heat of the sun, and the darkness will drive out the flies. Children and old persons suffer greatly if they cannot rest for an hour or two about midday, and in a cool, dark room, where there are no flies, an hour's rest for the weary mother and the young children may be easily secured. The windows may be opened at night when the air is cooler and less damp than in the day-time and thorough ventilation given. The condition of the cellar is much improved by the same treatment.

If the cellar windows are open in day-time and the warm air let in, a large quantity of moisture comes in with the hot air and is deposited like dew on the cellar walls and floor. This encourages mold, and in a few days the cellar is impregnated with mildew. The cooler night air contains less moisture, and if a bushel of fresh lime is kept in the cellar, it will absorb a great quantity of moisture from the air and keep the cellar dry. A bushel of lime weighing 80 pounds will absorb 27 pounds of water before it becomes at all damp. A peck of it will absorb more than six p.unds, and a peck is very manageable. When it is slaked down to a powder and appears very moist it can be taken away and fresh lime supplied. Ten cubic feet of air saturated with moisture until it begins to be deposited on the walls of a cool cellar may contain one cubic inch of water or half an ounce or thereabout. A cellar 30 by 20 feet and 7 feet high contains 4,200 cubic feet, and may contain, dissolved in the air, about 13 pounds, or nearly 2 gallons of water, when it begins to be deposited as dew on the walls at 60° of temperature. Half a bushel of lime will completely dry the air at a temperature of 45° or 50°. Then the cellar will be practically dry and there will be no mold or moisture or earthy smell about it. This is of the utmost importance in dairies where milk, cream, and butter are kept in cellars, and more so in regard to food. It is known that the spores of common mildew will produce germs that are found in the stomach and blood in certain diseases. It is quite logical to believe, then, that to eat musty or moldy food will be dangerous to health, and may produce serious diseases as surely as impure water will. Sometimes a cake taken from a damp cellar may be found, on breaking, to contain fine glutinous strings or threads which stretch from piece to piece. These threads are mold. Pies and bread are often imperceptibly moldy in warm, damp weather, and consequently dangerous to health. So that a damp cellar may be easily a source of unsuspected danger, and the dampness may be all due to an improper method of ventilation. The cellar should, then, never be ventilated in the day-time except in dry, cool weather when it is perceptibly warmer than the outside air.

Utilization of Liquid Manure.

(Continued from Page 184)

of the drain is reached. A better plan, I think, is to have an iron box to fit the brick receiver, and with perforations about 3/4-inch diameter in one side, as close as they can be got together, and to correspond with the opening in the drain pipe. The security of a double grating is thus obtained. The surface grating may be independent of—or form a portion of the container. The surface grating and container can be lifted out and emptied every day if needed in a few minutes.

Open reservoirs for liquid manure are not preferred as a rule, I believe, except in special cases. Concrete makes the best and strongest covered tanks—one to hold 20,000 gal. can in an ordinary way be made and covered over for about \$100 to \$125. A chain pump fixed over the centre is the best way of raising the liquid manure into water barrels. A manhole should be left in the top of tank, in case an examination of the interior is at any time necessary.

Where irrigation is preferred or can be adopted, a Field's flush tank is sometimes useful, either alone or in connection with a storage tank, for discharging the liquid manure at intervals and in a rapid manner, instead of dribbling slowly over the grounds, but no definite rules can be laid down as to the best means of distributing liquid manure, because there are various circumstances to be considered, and scarcely two farms would be alike in all respects.—[T. Potter, in English Ex.

The Bidwell Strawberry.

Among the recent additions to the list of desirable strawberries, the Bidwell takes a very high rank. Mr. Charles Downing, in his appendix to "The Fruits and Fruit Trees of America," thus describes it:—"Fruit medium to large, the first berries sometimes irregular in form, being round, conical and long conical, often with an uneven surface, and a slight neck, somewhat glossy; color, bright crimson; flesh, light red, quite firm, juicy, sprightly sub-acid, quite rich." Mr. E. P. Roe, of Cornwall-on-Hudson, N. Y., to whom we are indebted for the use of the handsome illustration, says, after fruiting it for three years, that it "takes the lead on my place, averaging as large as the Sharpless, more productive than the Wilson or Crescent, very firm and meaty in texture, and delicious in flavor. It thrives well on all soils. On one potted plant, set last August, we counted 122 berries. If runners are kept off, I believe the Bidwell will form the largest, most fruitful and bushy plants of any variety in existence." But few of the berries have yet been shown in this vicinity, and we have seen none for sale in the market, but we are sure that it will be largely adopted by fruit-growers as a market berry. The experience of the past two or three years, and of the present season especially, has convinced growers that there is no longer any use in raising cheap and inferior berries, but that, as a mere matter of profit, the largest and finest berries pay better every time, not to mention the pleasure to be derived from the raising of fruit which satisfies the love of the beautiful as well as of the useful.

ANCIENT HAY.—We can hardly place limits to the time for which much of our farm products may be preserved in good condition. The cereals, when well dried and kept from moisture, may be kept in perfect condition for years. Hay, though seldom kept for more than a couple of years, may be preserved for ten times that period. A farmer of Delaware County, N. Y., gave his horse hay a few days since that was cut nineteen years ago, and that has been stored ever since; he said it was in excellent condition, being juicy and the substance seemingly undiminished. It contained some daisies which looked so fresh that they were immediately seized by the ladies for bouquets.

Raising Strawberries.

The strawberry stands at the head of the small fruits in all the qualities of excellence, each of which it has in perfection. It is healthful, and affords the greatest pleasure in eating, while for beauty and fragrance it has no rival. It is also easily grown, and very productive, yielding a large profit where the circumstances all favor; but this last is rarely the case, for there is no plant that has so many requirements and is subject to so many mishaps. Besides the attack of insects, under and above ground, and the thievery of birds and boys, there is the harm of exposure to the winter winds, the fierceness of the sun's heat in summer, the danger of frost at the flowering time, and drouth. Drouth and the sun's heat are the worst enemies of the strawberry in our hot dry climate. With all this and more to contend with,

wind has little access and the sun full force should be avoided. If the soil is dark, all the worse, as it draws the heat. It is for this reason (exposure to the hot sun) that the strawberry so soon runs out, lasting but one or two seasons. I have strawberry hills that are six years old bearing better crops the last three years than the first three; they are on the east side of the building, and thus protected from the afternoon sun. Any partial shade that lessens the heat of the sun is an advantage.

Do not make the soil over-rich, as a plant pushed in its growth will set less fruit buds and more leaves, some of the buds that would otherwise be fruit turning to leaves. Make a fair to good growth, and have this growth as uniform as possible; this is aided much by frequent cultivation and keeping the runners off. Set the plants two

and a half feet apart both ways. The best time to set out is in July or August or as soon as the young plants can be sufficiently grown. This, with after care, will make a strong plant by fall, and in the season following bear a good crop. To grow unusually large fine berries manure the plants about blossoming time; do it pretty freely. Liquid manure acts most promptly. It may be made by filling a tub with strong stable manure and leach the strength out with water, as lye is obtained from ashes. This, next to a proper location (lessening the heat of the sun), is the most important part in the treatment of the strawberry. The greatest strain upon the plant is in growing the fruit, the effect of which is seen in the lessening of the size and quality of the berry as the end of the bearing period is approached, the last pickings or two being almost worthless. This effort so exhausts the plant that it requires several weeks to rest it, in which it makes little or no growth. By manuring it well at the commencement of the bearing period the plant will be sustained, and the berries will not only be larger, but continue so, the last picking being as good, or very nearly as good, as the first, the plant requiring no season of rest.

Keep cultivating and cutting off runners during the summer. If the soil is clay, work in some fine vegetable material, like leaf mold from the woods, or muck or chaff. This will make the soil light and improve the berry, both in size and quality. It will also do to apply on sandy soil. Plant the Wilson or Charles Downing; they are the two best sorts, all things considered; they are reliable. Other sorts that have been found successful in the locality may be grown, if preferred. If these instructions are carried out carefully, there will be no regret of the undertaking. It is something to have your berries fresh and ripe and when you want them. And this can be secured only by raising your own berries.—[Ex.

Unskilled planters of lawns or front yards are apt to set their bush roses and other shrubs here and there over the grass. Thus placed they spoil the appearance of the green carpet, and come in

the way of the mower and of every one who desires to move about at freedom on the sod. Excepting some rare and thrifty forms which look well from all sides, they appear to much greater advantage if grouped in a bed or beds at the side or rear of the grassed level; the tallest in the middle or at the back; and with lilies, peonies, and other perennials helping to fill the front, which can be carpeted with violets, daisies, hepaticas, ivy, periwinkle, etc., in the shade, and with low phloxes, moneywort, creeping forget-me-not, stonecrop, etc., in the sun. The only culture such a bed of shrubbery requires is a dressing of fine manure, vegetable mold, or compost each autumn, and care to pull out in time all other plants that show themselves before they get strong enough to do harm or to make their extirpation difficult. During the first year after planting the shrubs the mowings of the yard make a good carpet for them, and a useful mulch. Very little pruning is necessary; any changes can be easily made in the springtime.



THE BIDWELL STRAWBERRY.

is it a wonder that so little general success attends its cultivation? Yet all this may be sufficiently overcome to make the crop as reasonably certain as any, and then few crops equal it in profit. What is expended in the cost of labor is made up in the less amount of land required to grow it, so that any one having land, however little, may grow this delicious fruit, and do it profitably as well as with pleasure, if he is rational in his taste, the pleasure affording a stimulus to its careful cultivation.

The soil for strawberries wants to be drained, if not dry, and deeply worked, as the roots of the berry extend well down. If possible select a place where the sun has less effect, as where the ground inclines to the north or east, never, if it can be avoided, to the south or west, which exposes the land to the full rigor of the sun. The worst time in the day is from twelve to five o'clock. The forenoon sun does but little harm, as the ground is cool and absorbs the heat. A valley where the



NOTICE TO CORRESPONDENTS.—1. Please write on one side of the paper only. 2. Give full name, Post-Office and Province, not necessarily for publication, but as guarantee of good faith and to enable us to answer by mail when, for any reason that course seems desirable. 3. Do not expect anonymous communications to be noticed. 4. Mark letters "Printers' Manuscript," leave open, and postage will be only 1c. per ½ ounce. We do not hold ourselves responsible for the views of correspondents.

THE FARMER'S ADVOCATE PRIZE

\$100.00

To be given annually by

WM. WELD, OF LONDON, ONT.

will be awarded for 1881, to "The Best Herd of Fat Cattle for Export."

This Prize will be offered at the Provincial Exhibition, to be held at London, Ont., commencing the 21st September, 1881.

CONDITIONS.

1.—The herd to consist of three animals, four years old or under, and must be at the time of exhibition, and for the previous six months, the bona-fide property of the exhibitor.

2.—The herd may consist of animals of either sex or of both sexes.

3.—Pure-breds or Grades of any class may compete.

4.—Animals which may compete in any other class may compete for this prize.

5.—A statement of the breeding, mode of feeding, and weight of animals at the time of exhibition, must be given to the chairman of the judging committee before the animals can enter the show ring. An accurate account is desired, but if from any sufficient cause such cannot be given, an approximate estimate may be received by the judges. These statements will be the property of the FARMER'S ADVOCATE, and must be as full and concise as possible to be accepted.

6.—Special judges will be appointed by the Council of the Association to award this prize.

7.—The rules of the Association to govern all points, except as above noted. Entries can be made with the Secretary of the Association, up to Wednesday, the 21st of Sept.

Being desirous of encouraging the further development of our greatest resources, we offer the above prize, and hope to see strong competition for it, as it is one of the best ever offered at our Provincial for which the general farmer could compete. We have also introduced a new feature to Canadian agricultural exhibitions, viz., that embraced in condition "5." This need not debar any from exhibiting; any one who is capable of managing a farm successfully, is quite capable of fulfilling the above requirements, and if he has never made such subjects a source of study before, he will find them of much benefit. The winner of this prize may have, if he prefers, a SILVER CUP of equal value.

Next year we purpose to give a similar prize for the best herd of dairy cows, irrespective of breed, particulars of which will be given in due time.

Special Prize to Township Exhibitions and Plowing Matches.

SIR,—In your June number I notice the magnificent prize you purpose to give at the Provincial Exhibition for "a herd of fat cattle." Since you are so strong a believer in Township Exhibitions, will you not give a prize to them?

C. H., Whitby P.O., Ont.

[We offer to Township shows a larger and more valuable prize than that given by ourselves or any one else to the "Provincial," namely, a copy of the FARMER'S ADVOCATE for one year, as a special prize to each Township society, and to each plowing match in Canada, on application by their Secretary.

Discussion on Summer Fallowing by Avonbank Farmers' Club

Reported by our special correspondent, J. C. J., Avonbank P. O., Ont.

The argument rested on the question whether farms could be managed successfully and kept clean without the aid of fallowing.

The discussion was opened by Mr. Wm Rodger, who said he had always practised fallowing partly because it seemed to be the ordinary custom adopted, and with the wish to assist in the general fight with weeds. But of late years he had felt that a change was needed. The labor and expense connected with the growing uncertainty of the crop succeeding the fallow, throwing the land idle for two years; another difficulty being it frequently occurs that we have an unfavorable season for fallowing. He thought that by more frequent seeding down to grass, using a liberal quantity of clover, which in itself would assist very materially in smothering weeds, and not growing more than two grain crops in succession, farms could be kept clean by expending the labor used in fallowing, in cultivating a larger breadth of root crop and green fodder, which might be used for soiling purposes or kept for winter use. The land sown to green feed should be plowed at least twice in the fall.

Two or three brief speeches followed, mainly agreeing with Mr. Rodger, but thought that in some cases fallowing would be found necessary. Mr. Duncan McIntosh did not except a necessity, unless it be in breaking new land when it was beneficial; said that if farms were properly managed fallowing was unnecessary and under no circumstances would work a bare fallow; it spoke of the loss by exposure, and was going in opposition to nature's laws where fallowing was deemed necessary. He advised working the land thoroughly the early part of the season, and sowing some rapid growing crop, buck-wheat answered the purpose well and could be plowed under with good results; he agreed with the first speaker in not growing more than two crops in succession, and minutely described a five year rotation that he had adopted and practised for a number of years. On a one hundred acre farm, allow 20 acres for bush, permanent pasture, building site, orchard, &c this leaves 80 acres, and in a five year shift gives 16 acres to be worked by a cleaning crop each year; consisting of roots, green feed for soiling and peas, selecting the dirty portions of the field for roots, 16 acres to be seeded down each year, and gives when the system is organized 32 acres in hay or a portion in pasture in addition to bush, and 32 acres in grain.

Mr. Thomas Steele thought the necessity of fallowing still existed and showed very literally the exceeding dirty state of many farms, and said that it was a false view to consider a fallow as loss; as filthy land would not produce a half crop, and the crop out was doubly paid during the years following, nor was the labor lost as the extra tillage was absolutely needed, and was done in a comparatively leisure time. He worked an eight year rotation, taking the one hundred acre example with 80 acres cultivated land, cleaned 10 acres each year by roots and fallow.

Mr. J. C. Jopling also opposed fallowing as commonly practised; he said he had destroyed dirty patches of spear or June grass, and thistles by working similarly to turnip land and sowing about 15th June to Hungarian grass which being a rapid growing plant had the effect of smothering any weeds left. The crop being cut in two months after sowing, checked any thistles starting, when another plowing was quite as effectual as a summer fallow, and the grass, in ordinary seasons gave two or three tons per acre of very excellent fodder.

NOTE.—The system of rotation worked very successfully by Mr. Duncan McIntosh, meets with general approval by members of the club.

THE IMPORTANCE OF DRAINING

was next discussed.

Mr. Thos. Steele, sen., introduced this subject, taking up the different points in detail. We will briefly notice what he classed as the benefits derived from draining. Drained lands can be sown earlier in the spring, allowing the crops a longer time to mature. There is less labor needed in the cultivation. The tillage is invariably better than it is on land where portions are wet, soured, and springy. Clover and fall wheat are not so liable to heave out and winter-kill on warm drained land. Undrained land of a clayey nature becomes saturated with water which sours, and in dry weather packs, and runs together, scarcely allow-

ing the rains to penetrate. Drained land is open and porous, the water being drawn off; air takes its place, making the earth mellow and friable. Rains in falling penetrate through the drains, warming the land, and in filtering through leave the plant food where a great benefit is derived; instead of rushing off over a surface hard as a road, and in many cases washing the top soil. The power of a fallow to retain moisture in comparison to sod or stubble lands is a good example of the difference in hard or mellow, or what is equivalent, drained or undrained lands. Mr. Steele entered very minutely into the proper mode to underdrain a field. He thought that in the majority of cases, drains four rods apart would be sufficient and advised digging them three feet deep as they draw a greater distance, and are cheaper than shallow ones, as a less number is required. The main or leading drain should be six inches deeper and a slight turn made in the ends of drains leading into it, allowing the currents of water to mingle gradually. Draining should be done in dry weather, but it is better to utilize odd times than to neglect it altogether. The speaker then described the many different kinds of material used. In regard to tile or lumber, he thought the cost about equal, and would use tile where a solid even bottom was found, but where land varied and was intersected by spots of quick sand, lumber would prove more satisfactory. His estimate of the cost of draining was twenty dollars per acre. The first ten acres thoroughly underdrained, the increased productivity would in a short term of years drain the whole farm.

A good discussion followed, the speakers generally endorsing and agreeing with the views of Mr. Steele, who is an enthusiast on draining, and claims to have originated the agitation resulting in the present Drainage Act, but says the rates of interest charged are too high to have it largely utilized.

The subject of debate, at the next meeting was, Have

AGRICULTURAL SOCIETIES

been of benefit to the country? The proceedings of this meeting have been reported to us by R.S. Avonbank, Perth Co., Ont. It was clearly shown that the manufacturers derived an immense benefit from agricultural societies' exhibitions; that in no other way could they receive so much benefit at so small an expense to themselves.

Mr. Thos. Steele, sen., claimed that the farmer shared an equal benefit, as it gave him an opportunity to contrast the different articles and choose that which would be most serviceable. Another advantage the farmer derived is, if he had a good animal he had an opportunity to let the public see it, and it had the tendency to stimulate others to beat him. Mr. Steele was in favour of one show in every county, and offer liberal prizes to induce farmers and manufacturers to exhibit. He condemned township shows, thought they did no good and drained the money away from the county show. He maintained the Provincial Exhibition had done a good work, but thought its usefulness was gone, as it was becoming too large and unwieldy. Mr. Steele thought horticultural societies more of an ornament than use, and was very much in favor of spring shows, as it gave the farmer an opportunity to choose the best animal for breeding purposes; strongly recommended seed shows; thought they were very useful and did not cost the society much. Mr. Steele finished a very good speech by saying that it was the duty of every farmer to give agricultural societies his hearty support, and that the country was more prosperous to-day than if they had never been introduced.

HOW TO WINTER BEES SUCCESSFULLY.

SIR,—I have been quite surprised at times on reading articles from different intelligent beekeepers, that so many of them are looking forward to a time when wintering bees successfully will no longer be a matter of blind uncertainty, but that bees can be put into their winter quarters in the fall, and their coming out will be confidently expected.

Putting the matter in this too sanguine light is apt to create a false impression in the minds of younger beekeepers, for they launch out with this idea in their minds, and when disaster meets them they are discouraged, as they were not prepared for this loss. Every intelligent beekeeper will appreciate the efforts put forth to get at the most successful means of wintering bees. But do not hope for perfection, for it can not be had, and sooner or later you will be disappointed.

Could the difficulties to be overcome be definitely laid down, there might be hope to prescribe a remedy that would meet it, and forever set at rest the question of bee-keeping. Could we have our coming winters and springs always foretold for us, we might adopt a settled theory; but not till then; for what proves best during one season is not most successful in another of a totally different character.

Then since we cannot forecast our seasons, we must adopt the method that gives the best general satisfaction.

This brings us to a real difficulty—what method among the many to adopt. Public opinion seems to vacillate between two plans, viz.:—Chaff hives and dry cellars. Previous to the winter of 1880-1, chaff hives occupied a prominent place on account of their success during the two previous winters. These two winters being somewhat mild, bee-keepers believed that the long looked for plan had been found. But the severe winter of 1880-81 caused quite a revolution in their ideas, chaff hives proving themselves fallible; now the tendency of many will be back to cellars again. Then, to come to a settled conclusion of which is the better, not which will winter without loss, but which will winter with less loss. Here we again come to a real difficulty, for no plan will be alike successful in mild or in severe seasons. Neither will any system work the same in all localities. So we are completely baffled in our attempts. Success with either plan depends greatly upon local circumstances. If we have not a dry, dark cellar, cellar wintering will be out of the question; and, too, they must be easy of access. On the other hand, chaff hives require to be sheltered from winds. Bees consume more honey than when in the cellar, and they are more expensive to make. Then it becomes a personal question with each individual bee-keeper—which will give me the more advantages, chancing the winter chaff hives or cellars?

Now, while I would not attempt to advise anyone, I might give what I consider the advantages of one over the other. Chaff hives or all out door wintering has one great advantage in having access to the open air to fly any day in winter that is warm enough. Bees in chaff hives do not dwindle down in spring like cellar wintered bees. They do not fly so much on cool days, as a slight sun will not warm the hive through the two boards and chaff. This is probably, its greatest advantage. Bees wintered in cellars must be in single boarded hives, and they are therefore in spring and fall so much more exposed to cold chilly winds, cold rains, frosty nights, making them sometimes cluster together so as to leave the brood exposed. In chaff hives the two boards and the chaff will maintain an almost even temperature, thus overcoming this difficulty. On the other hand, bees eat much less honey in the cellar, which is quite a saving on a hundred colonies. But it is only during very severe winters like the last that they are most successful for wintering. In a mild winter the hives in the cellar become too warm, and in severe winters chaff hives cannot offer sufficient protection.

F. C., Woodstock, Ont.

SIR,—Numbers of your ADVOCATE are taken by the people in the district over which my pastorate extends, and for our farming class very much valuable information is contained therein. As your replies to various correspondents appear constantly, I take the liberty of asking for information respecting a disease among the cattle in this neighborhood. Several cows on adjoining farms have died during the season. The bag of the animal begins to swell and continues till as hard as flint. Death usually ensues in from 3 to 6 days. At death the bag seems a mass of mortification. Our farmers fail to understand the disease, and recognize it as something hitherto unknown in this locality. Will you kindly insert a line touching the matter in your next issue of ADVOCATE. Perhaps the disease is familiar to you, and a remedy could be named.

J. W., Cole Harbor, N. S.

[The disease you speak of is not an infectious one. We have seen it a number of times. It is generally confined to certain localities. What will cause it in one cow will cause it in others exposed to the same influences. It is a disease similar to garget, setting up great constitutional fever from which the cow dies. It is generally caused by pasturing on certain kinds of soil, or drinking water impregnated with something that affects the milk glands and udder. As soon as a cow is noticed to be ailing, give her a purgative drench, say Epsom salts one pound, carbonate soda two

ounces, ginger tablespoonful, dissolved in quart of water. Follow up by giving powders three times a day, of saltpetre two drams, black antimony half a dram. Repeat the purgative drench in about three days.]

GREEN CROPS AFTER FALL WHEAT.

SIR,—After taking fall wheat off, what is best to sow for fall feeding milch cows? The land is new, this being the first crop grown on it. We are well pleased with the ADVOCATE, as we find so much valuable information in it.

H. P., East Lynne, St. Joseph Island, Ont.

[You can, after saving the fall wheat, prepare the ground immediately, and sow either fall rye or rape. Rape will be sufficiently grown for feeding in about 6 or 8 weeks after being sown, if the ground be in good condition and there be a little moisture. It yields a large amount of feed, but it will not stand our winter frost. Fall rye, under favorable circumstances, grows very rapidly and luxuriantly. It lives through the winter, and you may find it useful for spring feeding before plowing it down for a succeeding crop.]

SIR,—Some four weeks ago my horse was taken lame in his hind leg. When first starting he limps; after awhile he gets better, but after stopping a few minutes he again limps. It seems to hurt him in stepping over any uneven surface. If he jumps he is quite lame for a short time. He does not step as long with that foot as the other. I fancy it is in the hip or stifle joint. I thought first it was in the foot, but it is not. Could you tell what the matter is, and what would be good for it? I blistered his hip, and have not used him for some days past. He is given to jumping fences sometimes.

C. D., Hay P.O., Ont.

[Your horse is spavined. Wash the hock joint well with cold water and salt twice a day for about a week, then have it either blistered or fired. Repeated blistering generally cures them, but in obstinate cases it is often necessary to have them fired and blistered afterwards.]

SIR,—I have a very valuable yearling colt that has been lame about a month in one hind foot. There is a ridge growing around the leg, midway between fetlock and hoof. I think it is a ringbone. Please give directions how to cure, if you think there is a cure.

D. E. T., Wallace P.O., Ont.

[Your colt has a ringbone, and you will require to have it blistered. In case the blistering failed to cure the lameness, then it would be advisable to have it fired and blistered afterwards. Take it to a veterinary surgeon, and allow him to treat it. If you have no veterinary surgeon convenient, by addressing Rudd & Tennent, veterinary surgeons, London, Ontario, they will send you the necessary medicines by express, with directions for their use.]

SIR,—I have a fine mare, nine years old, but she has always had a sore mouth. She slobbers a great deal. I have tried both leather and rubber bits, but they do no good. I would be very much pleased if you could give me some cure for the above in your next number.

J. W., Waterford P.O., Ont.

[Examine the mouth, and see if the fore grinders are pointed or uneven on the side or front of the tooth. If they are have them floated down. Use a solution of alum on the mouth and lips every time after driving. If they do not heal and become hardened with this, write us again.]

BURNT BONES AS A FERTILIZER.

SIR,—Will you kindly inform me, through your valuable paper, if burnt bones are good manure for fall wheat, and, if so, the quantity it requires per acre, and also if it would do for onions.

F. R., Mayne Island, B. C.

[Bones when burnt are a good fertilizer, though not so good as when crushed and reduced to dust without burning. Bone dust is beneficial to the growth of plants from its affording them several of the constituents they require. So valuable is this fertilizer considered in England, that it is stated in the report of an Agricultural Association, that one wagon load of small drill bone dust is equal to forty or fifty loads of fold manure. Bones however lose much of their fertilizing properties by being burnt. Bone ash consists of phosphate of lime, fluoride of calcium, carbonate, and sulphate of soda and phosphate of magnesia.]

SIR,—As my orchard has been about 14 years in cultivation, I laid it down in 1879 with orchard grass and clover, which came in well, the clover especially was very thick. The following winter the clover was nearly all winter killed, but the orchard grass stood the winter well and was cut last year principally for soiling, but some for hay. This year it came up well again, and withstood the drought and the June frost better than any grass we have, although we had so little rain; some was cut early for soiling, and bids fair to give another cut as we have had several reasonable showers recently. Now, I want to know if orchard grass grown by itself would make a good nutritious hay for horses or cattle. It appears to stand the winter frost and summer drought better than any grass we have. Some years ago I sowed timothy and Alsike clover, which was cut for hay, and although the ground has been ploughed and cropped since, the Alsike clover has come up again this year, but it has not withstood the drought so well as the red clover. Whether it came up from the roots or from seed ripened and shelled out in the cutting I am unable to say. Are there two kinds of Alsike clover? Some years ago I saw some growing in the orchard of a neighbor where it was never eaten off by cattle, fully six feet long. The same year I saw some which had been pulled up by the roots as a specimen, very thick and branchy and not over one foot long; as for this year, we in this section of the country have been, as we were last summer, very fortunate in escaping the heavy rain and hail storms, hurricanes, &c., &c., which have caused so much destruction in many other places; but nevertheless we have had our share of the June frosts, which proved so destructive to garden stuff, fruit buds, &c., in the neighborhood of Owen Sound. A farmer from the upper end of this township told me he had his fall wheat cut down to the ground; another who resides about a couple of miles farther back from here, said his fall wheat had turned yellow. In some places the spring wheat and hay have been injured; but strange to say I had no frost in my garden.

Our fall wheat which was partially winter-killed has recovered very much; our hay is slightly affected but our sugar beets and carrots were untouched. Our apple and pear trees had a fine show of blossoms; but though we had no frost we had cold foggy weather with north-east winds for two or three days, and most of the young fruit dropped off after it was set. I attribute our exemption from frost to the fact that we are on a hill, open to the Georgian Bay, so that we get the benefit of any wind that may be blowing and the latent heat from the water. Haying has commenced with a rather indifferent crop, but fine weather will enable us to make the most of it.

SARAWAK.

[Orchard grass is highly recommended for pasture by those who have grown it for hay. It should be cut before the seed forms, and when used as pasture it is most nutritious when fed closely. We know but one kind of Alsike.]

SIR,—Crops about here are looking finely. The weather has been showery and favorable generally. The hay crop promises to be much better than it was last year. The potato bug has made his appearance, but has not done any damage in our neighborhood yet. Some of our farmers are white-washing their potato vines, as a preventative, and it is said that many fought the bug successfully last year by doing so. The strawberry fields of Clifton are beginning to redden, and the next three weeks will be busy times among the villagers. The berry crop of this little village will probably reach 40,000 to 45,000 quarts this year, most of which will probably find a market in Boston, Mass.

R. W. W., Clifton, N. B.

[As your strawberries come in after the Southern and Western crops are consumed, we think there is a good opening for strawberry raising with you. The large hotels and restaurants will have them at any price, if you can raise enough and of first quality.]

SIR,—The people here are pleased with the FARMER'S ADVOCATE. I have now sent you 10 new subscribers. If I can find any more I will send their names along. I have all the crop in on the Government farm, except some turnips. I commenced sowing 29th March. The cattle remained good beef all winter on the plains. Stock raising is all the rage here.

S. B., Fort MacLeod, N.W.T.

WEIGHT OF RYE STRAW.

SIR,—I will give the results of two experiments in growing rye. I was induced to make the experiment by seeing a report of rye growing. The reported yield of straw and grain was so very large that I very much doubted it, and to satisfy myself whether or not such crops might be grown, I made these experiments. In the first experiment, in 1874, the land was in grass, and had not been plowed for years. Soil a deep black loam overlying hard pan. It was plowed in the spring of 1875, heavily manured, and produced a crop of Lane's sugar beets. After the beets were harvested, the land was thoroughly plowed and fitted for rye, and one-fourth of an acre was measured off for that purpose. The remainder of the piece was laid by for a spring wheat crop. This quarter of an acre was the only rye in the immediate vicinity. October 13th I dressed the plot with 400 pounds of phosphate, and sowed 34 quarts of rye, two quarts of which came from the Agricultural Department at Washington. These two quarts came up well, but did not stand the winter, so that when the crop was grown there was very little rye where the two quarts were sown.

The whole crop was cut in due season, well cured in the stack, then put into the barn, weighed and packed away until the 14th day of February, 1877, when it was threshed, cleaned and weighed. The crop weighed when put into the barn, 2,600 pounds. After threshing, the weights were as follows: Straw, 2,000 pounds; chaff, 100 pounds; screenings, 38 pounds; grain, 364 pounds, or 6½ bushels. The account with the crop taken from my farm book, is as follows: To plowing and fitting, \$2; 400 pounds of phosphate, \$10; one bushel of seed, \$1.50; sowing and rolling, \$1; harvesting and carting, \$1; threshing and cleaning, \$2; interest on land, \$3. Total, \$20.50. When the crop was threshed the rye and straw might have been sold for \$23.52.

In the second experiment, which commenced in the fall of 1877, I again took land that had produced beets. This lot had received two years' cultivation and two heavy dressings of manure, and my account of this experiment is as follows: Plot one-fourth of an acre; good strong loam, and dressed with 500 pounds of fertilizer: Plowing and fitting, \$2; 500 pounds of fertilizer, \$13.75; one bushel of seed, \$1.25; sowing rye and fertilizer, \$1; harrowing and rolling, 50c.; harvesting and carting, \$2.50; threshing and cleaning, \$3; interest on land, \$3. Cost of crop, \$27. The crop weighed when put in barn, 4,124 pounds. Threshed Feb. 14, 1879, and straw weighed 2,137 pounds; chaff, 182 pounds; screenings, 120 pounds; rye, 854 pounds, or 15½ bushels. The rye and straw might have been sold for about \$30, leaving a small profit upon the experiment. At this rate an acre would have yielded 4 tons and 548 pounds of straw, 61 bushels of grain and 8½ bushels of screenings. D. G. R.

CROPS IN NOTTAWASAGA.

SIR,—We had a heavy frost here June 5. It killed hundreds of acres of fall wheat, and stunted the grass. Our hay crop is very light. The fall wheat that missed the frost looks well. Spring wheat, peas, oats and potatoes look well. The straw of wheat and oats will be short, but I expect we will have a good crop. I bought two pair of steel collars last August, on your recommendation and my own common sense. I have worked them on my horses nearly every day since. I like them well. A number of my neighbors' horses have their shoulders scalded, but mine are all right. J. T., Nottawa P.O., Ont.

CRANBERRIES AND STRAWBERRIES.

SIR,—I often see inquiries in your paper about cranberry culture. I also see it stated that the upland cranberry can be grown on dry land at a profit, and that it is cultivated in Central New York. I will not say it is not cultivated in this section, but will say that I do not know of any man about here who owns a single plant. I am largely acquainted with fruit-growers from Albany to Buffalo, and do not know one that raises cranberries. I do not believe there is a quart grown within a hundred miles of here, except in swamps, where they grow without culture. If they were adapted to this climate and soil they would certainly be cultivated here. I have twice paid money for plants, and tried to raise them, but failed. We all know cranberries can be raised at a profit when the surroundings are favorable; but

without more knowledge on the subject than most of us have, the safest way is to go slow.

With the strawberry it is very different. Every man who has the opportunity and does not raise strawberries makes a great mistake. Now, while we are enjoying this luxury, farmers all about us have none on their tables. The big dishful of strawberries and cream that should be there two or three times a day is not there. The expense of them for a family is next to nothing. Let us, therefore, all have a strawberry-bed, for home use at least. A. M. W.

GLUCOSE AND GRAPE SUGAR.

In reply to enquiry by L. L., Huron Co., what is Glucose and wherein does it differ from Grape sugar; we take from the Popular Science Monthly, the following article on the subject:—

Glucose is a sweet syrup made from corn starch, resembling in appearance the molasses of cane sugar, and by reason of its greater cheapness largely affecting the consumption of the cane product. Grape sugar is made to resemble a finely powdered sugar, and is used extensively to adulterate the sugar of commerce. Glucose is used chiefly for the manufacture of table syrups, but also in candies, as food for bees, by brewers both in this country and England, and for making artificial honey, the combs being molded out of paraffine. Grape sugar is also applied to some of the same uses, but principally for the adulteration of other sugars. The cheapness with which glucose syrup and grape sugar can be produced has led to its extensive use. The most flourishing manufactories are at the West, where corn was bought last year at a little over thirty cents per bushel. As from twenty-six to thirty-two pounds of glucose syrup or grape sugar are made from a bushel of corn, the average cost of either to the manufacturer is about one cent per pound. As he sells either article at three to four cents per pound, the business is a very lucrative one, and is rapidly extending. On the first of August there were ten factories in operation in the United States, consuming daily about twenty thousand bushels of corn. There were also in process of construction nine other factories, with a total daily capacity of twenty-two thousand bushels of corn. Prof Wiley estimates that not less than eleven million bushels of corn will be converted into glucose and grape sugar during the present year, and says that every indication leads to the belief that the amount will be doubled in 1882.

TIMOTHY OR RYE GRASS—WHICH?

SIR,—I would like if you could tell me which would be the better of the two to sow for hay, orchard grass or rye grass. Our soil is a heavy black loam. Would either be better than timothy? I have cut timothy this season that will give from two and a half to three tons per acre; while some will not be more than two per acre, also how much of either to sow per acre. The crops in this locality are looking well. Wheat will give from twenty-five to thirty bushels per acre; oats from fifty to seventy; peas a good crop, and early sown barley good, while that which was sown later will not be so good on account of the drouth. I have been a subscriber to the ADVOCATE for quite a number of years and like it exceedingly well. I am sorry the proprietor of the ADVOCATE has such a poor opinion of the Bulls' Eye of the Dominion, but I think if he were here this summer he would have to change his opinion of it, and show the bright side of the picture at this time.

Now, Mr. Editor, you must bear in mind, while you read this, that it comes from a native of Manitoba, who has never been about the world but I have seen men who have been through the greater part of Ontario and who say that they have never seen a more busy place than Winnipeg. I think that some of the scenes given in the ADVOCATE were a little far fetched, and were most certainly the dark side of the picture, and you should not fail to give us the bright side at your earliest convenience. I received the maple seeds all right and would like to know the best time to plant them.

ASSINIBOIA,
North-west Territory.

[Either of the varieties of grasses named would be good for hay, yielding heavy crops, if the land be in good condition and nutritious feed for stock if well saved. *Dactylis glomerata*, orchard grass, cocksfoot (by the three names it is known) is one of our most useful grasses, growing best in deep rich loamy soil. For a mixture of grasses, 3 to 6

lbs. of orchard grass are enough. About 30 lbs., 2 or 3 bushels would be needed if sown alone.

Rye grass, *Lolium perenne* or *L. Italianum*. The Italian Rye grass was introduced not many years since to British agriculture. It is more productive and succulent than the perennial, and is more relished by stock. The rye grass of either variety is one of the most valuable meadow grasses. It will grow on all soils. It has been tried here, and has not quite fulfilled the expectations of those who introduced it. At the rate of 5 or 6 lbs. of seed to the acre in mixtures for permanent grass, sown with clover, or of 3 or 4 bushels per acre sown in rich land, its produce is generally unequalled in quality and quantity.

Ryegrass is not a perennial plant, notwithstanding its name. It dies after it has seeded. If, however, it be prevented from seeding by being perpetually cut down, it will for years continue growing and throwing up its succulent leaves and stems.

Timothy or herd grass (*Phleum pratense*) is a first class grass, yielding a heavy crop of palatable nutritious food. One or two pounds of seed per acre is enough, as the seed is very small.

Maple seed should be sown as soon after it has been gathered as possible, or else kept dry; not too much so, till spring. This seed grows after falling if covered by any means with a little earth.

SIR,—Will you please answer the following questions. Is the Essex pig as profitable as the Berkshire and will they grow as large at a year old? What kind of apples are the most profitable for shipping, as there is such a variety there must be some better than others for home and foreign markets and drying purposes? What kind of small fruit is the most profitable for farm gardening, that we may have small fruit through the season? Can we grow the garden peas, such as is used for canning purposes, on a large scale without cultivating and without sticks so as to be profitable, or must they have sticks and be hoed?

A. S., Luton P. O.

[There exists great diversity of opinion as to the comparative quality of Essex and Berkshires. Both breeds are very much alike, and there is very little difference between them. We prefer the Berkshires, thinking their flesh to be nicer pork.

In selecting the varieties of apples for planting we must be somewhat influenced by the adaptability to the section of the country and its climate. The opinions of fruit growers generally, as based on experience are in favour of the following varieties, viz:—Summer varieties, the Red Astrachan, Early Harvest, Summer Sweet and Sweet Bough; to these some add the Keswick, Codlin and the Tefopsky. Fall apples, the Duchess of Oldenburg, the Gravenstein, Alexander and Maidens' Blush; winter varieties, the Golden Russet, the Northern Spy, the Red Canada, Tolmans Sweet, Fameuse, Spitzenburg and Baldwin are among the general favorites.

Of small fruits the most profitable in a favourable season is the strawberry; raspberries also are profitable.

Of peas the dwarf varieties are not staked.

SIR,—Will you kindly repeat the free copy of your valuable paper as a prize at our annual plowing matches?—R. H. T., Sec.-Treas. Sherbrooke Plowmen's Association, Lennoxville, Que.

[Certainly. The Farmer's Advocate and Home Magazine for one year will be given as a special prize to any plowing matches, on application by the Secretary.—Ed. F. A.]

An article for publication, signed "Smith," has been received. The writer does not send his name and address, and we therefore cannot use it until our will is complied with. See "Notice to Correspondents."

Keeping hogs in orchards to eat up all early fallen fruit will certainly have a most beneficial effect in the destruction of myriads of insects, causing the fruit to be less knotty and imperfect. A man whose trees, as usual, bore more apples during the even year than he could make use of, and in the odd year not enough—with a long pole went to work and gave his trees a thorough beating on the south side, when the apples were about as big as hickory or hazel nuts, knocking off all the apples on that side he could see, and breaking the little twigs as well, and the result was that the trees for many years bore full crops annually on alternate sides.

Minnie May's Department.

Answers to Enquirers.

ROSE-BUD.—Ask your barber about your hair. You may think this barbarous advice, but we really know nothing that will make the hair curl. Your writing is very fair.

CAPE BRETON.—How can I take the stains out of a suit of clothes? **ANS.**—Ammonia mixed with water is a solvent of grease, and nearly all kinds of dirt. Benzine is also an excellent cleansing material. Lay the garment on a table, brush out the dust; then sponge the cloth with a mixture of one part of ammonia water in 5 parts of soft water; or with benzine alone. Then hang up to air.

BELLA.—When playing a wedding march how long should it be played, and should I stop when the wedding party is seated? **ANS.**—You do not say whether you play in church before the ceremony or at home when the party return. In churches the Wedding March is usually played while the wedding party are passing down the aisle after the ceremony is over. Other appropriate music being played before the ceremony. At home on the return of the wedded pair you may play until all the guests are assembled.

J. C.—Please inform me what will exterminate ants from a house which they infest? **ANS.**—As ants are very fond of anything sweet they may be trapped in immense numbers by placing pieces of sponge dipped in molasses and water, in plates placed where they abound; the sponges should be taken once an hour and oftener, and dipped in boiling water and squeezed out two or three times, and then sweetened and replaced. Many ants will come, but none will go until in a few days all will be killed off, or some sugar of lead may be dissolved in the water and molasses which will poison the ants, and the trap then needs no attention.

R. C. B.—Which should write first the mother-in-law to the daughter-in-law, or the daughter-in-law to the mother-in-law after the marriage? **ANS.**—It depends on the former relations of the parties. If the mother-in-law be still a stranger she should write first welcoming the new-comer to the family. But this is usually done before marriage. Whenever the engagement is announced the gentleman's mother should call upon the bride elect, or if living at a distance should write to her. If this has been done the bride may then write first after her marriage. Of course she would reply to the mother-in-law's letter immediately on receiving it; and afterwards need not stand on ceremony any more than she would with her own family. Even when no acknowledgement of the bride has been made if her husband should wish her to write to his mother, she may very well do so, if no objection has been made to her entering the family, and if she feels assured that the neglect betrays no lack of respect or kind feeling, but arises through the carelessness as to little acts of politeness which too often prevail among otherwise very nice, kind people.

LENA.—How is painting on silks and velvet done? **ANS.**—For velvet the material is prepared by passing a warm iron over the back of it. The outline of the figures is then made with a black lead pencil. The colors, common water colors, are laid on with camel hair pencils cut short and to a point, so as to be able to force the color into the pile. The colors are made of the consistence of cream. If they do not take hold well the velvet is to be made damp on the back. Silk is prepared by first outlining the figure and then laying on a coat of very thin solution of isinglass upon which the colors are laid.

RECIPES.

SMALL ONION PICKLES.

Small onions, not larger than marbles, must be carefully peeled and thrown into strong brine. Let them remain eight days, changing the brine every other day. Dry in a cloth, place them in bottles, add spice, and fill up with strong distilled vinegar. A teaspoonful of olive oil will prevent the onions from turning yellow. Mustard seed, horse radish, allspice, cloves, black pepper corns and mace are all excellent spices for onions.

TO PRESS FLOWERS.

Gather the flowers to be pressed when the dew has quite dried off of them, and before the sun has become so warm as to wilt them; place them between newspapers or any other porous papers, and

place them under a press; change them every day to fresh paper until they are dried; all the thin leaved flowers it will be found best to use for this purpose.—AUNT ADDIE.

THE BEST LEAVES FOR SKELETONIZING.

Any leaves that have a firm, woody network under the parenchyma—such as pear, apple, oak, walnut, chestnut, maple, poplar, ivy, rose, indeed, almost any leaves of trees, and perennial shrubs or vines. The leaves of annuals have not substance enough. They should be gathered when perfectly dry and ripe, and are in the best condition to skeletonize in August, when the leaves are ripe enough to have a firm skeleton, and the parenchyma (the green part) has not become too hard to dissolve easily. The best way to bleach the skeletons is to lay them for a few minutes separately in javelle water, taking care that every part is covered. Grasses, ferns, and some delicate leaves are to be simply bleached in the javelle water without any previous process.—C. G. T.

MIXED PICKLE.

To each gallon of vinegar allow a quarter of a pound of bruised ginger, quarter of a pound of mustard, quarter of a pound of salt, two ounces of mustard seed, one and a half ounces of tumeric, one ounce of ground black pepper, one quarter ounce of Cayenne; cauliflowers, onions, celery, sliced cucumbers, gherkin, French beans, nasturtions, capsicum. Have a large jar with a tightly fitting lid, in which put as much vinegar as is required, reserving a little to mix the various powders to a smooth paste. Put into a basin the mustard, tumeric, pepper and Cayenne; mix them with vinegar and stir until no lumps remain; add all the ingredients to the vinegar and mix well. Keep this liquor in a warm place and stir thoroughly every morning with a wooden spoon for near a month, when it will be ready for the vegetables to be added. As these come into season have them gathered on a dry day, and, after merely wiping them with a cloth to free them from moisture, put them into the pickle. The cauliflowers should be divided into small bunches. Put all the vegetables into the pickle raw, and at the end of the season, when the vegetables are all procured, store away in jars and tie over with a bladder. As none of the ingredients are boiled, this pickle will not be fit for eating for several months. I will repeat that the contents must be stirred each morning.

PICKLED WALNUTS.

Select full-grown green walnuts or butternuts when they are soft enough to be easily pierced through with a needle. They are usually in fit condition in July or beginning of August. Prick 100 nuts well through and lay them into a brine made of four pounds of salt to each gallon of vinegar; let them remain nine days, and at the end of the third and sixth days change the brine for fresh. On the ninth day lay them in the sun. After they are well drained place them in the sun till they turn black; they will need to remain several days. Boil one gallon of vinegar, two ounces of black pepper, half an ounce of cloves, one ounce of mace, one ounce of allspice and one ounce of root ginger sliced, ten minutes and pour it over the walnuts, which have been packed in jars three-quarters full. When the vinegar cools cover them up tight. They will be ready to use in a month, but they are better in a year, and will keep ten years. This pickle is an excellent accompaniment of fish.

LEMON CHEESE CAKE.

Break one pound of loaf sugar into small lumps, put to it one-quarter pound of butter, the yolk of six eggs with the whites of four, the juice of three lemons, and the peel of two grated; put these into a pan, let them simmer over a slow fire until the sugar is dissolved; continue to stir it gently one way while it is on the fire, or it will curdle; keep it in a jar like mince meat; let it simmer till it begins to thicken or looks like honey.—MRS. JOS. SAUTER.

HOW TO DRY CORN.

Gather the corn when in the proper state of maturity for canning, and scald it in boiling water a sufficient time to set the milk therein, then cut it from the cob and dry as you would apples or other fruit; it should be dried in an oven or drying house to protect it from insects. It might be dried in the sun, by covering it with mosquito netting. After it is dried it can be kept in muslin bags, as dried fruit is kept in drying. Care must be taken that it does not sour by getting wet else it will be useless.—R. B. FOSTER, in Fruit Record.

COLORING GRASSES.

There are few prettier ornaments, and none more economical and lasting, than bouquets of native grasses, mingled with the various Gnaphalium, or unchangeable flowers. They have but one fault, and that is the want of other colours besides yellow and drab, or brown. To vary their shade, artificially, these flowers are sometimes dyed green. This, however, is in bad taste, and unnatural. The best effect is produced by bending rose and red tints, together with a very little pale blue, with the grasses and flowers, as they dry naturally. The best means of dyeing dried leaves, flowers and grasses is simply to dip them into the spirituous liquid solution of the various compounds of aniline. Some of these have a beautiful rose shade; others red, blue, orange and purple. The depth of color can be regulated by diluting, if necessary, the original dyes with methyl or spirit, down to the shade desired. When taken out of the dye they should be exposed to the air to dry off the spirit. They then require arranging, or setting into form, as when wet the petals and fine filaments have a tendency to cling together, which should not be. A pink saucer, as sold by some druggists at six-pence each, will supply enough rose dye for two ordinary bouquets. The druggists also supply the simple dyes of aniline of various colors, at the same cost. The pink saucer yields the best rose dye. By washing it off with water and lemon juice, the aniline dyes yield the best violet, mauve, and purple colors.—[Queenslander.]

Which.

Which shall you marry? The young man with the light hair? or the one with the dark eyes? The bachelor? or the widower? The rich man or the poor man? *Which?* Well, my dear, if you really have not decided and actually do not know, I should say none of them. The woman who marries without love is the maddest creature living, and when one loves there is no indecision; there is no possibility, while the feeling lasts, of marrying any one else. The person you love may not seem better in other eyes than the general run of mankind, but he is quite superior to everybody else in yours. At least his coming step makes your heart beat, his absence saddens you; a walk or chat with him is a joy; you feel if he were gone the world would be empty. Surely two or three; or four young men cannot make you feel so. No one finds it possible to be actually in love with two at a time. Even the most inconstant man gives each new love a week or two of undivided affection.

Which shall you marry? It is the gravest question you could ask. Your whole life hangs upon it. *Which?* Wait until there is no possibility of asking that question before you marry anyone.

M. K. D.

Schneider's Tomatoes.

Schneider is very fond of tomatoes. Schneider has a friend in the country who raises "garden sass and sich." Schneider had an invitation to visit his friend last week, and regale himself on his favorite vegetable. His friend Pfeiffer being busy negotiating with a city produce dealer, on his arrival, Schneider thought he would take a stroll in the garden and see some of his favorites in their pristine beauty. We will let him tell the rest of the story in his own language:—

"Vell, I valks shust a liddle while roundt, when I see some off dose dermarters vat vas so red und nice as I nefer did see any more und I dinks I vill put mineself outside 'bout a gouple-a-dozen, shust to gif me a liddle abbetite for dinner. So I pulls off von off der reddest und pest-looking off dose dermarters, und dakes a pooty goot bite out of dot, und vas chewing it up pooty quick, vhen—by shimony! I dort I hap a peese of red-hot goals in mine mout, or vas chewing up dwo or dthree bapers of needles; und I velt so pad, already, dot mine eyes vas vool of dears, und I made vor an old oaken pucket dot I see hanging der vell in, as I vas goomin' along.

"Shust then mine vriend Pfeiffer game up and ask me vot made veel so pad, und of any off mine vamily vas dead. I toldt him I vas der only von of the vamily dot vas pooty sick; und den I ask him vot kind of dermarters dose vas vot I had shust been bicking; und, mine cracious, how dot landsman lauged, und said dose vas red beppers dot he vas raisin' vor bepper sass. You pet mine life I vas madt. I radder you gif me fiddy tollars as to eat some off dose bepper sass dermarters."

Uncle Tom's Department.

MY DEAR NEPHEWS AND NIECES,—

Such fun for boys and girls who live in cities and villages to go into the country in this heated month of August. Winter is the time that young country folks visit the city, but now the current runs the other way. Both visitors and those visited can do much to make the occasion pleasant. It is too often the case that we are glad when visitors leave, because they do not take to our ways, and make us feel all the time that they are different from us, even if they do not consider themselves superior.

If their ways of living are different from those you are used to at home, do not remark it, but try to adapt yourselves to the customs of those whom you visit.

Country children, again, must recollect that their city visitors are not used to many things that are every-day matters with them. If they cannot get over fences, climb a tree as readily, or endure as much fatigue as you can, do not make fun of them, but show them how to do the thing that they seldom have a chance to try. Recollect, if city boys and girls visit you who live in the country, that what is perfectly familiar to you is quite new to them. Many of them never saw what kind of a bush huckleberries grew on; never knew how hazelnuts grew. Tell them the names of the different birds; show them where the barn swallows build, and the big hornets' nest, that is to be treated with respect. There are so many things that you can do to entertain your friends, if you go about it in the right spirit.

Then you who are visitors learn to use your eyes, and don't be ashamed to ask questions. When you return to the city you, too, will have a story to tell, and we trust that you and your friends who live in the country will have enjoyed your summer visit so much that you will be glad to repeat it another year.

UNCLE TOM.

Letters.

DEAR UNCLE TOM,—

We have a hen who wanted very much to set, and we have little bits of kittens, too. And the big hen went and sat on the kittens one day, for she wished something to take care of, and had no little chicks of her own; and she went on sitting on them until the kittens got big enough to walk. One day I went out to see her, and I tried to take her off, but she pecked at me. When she was sitting on the kittens the old cat used to go and sit beside her. Now the kittens have grown quite big, and the hen only sits on them at night, when she takes them under her wing.

KATIE ADDISON.

DEAR UNCLE TOM,—

Your little nieces may be glad to hear how an English girl, eight years old, earned the medal of the Royal Humane Society, which is given for heroism in saving life. It was in Devonshire, Eng. The little girl's name was Esther Mary Cornish-Bowden. She was returning from Sunday-school with her governess and a younger sister. The governess became giddy and fell into a pond, where the water was six feet deep. Esther at once sent her little sister to the nearest house for help, while she herself tried to grasp the drowning lady's dress. She caught it, but reached too far, fell into the water and sank. She still kept hold of the dress, however, and when she rose to the top of the water she managed to clutch some overhanging branches. For some time she remained in this position, calling for help, and trying to keep the governess' head above water. At last a man passing near heard her cries, and came to the rescue. The lady soon recovered. Esther was quite unconcerned, and seemed to feel as though nothing particular had occurred. With the medal sent to her came also an account of how she had earned it, written out beautifully on parchment.

MAY COLE.

C. M. F. found some difficulty in puzzle 126 and asks what animal "eggs" is the beginning of. When Charlie commences the study of Natural History, he will learn that all the higher classes of animals are developed from ova or eggs.

PUZZLES.

135—WELL-KNOWN PROVERBS TRANSPOSED.

1. B'aint Peter Crusoe the vintner?
2. Wild Peter's lunar set.
3. I sent u spirit, Eva R Burton.
4. Did R N Frith sow me the barley?

136—HIDDEN FRUITS.

1. Should he come, Ada, tell him to come to me.
2. Don't knock as if you were trembling; rap energetically.
3. After you have set the trap, plenty of corn must be scattered within.
4. Get up early and enjoy a walk in the morning air.

137—DIAMOND PUZZLE.

1. My number one is within ground;
2. This is in linear measure found;
3. My third must all true warriors be Who fight for home and liberty;
4. My fourth come when the sun doth fall;
5. A name that's famous with us all;
6. By this our hearts are oft distressed;
7. My seventh in music is expressed;
8. My eighth is last, though last but one;
9. In everybody, though found in none.

A statesman great, well known to-day,
Now tell his name, dear, *si vous plait.* OGDOS.

139—ILLUSTRATED REBUS.



138—ENIGMA.

A dangerous thing they say am I
Across a harbor's mouth;
You'll find me east, you'll find me west,
You'll find me north and south.

Again, I'm made of iron, and
Keep plundering burglars out,
Though now and then, with cunning tools,
They best poor me, no doubt.

Lastly, now yield me reverence,
Learned profession I,
Wherein a chosen few succeed,
But thousands vainly try. H. B. A.

Answers to June Puzzles.

- 129—Little darkie (E) in bed with nothing over him.
- 130—Enigma: Toronto.
- 131—Decapitation. Habit.
- 132—Charade: Sky lark.
- 133—Cryptograph:
Tell me not in mournful numbers
Life is but a pleasant dream,
For the soul is dead that slumbers,
And things are not what they seem.
- 134—There's nothing new under the sun.

Names of those who sent correct Answers to July Puzzles.

Agnes R Jones, R A Stevenson, Chas M French, Willie Pearce, Edith Burns, Robert Wilson, Susan Brown, G A Gordon, Ida L Triller, Minnie G Gibson, Harry Imbach, J G G—n, Wm Howell, Maude Lawrence, J C Cameron, Annie McKay, Henry Lovering W A Bell, and Harriet E Brethour.

White Angora Rabbits.

Each particular kind and breed of pet stock has its especial advocates and admirers, and if this was not the case some of them would soon become extinct. Boys are especially fond of pet rabbits, and scarcely any other pet gives them as much genuine satisfaction and pleasure as the possession of some of the numerous breeds we now have under domestication. The common white haired, pink eyed rabbits are prized by many, especially where but a small amount of cash can be spared for the purchase of pets, although really creditable specimens of other breeds can always be obtained at moderate figures.

The Angora rabbits, especially the pure white variety, is one of the handsomest breeds we have, tho' we find that they are comparatively scarce in their purity, and command prices accordingly. The Madagascar or Lopeared rabbit is more expensive, particularly when having unusually large ears and heavy weight, but it must give way, in point of real beauty and attractiveness, to the white Angoras, which we would advise our young friends and readers to try, when looking around for some desirable pets.

When full grown and in good flesh, the Angora rabbit should average from seven to eight pounds, and but seldom go over the latter figure. Their exceedingly heavy coats give them a much more weighty appearance. Their coats should be pure white, soft and silky, and from three to five, and even six inches long, over the entire body, the longer, finer and more abundant the coat, the more valuable the specimen, other things being equal. The head is not heavily covered with hair, the ears stiff and upright, and the eyes of a pinkish hue.

The fur of these rabbits is frequently sheared, by those who breed them in numbers to warrant it, the same as sheep, and the "wool" makes a very fine quality of cloth. To keep the fur or "wool" free from trash, knots and tangle, as well as to keep it bright and clean, great care is necessary, and unless this is not, the animal will have a woe-begone and dragged appearance, making it anything but handsome in appearance. Rabbits are very prolific; and are, under ordinary good care, very readily reared.

Humorous.

Lady killers—tight stays.

What does a bald headed man say to his comb?
We meet to part no more.

After throwing eight boys over the fence from a water-melon patch, the woman charged them thus:—Now, see 'ere boys, you'll keep this thing up till you get me riled.

Lord Dufferin relates with great gusto that when he came home from India to get married he found no carriage awaiting him at the little Iriah railway station, and he had to hire a common jaunting car. Going along, he asked the driver if there was any news. "Nothing," said he, "except that pretty Kate Hamilton is going to marry that one eyed Dufferin."—Family Herald.

"So that's the grand jury, is it?" asked the man from the suburbs, after eagerly scanning the forms and features of the twenty-four individuals in the box—one man with unkept sandy locks, another with an aroma of sentimental seediness brooding over him, a third with a look of benign vacuity irradiating his countenance, and the others indicating different stages of wretchedness and misery. "Well, sir, if you've got any common, everyday jurymen around about here, I guess I don't care to look at them."

A young German was once pressing his suit, and in the midst of his ardor questioned the object of his choice as to her possible financial future "I have heard," he said, "that your good father owns two large estates in Silesia." "Yes," was the naive reply, "and he owns two more in Pommerania." The suitor hesitated a moment as though to catch his breath, and then, falling on his knees and looking the young lady imploringly in the face, cried out: "And can you, my darling, doubt my affection under such circumstances?"

Katie's Answer.

Och, Katie's a rouge, it is thrue;
But her eyes, like the sky, are so blue
An' her dimples so swate,
An' her ankles so nate,
She dazed, an' she bothered me, too,—

Till one mornin' we wint for a ride,
Whin, demure as a bride, by my side,
The darlint she sat,
Wid the wickedest hat
'Neath purty girl's chin iver tied.

An' my heart, arrah, thin how it bate!
For my Kate looked so temptin' an swate,
Wid cheeks like the roses,
An' all the red posies,
That grow in her garden so nate

But I sat just as mute as the dead,
Till she said, wid a toss of her head,
"If I'd known that to day
Ye'd have nothing to say.
I'd have gone wid my cousin instead."

Thin I felt myself grow very bowld,
For I knew she'd not scold if I tow'd
Uv the love in my heart,
That would never depart,
Though I lived to be wrinkled an' ould

An' I said, "If I dared to do so,
I'd lit go uv the baste, an' I'd throw
Both arms round yer waist,
An' be stalin' a taste
Uv them lips that are coaxin' me so."

Thin she blushed a more illegent red
As she said, widout raisin' her head,
An' her eyes lookin' down
'Neath her lashes so brown,
"Would ye like me to drive, Misther Ted?"

FANSY.—1st. Is it proper when wearing an engagement ring to wear other rings on the same finger. 2nd. Should a lady visit the sick room of the gentleman to whom she is engaged? 3rd. Is it proper to allow your male cousin to kiss you?
ANS.—1st. As a rule the engagement ring is worn alone, but one may wear another as a guard if wished. 2nd. It depends on where the sickroom may be, how ill the gentleman may be, and who accompanies the young lady. Some of the best of woman have not only visited, but have also remained with and nursed the men to whom they were engaged through dangerous illnesses, but a lady should not visit a gentleman during an ordinary illness unless she visits his family, and is asked by his mother or sisters to visit the sick room. Or a lady may visit a gentleman accompanied by her mother. But, as a rule, such visiting should be avoided. 3rd. It is not proper to put questions in the second person. In this case you can see how ridiculous it must be to ask a young man if it is proper to allow his male cousin to kiss him. When asking a question it sounds vulgar, and sometimes seems rude to make it personal. In the same way it is impolite when telling a story to make personal applications, saying, "Now would you do so and so?" or, "Would you allow anyone to treat you so?" when perhaps the very supposition is annoying. However, you probably mean if we were a lady would we allow our male cousin to kiss us, "Not much tell your aunt!" Now, we never meant to write that, but a little boy just shouted it under our window and it came in so apropos. You see if you would tell your aunt she would probably tell your male cousin not to trouble you asking for kisses any more.

There is nothing like presence of mind, after all. The other day, during a tremendous shower, a gentleman entered a fashionable club, bearing a silk umbrella, which he placed in the stand. Instantly another gentleman, who was mourning the abstraction of just such an article, jumped up. "Will you allow me to look at that?" he said, sternly. "Certainly," remarked the umbrella carrier. "I was just taking it to the police station. It was left in my house last night by a burglar whom we frightened off. I hope it will prove a first rate clew." And though the exasperated owner could plainly see where his name had been scratched off the handle, he sat down and changed the subject.

Notes on Ornithology.

BY ORNIS.

Every one knows the Sandpeep or Sandpiper, often erroneously called Snipe or Plover, which may be seen on the banks of almost any body of water in Canada. It is the Spotted Sandpiper, *Tringoides macularius*. Arriving towards the end of April, it may immediately be seen at its old resorts, and is busily engaged searching for earth-worms and insects among the mud of the river bank. It does not, however, begin to breed till the beginning of June, when, a pair having selected a spot for the purposes of incubation, they line a depression in the earth in a hay-field with dried grasses and straws, and lay therein four dirty cream-colored eggs, with dark-brown spots and blotches often confluent at the large end. They are tapered abruptly to the small end, and are laid nearly perpendicular in the nest, thus showing very little besides the large ends. The young of this species, as indeed of nearly every other species of water bird, run soon after being hatched, and are also expert at swimming and diving. Early in July these young birds may frequently be found, unable to fly, by simply walking along the bank where they are feeding. As we have already remarked, this bird is often called "Plover." Of real plover, only one species is really common inland, viz., the Kildeer Plover *Egialitis vociferus*. This species, familiar to most people, has a broad black band across the breast and reddish-brown feathers over the tail. It is called "Kildeer" from its note being supposed to resemble that word. It inhabits fields of various kinds, from plowed fields to pasture fields, and in them makes a nest similar to the last species, and lays four eggs resembling the last, but with a lighter ground color and generally smaller spots.

Golden Plover (*Charadrius virginica*) are common in some districts, but are usually rare, and only appear in spring and fall. They are large birds, but little smaller than a pigeon, and being very good eaters, are much sought after by sportsmen and pot-hunters.

The Snipe, whose name also is erroneously applied to the Spotted Sandpiper, like the preceding species, spends only spring and fall with us, retiring north to breed. While here it lives in marshy districts, generally preferring land with small willow bushes as well, and can seldom be seen except while flying. In the air it performs some strange gyrations, accompanied by a curious sound, probably made by the air passing rapidly through the wings.

The Woodcock (*Philohela minor*), allied to the Snipe, is a denizen of swamps more thickly wooded than those frequented by the other bird, and remains with us to breed. The eggs, placed in a slightly lined depression of the ground, are pinkish-buff, with spots of a similar color but darker. The usual number is three, and they are laid from the 10th to the 15th of May in a secluded portion of the swamp. These also are celebrated eaters, and are much shot, or at least shot at, for they are one of our hardest birds to hit.

Sometimes, when out snipe-shooting, one will shoot a bird not much larger than a Sandpiper, but of a dark brown, with white stripes in the centre of the feathers, and the breast clear yellowish gray. This is the Carolina Rail (*Porzana carolina*). It inhabits marshy land exclusively, and from its retiring habits is seldom seen, not rising until one is within three or four feet of it, and then flying only five or ten yards and dropping. Of course one will generally walk after it to see it again, and will be surprised on reaching the place where it dropped to find that it is not there, and a more extended search seldom succeeds in bringing the bird to view, for on alighting it runs with great speed for twenty or thirty yards without stopping. If, about the middle of August, a person should happen to be on the water in the vicinity of a large marsh, by rowing over to it and remaining quiet for some time, one of these birds will often be seen to come out to the edge and run about on the debris, floating on the water, picking up here and there a water insect or beetle, their long toes preventing their feet from going through the loose material on which they walk.

Stock Notes.

The attention of our readers is directed to the sale of stock by F. W. Stone, of Moreton Lodge, Guelph, Ont., on 7th Sept. next. See advt.

Mr. Hodgson, of Myrtle, Ont., writes us that he has an exceedingly good demand for his Cotswolds, and that his young stock is doing well. He has a ram lamb that now weighs 140 lbs., and a ewe lamb which weighs 120 lbs.

Mr. Wm. Heron, of Ashburn, Ont., writes us:—We have recently purchased from Messrs. H. & B. Beith, Bowmanville, the two year old imported Clydesdale filly, "Lady Lonsdale," bred by Mr. Robt. Millican, Dykehead, Kirklington, Carlisle.

Mr. H. Y. Attrill, of Goderich, Ont., who, it will be remembered, sold his herd of Shorthorns at Chicago this spring, is laying the foundation for another herd. He has sent to England and purchased two Duchesses, at a cost, it is said of \$20,000.

Hon. J. H. Pope, of East View Farm, Cookshire, P. Q., whose adv. appears in the usual column, writes: "I have at present three young calves, three heifers and two bulls, from one to seven months old, of Polled Angus stock, with full pedigree, to dispose of."

Mr. Peter Arkell, of Teeswater, arrived in Guelph on the 16th, from England, with a cargo of 53 sheep, consisting of pure bred Cotswolds and Oxford-downs, all from noted flocks. He brought 26 for himself, 21 for Mr. H. Arkell, of Arkell, and 6 for F. W. Stone, of Guelph.

A ranche company, composed of Ottawa capitalists, including Capt. Stewart, and Mr. James Christie, has been formed. They have negotiated for the purchase of 2,000 head of cattle, and will add an improved stock of horses next spring. They will operate on the eastern slope of the Rocky Mountains.

Messrs. J. & R. Hunter, Sunnyside, Pilkington, have made the following important sales of Shorthorn cattle:—

To Charles Shibley, Harrowsmith, Maid of Honour 5th; to the same party, the very promising six months old bull calf, Duke of Addington. To Allan Bond, Inverary, Ont., Rosy Gem and bull calf. Robert Murdoch, Arthur, the 4 year old cow, Belle.

Mr. J. Kelly, jr., of Shakespeare, Ont., has returned from Scotland, bringing with him eight splendid Border Leicester sheep—three rams and five ewes. The animals were selected from the flock of Mr. James Melville, Bonnington, Wilkeston, Midlothian, and are of the best blood in the United Kingdom. One pair of the ewes took second prize at Glasgow this spring. They are the first Border Leicesters imported into the county of Perth.

The Messrs. Coughlin, of London, Ont., continue to ship cattle to the London, Liverpool and Glasgow markets. They shipped from Boston last week as follows:—Per Bulgarian, for Liverpool (Mr. D. Coughlin), 50 cattle; per Iberian, for the same place (J. & C. Coughlin), 138 head of cattle; per Iowa (D. Coughlin), 50 head of cattle; per Prussian and Sidonian, for Glasgow (J. & C. Coughlin), 126 head. Trade has been active, and current rates maintained.

Of the "first sale of Shorthorns" the Indiana Farmer remarks as follows: "We believe that the first noted herd sale of Shorthorn cattle was that of Charles Colling, Durham county, England. This occurred in 1810. It was here that the noted bull Comet sold for \$5,000, and cows sold as high as \$2,500. The herd of 29 head averaged \$700 each. This was the highest price that ever had been paid for cattle, and it attracted attention all over the grazing districts of Europe. Whatever may be said in praise of other breeds, it is a fact that no other race of cattle have ever grown so steadily in favor in the past century and a half. First imported into this country in 1785, now there is no grazing district on the continent without them. It is equally true perhaps, that no other single branch of husbandry has resulted in so much wealth and prosperity to the American farmer."

Commercial.

FARMER'S ADVOCATE OFFICE, } London, July 23, 1881. }

Since our last was written, there has not been much change to note in the crop reports of the world.

WHEAT.

The English harvest will be an early one, and the yield is likely to be disappointing. Harvest had commenced in Sussex on the 20th, and it is stated would become general throughout England in a fortnight. Reports from France are somewhat conflicting, and it is hard to get at the facts of the case. The general opinion seems to be that France will not probably require to import foreign wheat to anything like the extent she has done the past season. The Russian crop is said to be the best she has had for years. The other countries of Europe are all, on the whole, favorable. Even Ireland is said to have very fine agricultural prospects.

There is very little to be said about the markets, except that the "bulls" are making it lively for the "shorts" in Chicago, prices having advanced 7 cents since the 1st instant.

With us in Canada prices are much above export value, and we may look for a decline as soon as the crop begins to move and the immediate wants of millers are satisfied. Some people are already running away with the idea that we will see high prices, from the fact that America will not have the large surplus there was last year for export. These people forget that this deficiency will be met by better crops in Great Britain and Europe; besides, they must bear in mind that England is becoming every year more independent of America for her wheat supply. India, Egypt, Australia and some parts of South America now bear a hand in supplying her with bread. Another very important factor in this food supply is the facilities for communication and transportation. If prices improve sixpence per quarter to-day in England, we know it here in America by ten o'clock the same day, and the whole world knows the same thing to-morrow. The result is that any rise in price or strong demand attracts the attention of all the world, and the facilities for transportation soon puts any surplus into her store-houses.

BARLEY

promises unusually well, and we hope it will be secured in good condition.

PEAS

are also promising well, but it is too early to form an opinion of the crop.

CHEESE

This article has been unusually lively the past month, and contrary to our expectations, the price has been well maintained, and prices on this side have been forced up, we think, too high. At this moment there is a pause, and buyers are holding off. One dealer reports the English market demoralized. There is room for a decline and still be fair prices. Dairymen must remember that whatever is gained in price over 10 cents is lost in consumption. As soon as prices go over these figures, the demand at once falls off in proportion as the price advances. The make, so far, is well up to the average, and unless we get very dry and hot weather we may look for a good August and September make. A good many factories have refused 10 1/2 cents, and we shall not be surprised to see them take less.

BUTTER

has followed cheese, and seems to be forced up as far as it will go. Montreal quotations are much easier, and holders there are said to be trying to

unload at considerably less than cost. Creamery is now quoted at 22 cents, and Western dairy at 17 cents. We hope in a few years to see a large percentage of our Western Ontario butter made on the creamery system. The system of gathering the cream instead of the milk, now being introduced into Canada for the first time this summer, we hope will be a success.

CROP REPORTS.

From numerous reports from all parts of the Province, we are able to make a very close estimate of the growing crop. In the counties west and north of Hamilton:—Fall wheat, 60; spring wheat, 70; barley, 104; oats, 104; peas, 101; rye, 60; hay, 70; potatoes, 104; corn, 77; roots, 96; apples, 45; other fruits, 40. The area of fall wheat, barley, oats, rye, peas, hay, potatoes, corn and roots is slightly above the average; spring wheat below.

In the counties between Hamilton and Kingston and north of same:—Fall wheat, 95; spring wheat, 92; barley, 103; oats, 101; rye, 101; peas, 101; hay, 98; potatoes, 105; corn, 90; roots, 102; apples, 67; other fruit, 81. Area of barley, oats, rye, peas, hay and potatoes is above the average; fall wheat and roots, slightly above; below the average, corn and spring wheat.

All counties in Ontario east and north of Kingston:—Fall wheat, 104; spring wheat, 91; barley, 107; oats, 108; peas, 108; rye, 103; hay, 105; potatoes, 105; corn, 90; roots, 96; apples, 70; other fruits, —. Area: Fall wheat, barley, oats, peas, rye, hay and potatoes, above the average; spring wheat and corn, below; roots an average.

NOVA SCOTIA.

Spring and summer have been very wet and cold. Crops of all kinds a fortnight later than usual. Wheat is looking well; farmers have been very successful in raising it the last two years, and an increased quantity has been sown. Oats, which used to be our staple grain crop, but is now of secondary importance, looks very promising; barley also looking well; potatoes, our staple root crop looking well, especially on dry land, the latest planted (other conditions being equal) have the heaviest tops; corn, poor and backward, only a small crop planted; garden crops very late, but will yield heavily; fruit crop will be large; cherries not so plentiful as last year.

Farmers have just commenced haying; crop far in excess of last year, and is still growing. The weather is bad for harvesting, and the grass seems to require more curing than usual. A large area of buckwheat sown, is growing nicely, it is always an uncertain crop.

UNITED STATES.

The views of some of the Western Boards of Agriculture concerning the crops for the present season are as follows:—

In Ohio the yield is expected to be about 80 per cent. of that of 1st year, the early sown being the best. The acreage in Michigan is about the same as in 1880, an 1 only 10 or 12 bushels per acre are looked for. Indiana expects a crop of only 30,000,000 bushels, as against 47,000,000 last year, the quality being excellent. Wisconsin has a large acreage in spring, but a half breadth of winter wheat, and the crop is in fine condition. The Iowa Board estimates the spring wheat crop at half that of last year, and the winter sown at 44 per cent.

FARMERS' MARKETS.

LONDON, ONT., 29th July, 1881.

Table listing various agricultural products and their prices in London, Ontario, including wheat, barley, oats, peas, beans, corn, hay, and various flours.

TORONTO, ONT., 28th July.

Table listing various agricultural products and their prices in Toronto, Ontario, including potatoes, apples, butter, eggs, wool, hay, and straw.

CHEESE MARKETS.

LIVERPOOL, ENG., 28th July, 1881.

Per cable—Cheese, 55s 6d. LONDON, ONT. Receipts, 7303 boxes. Sales light, 10 1/2 to 10 3/4 offered. INVERSOULT, ONT. Receipts last market, 4,500 boxes; sales, only 180 boxes, at 10 1/2c per lb. LITTLE FALLS, N. Y., 26th July. Receipts last market, 10,714 boxes; sales at 9 1/2 to 10 1/2c.

LIVERPOOL, ENG., 28th July.

Table listing various cheese types and their prices in Liverpool, England, including flour, spring, red winter, white, club, and corn.

GRAIN AND PROVISIONS

MONTRÉAL, July 28th.

The local grain market was quiet. Wheat is inactive and nominal. Corn is firmer. Oats half a cent higher. Flour quiet and unchanged. Following are the quotations:—

Table listing various grain and provision prices in Montreal, including wheat, corn, flour, and various meats.

NEW YORK, July 28th.

Table listing various grain and provision prices in New York, including flour, corn, and various meats.

HALIFAX, N.S., July 27.

Table listing various grain and provision prices in Halifax, including flour and corn.

LIVE STOCK MARKETS.

BUFFALO, N.Y., July 28.

Cattle firm; several loads choice natives at \$5 75 to \$6; two loads of extra steers at \$6 4; one load of light butchers at \$4 90. Sheep and lambs—No improvement; buyers still holding off; good sheep \$4 40 to \$5; choice heavy \$6 25; Canada lambs \$6 25. Hogs stronger; sales at \$6 70 to \$7, with a few extra medium weights at \$7 10.

REPORT OF PRINCIPAL CATTLE AND SHEEP MARKETS OF GREAT BRITAIN.

(For the week ending Thursday, July 14.)

LONDON—Best beef, 7 1-2d to 7 3-4d per lb; inferior and secondary, 6 1-2d to 7 1-2d per lb. Best mutton, 8 3-4d to 9 1-4d per lb; inferior and secondary, 7 1-2d to 8 1-4d per lb. The cattle trade is steadier. Supplies are short, with a rather better demand; the tendency and prices are against the buyer. The receipts of beasts from our own grazing districts were below the average, but the quality and condition were satisfactory.

LIVERPOOL—Beef, 6d to 8d per lb; best mutton, 8d to 9 1-2d per lb. The supply of stock was larger. The demand was fair for cattle and sheep at about last week's prices for prime stock; middling and inferior, lower.

GLASGOW—Best beef, 7 1-2d to 7 3-4d per lb; inferior and secondary, 5 3-4d to 7d per lb. Best mutton, 9 1-2d to 10d per lb; inferior and secondary, 8d to 8 1-4d per lb. All kinds in demand, and prices for sheep rather higher than last week.

TORONTO, 27th July.

There has been a moderate demand for cattle the past week, and prices have been well maintained. The best export cattle are not worth over a 5 1-2c, and few cars, averaging 1,400 lbs, sold on Tuesday at 5c per lb. The shipment from Montreal show a slight increase, and an improvement in trade is anticipated. Cattle averaging 1,000 to 1,100 lbs sold at 3 1-2c to 4c; 1,200 lbs, at 4 1-4c to 4 1-2c; and 1,400 lbs at 5 cents.

CATTLE—For local market—First-class, 4c to 4 3-4c; second-class, 3 1-4c to 3 3-4c; third-class, 2 1-2c to 3c. SHEEP—The demand has been fairly active for export, and receipts good. Prices continue steady, with sales at 4 1-2c to 4 3-4c per lb.

LAMBS—There has been a moderate trade and prices continue unchanged at \$3 50 to \$4 per head.

CALVES—The market is quiet and prices steady. Really choice lots are worth \$10 to \$12 a head, and ordinary from \$4 to \$6.

HOGS—There is a moderate demand and prices are unchanged at 6c per lb.

The Crops.

On July 29th we took a short drive in the vicinity of this city. The wheat crop was nearly all secured and in good order. The farmers were never more jubilant with their crops of hay and grain, and the prices of dairy and other products.

We saw a threshing machine running on one farm, and went into the barn to examine the grain. It was of good quality, but rather too damp to keep without turning. We timed the machine, which turned out one bushel in half a minute. The Separator was built by the Sawyer Manufacturing Co., of Hamilton; the engine by Stevens, Turner & Burns, of London.

We saw an engine and separator, both made by Stevens, Turner & Burns. The previous day they had run both for the first time, and had threshed 400 bush. of wheat in 7 hours.

The winter wheat is a grand crop in this locality, many fields will yield between 30 and 40 bush. to the acre. A letter from South Australia informs us that the wheat crop there will not average over 5 bush to the acre this year. 12 bush. per acre there is considered a good yield. What a contrast!

Agricultural Exhibitions of 1881.

Quebec Provincial Exhibition to be held in Montreal, Que., September 14th to 23rd.

Ontario Provincial Exhibition to be held in London, Ont., September 21st to 30th.

Dominion Exhibition to be held in Halifax, N. S., September 21st to 30th.

Great Central Fair, to be held in Hamilton, Ont., October 4th to 7th.

Yarmouth Agricultural Exhibition to be held in Yarmouth, N. S., October 5th to 9th.

Provincial Agricultural and Industrial Society of Manitoba at Winnipeg, 11th to 13th of October.

The Industrial Exhibition are offering most wonderful attractions for their great fair, commencing 5th Sept. next.

A Bench Show of Dogs will be held in London during the Provincial Exhibition. One thousand dollars will be offered in prizes. Among other premiums, \$15 will be awarded for the best Collie dog. Entries will be received by J. Puddicombe, Secretary, London, up to September 12th.

On the 19th of July, Capt. Alfred Luard, of this city, handed us some most magnificent specimens of "Beauty of Hebron" potatoes. He has been eating this year's crop since the 18th of June, and pronounces this variety the best ever grown by him after trying countless other kinds. The largest one given to us weighed 10 ounces.

Seegmiller plows are selling like hot cakes. He has shipped plows to England, to the United States, New Brunswick, Nova Scotia and P. E. Island, besides a rushing business in Ontario. Try one at once.

On 19th July last, Samuel Seegmiller, of Goderich, Ont., whose now well known plows are advertised in another column, writes: "The FARMER'S ADVOCATE is the best advertising paper in Canada." Nothing new in above to many, but a word to the wise is sufficient.

The Canadian Accountant, by S. G. Beatty & J. W. Johnson, of the Ontario Business College, Belleville, Ont., is acknowledged. From a perusal of this work many new features of practical utility are observed, the set of farm accounts is of especial value to our farmers, and too much stress cannot be laid on the lack of a systematic entry of receipts and expenditure, and the great need of an accurate balancing of the year's operations. We cordially recommend the book.

Ellwanger & Barry, of Mount Hope Nurseries, Rochester, N. Y., send their autumn catalogue of small fruits. Our readers will do well to bear in mind the good reputation of this well known nursery.

FIRST FALL WHEAT.—The first load of new fall wheat was brought into the London, Ont., market, on the 23rd ult., by Mr. G. W. Ferguson, of Lambeth, township of Westminster. It was the Michigan Amber variety, was of a very fair quality and in good condition. Messrs. Hunt Bros. purchased the load, at \$2.10 per central. London is, as usual, ahead in this matter.

Last month a mistake was made in giving the address of the winner of prize for best essay on "Liquid Manure"; it should have been William Haliburton, Wolfville, N. S.

Our readers will please note that E. P. Roe, of Cornwall, N. Y., U. S. A., in his advt. in the usual column, allows 10 per cent. discount to Canadian buyers on account of customs duty.

NEW ADVERTISEMENTS.

GREAT WESTERN RAILWAY

Grand First-Class Excursion

TO THE
NORTH-WEST,
Wednesday, August 3rd, 1881.

Fare to Winnipeg and Return (via Chicago) \$50 00
Fare to Winnipeg and Return (via Grand Haven) 47 00

With correspondingly low rates to

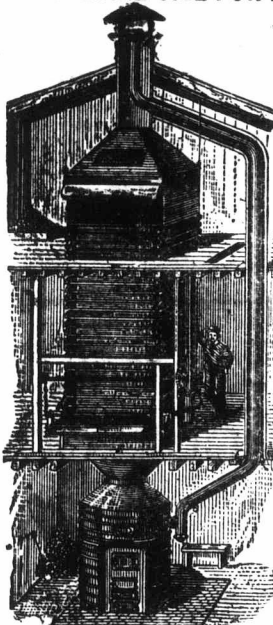
Jamestown, Bismarck & Fargo

Colonist tickets will not be honoured on this excursion, which will be first-class in every respect. Tickets good for return within forty days from date of issue. For full particulars as to fares, sleeping car arrangements, etc., apply to any G. W. R. agent.

WM. EDGAR, Gen. Pass. Agt. G.W.R., 178-a Hamilton.
F. BROUGHTON, Gen. Manager, Hamilton.

CELEBRATED AUTOMATIC FRUIT EVAPORATOR!

SPECIAL SIZE FOR FARMERS, \$100.



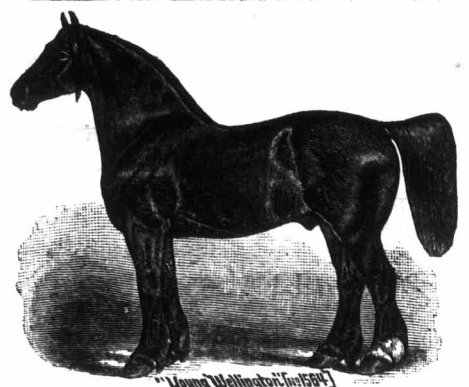
Philadelphia, April 23, 1881.
Messrs. McFARLAND & WILT, Gentlemen:—We have sold all the evaporated peaches and apples dried by J. W. Cuykendall, Thos. W. Skirven, J. W. Corry, J. J. Ross, A. L. Corry, and a dozen besides, all of whom are using "The Automatic Fruit Evaporator." It is only justice to these gentlemen to admit frankly that all the fruit we have handled this year, and as you no doubt are aware, we have sold more evaporated peaches than any house in the United States, that dried by the above named gentlemen was the finest we received this season, being not only well dried, but richer, handsomer, and brighter than any we sold, and commanding the highest price of any evaporated fruit sold by us this year. Although we have been solicited a dozen times or more to give letters recommending certain buyers, we have universally declined, but when you ask us directly the result of the sales for these gentlemen, it is but fair to admit that they deserve great credit for the splendid fruit they have put up. We wish the "Automatic" hearty success. The evaporating of fruits has already become a large industry. There has never been in the history of the country such an enormous demand—both foreign and domestic—for evaporated fruits, as there has been this year, and it is almost certain that they will entirely supersede the old sun-dried fruit. Yours very truly, MATTHEW SEMPLE & CO., Commission Merchants and Dealers in Evaporated Fruits and Canned Goods, 17 S. Water St., Philadelphia.

We manufacture four sizes. Send for Illustrated Circular.
McFARLAND & WILT, 112 N. 5th St., Philada. 179-a

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RAILROAD LANDS.
FORTUNES FOR FARMERS!!
50,000 Farms. 6,000,000 Acres.
Best Wheat Land, Rich Meadow, Choice Timber, Farming, Stock Raising, Dairying, Fuel and Water in Abundance.
\$2.50 per acre and upward. One-sixth cash and five annual payments. Reduced Fare and Freight to settlers. Write for "Publications No. 70."
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Newest and Best Varieties.
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THE KING OF DRAFT HORSES.

Seven Importations for 1881 already received, another on the way, and another ready to leave Scotland, and still others to follow from time to time. The largest and finest collection ever seen on the American Continent, of the best and most popular strains, including the get and descendants of the greatest prize-winners of Scotland, and among them the only horse that ever crossed the Atlantic that ever won and held the Great Challenge Cup.

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The Most Extensive Importers of Clydesdales in America.

Also extensive breeders of Hambletonians and other desirable strains of trotting stock, and importers and breeders of Holstein and Devon Cattle. They feel fully justified in saying that their experience, their facilities, and the extent of their business, enable them to offer inducements to any wishing to purchase EITHER CLASS OF STOCK, NOT SURPASSED BY ANY FIRM IN AMERICA. Prices low. Terms easy.

Correspondence solicited. Catalogue sent free. Address as above. Say you saw this in ADVOCATE. 187-1

Moreton Lodge Herds & Flocks

14th ANNUAL SALE. 14th

By Public Auction, without reserve, on

WEDNESDAY, 7th September, 1881,
At GUELPH, ONTARIO.

Consisting of 60 Shorthorn Cattle, Bulls, Cows and Heifers; 125 Cotswold Sheep, 75 Southdown Sheep—rams and ewes.

The Moreton Lodge Herds and Flocks were founded in 1858, from the leading English breeders of that day, and have been kept up to a high standard of excellence by importations from the best sources. Catalogues ready 15th August.

179-b FRED. WM. STONE.

The Ontario Experimental Farm

PUBLIC SALE OF LIVE STOCK

Thursday, 8th September, 1881

IN ADDITION TO THE SURPLUS STOCK of over Ninety Head of pure-bred Leicester, Cotswold, South Down, Oxford Down and Shropshire Down Rams and Ewes of various ages—and of Shorthorn, Hereford, Devon, Ayrshire and Aberdeen Poll Bull and Heifer Calves—there will be offered all the present stock of Bulls and Rams of these breeds, which are being replaced by new importations. Particular attention is invited to this year's sale, as regards high individual merit and health. No reserve whatever, and easy terms. Catalogue after 1st August.
WM. BROWN. 178-B Guelph, Ontario, 28th July, 1881.

Vennor's Predictions!

For this Month's Weather, prepared expressly for **STODDART'S REVIEW.**
Sample copy mailed for 3. Stamp.
J. M. STODDART, Pub., New York, Phila., or Chicago. 178-c

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Polled Angus or Aberdeen Cattle

HON. J. H. POPE, Prop'r.

THIS HERD is composed of the Cheapest Animals that could be obtained in Scotland, and may safely be called the best herd of Polled Angus outside of Great Britain. The proprietor is now prepared to sell calves from this stock at prices—taking into consideration the excellence of their pedigrees—defying competition. Pedigrees guaranteed in all cases. Communications solicited.

R. H. POPE, Manager.
East View Farm, Cookshire, P. Q. 188-4f

1000 BUSHELS

EGYPTIAN SEED WHEAT FOR SALE.

Yielding from 40 to 50 bushels per acre this season. It is unsurpassed for its hardness; will grow good crops on any soil; very strong in straw; on the richest soil will not lie down; Slightly bearded amber wheat, weighs heavy and produces the finest grade of flour.

I will sell at \$2.00 per bushel, delivered at the city of London, Ont. Warranted free from all foul seed. Bags 25c. extra.

Address—A. A. McARTHUR,
"Balmoral Farm," Lobo, Ont., Canada.

178-a

STRAWBERRY PLANTS

Crescent Seedling, Kentucky, Downing, 30 cts. per doz; \$1.25 per hundred.
Sharpless, Windsor Chief, Glendale, Seneca Chief, 40 cts. per doz; \$1.50 per hundred.
By mail postpaid. PLANT NOW FOR A CROP NEXT YEAR. Address Descriptive Catalogue free.

Address—A. I. WRIGHT, Lakefield P.O., Ont.

POTTED BIDWELL STRAWBERRY

The finest before the new Public. Potted Plants now ready, and if set early will give a full crop next summer. I combine these plants with the most liberal offer I have ever made. Also all the standard and new varieties in large quantities and at reasonable rates. A discount of 10 per cent. allowed on all Canadian orders in view of duty. Descriptive Catalogue free. Address—E. P. ROE,
Cornwall-on-Hudson, N.Y.

179-a

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Every Farmer's Wife

SHOULD HAVE

Hansen's Butter Color,

The best in the market.

Sample bottle 25 cents.

Put up in 25c. 50c. and \$1 bottles.

JOHN S. PEARCE & CO.,

187-c LONDON, ONT.

Grimsby Basket Factory.

JOHN CROSS & SON,

MANUFACTURERS OF

Peach, Strawberry, Grape, and Market Baskets.

—ALSO—

BUTTER DISHES, ETC.

FULL STOCK ALWAYS ON HAND.

Send for price list. Address

JOHN CROSS & SON, Grimsby, Ont. 187-b

THE MACKINNON PEN.



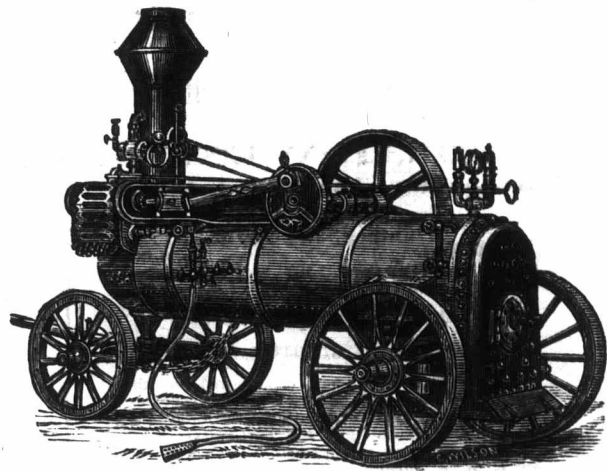
THE MOST PERFECT WRITING IMPLEMENT KNOWN.

Holds Ink for a Week's Use. Warranted for three Years. Send for Descriptive Pamphlet to

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THE HAGGERT BROS. Manufacturing Company, BRAMPTON.

Authorized Capital,



\$250,000.00.

MANUFACTURERS OF THE

Cornell Portable Fire-Proof Engine,

The only Engine in Canada having an entire Steel Boiler

Constructed upon purely scientific principles. The only Traction Engine that propels and guides itself on the road without the aid of horses, and that goes either forward or backwards. The Cornell is the LIGHTEST, the STRONGEST, the Easiest Managed and the Most Powerful, takes the Least Wood and Water, and the Safest From Fire of any Engine made in Canada.

The Dustless Grain-Saving Separator,

Pronounced by all practical threshers to be the best thresher ever offered. For fast threshing, threshing without waste, little dust, and great durability it has no equal. No green stacks are found, and hens die of starvation after the DUSTLESS GRAIN SAVER threshes.

Don't be imposed upon by interested and unscrupulous agents or principals into buying any of the old style of heavy, cumbersome engines that will only prove a source of annoyance and expense, and keep a span of horses, wood and water; but send for illustrated circulars with testimonials from purchasers, that our Cornell Engine and Dustless Grain-Saving Separator are way ahead of all others, to—

HAGGERT BROS. Mfg. Co., 187-c BRAMPTON, ONT., or HAGGERT & COCHRANE St. THOMAS, ONT.

GALT SAFE WORKS.

GOLDIE & McCULLOCH,

GALT, ONTARIO, CANADA,

Manufacturers of

VAULTS, VAULT DOORS, ETC.,

Fire and Burglar-Proof Safes

For Banks, Registry Offices, Public & Private Buildings, &c.

We are also the largest Manufacturers in the Dominion of

Steam Engines and Boilers, Water-Wheels, Wood-Working and Stave Machinery, Wool Machinery, Flouing and Saw Mills, Mill-Stones and Mill Furnishings of Every Description.

Circulars furnished on application. All materials and workmanship guaranteed.

N. B.—We are now making a small Fire-proof Safe, specially got up for FARMERS' use, 28 inches high outside, 19 inches wide, and 19½ inches deep, with book space, pigeon holes and drawer inside, and patent combination lock. This little safe, when finished, is a nice ornament in a room, and every farmer should have one, the price being within the reach of all.

GOLDIE & McCULLOCH, Galt, Ont.

36th Provincial Exhibition

—OF THE—

AGRICULTURAL & ARTS ASS'N OF ONTARIO,

To be Held at LONDON,

FROM

21st to the 30th Sept., 1881.

\$18,000 Offered in Premiums.

Entries must be made with the Secretary at Toronto, on or before the undermentioned dates, viz:

Horses, Cattle, Sheep, Swine, Poultry, Agricultural Implements, on or before Saturday, August 20th.

Grain, Field Roots, and other Farm Products, Machinery, and Manufactures generally, on or before Saturday, August 27th.

Horticultural Products, Ladies' Work, Fine Arts, etc., on or before Saturday, September 3rd.

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

HENRY WADE, Secretary, Toronto, Ont.
J. B. AYLESWORTH, President, Newburgh, Ont.
170 B

CANADA'S GREAT FAIR!

1881. —AND— 1881.

INDUSTRIAL EXHIBITION,

AT THE

CITY OF TORONTO,

FROM

September the 5th to 17th

(Two Weeks.)

\$25,000 IN PRIZES

Are offered for Live Stock, Poultry, Agricultural, Horticultural and Dairy Products, Implements, Manufacturers and Ladies' Work, &c., &c.

ENTRIES close as follows—Live Stock, &c., Saturday, August 20th; Manufactures of all kinds, August 13th; Poultry and Lady Riders, &c., September 1st.

EVERYTHING NEW, INSTRUCTIVE and INTERESTING.

THE GREATEST ATTRACTIONS and best accommodation for exhibitors and visitors ever offered at any Exhibition held in the Dominion of Canada!

CHEAP EXCURSIONS will be run from all points.

PRIZE LISTS AND ENTRY FORMS will be sent anywhere on receipt of post-card. Send for them to

J. J. WITHROW, President. H. J. HILL, Secretary, Toronto. 178

GRAND Provincial Exhibition

To be held on the

Exhibition Grounds,

Mount Royal Avenue, Montreal.

Arranged in three departments, AGRICULTURAL, HORTICULTURAL AND INDUSTRIAL.

OPENS WEDNESDAY SEPT. 14

Excepting Horses, Cattle, Sheep and Swine, which arrive two days later, viz.,

FRIDAY, SEPT. 16th.

Closes Friday, September 23rd.

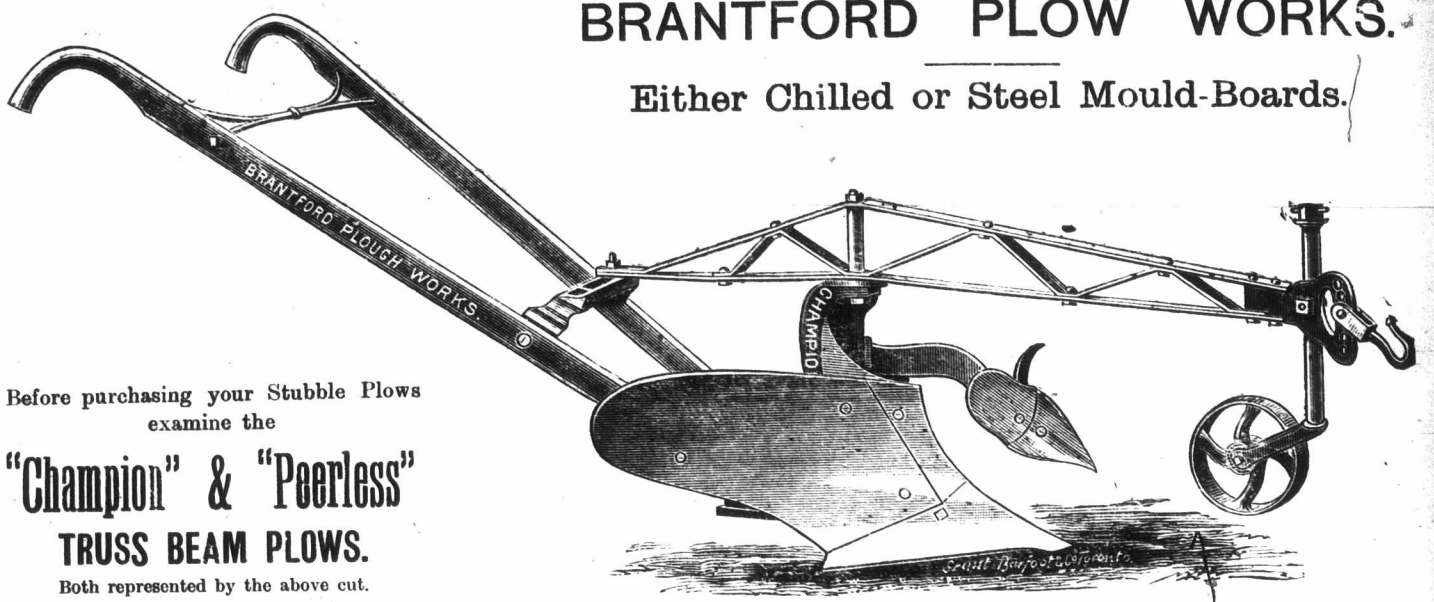
\$25,000 Offered in Premiums.

Entries in all departments must be made with the Secretaries in Montreal, on or before Thursday, September 1st.

Prize Lists and Forms of Entry, with any other information required, can be obtained on application to

GEO. LECLERE, Sec. Council of Agriculture.
S. C. STEVENSON, Sec. Council of Arts and Manufactures. 187-c

Also, the old Standard
"WIARD'S Junior Malleable,"
"HILL'S PATENT,"
 —AND—
"CLIPPER"
SOD PLOWS.



Before purchasing your Stubble Plows
 examine the
"Champion" & "Peerless"
TRUSS BEAM PLOWS.
 Both represented by the above cut.

BRANTFORD PLOW WORKS.

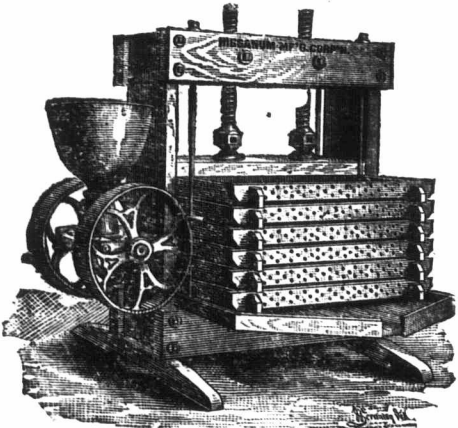
Either Chilled or Steel Mould-Boards.

(See March No., Page 73.)

JAS. G. COCKSHUTT, Manufacturer, BRANTFORD, ONTARIO.

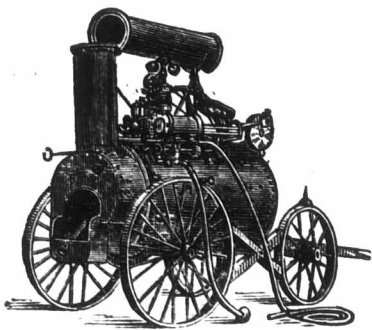
179-a

Here You Have It!
Sweet Cider! Sweet Cider



THE FARMER'S FRIEND CIDER MILL!

Manufactured by the
HIGGANUM MFG. CORPORATION.
 A mill that will grind fifty to sixty bushels of
 apples per hour, combined with a press that will
 press seventy-five gallons at a pressing.
 Send for price and particulars to
THE AGRICULTURAL EMPORIUM OF
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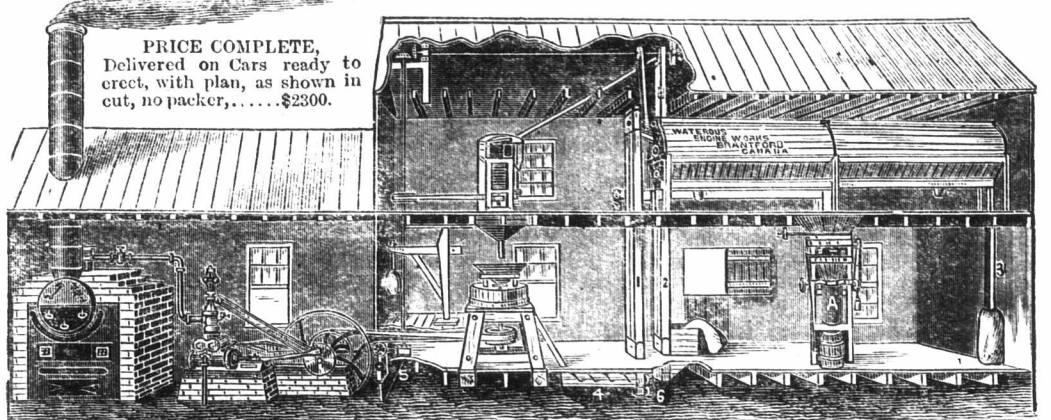
NOTICE TO THRESHERS.

WE would advise farmers and others not to
 purchase until they have seen White's Im-
 proved Portable Farm Engine, made at the Forest
 City Machine Works, London, Ont.
 These engines are licensed by all the leading
 Insurance Companies.
 Will burn long wood, are the most powerful,
 and are handled with the least trouble.
 My engine is giving the best of satisfaction
 everywhere. The farmers say it is lighter,
 stronger, and does more work with less fuel than
 any engine in the Townships where it is used.
GEORGE WHITE, Manufacturer,
 187-b LONDON, ONT.

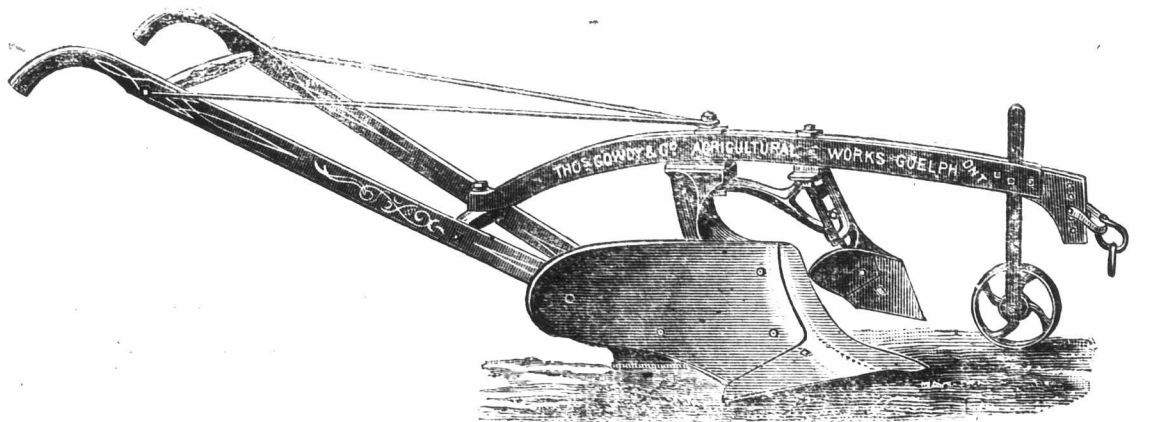
R. A. BROWN
Cherry Grove, Ont.

Has 20 varieties of Land and Water
 Fowls.
 Young stock for sale now.
 Get your chicks early and secure
 the best.
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COMPLETE 2 RUN GRIST MILL. No. 27 Establishment.



PRICE COMPLETE,
 Delivered on Cars ready to
 erect, with plan, as shown in
 cut, no packer,.....\$2300.
WATEROUS ENGINE WORKS CO. BRANTFORD-CANADA, W. H. OLIVE, Gen'l Agent, St. John, N.B.



PATENT SECTIONAL IRON BEAM PLOW,

The Most Perfect Jointer Plow in the Market. Manufactured by

THOS. GOWDY & CO., GUELPH, ONT.,

Manufacturers of all kinds of Agricultural Implements.

GUTTA PERCHA PAINT

BEST IN THE WORLD.

Stands the Climate of the Provinces better than any
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Mixed Ready for Use.

All Shades and Colors.



This Paint is not an experiment. It has been thoroughly tried, tested,
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is PURE, HEALTHY and RELIABLE. It will
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