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THIRTY-SIX PAGES



AND HOME MAGAZINE

VOL. XVIII.

LONDON, ONT., MARCH, 1883.

No. 3

REGISTERED IN ACCORDANCE WITH THE COPYRIGHT ACT OF 1875.

FOUNDED 1869

THE FARMER'S ADVOCATE —AND— HOME MAGAZINE.

WILLIAM WELD, Editor and Proprietor.

The FARMER'S ADVOCATE is published on or about the 1st of each month, is handsomely illustrated with original engravings, and furnishes the most profitable, practical and reliable information for dairymen, for farmers, gardeners or stockmen, of any publication in Canada.

TERMS OF SUBSCRIPTION:

1. \$1.00 per year, in advance, postpaid; \$1.25 in arrears. Single copies, 10 cents each, postage prepaid.
2. Subscriptions can commence with any month.
3. Remittances at the risk of the subscriber unless made by registered letter or money order.
4. Subscribers who desire to change their P. O. address will send both old and new address.
5. The FARMER'S ADVOCATE is continued until otherwise ordered. The name of a subscriber is taken off from our list with the same promptitude in all cases that it is put on, provided all arrears are paid up, but we cannot stop a paper unless the name of the Post Office, as well as that of the subscriber, is sent to us.

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Our subscribers will bear in mind that no notice is now given of expiration of subscription, as the "address label" is a sufficient notice, showing as it does the date up to which the subscription is paid, or from which the subscription is due.

Receipts are no longer necessary. Each subscriber can ascertain by the change of his date on his "address label" whether his remittance has been received. If forwarded after the 25th the change will not probably be made until the second issue from date of remitting.

In this issue we give you an engraving of the "Soja Bean," of which Dr. Sturtevant, of the New York Experimental Farm, says:

"The soja bean, which serves such a universal food purpose in Japan and other Asiatic countries, seems from our one year's trial well deserving of encouragement. Enormously prolific, abounding in foliage, apparently hardy, and sufficiently hardy to mature in our climate, it seems well adapted for general trial, not only through these circumstances mentioned, but also as being the most nutritious of all known plants, and according to some German authorities, extremely relished by stock. Trials with this should be at first upon a small scale, and the plants should be treated as beans, that is, planted in hills and hoed during early growth."

To any of our subscribers who wish to try the Soja Bean, and send us their experience, we will on receipt of a new name and one dollar send them per mail a package for trial.

Also, on receipt of two new names and \$2.00 we will forward a plant of the Hydrangea Grandiflora.

Scan our advertising columns and give our advertisers a trial. If you don't find there what you wish to purchase drop a card to this office.

"THE FARMER'S ADVOCATE" PRIZE OF \$100

given annually by Wm. Weld, Editor and Proprietor of this paper, will be awarded at the next Provincial Exhibition, to be held at Guelph, Ont., from the 24th to the 29th of September, inclusive, for the best samples of wheat.

The prize will be divided as follows: Two prizes of \$30 and two of \$20 each. The first prize of \$30 to be given for the best variety of fall or winter wheat for the general farmer to raise, and \$20 for the second best variety of fall or winter wheat; \$30 for the best variety of spring wheat, and \$20 for the second best variety of spring wheat.

RULES.

Two bushels or 120 pounds of the wheat to be exhibited. The name of the wheat, together with a written description, to be given, stating where the wheat was procured, how originated or introduced, as far as can be ascertained, a description of the soil and situation on which grown, what fertilizer used, and general history of cultivation. (The wheat must have been grown in the country for at least three years.) Also a report as to its milling and marketing qualities—a practical miller to be one of the judges.

The prizes will be given to four distinct varieties, and the descriptions and reports must be furnished to the Association before the bags are opened, the reports of all competitors to be the property of THE FARMER'S ADVOCATE. It is not necessary that the finest sample of wheat should in any way effect the award of the prize except that the wheat should be pure, clean and unmixed, the object being to decide the most valuable variety from actual yield and general qualities.

Our Monthly Prize Essay.

Our prize of \$5.00 given for the best essay on the advantages and best results to farmers from planting trees, has been awarded to E. D. Smith, of Winona.

We will give a prize of \$5.00 for the best essay showing the advantages and results derived from the application of artificial manures to grain, grasses and roots. The essay to be the practical experience of the writer, and must be handed into this office before the 20th of April next.

We will give a prize of \$5.00 for the best essay on the following subject: The best five varieties of potatoes grown in Canada, and which are best adapted to the soil and climate. The essay to be from the actual experience of the writer, and must be handed in to this office before the 20th of March next.

To help your canvass send for a sample copy for a friend, or a few for your own use, and carefully read our Premium List, and have one of our Illustrated Posters put up in a conspicuous place.

THE FARMER'S ADVOCATE should be in the home of every farmer in the Dominion of Canada. For my part I would not be without it. In my opinion the advice and suggestions contained in the ADVOCATE are worth, to any intelligent or inquiring mind, ten times the amount of the subscription.

S. H. E., Aylmer, Que.

Winter Wheat.

The heavy crust of ice that now covers the winter wheat renders it liable to smother. We would suggest that you would procure an iron rod sharpened at the point, with a wooden handle, and walk over one part of your field making holes through the ice to the wheat so that it may have air. The cost will be but trifling in comparison to the prospect of saving a crop. Try a ridge and leave a ridge, and report results.

By the Way.

Old fogy says, the old is good enough—enterprise says, give me the improved, and prospers.

To amuse the children, we spelled "ammonia" in big letters on a sloping grass-plot by the door, using sulphate of ammonia to do it. They say Ben. Franklin was able to spell "plaster" in green on some side-hill sward.

To test seeds, a certain number should be counted out, and planted in a box or flower-pot, keeping them in a warm room. By counting the number that grow, the germinating qualities can be very nearly ascertained, and thus sometimes a complete failure prevented.

Farmers trying to make a living off worn-out lands must stop selling their calves and pigs, and sell fat oxen and hogs instead, and they will soon see an improvement in the fertility of their land and in their bank account.

"Roll down the seedbed hard" is a bit of good advice by the writer on onions. A good question for an agricultural debate would be the "why" or why's for this practice of plowing ground up loose and then immediately packing it solid again.

Fifty years ago it was accounted wasteful and wrong to put manure anywhere but in the bottom of the furrow or under a thick covering of soil to make compost for meadows. Now, practical men and scientists agree in commending Nature's own way of making land rich solely by surface dressings.

All who are entitled to prizes, but who have not as yet sent their choice of premium, must name their premium before the 20th inst., otherwise we shall feel at liberty to send our own choice.

Every subscriber should win a collection of vegetable and flower seeds. Read in our January issue the grand collections offered for only one new subscriber for each.

Send for sample copies, and make a start immediately after reading this month's number.

Show your paper to your friend, who is not yet a subscriber, and send along two or three new names.

We hope that none of our subscribers will miss having a Russian Mulberry, a Jas. Vick Strawberry or the Soja Bean to test this year.

Remember this is the last month during which premiums can be won for spring delivery. Send your names at once. Don't delay.

I do not think that I cast any reflection upon farmers, when I say that the system of working of those who take no agricultural journal must be as a ship without a compass going by chance. And for all branches of farming, in my estimation, the articles that appear in the FARMER'S ADVOCATE are the most instructive.

D. C., Wavybank, Man.

Western Dairymen's Association.

We are sorry that this is the only meeting we ever attended that we regret our outlay. We have for a series of years strongly commended the usefulness of this Association, and have advised our readers to attend the meetings of the Association, as we believe this to have been an institution highly beneficial to the dairying interests. We deplore the degeneracy of these meetings. Formerly they were controlled by the farmers and their families, who appointed officers from among themselves. The members vied with each other in furnishing valuable information, and made the meetings interesting and of great value to those present. The society was progressing favorably and doing great good before a Government grant was given to it. This last meeting contrasted very unfavorably with those formerly held; now an M. P. fills the President's chair; another dealer fills the vice chair; ditto, ditto with some of the other leading offices.

These commercial gentlemen have succeeded in ousting the farmers, and now appoint officers from among themselves and their friends. Paid speakers attend the meetings; these, with some of the paid writers, are anticipating office. In this meeting the really plain, practical farmer was scarcely seen and seldom heard. Cannot some scheme be devised to restore the interest of the farmers and their families? These offices should be filled by practical farmers, and not by dealers and jobbers.

Why cannot leading factorymen fill the President's chair, Secretary and Treasurer's offices, just as well as leading mercantile men, lawyers, etc.? We think it is time there was a change, and unless there is such a change, we venture to predict that the time is not far distant when we shall have a number of smaller conventions, and we question very much if such conventions (a number of them) held in the rural sections would not be of much more benefit to the real dairymen of the country than the present one, held as it is in the principal towns. These local or rural conventions could be held at such points as would give the farmer and dairyman an opportunity to attend, and they could be managed in such a way that the expenses would be very trifling, and they need not extend over one day. In this way every farmer could come to them and go home the same night. Speakers could be procured who would give addresses free by paying their expenses. It would require only a little exertion and good management on the part of two or three factorymen to make these meetings a success. The fact is, we question very much if the money granted by the Government could be better spent for a few years than by employing one or two good men to attend these meetings and lecture. We throw out these ideas and hints, and hope some of our subscribers will take the matter up and give us their ideas and opinions on this question.

Between ten and eleven o'clock at night, when most farmers had left the meeting, an ex-member of the defunct Provincial Board took the opportunity to attack the editor of this journal for inserting an extract which appears on page 30 of the January issue of the *ADVOCATE*, on the inefficiency of the Lactometer test. The great sin was that such information had been given to the farmers, which, in the opinion of the manipulators of the Association, should have been withheld. The speaker then attempted to draw the Association into his personal affairs, and in the vilest terms to denounce the editor for some strictures which appeared in an article on the Dairymen's Convention, held in 1882 (see page 67, March 1882), and challenged him to reply before the meeting. The hour being too late, an impatient hearing was accorded,

and the meeting broke up in confusion, amidst which some resolution was declared carried; what the nature of this was we were unable to understand or ascertain. We would have treated the matter with the contempt which it deserves, only for the garbled and incorrect statements which appeared in some papers. Ample time and opportunity had been given to reply to those strictures through the columns of the *ADVOCATE*, especially as at the time we stated that "should any person acquainted with the facts openly show that we have formed erroneous conclusions, or are stating anything contrary to our convictions, we shall be pleased to insert their opinions, even if they occupy two columns."

On the Wing.

We were present for a short time during the recent meeting of the Ontario Fruit Growers' Association, held in Toronto. Mr. W. Saunders, of London, is the present President; Mr. Roy, of Owen Sound, and Mr. Beadle, of St. Catharines, the Vice-Presidents. The attendance varied from 25 to 60 members during the session. Many useful subjects were discussed and many papers read by members, and many others were handed in for publication. They passed a sweeping resolution against the poor sparrows, to the following effect: That the English sparrow is injurious to the fruit grower and farmer, and steps should be taken to destroy them. There was not a dissenting voice to this resolution. The system of planting too many varieties of apples was considered, but the meeting failed to unite in commending any particular five varieties as best suited to all parts, as many localities differ in climate, soil, etc. The following varieties appeared to obtain the largest number of advocates: Baldwin, Ben Davis, Canada Red, Northern Spy and Golden Russett. Some commended the American Pippin and Pomme Gris, and for the new apples, or those not much known, the Hastings and Mann varieties were spoken of as being well adapted to the northern parts of Ontario. March was spoken of as the best time to prune orchards, and no orchard should be planted unless the ground is well drained. Unleached ashes were most highly commended as the best and cheapest fertilizer for the orchard. Greater care in assorting and packing apples for shipping was commended, placing the apples of even size in barrels by themselves; and care in not shipping a bad or damaged apple was commended for profit to both the shipper and to Canadians. More extensive planting was recommended as a safe and sure source of profit, if properly done and attended to.

The notice of the grant of the Ontario Government of \$50,000 for the encouragement of tree planting along the roads, was loudly cheered. Some new varieties of fruit were exhibited. Mr. Marcon, of Guelph, exhibited some nice looking potatoes, and the Association has extended its operations by electing a Toronto seedsman as chairman on vegetables. We consider this the best meeting of the Fruit Growers' Association we have been present at. Whether the opening of the Association to all other branches is judicious or not, might perhaps be a good subject for discussion at the next meeting. We do not mean the opening of the doors for all to hear, as they are now open free to all who may choose to attend; but whether those who wish to ascertain all they can about fruit might not care about devoting so much of their time to other branches. As it was, it cost one farmer \$12 to attend, and one fruit raiser from a distance it cost five days and \$25. It is our impression that people would rather attend at particular times for particular purposes. Perhaps other subjects might be added and stated days or times could be set apart for particular subjects, and the public

informed in time, so as to make arrangements for attending, when subjects of interest to them might be discussed.

After attending the meeting of the Fruit Growers' Association, on our return we left the train at Waterdown Station and proceeded to the

CREAMERY OF MR. VALANCEY E. FULLER.

Here we found the dairymaid in the act of churning. The cream is raised from the milk on the Fairlamb principle, that is, by setting the milk in deep cans, surrounding the cans with water, and keeping the temperature of the water as near to fifty degrees as possible. The cream is effectually separated in four hours. The full particulars of making and utensils used have been previously published in this journal.

A REMARKABLE FACT.

Mr. Fuller informed us that he could procure double the quantity of cream from milk set in the Fairlamb cans, than he would from the same quantity set in the old shallow pans; but he said that in churning he would procure no more butter from one than the other.

We were astonished at the very small quantity of milk required to produce such an enormous quantity of butter, and the very large proportion of cream to the quantity of milk. Although we had often read about the wonderful production of cream from the Jersey cattle, we were more than astonished when we saw the milk, cream and butter, and you would be also had you seen them. When we examine the books and see the enormous quantities of butter produced from one of these little butter machines (we mean the Jersey cow), the facts of the prices realized for the butter, and the prices realized for the animals, we are struck with wonder and amazement.

We now pass to the cow stable, which to outside appearance showed no signs of having anything of extra value about, for there was nothing but a very common, old-fashioned set of buildings. But on entering, what a contrast! The old buildings had been remodelled internally, with neat stalls, concrete floors, and a closed water trough running each side of the building, just in front of the cattle. In this trough the water is running all the time, but is so arranged that the cows can have a drink at a proper time, and the water then covered up. This is the best arrangement we have yet seen. The water is pure, cool, spring water; it is forced up to the stable by an hydraulic ram, which is run by a small stream of water in a ravine a few hundred yards distant. This water is running all the time; a broom can be run along the trough at any time, and the water is always kept as clean as it comes from the spring. We remarked to Mr. Fuller that he might be raising trout in his cow stable. He replied that he would show what he was doing for trout presently. We walked up and down the stable twice, viewing all the animals from before and behind. We were never so much pleased by viewing a herd of Jerseys; in fact we never had seen such a fine lot on any farm, and we must say we never thought so highly of them before. Their beautiful, fine faces, their slender legs, their kid-like skins, their escutcheons and milk bags all had charms for us, for we admire a good Jersey as much as we admire a fine Shorthorn, Hereford or any other distinct class. But we would here remark that the majority of farmers become wedded to particular breeds of animals. Many breeders of the larger classes of the bovine race cannot see the beauty or merits of any other breed but the one they possess. It is well that all do not see alike. A good farmer may be an excellent judge of a Shorthorn, but may know nothing about a Jersey or an Ayrshire, as the points sought for in a real fine milking Jersey would at once disqualify a Shorthorn from taking a prize in any exhibition.

When passing by an iron grating, one of the bulls rubbed his horns against the iron bars, and acted, as we thought, cross. We remarked: "That is the worst objection we have to the Jerseys." Mr. Fuller answered: "That bull is not cross; he knows me and wants to be petted. Come into his stall." And instead of being cross, as we have seen them, he was as gentle as a pet lamb. Mr. F. says that the cause of bulls being cross is that they are shut up, and too often in dark places, and kept alone. He has his bulls' stalls made with iron rods, so that they can always see what is going on; and he has them handled. By this means they become gentle. All his cows and heifers are handled every day, and they appear as gentle as kittens, and put out their heads to be stroked and fondled. In this stable there are 43 of these valuable and beautiful animals. Speaking of value, we were shown some calves—little fawn-like things with such a thin skin, so fine and so soft we can scarcely describe the touch; perhaps one of the calves might weigh 20 lbs., yet \$1,000 was offered for it. A cow of the celebrated "Coomassie" strain was pointed out, purchased last February. Since her purchase she had a bull calf that was sold to go to Kentucky. The cow has just been sold, and Mr. F. has netted on the cow and calf a clean \$700. To prevent the cattle from slipping on the concrete, there are a lot of slat-like doors which are hung on hinges, and are let down when the cattle are coming in or going out. They are easily raised and lowered, and set on the wall out of the way, just behind the cattle. The cows are turned out into a straw yard for about an hour every day, half of them at a time. They were out when we were there, and we do not know that we have enjoyed a heartier laugh this winter, for just as soon as they were turned out they appeared even more delighted than school children; they ran, jumped and played with one another more like lambs at play than like any cattle we have ever seen before; and what was most remarkable, with all their capers, jumps, runs and antics, they all appeared to partake in the sport, and not one of them tried to interfere with any one of the others. They appeared like a real happy family; we never saw a lot act so without some one giving another one a poke.

Mr. Fuller took us down one of the ravines near the house. In this place he is excavating a large lot of peat or swamp muck, and is making his trout pond. The rich soil placed on his land he considers will far more than pay for the hauling, and he will have his permanent fish pond free of cost. "Woodlands" is the name of this farm. It is naturally a beautiful place, lying on the Bay opposite to Hamilton. The ground is broken, and a fine lot of the old native trees are left about this farm, many of which would bring \$60 each where they now stand. We give on page 76 a sketch made by our artist. Those beautiful antelope-like animals running about these hills and lying under the shady trees, make a sight in summer that but few have an opportunity of enjoying.

HULLET BRANCH AGRICULTURAL SOCIETY.

The 20th Annual Dinner of the Hullet Branch Agricultural Society was held in Clinton on the 14th of Feb'y. This is the oldest established annual dinner we have heard of in Canada. Between 100 and 200 persons were present, and a very pleasant time was spent. Toasts were proposed, and the leading agriculturists present were called on to respond to the different agricultural interests.

What appeared to us to be one of the most important topics was introduced by Mr. H. Love. He pointed out clearly the great loss our farmers are sustaining at the present time by continuing to raise long-wooled sheep, on account of the poor

price that long wool would command, and the large sums that our manufacturers are now paying for imported wools. The cause of this he instanced by the improved condition of circumstances, showing that fashion and taste must be pandered to, and that people would not purchase or wear cloth made from our coarse wool, but a finer cloth than common Canadian wool would make was in demand. He spoke of the Shropshires as the most suitable sheep for Canadians, showing that this class of sheep would produce as good wool, and three pounds more per fleece than the Southdowns; also that they would dress fifteen pounds more mutton and were not surpassed for hardness of constitution. Mr. Love also stated that when he was last in Europe he saw the Shropshire and Southdown mutton selling for two to three cents per pound more than the mutton from heavy sheep would bring.

It was stated that a farmer had raised in this vicinity 100 bushels of shelled corn to the acre. This crop was so much in excess of any that we had ever raised on our farm, 60 miles south of this place, that we could hardly credit it. Mr. Silas Andrews, one of the oldest settlers in Canada, stated that he had raised 80 bushels of shelled corn to the acre close to the town.

Mr. Andrews now makes large quantities of sorghum syrup; he was one of the first to introduce sorghum into the northern part of Canada.

The enterprise and prosperity of the agriculturists and others around Clinton may be held forth as showing what others might do. In addition to the annual dinner, they have established a spring and fall exhibition, and an annual sale of pure-bred stock. They have gained a good name for their valuable horses. We believe it was stated that four million dollars' worth of this class of stock alone had been exported from this county (Huron). They also claim that there have been less failures in the town of Clinton than in any other in Canada, and that poverty is not known there. There are but few manufacturers here, the principal being the large manufactories of threshing machines, established by McPherson & Co., known all over Western Canada; a woolen mill; a cabinet factory and fanning mill works. One of the largest sale stables for horses is established here by Messrs. Rattenbury & Moody. When we were there they had 160 horses on hand; they ship to all parts, and buy and sell such as are wanted to fill orders from Canada or the States; they send very large numbers to Manitoba. The country around Clinton is blessed with excellent land, fine roads and good water, and the most varied crops are raised, with the best results. It excels in growing corn, apples, sorghum, winter wheat, and in stock-raising. Extensive salt works are here also, enabling the farmers to procure salt cheaply.

SOUTH PERTH AGRICULTURAL SOCIETY.

We accepted the kind invitation of the members of the S. Perth Agr'l Society to their annual banquet, held at St. Mary's, Ont. This town is in the centre of an excellent farming locality; the farmers are rapidly progressing. Some leading business men of the town were present at the dinner, the proceeds of which, after paying expenses, will be used for the payment and improvement of their agricultural grounds. In the speeches which followed many useful suggestions and hints were thrown out, one of which, relative to our agricultural exhibitions,

One speaker favored the plans suggested by the *Advocate*—that was in endeavoring to make agriculture the principal attraction; but Mr. L. E. Shipley, a member of the Board of Agriculture and Arts, was of opinion that the great majority of visitors to fairs favor other attractions, and that we should try to cater to the wishes of the people. As dinner parties are not supposed to be debating clubs, there was no discussion. After a pleasant evening was passed the company dispersed.

PRIZE ESSAY.

The Advantages and Best Results to Farmers from Planting Forest Trees.

BY E. D. SMITH, WINONA.

I know of no subject of more importance to the farmers of Canada than forest culture, and especially to those of the older portions which are fast becoming denuded of the natural forest. For it has been demonstrated beyond doubt that those countries that have become stripped of trees, have paid the penalty with regular and long continued droughts that gradually turned the once fertile fields into arid wastes. So that one immense benefit and perhaps the greatest to be derived by keeping a large portion of the land clothed with trees, is the insurance of regular and sufficient rain falls. But there are many other advantages of apparently more individual benefit. One is, that trees can be planted upon the partially worn out land, and especially upon the ridges and hills that wash badly, and new land can be cleared and worked. They can be planted where they will do most good as a windbreak; as on most of our farms no care was taken in clearing to leave the bush where it would afford shelter, but rather generally on the back end of the farm or on some wet land, too wet for cropping, but which would now be the best of the farm, being drained.

Another advantage would be that all the ground could be utilized, whereas in the natural forest large patches are sometimes grown up with alders, water-beech, or some other useless tree. An artificial forest need have no blank places, nor any useless timber. Indeed, I firmly believe it would pay every farmer in Canada, whether he has bushland or not, to plant at least one-tenth of his farm and cut down the natural forest, if he has any, gradually, as the new timber grows up; as he could grow more and better timber (the land being drained), on ten acres, if judiciously planted, than grows on twenty acres of natural forest. Then the trees being planted in rows, a wagon could be driven anywhere in the bush without difficulty. And lastly, the trees, if planted as I shall propose, would add enough to the appearance of the farm to pay for the cost of planting and growing.

I would plant, unless otherwise sheltered, a double row on each side of the lane, half of the trees evergreens, and half some tall-growing tree. Then on the south and west sides (if the prevailing winds come from these directions as they do here), of each ten acres a triple row, one row evergreen, the other two some tall-growing tree, and on the outside, from which no heavy winds come, a single row for appearance and fence posts. This would take about one-tenth of the land, and would, in a few years, answer for posts to which to attach wire for fences for the whole farm. If planted in this way, when grown up, such an effectual windbreak would be formed as would insure a crop of wheat, wherever there was sufficient snow to cover the ground during the winter and early spring, so far as heaving out by frost is concerned. Let us make an estimate of the cost and profit, planted in this way. As each field of ten acres should only be debited with the trees on two sides, we would have to charge against said field 240 trees (if planted a rod apart), costing, when planted, about \$24. Interest on this and on the value of the land, valued at \$80 per acre, at six per cent. compounded for 15 years, would amount to \$116; making total cost at that time for every ten acre field, \$140. Cost of cultivating for first few years would be more than met by crops of corn or roots grown between. After four or five years no cultivation would be required.

Now every farmer has seen instances where a field sheltered by some natural windbreak has produced ten, fifteen or twenty bushels per acre more than one not sheltered. Taking the least of these increases, together with the increase of straw, our windbreak would be paid for in one year. Now how does the account stand? We have a young plantation that has already paid for itself, and will continue to pay interest on the land at a very high rate for all time to come, as a windbreak.

We have so added to the appearance of our farm that any man of taste or judgment seeking a farm would give us \$10 per acre more for the land than if destitute of trees. We have permanent fence posts for the entire farm, worth 15c. apiece at least, or at a rod apart on two sides of a ten acre field, \$12. And lastly, a plantation worth, when full grown, from \$200 to \$1,000 per acre for timber. Many people find it difficult to make evergreens grow. This arises chiefly from want of care in planting. Young trees are safest to plant, and will grow faster than older ones. An evergreen 18 inches to 2 feet high will generally be 10 feet high as soon as one planted at same time, being 4 or 5 feet high when planted. The whole secret of success in planting evergreens, as in planting other trees, is to keep the roots from getting dry while out of the ground, and when planting pack fine, rich, moist earth, among and around the roots; the more the better. If sods or lumps of earth are thrown on the roots, the chances are small that the tree grows, as any one ought to know; but nine men out of ten, if sent to plant trees, will do it in this careless way.

Of kinds to plant. The Lombardy poplar grows very fast; can be grown from limbs, like willows, and as it grows very tall, if set close, say twelve or fifteen feet apart, soon make a good windbreak, especially if one row of the three is planted with evergreens. Walnut trees grow very fast and are easily raised, and would pay in the crop of nuts about as soon and as much as apple trees will in fruit; besides the timber on ten acres, when grown up, would make one man independently rich. What better legacy could a parent leave a child than a grove of walnut trees? To grow walnut, chestnut, or hickory, throw the nuts on the ground in the fall when they are green, and cover with an inch or two of fine earth. In the spring they will be sprouted. Plant where the trees are wanted, about three inches deep. If planted in nursery rows and removed, the trees are apt to be stunted, as they have a long tap root that is likely to get cut in digging. I would plant walnuts eight or ten feet apart each way, every alternate tree to be taken out when about six inches in diameter, which, with average cultivation on good soil, would be in about fifteen years. This to be again repeated when the trees are about one foot in diameter, leaving a plantation 32 to 40 feet apart for a permanent grove. Hickory will be very valuable here in a few years. They should be planted in nursery rows like apple trees, four feet apart, and trees about six inches apart in the row. These rows to be thinned out as they grow up (for various purposes), such as walking sticks, barrel-hoops, and when larger for any of the many uses to which hickory is so well suited.

European larch is an exceedingly valuable tree to plant, as it grows quickly and is valuable for posts, ties, or any purpose, when a wood is required that will not rot easily. Seed can be procured of almost any seedsman.

Oak is a slow grower, but will be very valuable before long. It is a handsome tree and hold its foliage well, which makes it valuable for a windbreak in winter.

Basswood (Linden) is a quick grower and is invaluable for bee-pasture, and the wood is valuable for many purposes.

Elm has its merits, too, being a fast grower, an exceedingly handsome tree, and will grow in wet places where many other kinds will not live.

A new aspirant is the Russian Mulberry, said to be a quick grower, with bushy top, better than oak or cedar for posts, &c., and bears heavy crops of berries resembling blackberries. I notice these trees are for sale by Pearce, Weld & Co., of London, at \$15 per hundred.

It is useless to enumerate the good or bad qualities of all our common forest trees. Let each one

select, according to his own tastes, from the cheapest sources, and he will be sure never to regret having planted. I fear I have trespassed too much upon your patience already, Mr. Editor. I will therefore lose by urging upon my brother farmers to begin planting in earnest next spring, and to remember that what is worth doing at all is worth doing well.

A Chatty Stock Letter from the States.

[FROM OUR CHICAGO CORRESPONDENT.]

The interest in Polled Scotch cattle, which has amounted to a "boom" for two years past in the States, does not seem to flag. There has been some reaction from the time when a black-coated hornless animal would bring almost any crazy price the seller would ask, regardless of the animal's individual merits, but there is a strong and steady demand for the "doddies," which keeps prices for them far above the rates current for the best Shorthorns and Herefords. Lately there have been purchases of these cattle by breeders on the Pacific Slope, which shows that the fame of the black cattle has spread far and wide. Early in the spring there are to be sales at auction here of one or two herds of Canadian Polled Scotch cattle. Breeders who have given them a trial seem to be "hungry for more," but of course it is to their interest to keep up the boom as long as possible.

Some of the agricultural papers are talking about the Shorthorns being unpopular and "out of fashion." Such conclusions are based upon the great amount of noise being made about the black hornless cattle, of which there are so few that the sharp demand for them causes an excitement among breeders interested in them, and because there is no particular hullaboo in the Shorthorn circles, some newspaper writers have jumped at this hasty conclusion. The fact is, there has never been a time when there was so much activity in the Shorthorn market, but the vast stock of these cattle prevents anything like a boom. Some breeders of Shorthorns have been heard of who, claiming that the Shorthorns are growing out of popular favor, have sold some fine specimens of the breed to more sensible persons, who know a bargain when they see it. There is no great loss without some gain, and if there are among the owners of Shorthorns men who wish to chase what they deem the fashion bubble, and sell out at low prices, there are no doubt plenty of men who are sensible enough to take advantage of such opportunities.

On Feb. 19, John D. Gillett, of Logan county, Ill., shipped from Chicago 150 head of two year old beeves, averaging 1,525 lbs., and 183 prime mutton sheep, averaging 150 lbs. The lot left in time to be put aboard the steamer Vesta for Liverpool. Col. Gillett is an old man, but he is not too old to learn. When a man gets too old to learn he is past all usefulness in this world, and should pass on to the next. Col. Gillett has learned that he can make 25 per cent. more on young cattle than on the three and four year old monsters which he used to raise, and declares his intention of marketing his cattle younger hereafter. Let others who have admired this great man's success follow this his latest and best example. It is hard to understand, however, why the old gentleman did not long ago come to this conclusion.

Talking about fashion in cattle, it really does seem that Devon cattle have gone "out of style."

N. Kennedy, of Canada, is exporting cattle from Chicago, via Portland, Me., in considerable numbers.

The extravagance of the majority of American shepherds, particularly those in the newer sections, is startling. They have tariff protection against competition from foreign countries, yet complaints are frequent that at present prices the wool business hardly pays. They need better stock and more economical stock management.

Non-Political.

The proprietors and managers of several political journals have opened their columns to promulgate misleading statements, which are injurious to the farmer. Perhaps during the political campaign they may consider "all fair in love and war," but we trust the time will arrive when the editors and proprietors of these journals, who have allowed such statements to appear, will make amends. It should be distinctly understood the FARMER'S ADVOCATE is not, and never was, a party paper, but has fearlessly advocated the interests of the farmers. We must disclaim any connection with the utterances and quotations that have appeared in several political papers, which have been inserted, no doubt, to serve their own party views. The pages of the ADVOCATE are at all times open to fair discussions for the correction of agricultural abuses, rather than following in pledged support of any party, whether right or wrong. Surely we cannot be condemned for pursuing such a course.

Are You Ready?

Seed time will soon be here. Are your plows, cultivators, seeders, rollers, harrows, etc., etc., all in order? If not, make them so. Have you concluded what kinds of grain you intend to sow? Have you procured a change of seed from a distant farm, or from a different soil, within the past three years? If not, try and arrange so as to make a change before seed time arrives. It is not necessary that you should procure new varieties, but endeavor to procure the variety that answers best in your locality. If there are varieties that have not been tried, and if there is a good prospect of their succeeding, it is well to try them. There are some varieties that are being tested, both in Canada and the States, but sufficient is not known of them to commend any expenditure—that is, in spring wheat or oats. In some localities the Scot, Glasgow, Fife, or Red Scotch (all the same variety, but known under different names) is still considered the best; in others the McCarling or Rio Grande are preferred. The Redfern holds its own in some parts, and the Defiance is highly commended by many. For particulars of each refer to past volumes of this journal.

We know of no better varieties of white oats for you to sow than the Emporium or Australian; they are admirably adapted to all light and porous soils. If your land is of a rich, clayey nature, the Black Tartar is the best. We do not consider the White Russian in any way superior to the Australian. If you wish to raise the heaviest and plumpest oats, procure the Angus Potato oat, or Scotch oat; they are the same variety, and are the plumpest looking oats grown, but are very apt to shell, and have a very hard, thick hull. If you want to raise the blackest oats, the Black Poland must be procured. They are an excellent kind, but are fully ten days later in ripening than the Emporium or Australian oats.

When on Mr. Drummond's farm, one of the prize farms in Quebec Province, we saw a very fine, closely-set variety of barley; it was different from the two-rowed or four-rowed barley commonly grown in Ontario. Mr. Drummond preferred it to any other for its yielding qualities, though the heads appear much smaller than our common barley; but when rubbed from the head the bulk of barley was surprising. We think it would be a good change. We are informed that it is an excellent malting grain. This variety appeared new to us.

Peas are now cultivated to much better advantage than they have been for the past few years. The pea bug has not done so much damage. The

white varieties are in the greatest demand for shipping and milling. Several inquiries have been sent to us for information where pure Crown peas can be obtained. If any of our subscribers or seedsmen have a supply, they would do well to inform us of the fact. The shortness of the straw of this variety gives them preference, particularly with those who have good, rich, well cultivated land and require peas rather than straw. But for those who have not their land in excellent tilth, or if long straw is wanted, the Golden Vine Creeper or Strawberry Vine peas are preferable. On poor land we know of none that will outyield the California pea; this is considered the best for cooking when dry—we do not mean for cooking as a green pea, or as a pea for canning. For this purpose the green-coated peas are generally preferred. In our next we will touch on corn and potatoes.

The Toronto Exhibition.

The Directors of the Toronto Industrial Exhibition held their meeting on the 20th inst., for the election of officers and other business. It was stated that the Association was progressing favorably from a financial point of view. They have an energetic, working Board, who are leaving no stone unturned to make this institution a prosperous one. They are about to appoint a salaried manager and canvasser to look after the interests of the Association, to interview exhibitors, and make the exhibition popular and attractive. It is contemplated making a semi-centennial exhibition of it. A Government grant was stated to have been promised. The President insisted on some new special feature being brought out every year. It was considered that the city should pay them \$19,000, and the buildings be handed over to the city.

We wish the Industrial Exhibition every success. We approve of having a holiday and giving amusement. Their desire to hand the buildings over to the city is a good one, and the appointment of a special manager to interview exhibitors, and look after the interests of the association, is also a good idea. The only point we have contended against has been the attempt to obtain and centre in Toronto the Government money granted for agricultural advancement. It has been our impression that the great aim of this association has been to attract a great crowd of citizens and others for purposes that are not for the agricultural interest, and that the real, plain, practical farmers and their products are only of second or third rate consideration, when compared to other interests and other attractions; thus the attention of visitors is drawn from, rather than toward, the agricultural interests. This is why we have so long advocated keeping our agricultural exhibitions as closely to their own business as possible; and for this reason we have so strongly advocated the retention of our township, county and Provincial exhibitions. If our views are wrong, we should be willing to change them, if reasonable arguments can be brought forth.

Some contend that we should pander to the opinions of the masses—that the horse race, the lottery and other attractions, will draw more people together than exhibits of cattle and turnips, and that we should be guided by the great success of these outside attractions.

The active measures being taken by the energetic managers of the Industrial Exhibition should be a stimulus to the Provincial Board and other bodies, to show what energy is in them. Are they asleep? Cannot they emulate the Industrial Association and prove it by the reports of good work done by them when the next exhibitions are over?

Government Agricultural Expenditures.

Since publishing our last issue the Government has granted a large sum of money for the encouragement of tree planting. This we consider a step in the right direction, and much good should result from the expenditure. The Government has also granted a large sum for the establishment of creameries. We are not realizing as good a price for our butter as we should; the quality is not what it ought to be, but we have been rapidly improving.

During the last few years numerous factories have been established. We should be pleased if the Government would show how more money can be made by the creamery system; balance sheets showing this would have more effect with farmers than continued expenditure and Government aid. We have not as much confidence in the beneficial results from this source as from tree-planting; still we shall endeavor to give you fair reports of the progress made in this direction.

Sorghum Sugar and Syrup.

[Report of the Convention of the New York State Sugar Association at Geneva, N. Y., Feb. 7 and 8.]

A. G. Williams, president, after calling the convention to order, stated that the reports from New Jersey, Ohio and Illinois all refute the charge that the North can never make syrup or sugar. This year's labor has been so successful that we take great courage from it. The cane is a clean product, growing in the air and not clogged with dirt. In selling sugar or syrup, the farmer sells no portion of the soil, if he but returns the bagasse. The sugar and molasses made by the Champaign Company in Illinois were free from any objectionable taste heretofore peculiar to sorghum. The sugar is of a light yellow color and graded as yellow C. It sold at 8 and 8½ cents per pound. We give a short sketch of the remarks of some of the speakers, condensed from the columns of the Utica Herald:

Prof. Caldwell, of Cornell, stated that cane sugar is 2½ times sweeter than glucose. Cane sugar is produced through the agency of starch. Glucose is good enough for beer brewing and cheap candy, but not good enough for honest people to use for domestic purposes.

Dr. Peter Collier, of the Department of Agriculture at Washington, was next introduced as the father of the sorghum sugar industry. He stated that the sugar rapidly increases with the growth of the cane, but has not reached its maximum, when the seed has become hard. The chances of making sugar from sorghum are only about even when the seed is in the dough. Of the 100 varieties of sorghum grown and tested by him all contained about the same amount of available sugar and but very little less than the sugar cane of Louisiana. By allowing the seed to stay on the cane, the latter did not mature so early by about ten days as when the head was removed, although in sugar there was no difference. There is no gum in sorghum juice; it is simply a product of the manufacture. As for sorghum sugar being a paying crop, we have the experience of the largest company in the northern States, the Rio Grande of New Jersey, that the sugar crop did not cost a cent a pound as it stood, the seed paying the entire expense. It cost \$1.75 per 100 pounds to manufacture the sugar. A ton of cane can be made to produce 100 pounds of sugar. A crop of seed and of juice can both be secured in the same season. More in number of the human family live upon sorghum seed than upon corn and wheat put together. The Governor of Bengal states that 60,000,000 people in that part of India live upon sorghum seed, instead of upon rice, as is generally supposed. It is used as food in Turkestan and other parts of Asia. Recently some forty varieties have been received from South Africa totally unknown in America. Some of the broad-leaved varieties of sorghum received from Natal will prove very valuable for ensilage.

The only safe way to make sugar is to use the cane as soon as it is cut. The average of many chemical tests gave 20.85 per cent. of sugar from

the juice. In the world there is produced about \$30,000,000 worth of sugar, and by imperfect methods nearly \$150,000,000 worth is lost in the bagasse. To-day two-fifths of the world's sugar supply comes from the sugar beet, an industry that was inaugurated in France, Feb. 20, 1811. March 27, 1811, Napoleon established six schools for the purpose of developing that industry, when it cost eighty cents a pound to make the sugar. In 1881 the United States imported \$136,416,036 worth of sugar and syrup, including duties. Now we have a sorghum crop that will in time enable us to keep most of this money at home. The crops of the Rio Grande Company ranged from 3½ to seventeen tons of cane to the acre.

Pressing the stalks without stripping the leaves gives more syrup but less sugar, and makes more trouble in defecating. For the purposes of defecation lime is used as it would be for making white-wash. If cane is thoroughly ripe the effect of the frost is slight, but if not ripe it is unfavorable. The method used mainly for defecation was to prepare lime as described above, and then, by use of litmus paper, to add the lime at any temperature before boiling, until the paper was just turned purple. Then raise the heat, remove the scum, let the juice stand in the defecator, the syrup not being darkened by standing unless there is an excess of lime. Allow it to settle. Then draw off from a spigot in the bottom of the defecator about a quart, which is placed aside. Then draw the whole in a clear condition for the evaporator. If the cane is very ripe the sediment will not subside; but by pouring in cold water and reducing the specific gravity the sediment settles, the only other result being a large quantity of water to evaporate.

Suckers are not harmful in syrup making, but exceedingly damaging to the sugar product. Re-planting has a bad effect in sugar making, by reason of the unevenness in the ripening of the cane. In 1881 only 153 bushels of seed were obtained from ninety-three acres in the crop, by reason of late planting. Take care to avoid those varieties that send up suckers. White Liberian is a variety that can be grown in the North nearly as well as the Early Amber cane. In one set of experiments canes that stood for a month after they were cut, exposed to the weather, yet continued to retain their juice and show an increased amount of sugar, a fact, however, very curious and unusual.

As to the proper price for manufacturing syrup and sugar, the convention unanimously voted to charge two cents a pound for making syrup. The members estimate eleven pounds to the gallon.

The Apiary.

"Do bees remove eggs from one cell to another?" This question is answered in the *London Journal of Horticulture*, in this wise:

"Yes, certainly. This I have known and witnessed for fifty years. I have often seen eggs laid by queen bees before being removed from their hives, set in other cells after their removal, and have known such eggs become queens, thus proving that they were not the eggs of fertile workers. Queen excluders, then, so much talked about at present, can not be of much use? No, they are valueless; for if bees determine to breed in any part of a hive queen-excluders will not prevent them. Last September a correspondent of a journal wrote that one of his colonies lost its queen when the combs were filled with honey, brood and eggs. He removed the frame of honey and gave them a frame of empty comb in its place. The hive was examined four or five days after, when there were found several queen cells on the empty sheet of comb. As it contained no eggs when placed in the hive, he saw that the bees had taken them from one comb to another. Eight queen cells were erected and filled on the empty sheet. He adds: 'There can be no mistake about this, for I took the empty frame from my honey room where it had been laid six or seven weeks. If more evidence be wanted it may be found in the fact that in many instances—I might venture to say in all instances of breeding in supers—the bees first prepare in the cells for the reception of eggs; and experienced men on examining supers can tell where the egg will be deposited. Bees are the masters and determine these matters themselves without consulting queen or queen-excluders. It will be well for bee-keepers to remember these facts.'"

The Dairy.

Exercise for Cows.

BY L. B. ARNOLD.

The amount of exercise which an adult cow requires is but very little, and all she gets beyond what is necessary for her health occasions a draft upon her system which must be made up by extra feed or a loss in her milk product, or perhaps both effects may be apparent. Every expenditure of force, whether in locomotion or labor, is made at the expense of the food consumed by the animal exerting the force. There is no evasion of this rule, and he who causes his animals, whether milch cows or beasts of burden, to make exertions that could be avoided, is wasting his means of profit. The man who, having a given load to move twenty miles, takes a path that will require twenty-five miles to reach his destination, is not more unwise than the dairyman who causes his cows to do twenty-five per cent. more travelling and exertion than is necessary to supply themselves with food. This may seem like spinning a fine thread, but it is the sum of such threads that determine the question of profit with the dairyman. The loss in milk production by more travel in grazing than is necessary for maintaining the health and vigor of a herd of cows, is often very considerable. Very few herds are free from some loss in this direction. In woodland pastures and rough and hilly ones, and in ranges necessarily large because the land is poor and feed scanty, the yield of milk is always inferior, being cut short by the long distances necessary to travel for gathering a supply of food. The loss in milk from feeding in pastures of such a character as to require cows to be all day in filling themselves, may be plainly seen by any observing farmer. A difference of 25 or 30 per cent., and even of 50 per cent., will be easily made between such fare, and a full supply of feed easy of access either by grazing or by soiling.

Large ranges of pasture are not advisable for cows in milk. It is better to supply only pasture enough to furnish grazing till grass begins to fail from dry weather, and to supply the herd with soiling crops through the middle of the summer, at least. The saving in land where land has much value, is enough by this course to pay for all the extra labor it occasions, and the increase of milk which will be gained becomes a source of increased profit. One would hardly imagine, until he tries it, how much the yield of milk for the season will be augmented by such a course. In the first place it saves the cows an immense deal of travel, if they can have their feed presented to them in the stable or other convenient place, instead of their having to run after it. Then, it often saves them a great deal of depressing exposure to sun, and storms, and flies. They are enabled also to make better use of the food they consume by reason of having more leisure for ruminating than they can have if they have to pick their living by constant travel. The sum of all these advantages has a telling effect upon the resources of the farmer, and he cannot afford to ignore them. If he has rough places, woodland or thin pastures, which will afford only scanty feed, it is better to put young stock upon it to pick the scanty feed. They can use it without loss. They require considerable exercise to work off their surplus energies, and to promote growth of frame and assimilation, and they won't mind the travel necessary to gather the grass from such places. But the milch cow which has her energies taxed to their utmost to elaborate a bountiful flow of milk, has no vital force to spare. She needs to husband to the best advantage all she has, to enable her to do her full work, and the farmer who intelligently plans his operations will spare her all the exertions he possibly can.

Betterments in Butter-Making.

BY JOHN GOULD, OHIO.

Before we take into consideration the employment of improved mechanism in the dairy, we had best understand some of the elements which are the base or foundation upon which good butter and its production rest. The cow is first to be considered; but for now we will assume that our cow is a good one, of full blood or a fine grade, and fed on well cured hay and corn meal. The question, "What is butter?" would, by a greater number of people, be declared to be animal fats; but this is only true in part, for butter is largely composed of vegetable fats; this is known from the fact that the flavoring oils of onions and other vegetable substances of peculiar flavors, are transmitted to the butter, rather than transformed, which would be impossible were they decomposed and assimilated, for this "recomposition" would remove their obnoxious flavors. Again, as the color of foods influence the color of the butter, we again are confronted with similar facts, that the essential oils of vegetable matter are taken up by the blood unchanged, and conveyed to the udder where it is, by the cellular process, decomposed into milk.

As several of the elements of butter are not found in vegetable matter, we then may assume that by some mysterious process they are created by combination, and are known as new elements, whereas it is possible that they are only elaborated from existing material, and to this is due the presence of the volatile and flavoring oils; at least this is now considered probable by our leading authorities, especially Prof. Arnold, who, as an investigator, probably now stands without a peer in the dairy world. This is given to show that the character of the food is quite as important a fact to which attention should be directed, as to enquire into the properties of dairy apparatus, for if choice is to be had between careless feeding and costly apparatus, or no apparatus and judicious feeding, the last would be by far the most preferable. No fine product can be made from inferior foods, and it is not wholly improbable that within a few years we shall be feeding "butter foods," and the cow will become a machine to give a flavor and texture to butter that no chemical art can approximate to, or even counterfeit.

Then we have one other inquiry to make, and that is, "why the butter fats separate from the milk?" for it is on this complete separation upon which the economy of dairying depends. If there were only the fats in the water of the milk, cream rising would be a very simple problem to explain, but as there is quite as much casein, or cheesy matter in milk, as fats, another element has to be overcome. In one sense cream does not rise. Actually, it is the serums that fall, for the cream globules do not change their density by becoming colder, but the serums do, and what in the warm milk actually is no difference in specific gravity, becomes marked as the milk is cooled, and the gravity draws the heavier portions of the fluid down, and this crowds the lighter portions or fats to the surface, or stratifies it, just as water forces oil to rise by occupying its space, after being shaken violently.

Then some one asks, "why all the cream does not rise if this is the case?" for absolutely perfect skim milk can not be produced, its nearest approach being accomplished by the centrifuge, but this even is not quite perfect. The supposed reason can only be answered mathematically, by asserting that the smaller globules of cream (and it is these and not the large ones that remain) offer more resistance to this descending serum than the larger ones, and thus are either held in perfect

equilibrium or are carried down instead of being forced up; in other words the solid contents of a globe are to each other as the cubes of their dimensions, while their surfaces are as the squares of their dimensions, so that this remaining cream in the milk is of these globules of fat which are of such infinitesimal size that they lose their motion, and so remain at rest and can not be secured.

Now we hope we stand on clear ground, so that the employment of a patent or modern creamery can be better understood, for to work in the dark with one is to continue the "guess work" features of the old methods. The plan of one and all of these modern creameries designed for the home dairy, is by a sudden cooling of the milk to produce a marked change, or difference in these specific gravities of casein and fats, and by this instantaneous cooling reverse the order and send the cream up, and by this process cause a greater number of these cream globules to rise, and by making the milk poorer, cause a corresponding increase in the butter product, a fact which is usually attained as the success of these different patents testify.

As we have no interest in any of these patents, that which I may say respecting their merits might seem one-sided at best; but speaking from honest conviction, my preferences might lead me to select one that has ventilation along with rapid cooling. Those with covers fitting over the can and designed to be water sealed, fail, in theory at least, of making the finest flavored butter, for if there is any truth in the oft repeated idea that cream will absorb odors, then the animal heats which are first expelled from the milk by rapid cooling are condensed upon the cover and are again re-absorbed. Such cans with edical covers, quite pyramidal in form, which would allow this condensed vapor to run along the inner surface and thence seek the water at the sealing line, would in part remedy this, but a small cap screw in the apex, which could be taken on while the milk was cooling, and then instantly made air tight by replacing, would, to my individual notion, be nearest perfection. Nor am I an advocate for the extreme cooling by the use of ice, for if the cream is reduced in temperature to the point of chilling, a difficulty will be experienced, not unlike the chilling of cream in the winter, which is so objectionable. Water at a temperature of about 50°, if it can be had in abundance, is all that can be desired, if butter of uniform and high quality is wanted, for radical changes are not the best systems to indorse in any patent. Cream is neither divested of any of its peculiar characteristics nor has them added to by the employment of improved apparatus. The objective aim is butter by any method, and what will destroy or impair flavor or texture by our plan, will not result differently by any apparatus unless the conditions are changed. Flavor, texture, grain, aroma, and quality are all reached finally by one system, though the workings may appear seemingly different.

The International Dairy Fair.

The International Dairy Fair Association held their annual meeting on Tuesday, the 13th of Feb. There was a large attendance of members. After the election of President Moulton, he delivered his annual address, for which, we regret, we are unable to find space. Suffice it to say it was a masterly production, and replete with valuable information for the dairyman and farmer.

Doubtless the most important subject discussed was that of a proposed fair to bring together the producers of the world for an examination of the products of all sections, and a general discussion of methods, systems and improvements. A resolution that such a fair should be held in New York this year was unanimously adopted.

The more frequent the actual producers of the country can be brought together, the better will it be for the marvelous interests they represent. Hence, when in agriculture, the farmer, or in any other industry, the producer, is attracted from his field of labor to discuss with practical men of like application the methods and experiments that concern all, and to compare notes with one another on the new features that are constantly presenting themselves in their management, a great benefit is guaranteed to all.

The Farm.

Top Dressing Fall Grain.

The higher average yield of wheat in England above that in America is not the effect of a higher fertility of the soil, but of better cultivation and more liberal fertilizing. The English farmer must grow large crops or he cannot live, for the landlord stands over him demanding his share of the harvest before the farmer takes out of it the bread for his own children. He therefore spares no outlay and no labor that can enhance the yield of the soil. The wheat is hoed with the greatest carefulness; every weed that cannot be reached by the hoe is pulled by the hand, and the crop is liberally top-dressed immediately afterward with fine compost or with artificial fertilizers. Here we take no such pains except in rare instances, and consequently our average yield is but little more than half that grown in England. But it is absolutely necessary now for farmers, who have to compete with the fertile and cheap virgin lands of the far west, to use every practicable effort to increase the yield of their soil, so as to cheapen the cost of production, by all the arts and devices of skilled agriculture. And now that returning spring gives us a glimpse of the fall grain recently emerged from its winter's rest, we can see how much it needs the aid of the skillful farmer. It is now in a critical condition, weak, and often suffering. March is a trying season for fall grain. The constant change of temperature, the cold, drying winds, the frosts and thaws, are all hard on the crop, and some help is necessary to restore its condition after suffering damage from these hardships. A harrowing to loosen up the surface about the plants and cover them with fresh soil is of great benefit. This is done best with a light, close-toothed, sloping harrow, which does not tear up the plants, but slides over them, drawing the soil which it loosens upon the surface over them. Then a top-dressing of fine manure or of some active fertilizer specially prepared or adapted for the crop in its present condition, is required. When the crop has not been liberally manured in the fall, a liberal surface dressing will now be very profitably applied, and if there has been a fall manuring a spring top-dressing will be by no means thrown away or labor lost. Fall grain is the end and the beginning of the usual rotation. It closes up the past and opens up the present, and as grass and clover follow it, and all the other crops following these, and the live stock of the farm, which subsist chiefly upon grass, depend on it for their good condition and thrift, there is double reason why the wheat should be carried through in the best possible manner. It should be a serious part of the winter's work to prepare a compost heap on the border of the grain field for distribution in the spring, as soon as the condition of the soil permits a team to go upon it without injury. A comparatively small proportion of manure will really be required for this purpose. There are several kinds of waste matter about a farm which may be made of equal value with manure if they can be reduced to decomposition. It is this readily decomposable nature of stable manure that gives it its chief value, and its character in this respect is such that it can be used as the active agent in producing decomposition in all kinds of organic matter, and even of some of the mineral matters of the soil. If a heap of sods and soil, and the washings and gatherings of the roads which collect on their borders, be gathered into a heap with other similar substances and mingled with a tenth part of their bulk of fresh stable manure and another tenth part of fresh lime, the latter acting as a ferment produces a vigorous decomposition action throughout the whole mass, accompanied with considerable heat, and these soon reduce it to a homogenous condition of rotted vegetable matter and partially soluble mineral matter, which are now an excellent food for plants. The longer this action can be continued the more complete and effective is the result and the richer will be the compost. Five loads per acre of this, scattered thinly so as to merely darken the surface, will have a surprising effect in a few days, and the effect will become more and more apparent as the spring advances into the summer, and until the harvest tells the story and counts up the gain.—[N. Y. Times.

It is said that nitrate of soda applied to pasture will soon make the stock eating it excessively thirsty, besides causing excess of urine. It will, however, greatly increase the growth, and if the nitrate is applied long enough before feeding the evil effects will be less noticeable.

Land Plaster.

That there is a great benefit to be derived in the sowing of plaster broadcast over the meadows and pastures in spring cannot be denied, notwithstanding what we hear concerning the "waste of time, money and labor" from the present day farmers. It is the result alone that shows the skill. The free use of plaster may not be observed in any appearance of the growing crop other than a brighter, darker coloring; but the cattle that feed on it tell volumes in favor of its influence. Any manuring that serves to promote a rank, succulent growth, which, while it may increase the quantity of milk, contains a large per cent. of water, is not beneficial for the making of butter, reducing at the same time the strength and flesh of the cows in the herd. Cows that feed on pastures which receive a free sprinkling of plaster in the spring, will be found to remain in good flesh through the milking season and give larger quantities of milk, that contains more butter, than when fed on pasture that has never been given this dressing. The juices of the grass are richer and heartier. The hay, too, that has been cut from the meadows where plaster has been sown contains a larger per cent. of nutriment.

Soja Bean, The New Agricultural Plant.

This plant has been grown for some years in Austria and Hungary, both as a forage plant and a vegetable. It resembles somewhat a Bean; the stems are stiff and hairy, as are the leaves; the pods are produced in bunches of from two to five, and contain each from two to four smooth, oval nankin-colored seeds. The latter, which are produced in great abundance, pronounced by chemists



to be the richest of all human food, may be used as food for mankind as well as for beasts, and the straw is eaten by sheep and cattle. Sown early in May, in any good soil, in rows twelve or fifteen inches distant; it ripens in August. Stands well heat and drought, and is well adapted for our climate. One of our subscribers reports that from one pound he raised 45 lbs., that all kinds of stock like it as well as peas, and that the straw is relished by sheep and cows even better than hay. It is an excellent bearer.

Draining.

BY C. G. ELLIOTT.

(Continued.)

SILT BASINS.

The silt basin is often a valuable auxiliary to a system of drains, but it is not used as much as it would be if its advantages were better understood. It may be described as a small well, placed either in the line of a single drain, or at the junction of several drains, and serves several different purposes. The silt basin may be built of brick, stone, or plank, and may vary in diameter from twelve to twenty-four inches, according to the use for which it is intended. There should be a depth of twelve inches below the tile for the deposit of muddy water. In draining it is often desirable that several sub-mains or branches should join at one place, and there unite in one line as an outlet to the whole system. It permits us to

unite several drains entering at different angles, without the objectionable feature of short turns, which we have before noticed. To facilitate the action of the drains, the outlet of the basin should be a few inches lower than the outlets of the lines of tile entering it.

Another advantage is, that the fine earth, or "silt," as it is called, which finds its way into the tile and is carried along with the drainage water, is permitted to settle in the basin, instead of being carried on by the current, to lodge in some portion of the drain where a turn is made, or where the velocity is decreased by a less grade. The basin should have a cover, which may be removed and the silt taken out before it impedes the flow of water through the tiles.

Another use of the silt basin is to prevent the silt from obstructing the drain in cases where the grade suddenly changes from a steep grade to one considerably less. This retards the flow, which causes the silt coming from the upper part of the drain to be deposited at the point where the change to a less grade is made. Here is where the basin should be placed, in order that the silt may be intercepted and removed when the lower portion of the basin becomes full. For this purpose the diameter of the basin may be much less than for the purpose of collecting the water of several drains.

In the ordinary drainage upon western farms, there is but little necessity for the construction of basins for the purpose of simply collecting silt, for there is usually not enough difference in the grade to cause any alarm on that account. Yet near streams which break the land up into alternate steep slopes and flat bottoms, they are sometimes a necessity. In long mains, however, it is best to locate silt basins at various places along the line for the purpose of watching the action of the drain and to see that its several sections are in perfect condition.

Where the soil consists of loam on a firm clay subsoil, there is very little and sometimes no deposit of silt after the drain has been in operation a few weeks. There are many subsoils, even in prairie lands, which contain streaks of sandy material, which, for some time after the construction of drain, will find its way into the tiles. It will be seen that the provisions made for the interception of silt must be regulated by the kind of material in the soil through which the drain runs.

We can not urge too strongly the use of the silt basin for the purpose of collecting the water of several drains into one, and thence conveying it to the ultimate outlet. In the system of laying out drains, described in a former paper, the use and importance of the silt basin is shown. A judicious use of the silt basin for the several purposes for which it is intended, will greatly increase the efficiency of any system of drains.

DEPTH AND DISTANCE APART OF DRAINS.

Depth.—So intimately are the subjects of depth of drains and their distance apart connected, that we can not fix upon one without taking into account the other. The first question which should be answered is in reference to the depth which we wish to drain the soil. What is the most suitable depth for the soil we have, and the purpose for which it is to be drained, taking into account the cost of drains at different depths, and the comparative advantages to be derived from them? The drains must at least be placed deep enough to receive no injury from frost during the winter. This is about two feet, though drains much nearer the surface than this have done good work for some time, but can not be regarded as safe. How much deeper than this we had better go depends upon several facts and principles, to which we hope the reader will give attention, for in this, as in many other matters of drainage, no absolute rule can be laid down and mechanically obeyed.

Many farmers have a mistaken idea in thinking that the removal of surface water sufficiently to fit the soil for plowing in the spring, and comfortable tillage during the summer, is the sole object of drainage. The advantages of a deep soil, and the use made of it by growing crops, have been explained in previous chapters. If we wish a deep soil, it is evident we must remove the surplus water and admit the air to the depth to which we desire the roots of the plants to penetrate and receive nourishment. We hear many arguments in favor of very shallow cultivation of growing crops, on the ground that the roots at the surface will be cut in pieces and so deprive the plant of nourishment. This argument will apply only to undrained or shallow drained land, where it will be found that the great bulk of the

roots lie near the surface, only a few penetrating the undrained soil.

The advantages of deep drainage are, first, a greater amount of soil is made available to crops, and fewer ill effects are felt from drought; second, there is room for more water in the soil in times of heavy rainfall, so that water may rise considerably above the drains for a short time without seriously affecting the crops. The soil becomes drained no deeper than the floor of the tile. In time of heavy rain the water can not pass off as fast it falls, and of course saturates the earth much above the drains, and often to the surface. In this case the tiles must be much larger, so as to carry off the water nearly as fast as it falls, if we wish to keep depth enough of drained soil so that no injury for the time being may be done to the crops. This will many times account for the cry often made, "My tiles are too small." The same tile placed deeper, thereby giving a larger reservoir in which to collect drainage water in times of heavy rains, would often remove the difficulty.

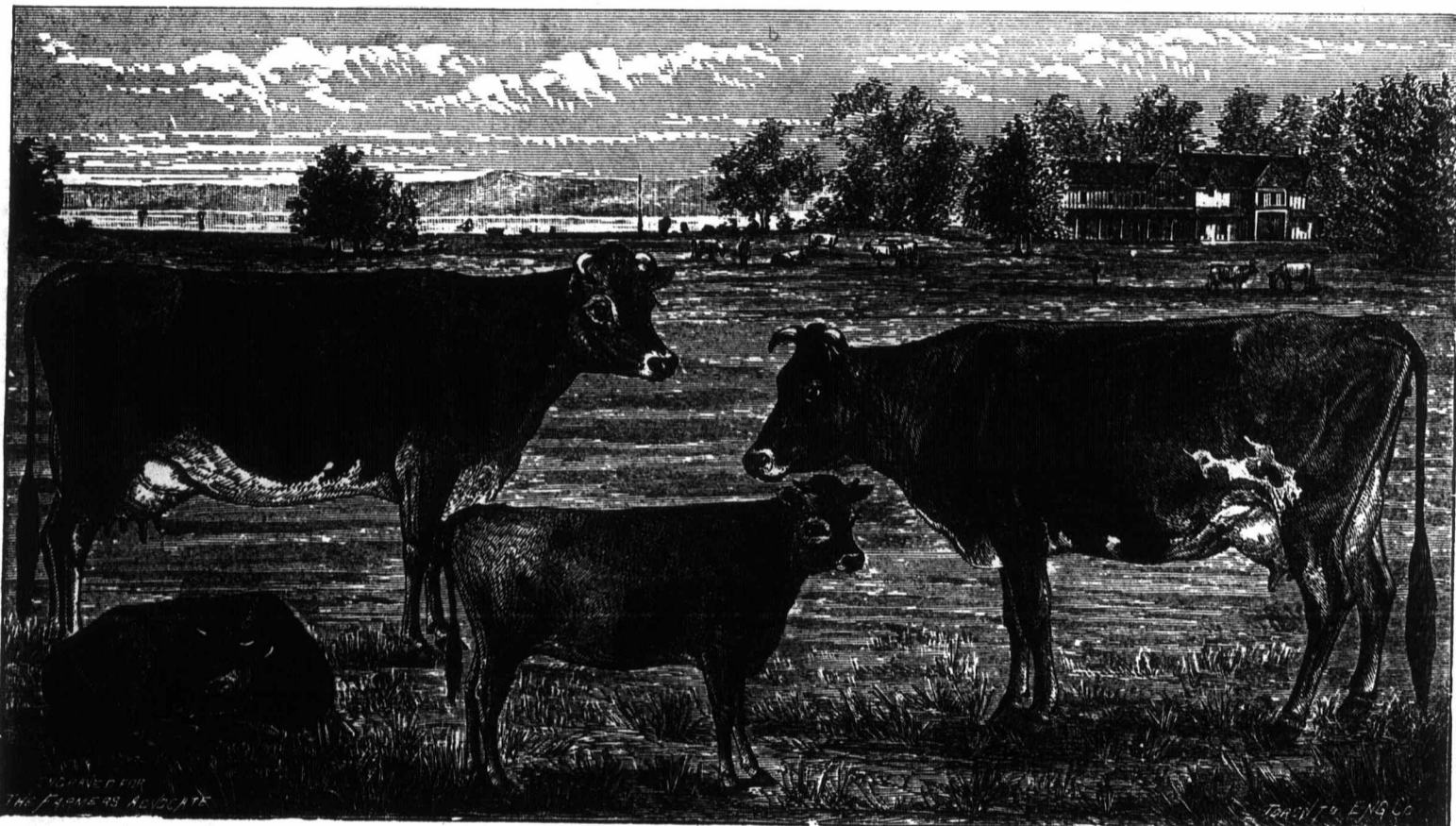
We have thus far been general in the discussion of depth. The question will be asked, "What

The Parent of Wheat.

The origin of wheat is traced in the following article, in *Macmillan's Magazine*:

The nearest form to true wheat now found wild in the British Isles is the creeping couch-grass, a perennial closely agreeing in all essential particulars of structure with our cultivated annual wheats. But in the south European regions we find in abundance a large series of common wild annual grasses, forming the genus *Ægilops* of technical botany, and exactly resembling true wheat in every point except the size of the grain. One variety of this species, *Ægilops ovata*, a small, hard, wiry annual, is now pretty generally recognized among botanists as the parent of our cultivated wheat. There was a good reason, indeed, why primitive man, when he first began to select and rudely till a few seeds for his own use, should have specially affected the grass tribe. No other family of plants has seeds richer in starches and glutens, as, indeed, might naturally be expected from the extreme diminution in the number of seeds to each flower. On the other hand, the flowers on each

VALUE OF LEACHED ASHES.—There is much difference of opinion as to the value of leached ashes as a fertilizer. There is none about that of unleached ashes, and the difference doubtless arises from the known effect of the potash in the unleached ashes. Potash is always useful, whether the soil abounds in potash or not, because the potash in the ashes exerts a decomposing action on the vegetable matter of the soil and produces available nitrogenous compounds. Of course, this does not happen with leached ashes; but where the soil is deficient in potash and lime the leached ashes are useful, hence the differences of opinion in regard to this matter. The potash and lime of ashes being of organic origin, are more active than those of mineral origin, and 50 bushels of ashes per acre containing 60 or 100 pounds of potash and several hundred pounds of lime are, of course, very beneficial on soils needing these elements. It is very rare that unleached ashes fail to be valuable, and there is little risk in using them at any time. If there is a doubt about the effectiveness of ashes,



OAKLANDS," FARM OF MR. VALANCEY FULLER NEAR HAMILTON, ONTARIO.

particular depth is most preferable, all things considered?" If we are careful to lay out grades to the best advantage, our depth will vary much with the inequalities of the surface. From the experience of many, it has been found that a depth of from 3 to 3½ feet in prairie soil is most desirable. It will be found that some portions will be laid four feet deep and others only three feet, or even less, if we aim at a general depth of 3½ feet. The expense of digging the ditches for four-foot drains is much greater than for three-foot drains, so that for general purposes of farm drainage the above instructions may be regarded as the best that can be given. It is not always possible, however, to obtain the desired depth, because of the shallow outlets which farmers are sometimes obliged to use.

Distances Apart.—According to the principles already noticed, drains in a retentive clay soil must be placed nearer together than in ordinary vegetable loam, if we wish to drain all the land between them. Even then the water-table will not recede so near to the floor of the drain as when the water percolates more freely and rapidly through the soil. In our experience, drains placed 100 feet apart in our loamy soil, and 3½ feet deep, will thoroughly drain the land where the surface is ordinarily flat. It has been found that so easily and rapidly does our soil drain, there is no necessity for such close proximity of drains as is used in the East.

If, however, the soil is very retentive, especially near the surface, a distance of from 50 to 75 feet may be required to give thorough drainage.

plant are particularly numerous; so that we get the combined advantages of many seeds, and rich seeds, so seldom to be found elsewhere, except among the pulse family. The experiment conducted by the Agricultural Society in their college garden at Cirencester has also shown that careful selection will produce large and rich seeds from *Ægilops ovata*, considerably resembling true wheat, after only a few years' cultivation.

"Oaklands."

(See "On the Wing," p. 70.)

The cow standing on the right of our engraving is "Oakland's Faith." She took first prize at Toronto and Hamilton; also the sweepstakes at both places. Her milk record was 21¼ quarts, and her butter record for 7 days was 15 lbs. 2 oz.

The animal represented on the left of the picture is "Swansdown," daughter of "Farmer's Glory." Her yield of milk as a two-year old, 15 quarts.

The heifer calf which is standing is out of "Faith," and took first prize at both Toronto and Hamilton.

We could not better employ spare time than by filling up the waste places of our farms with timber for future growth.

and nitrogen is needed, it would be safe to use the artificial complete manures which contain potash, lime, soda, magnesia, phosphoric acid and nitrogen.

The introduction of barbed wire will restore into use as a hedge plant the buckthorn, *Rhamnus catharticus*. When growing in good soil and trimmed annually—a very easy process with it—there is no deciduous plant so dense and so beautiful in shade of foliage. It excels the privet in this respect and is eminently a plant for home hedging of fruit yards or of paddocks, as the English call the small areas of pasture for fowls or calves or ailing animals that are so conveniently close to the stables. It requires a richer soil than the barberry to develop its luxuriant beauty. Plants are very easily raised from the berries that are abundantly yielded by untrimmed bushes.—[Quis-Quis.]

The Milwaukee, Wis., Pickle Company raised, by proxy, last year, 25,000 bushels of cucumbers on 300 acres; the average price paid, *The Western Farmer* says, "was a cent a pound."

An authority declares that ticks and lice will never be found troublesome where sheep are fat and in good condition, the pests only attacking poorly kept animals. The "moral" is obvious.

Garden and Orchard.

Mountain Ash.

Herewith we give an illustration of this ornamental tree. It is perfectly hardy, and can be grown in almost any part of Canada. It grows to the height of twenty-five feet; the leaves are dark green, and somewhat similar in shape to the oak leaf. In summer it has a profusion of white blossoms, which are succeeded during autumn by large clusters of reddish yellow berries, which form a strong contrast to the dark foliage. It is a very desirable tree to plant upon our lawns or ornamental grounds, and makes a capital shade tree when planted along the roadside or field. An avenue of these trees planted alongside the lane leading to a house looks very beautiful, especially if well trimmed.

Preparing for Planting Fruit Trees.

Let us glance at the cardinal obstacles to successful fruit culture, and briefly suggest a remedy in each case, founded on experience in both gardens and fields. In many gardens that have for years been devoted to vegetable culture, the land has been dug deeply, or trenched, and manured liberally and systematically. Such soil is not well suited for fruit trees, as it promotes sappy, luxuriant, and fruitless growths. The best remedy to apply in such a case is lime and firm planting. But liming to be effective must be thorough; a mere sprinkling at the rate of 10 or 20 bushels an acre is of no use; such an infinitesimal dose is time and material wasted. The application should equal from 80 to 100 bushels per acre, or a little over 2 bushels to the rod of 30 square yards. Such an application in rich, "fat" garden land is the best dressing that can be given for all kinds of fruit, except, perhaps, strawberries and black currants, and half the quantity of lime will suffice for these.

Poor land must be enriched before anything can be properly grown on it; but, as a rule, it is not sound or economical practice to bury farmyard manure deeply for fruit trees. For mixing with the soil, half inch bones are admirable, farmyard manure being chiefly placed on the surface of the soil over the roots. If a fruit tree is planted in poor soil, a barrowful of good compost placed round its roots, and rich manure used as advised, the tree may be expected to flourish. The reason the manure is best placed on the surface is that it encourages roots there, and surface roots can be easily fed, while they always produce short-jointed, fruitful wood, deep or subsoil roots producing growths of an opposite character. From this fact, for fact it unquestionably is, it will be seen that the practice of digging deeply amongst the roots of fruit trees is pernicious.

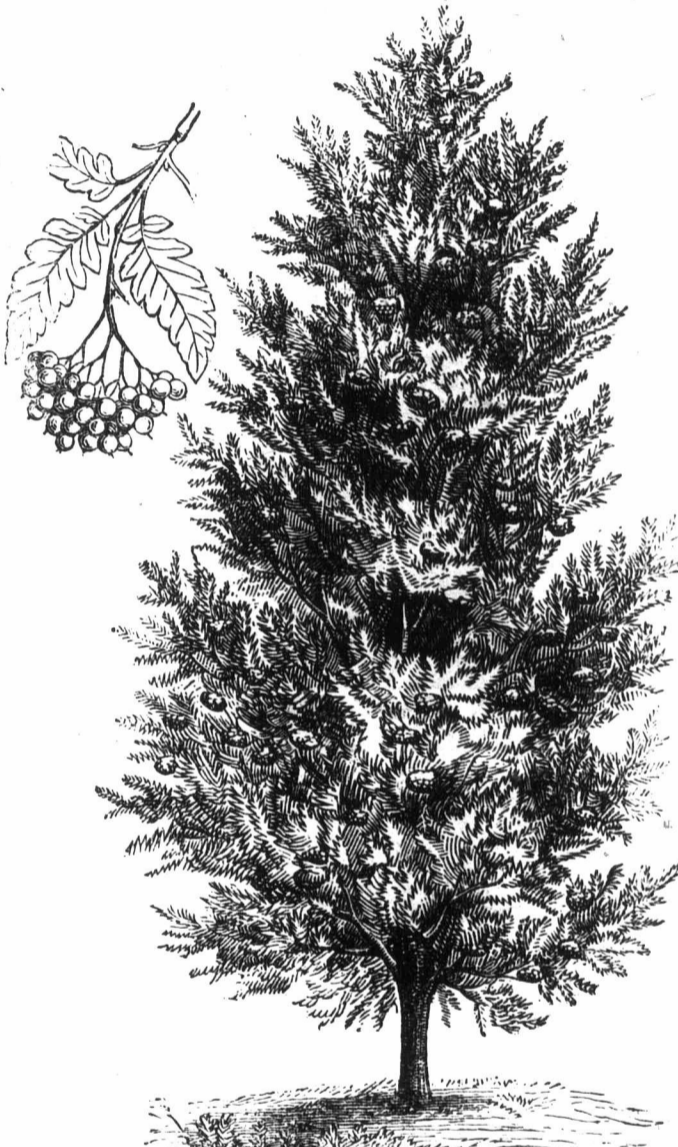
Too dry soils are those close to the shale, rock or subsoil. In such cases there must be a removal of the former and a breaking of the latter, so that during wet weather the moisture can pass down freely, and, what is equally important, pass up from the earth to the roots in dry weather. It ought never to be forgotten that a hard "sole" or cement-like subsoil—through which rain can scarcely pass, acts also as a seal to the subterranean reservoirs which, by the agency of the sun, yield up their supplies to the roots of trees and languishing crops in the hot summer months.

For wet soils the remedy is obvious—draining. No trees can flourish in water-logged soil, and drains cannot be effective for the purpose in question that are much less than three feet deep; but in soils such as clay, of an adhesive nature, there should be cross drains also of half that depth, to carry off quickly the surface water. In draining soil for fruit trees—in fact, for all crops—care must be taken that there are proper falls and outlets for the water, and that the latter be kept

clear, which is certainly not always the case, important as the matter obviously is.

Strong soils should have liberal applications of vegetable matter—old tan, spent hops, decayed leaves, wood ashes, the latter being especially valuable, long littery—not rotten—manure, grit, sand, or anything to improve its porosity; light land, on the contrary, should be dressed freely with marl, clay, or anything of a heavy nature; and if the clay can be charred before use, so that it can be broken into small particles, it will be of tenfold greater value than if used in a raw, tenacious state—in fact charred soil of any kind forms a splendid medium for fruit trees.

Preparing the soil on the lines indicated is the quickest, surest, and cheapest mode of ensuring success in the growth of fruits, of whatever kind they may be, and however small or large the scale on which they are to be cultivated.



MOUNTAIN ASH.

Raising Tender Seeds.

As the time for sowing tender seeds is rapidly approaching, it may be well to prepare those who are not professional gardeners with advice how to secure a successful result. When seeds don't come up, in nine cases out of ten it is the result of sheer ignorance as to their proper modes of growing and treatment, whilst it is the common excuse to throw the burden of failure upon the unfortunate seeds or their vendors. Amateurs often rely for their summer floral display upon plants raised from seed, and perhaps overlook the fact that their chances of success lie in an early sowing. It often, however, happens that this is neglected until it is too late, and the flower garden suffers in consequence; and with the limited means at command, great difficulty is experienced in getting the plants fit to put out until the season is far advanced. Of course, if a properly heated house or pit is at disposal, no great difficulty need be experienced, but

this is so seldom possessed by the class of persons referred to, that the idea may be at once dismissed, and we prefer to say that an ordinary frame, assisted by heating material, is the next best place; but care should be taken that a gentle warmth should be maintained for a few weeks until the seedling plants have become strong and the sun shines rather more light and heat. There are very many persons, however, who will not care to take the trouble that is involved in the making of a hot-bed, and, therefore, whilst it is generally a successful contrivance in the hands of those who understand it and don't mind the cost, the greater number of amateurs will be content with the means which a green-house affords them for seed raising. In such a place some means must be adopted in order to raise the temperature a little, and the simplest and cheapest plan is to make a frame on a small scale by means of two boards of any required length, the back one being about nine inches and the front one six inches deep; to these add two short pieces for ends, and a miniature form is found, on which squares of glass can be laid, the edges touching each other. This small box will get and retain more warmth than exists in the open house. If a more elaborate affair is desired, a groove cut along on the inner top-edge of each board will allow the glass to slide along and prevent it from falling or slipping off. In such a close box as this, all sorts of tender seeds can be raised with considerable ease, and when large enough to pick off, the green-house will certainly afford the required warmth and shelter. There are in most greenhouses odd places in which such a contrivance might be fitted up, and it would prove extremely handy for many purposes, not the least of which is that mentioned, and also as affording considerable aid in the striking of cuttings of tender plants. The size of the glass must, of course, be a matter of convenience, but panes twelve inches by sixteen inches would prove exceedingly useful. In such a small frame, pots of such a size should be used as will allow the most to be made of the limited space within, and they should be filled with clean, sandy, finely-sifted soil, and the seeds be but thinly covered over, then gently pressed down and watered with tepid water, the same precaution being taken in future waterings until the plants are strong. When the sun shines strongly, a newspaper might be thrown over the glass to prevent scorching, but it should be removed directly the danger is passed away.

Apple Culture in Ontario.

BY J. MCLACHLIN.

Whilst Ontario is noted for the excellence of its cheese and beef, and for its large export of grain, it has not yet attained the position it deserves in the culture of fruit. Our farmers have, as yet, reaped an inadequate return from their orchards. Year after year they have planted trees, expended both money and time on the cultivation of fruit, but in far too many cases the result has not been as encouraging as they anticipated, at least the net proceeds of the orchard have not been what they should be.

Why is this? Is our climate at fault? No. Ontario is admirably adapted to apple culture, as any one can learn by visiting our fairs, or by the reputation of our apples in the English market. As a further evidence of the excellence of Ontario apples, a Middlesex farmer received one of the medals given at the Centennial Exhibition, for apples grown in the township of Delaware.

So then, whilst we admit, and know from personal experience, that there are a few favored spots in Canada, such as the Annapolis Valley, N. S., better adapted to apple culture than Ontario, still we claim that our Province is, on the whole, well fitted for producing a large variety of apples.

Are the trees planted of inferior quality? Certainly not. Our local nurseries, as well as those in Rochester and elsewhere, supply good, healthy trees, generally true to name and of the variety ordered. In fact we have the same class of trees that are sold in Annapolis and Kings Counties, N. S.

Where, then, are we at fault? And what is the best available remedy? It may seem presumptuous in me attempting to answer, as I have never attended the School of Agriculture, nor sat at the feet of its presiding "Gamaliel," but I venture to say to the readers of the *ADVOCATE* that the best practical information on this, or any other subject pertaining to farming, must emanate from practical farmers—not from theorists, merely. A few months residence in the best apple districts of Nova Scotia enables me to compare our management of orchards with that practiced by those who made apple growing a specialty. Contrasting our mode of apple raising and its results with the success attending the Annapolis orchardists, led me to examine closely and to enquire into the *modus operandi* of their system of fruit growing.

Of course it would be folly to suppose that what is applicable to the Annapolis Valley is in all its details applicable to Ontario, nor can we expect ever to be in as favorable a position as our friends down by the sea, but there are certain principles and laws of success equally applicable to us as to them. One or two common errors, prevalent in our Province, and their appropriate remedies, may be noticed. These errors were, in the past, largely unavoidable, but, as we shall see further on, they need no longer be tolerated.

First. Too little attention has been given to apple culture. Our farmers have been so much engaged in clearing and draining the land, in grain growing and cattle raising, that the orchard has been too often neglected, or its wants very improperly attended to. As long as they had to depend on uncertain local markets easily glutted at any time, there was certainly little to stimulate the Ontario farmer to do more than raise enough apples for his own use, and a few bushels to peddle around the nearest village or town. I say a few, for if he had many they would not be worth peddling. Again, while Ontario was the great wheat producing Province it was necessary to give special attention to grain growing to supply the demand for exportation, as well as the wants of the less favored parts of our Dominion.

But the conditions are changed, or are changing now. We have a sure foreign market for good keeping apples. Being far from the sea-board, increased facilities for shipping to England are needed, and will be had when public attention is directed to the advantages of the English market. On the other hand the almost illimitable prairies of the Northwest rapidly filling up with a soil yielding population, may render wheat raising in Ontario much less profitable than it is at present, while the influx of settlers in Manitoba and the Northwest opens to us what may be called a home market for apples, as it is not likely that fruit will be largely grown in the Northwest for years to come. The outlook for apple growing in Ontario is hopeful. Let attention be directed to the subject. Let the farmers and fruit-growers discuss the matter freely through the press.

Second. Too many varieties of trees are found in our orchards, and a very large proportion of these apples are unfit for a foreign or for any market. I cannot too strongly emphasize this point. It has been the bane of apple culture, and will for some time to come prevent Ontario farmers from realizing a full return from their orchards. It is painful to think of the waste and loss caused by small inferior fruit, and by the soft summer or autumn apples found in such quantities in too many orchards, fruit which must be sold at any price, and which prejudicially affects the sale of a better article. Apple-tree agents have, perhaps, unintentionally added to the evil by getting farmers, year after year, to order one or more of each of several varieties of trees so that it is not uncommon to find in an orchard of one hundred trees from twenty to thirty varieties.

Even if the fruit in such an orchard was all fit for shipping to market, the labor and annoyance entailed in keeping separate, sorting and barreling so many kinds of apples is so great that it can only be fully realized by those who have tried it.

If an orchard contains, say twenty varieties, each of which has to be assorted into two or three classes, at the close of the sorting some thirty or forty barrels, partly filled, will be left. These will have to be mixed or disposed of in some other way. This difficulty can be obviated only by reducing the number of varieties as low as consistent with the demands of the trade.

One of the most successful farmers in Annapolis county last year had nearly five hundred barrels of Nonpareils and only two hundred barrels of other kinds. Instead of having a few trees of each variety, he would at once graft, or else set

out three, four, or five hundred Nonpareil, or whatever apple stood the highest in the English market. Such is the true policy. A few summer and fall apples for home consumption, local markets and cider making; the rest, a few kinds of the best keeping apples that can be raised in the county or province.

Just here I may remark that grafting is the remedy for the errors of the past, and judicious selection the hope of success in the future.

In growing long-keeping fruit for the English market, farmers would reap a two-fold benefit. The hard apples carefully selected and packed would command a high price, leaving, after paying all expenses, a fair margin to the grower, while it would ease our local markets, thus raising our home prices and enabling farmers to dispose of the small quantity of soft fruit still grown. In London, (Eng.) by last reports, Spys, Baldwins, Spitz, Russets, &c. sold from 18 s. to 30 s. per barrel, or at an average of 24 s., equal to \$5.75. Freight, commission, &c., from Ontario would cost about \$2.25, leaving \$3.50 to the grower. It will be seen at once, then, that an orchard yielding 500 lbs. annually would be a valuable auxiliary to the farm, and that the whole subject of fruit culture deserves careful consideration.

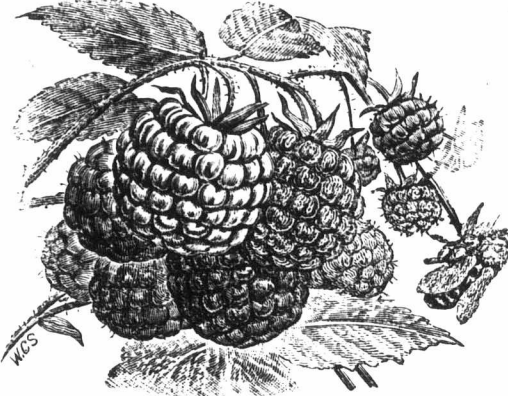
But how are farmers to select the best varieties of apples for their respective localities? By bringing their combined observations and experience to bear on the subject through the columns of a paper devoted to their interests, and by glean- ing as much reliable information as may be had from Canadian and foreign sources on the state of this important branch of agriculture.

The consideration of several other points must be deferred till a future issue, but I trust that the farmers of Ontario and the *FARMER'S ADVOCATE* will assist in advancing the best interests of Ontario, and in making it, what it is destined to be, a successful apple-growing Province.

Hansell.

THE EARLIEST OF ALL RASPBERRIES.

The history of the Hansell is not without interest. Some eight years ago it was noticed growing



among weeds and grass by the side of a barn in Burlington County, New Jersey, a spot so unfavorable for a raspberry that any variety, except one of great inherent vigor, would have perished. After a time a branch attained sufficient age to bear fruit. These first few berries, in their half-buried-alive position, were so fine as to attract the attention of the owner of the property—the late J. S. Hansell, a practical and eminently successful fruit grower. On being transferred to the field it proved so signally fine and profitable that Mr. H. set about increasing and planting it, as rapidly as practicable, until at the time of his death (in 1881) he had ten acres of it growing, while his successors continue to plant more.

It is not an untried novelty sent out without testing, says T. J. Lovett, the well-known nurseryman of Little Silver, N. J., for it has been fruited on an extended scale, and subjected to all kinds of hardships, and examined carefully by those of widest experience with raspberries that "the country affords," and the verdict has been unanimous that it is not only the earliest of all raspberries of any kind and color whatsoever, but possesses all other qualities desirable in a raspberry to a remarkable degree as well. On the grounds of the originator it was ripe in 1880 on the 4th of June, and in 1881 on June 11th. The season of 1882 was so backward that almost everything was two weeks later than usual, when it was ripe on June 20th, in all instances fully ten days in advance of the Brandywine growing beside it with the same treatment. It invariably

ripens its entire crop in a short space of time, and is done and gone when the Cuthbert is at its height. Of course such a berry would command high prices in the market, but this is not conjecture, as it has for the past three years sold from twenty to twenty-five cents a pint wholesale. It may be described as follows: *Fruit*, medium to large, averaging larger than Brandywine and nearly as large as Cuthbert; *color*, of the brightest crimson, being as bright as Brandywine and brighter than any other that we can name; very firm, equalling in this respect that best of all shipping red raspberries, the Brandywine; *quality*, best, unsurpassed, being notably rich and refreshing and possessing a powerful aroma of roses, thus imparting a most delightful perfume and flavor. Canes, vigorous, productive and entirely hardy, having never been injured either by the heat of summer or the cold of winter. While entirely different in form, and totally distinct in cane, the Hansell bears more resemblance, in its high quality, consistency of flesh and bright color, to the once eminently popular Hudson River Antwerp, than any other raspberry of which we have any knowledge.

The Early Start.

Seeds of tomatoes, peppers, balsams, verbenas, petunias, and of many other semi-tropical plants requiring a longer season of warmth than we have, may be sown whenever a heat of 60° to 70° can be maintained; and early in April the seedlings will be ready to move, each to a little pot, for better preservation of the roots through the final transplanting to open ground about the first of June.

Some forethoughtful readers know the convenience and advantage of inverted sods for starting young plants of tomatoes, melons, flower cuttings or seedlings, or even peas, sweet corn, small grape cuttings, etc., under the shelter of glass until the ground becomes permanently warm. The turfs for the purpose should be pared off three or more inches thick, from good loamy or peaty soil, and where it has not been eaten down so bare but that there are root-fibres enough all through to hold the squares together into which it is to be crosscut. These may be cubes of three inches or more, and they are handier than pots for their purpose, and will protect the roots almost as long and as well. Placed upside down in a box or flat not much deeper than themselves, the seed or cutting or seedling plant is put on each, and all are covered with fine mould or sand saved for the purpose. The transplanting to the open ground goes off more speedily than from pots.

The "sod pots" said to have been patented a few years ago are made by scalding a thinly-pared flake of bluegrass turf enough to destroy the vitality of its roots, and then cutting into strips about four inches wide, and in length that will reach round a two-inch pin. After tying with two strings the pin is withdrawn, and the pot, filled with good, mellow soil, is ready, either for seed, cutting or plant. A shallow, light box of these or cube block, is easily moved out to full sunlight and warmth whenever practicable, or in to near the stove when necessary. Melons or cucumbers may be advanced some weeks by the same method, beginning with them in April.

Enriching Orchards.

Any farmer who has been accustomed to raising apples and has been uniformly successful will doubtless say that if he expects to get good crops he treats the orchard as he does for any other crop. He manures it and he finds that a manure that will do for most other crops will do for the crop of apples. It is the neglect to manure orchards at all that causes them to bear so poorly and the trees to look in bad condition; nothing is better than wood ashes for orchards, if we had the ashes; but nearly everybody burns coal, except in certain out of the way sections, and we must therefore resort to something else. Next to wood ashes there is no fertilizer better than barnyard manure. A liberal application of this, if only once in three years, with careful pruning and scraping of the trees and ferreting out the borers and all other insects which lay concealed under the bark, will soon make a change in the productiveness of the orchard. If the trunks were washed with whale oil soap, say one pound to a bucket of water, there would not be many insects alive after the operation.

Hydrangea Grandiflora Paniculata.

These plants, from Japan, are perfectly hardy, and should be in every lawn and ornamental garden. They frequently grow to the height of 6 or 8 feet; the leaves are of a light green color; the flowers are white, turning to pink before fading. The color of the flowers can be changed to a light blue by mixing iron filings with the soil. This beautiful shrub blooms in August, just when flowers are most needed in the shrubbery, and the plant fairly covers itself with great pyramidal blossoms a foot long. They flourish better if wintered in a cellar pit or deep frame. The plants can be moved easily, with as much earth as possible adhering to the roots, and can be replanted in the shrubbery or garden in early spring. They also thrive well if planted in tubs.

The Kitchen Hot-Bed.

It is a trifling matter, but one well worth remembering, that for most farmers' gardens one scarcely needs a hot-bed to bring forth seeds of tender vegetables or flowers, if they can have at hand a good kitchen range. A few dozen plants is generally all that is wanted, and a square foot or so of earth in a box will give all the plants one is likely to want in the vegetable way; and a similar one for flowers. Seeds do not need light to sprout; indeed, good gardeners think that light is a disadvantage. All they need is heat and moisture, and this they can get in a slow oven, or by a warm range, as well as anywhere. Of course as soon as the young leaves appear they must have light. Then the boxes can be moved to the windows or to some sheltered place in the open air. All this has to be done gradually. Every one knows how hard are sudden changes of temperature to the human system, and it is just as bad to plants. The best thing is to put them under a sash in the open air, if one has it. By the time the seeds have been sprouted in this artificial way, it is generally so far on into the season that a very little protection is enough to take care of the plants. In this way one can have things several weeks ahead of time in the ordinary way of doing things, and at little cost or trouble; and this is a great advantage to those of small means.

The Winter Meeting of the Ontario Fruit Growers' Association

Was held in Toronto on the 31st January. There was a good attendance of members. Papers were read and discussions took place on the black spot or fungus on apples, onion culture, apple culture, planting orchards, &c.

Primroses can be made the delight of the rural home. They are essentially rural, redolent of spring with its violets and aromatic leaves. The single varieties may be obtained from seed, also from cuttings and division of the root. Keep the plant rather dry for some time before the cuttings are taken, says an English writer; plant each in a thumb pot, and keep them close, under a handglass, until the roots are formed. Give them no water for a week or more, lest they damp off. Primroses may be kept in a cold frame during the summer, or at the window of an unoccupied or unfrequented room. Give them air, but shield from strong wind and hot sun. To care for primroses in the summer savors somewhat of work, but if well done they will reward one with hundreds of flowers, truly refreshing, during an inclement winter.

Plum Growing

OR HOW TO SAVE THE CROP FROM THE CURCULIO.
BY HORTUS.

The past few years the plum crop has been an almost entire failure, principally from the attacks of the curculio. The black knot and rotting have also been enemies of the plum-grower, but nothing has proven so destructive as the subject of our article. Everything has been tried known amongst fruit-growers, but all efforts have been unavailing. The most reliable method practiced to date has been shaking the tree and catching the pest, but while you are catching the beetle your neighbor adjoining does nothing, and his trees furnish you with enough beetles to annihilate your crop. This plan is taken for catching potato beetles on your vines, but if it was not for the application of Paris green your potato crop would not come to much.

We now state what we are sure of, that the following directions carefully followed will secure a full crop of plums, and bear this in mind, that the

lieve this treatment practiced on our plum orchards will be productive of great results. There can be no objection to the use of Paris green, for on consideration it is seen that Paris green being a mineral, it is impossible for it to enter into the composition of fruit or vegetables.

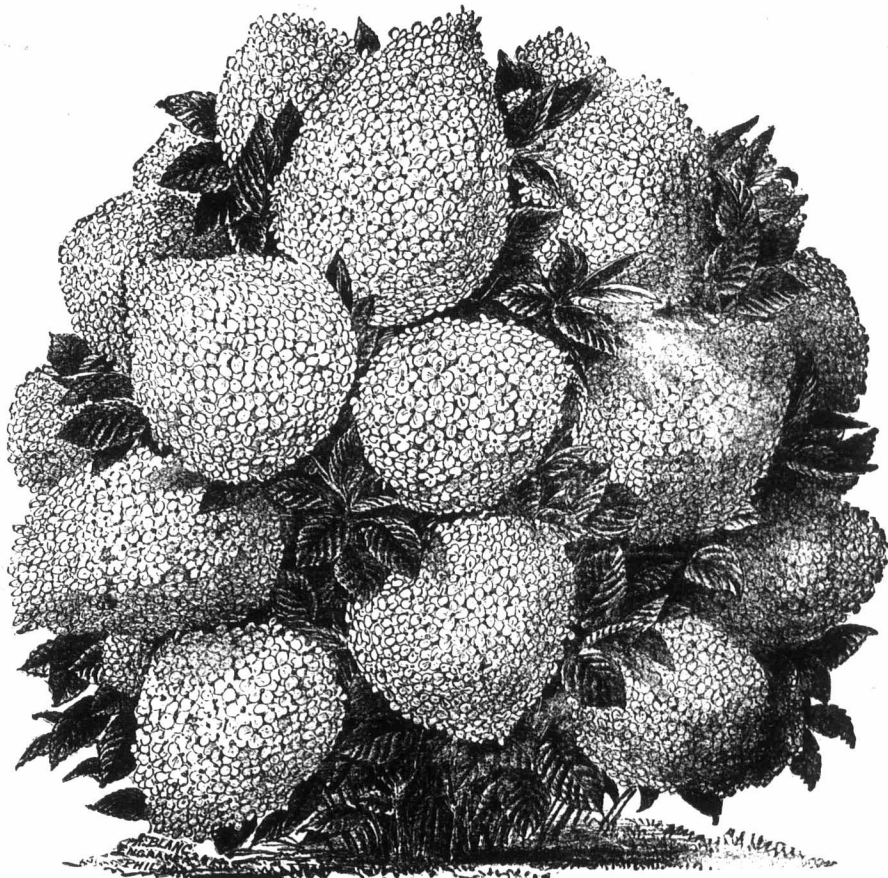
The New York Horticultural Society.

MEETING AT ROCHESTER.

On the morning of the 25th, S. D. Willard read a full report of the condition of fruit and fruit-growing in Ontario county. He said it had been attended the past season with a good deal of profit as well as with loss. Apples and peaches were nearly a failure. But the fruit men of Ontario county are made of sterner stuff than to be discouraged by unfavorable seasons. Plums and grapes had been successful. There is a great increase in the plantations of blackcap raspberries, and in some places almost every farm has its plantation. New markets and modes of conveyance are opening. Many are sent to Philadelphia. White grapes bring good prices. Twelve-pound baskets of the Lady grape had sold for twenty cents a pound. Many tons of grapes are now in cellars waiting for advanced prices. He made several practical suggestions in culture, and recommended young peach trees to be kept well cut back—advised the use of lime and ashes—the removal of borers from apple trees—the use of whale-oil soap and other washes for insects—plowing early once in the season for orchards, and many harrowings afterwards, not working too near the trees—and advised cans of oil set on tripods with burning lights to catch insects. D. W. Beadle asked Mr. Willard if he ever caught any codling moths in this way, and did not believe he had or ever would. Prof. Zimmerman said he never found a codling moth attracted by a light, and he did not think any could be caught in that way. W. J. Fowler had tried lights, but could never catch a codling moth. Prof. Comstock, of Cornell University, said that the electric light on the university grounds had drawn vast swarms of moths which might be counted by thousands, and sixty different species had been found, but not a single specimen of the codling moth. Some of the moths caught he knew to be noxious, and many useful insects were also caught, and he could not say whether the most good or harm was done by trapping insects in this way.

Prof. Comstock read a paper describing fully a small insect which has much infested the apple orchards of the western part of the State, and figured and described in Prof. Riley's fourth report on the insects of Missouri, as the "apple-leaf lacerator." Prof. C. exhibited the insect in its cocoons on the apple twigs, and also the perfect insect. The cocoons are white, about one-fourth of an inch long, and one-sixteenth of an inch in diameter. The eggs are minute, only one-sixteenth of an inch in diameter. Paris green administered at the proper time will probably destroy it. In winter the much infested twigs may be cut off and burned.

FERTILIZERS FOR THE GRAPE.—Prof. Caldwell, of Cornell University, in a paper which he read on the subject, treated very thoroughly of fertilizers for the grape. The first point for inquiry was, what does the grape take from the soil? Secondly, what is the composition of the grape and vine? Thirdly, what does stable manure do by way of supplying this exhaustion? And fourthly, what commercial fertilizers accomplish the same end? He gave the component parts of the vine—spoke of the amount of potash and phosphoric acid, which prove to be much less than the same ingredients contained in the farm crops of clover, wheat and



HYDRANGEA GRANDIFLORA PANICULATA.

curculio is on hand and ready for the mischief as soon as the trees open out in blossom, and it is now that we commence operations: In the first place we ask this question: What does the curculio live on? Clearly not by stinging the fruit, "that stereotyped phrase" we see so often in horticultural papers and nursery catalogues. No, sir, the curculio has a stomach, and a healthy one, and our remedy is to treat him the same as the currant worm and potato bug, and that is to poison him. As soon as the trees come into bloom, have a syringe ready, a teaspoonful of Paris green to a pail of water. Give the tree about three syringings; do this and you will have an abundant crop. A solution of carbolic acid and gas tar, very much reduced, will also prove efficacious. The great thing to be observed is to do it early, not to wait till the fruit assumes a shape, but commence with the blossom.

Where this has been practiced a good crop of plums was the result. Do the syringing in the morning between eight o'clock and nine. We be-

Spring Work in the Garden.

BY HORTUS.

Warm, sunny days should be busy ones this month. Pruning should be actively pushed forward. All old and superfluous branches removed; scrape the old, rough bark off the trees, and give orchard grounds a good manuring. There is no good to be derived from the practice of mulching or piling up of heaps of manure around the butts of old trees, as we often see. Scatter it well over the soil, evenly, and the young feeding roots will get the benefit. Lime and salt may also be applied in liberal quantities. How much?—a question often asked, can be determined always by the size of the orchard; and amount of cost for a certain quantity will always decide the quantity to be applied. One thing certain, you need not be afraid of applying too much, and the more you apply, the greater the return of health and fruitfulness to your trees. Half the blights and diseases in trees are caused from starvation of the soil, and we have seen orchards, apparently dying, entirely renewed by a generous manuring. This is the proper time to prune grapes; cut away as much old wood as you can, leaving the young canes, and these should be shortened back about half their growth. Trim your currant bushes and raspberry canes, and manure all you can, as it is easier to cart manure when the ground is frozen, than waiting to be thawed out. Ashes, either wood or coal, should be spread over the ground, and on the paths. Plans may be formed now or any contemplated changes in the garden decided on. Make out your lists of seeds, and order your trees early, so as to receive first selection. What shall I plant? is a query often puzzling to decide when there are so many tempting and over-praised varieties of fruit described in catalogues. In brief we mention for profit in *Apples* to plant, Baldwin, Golden Russet, Northern Spy, R. I. Greening. *Pears*—Bartlett, Sheldon, Clapp's Favorite, Lawrence. *Plums*—Lombard, Yellow Eggs, Pond's Seedling, Imperial Gage, Washington. *Cherries*—Eton, Black Eagle, May Duke, Ely, Richmond. *Currants*—Black Naples (true), White Grape, Cherry and Red Victoria. *Gooseberries*—Downing, Smith Seedling, Whitesmith, Houghton. *Grapes*—Brighton, Concord, Delaware, Salem. *Asparagus*—Conover's Colossal. *Rhubarb*—Myatt's Linnaeus. The foregoing list are old time and tested fruits, and can be relied on. Avoid ordering new, fancy varieties, no matter how well recommended. The country is annually cursed with a lot of novelties sent out with one object, only to make money out of. Farmers living in good fruit sections, should not purchase what's termed "Iron-clads," when they can grow good fruit, winter kinds and long keeping; why buy varieties that may be hardy enough, but will only keep a few weeks, as nearly all hardy fruits are early and of no value for keeping.

Value of Fruit Trees.

It is not generally known that our most common fruit trees are of great value for timber. Apple wood is in great request by the dealers in fancy lumber, and pear wood is still more desired. The latter is in great demand for carving and fancy ebony work, as it takes a deep, black stain very freely and works up in the lathe or under the carving tools very smoothly and without grain marks. So that a plantation of these trees might be profitably made for other purposes than the fruit, and many an old and very infirm orchard, whose bloom of youth long since departed, might far better be piled up in the lumber yard than to remain to cumber the ground, where a younger and more beautiful plantation might stand. Cherry is another valuable tree that is easily grown, and is saleable as timber for ornamental and cabinet work.

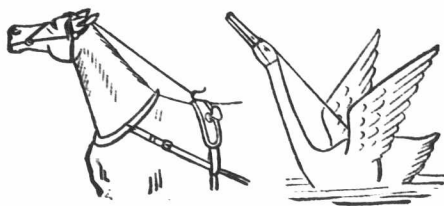
Potatoes in Hot Beds.

Potatoes may be started in hot beds so as to be ready to transplant to the field six inches high as soon as the weather will permit. In bedding them split them into two pieces lengthwise and bed them with the cut side down. The heat of the bed will soon cause them to sprout and grow, and when you are ready to transplant them the pieces may be taken up and the sprouts broken off and transplanted. If preferred the pieces may be cut with one sprout to a piece and thus transplanted. By this method you can mature the tubers two or three weeks earlier, and a bushel so sprouted will plant twice as large an area of land as by the old method of planting.

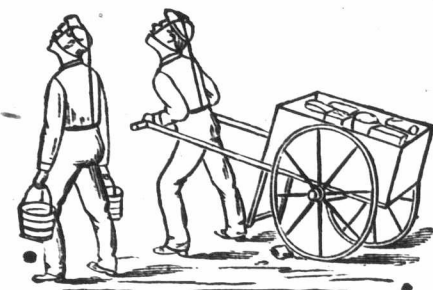
Stock.

The Over-Check Rein.

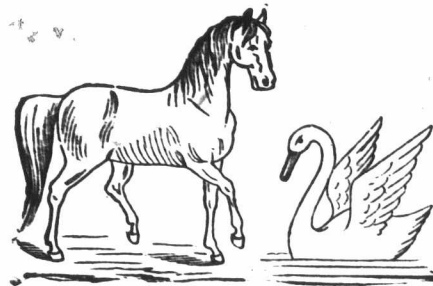
We are indebted to the Massachusetts Society for Prevention of Cruelty to Animals for the following cuts:—The Society declares that this check rein is a foolish contrivance to torture, which has not one excuse, fastening the horse's head in a position unnatural and extremely painful, which exposes his eyes to the glare of the sun and prevents him seeing stones and other obstacles in the roadway.



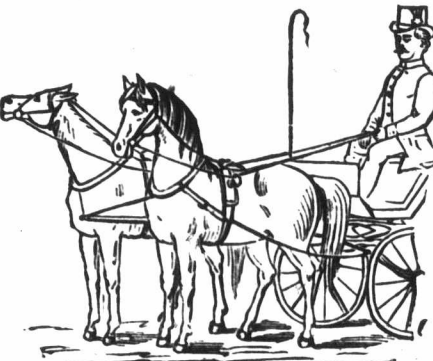
Unnatural Position—The Injury and Disfigurement of the Horse which results from the present "style" of the Over-check.



Let Them Know how it is Themselves—The Drivers of our Horses doing duty and putting on "style," with Head pulled back and Face turned upward by the Over-check.



Natural Position—The Grace and Beauty which comes from Arching Neck and Curving Lines.



Natural and Unnatural Position—Two Horses, One Beautiful from Head held in Graceful Position, the other Disfigured from its Head drawn in a Position which inflicts Pain and Torture.

Amber Cane for Stock.

Amber cane makes a most excellent fodder for cattle and horses when green, and also when cured, if not suffered to grow too large. The only objection to cane as a cured fodder is the sharp, tough rind of the stalk. It, like corn fodder, is difficult to cure well. Containing a large amount of sapon sugar, it sours if not put up in moderate sized shocks. Cattle are very fond of it on account of its sweet juice. In the fall they will eat the whole stalks clean. We have seen them begin at the butt end and eat all to the last panicle of seed, without dropping any part of it. Horses are also fond of

it, as they always are of sweet food, but it should be fed sparingly to them, for the stomach of the horse cannot digest so large an amount of tough fibre as cattle eat. We have fed the cured stalks to horses after running them through a cutter, and cutting only three sixteenths of an inch in length, breaking the tough, sharp rind into shreds, and reducing all nearly to a pulp. In this condition horses take no harm from eating amber cane, and we have acquaintances who say they have fed the stalks in winter to horses without injury, and they seem to prefer the cane stalks to hay.

It should be planted at the same time as corn, and the soil should be pretty clean. It grows very slowly at first, until it gets rooted, and then rapidly. It requires cultivating to insure a good crop. If to be used simply as fodder, it should be cut when the seed heads begin to form; but if for seed also, cut when the seed is in the dough state, and put up in moderate-sized shocks to cure in the field.

Amber seed is good food for horses, especially when ground. The rind of the seed is somewhat hard, and should be fed moderately if unground. But when well ground it has a value per 100 pounds about equal to corn. Dr. Collier, Chemist to the Department of Agriculture, analyzed these seeds and found them to contain—albuminoids, 9.98; fat, 4.60; carbo-hydrates, 71.56 per cent.; comparing very well with corn. He figured the value the same.

Where this cane is raised for making sugar and syrup, it is very common to feed the seed heads to stock, and thresh the seed and grind for horse or cattle food. It is excellent when ground for fattening hogs. Three to five tons of cured fodder, and 25 to 40 bushels of seed, may be raised per acre.—[National Live-Stock Journal.]

Selecting Breeding Horses.

Our readers have not failed to see that we have an enduring faith in good, useful horse stock. Under the term "useful," we, of course, include good horses for every use, whether this be to hitch to a three-ton truck-load or to a hundred-pound road wagon. There is no better time for the farmer to plan for spring than during the leisure hours of winter. If it is desirable to change breeding-stock, with a view to improvement, there is no better time to do this than during the period between now and the season for coupling. Settle down upon the description of horse you think it wise to breed, as you are situated, and cast about for a foundation, if you have not already got it on your farm. The enterprise, too, among the stallion owners has never been more active than now, and the range for selection will be ample. Through the experience acquired in past years, while the opportunities have not been so good as could be desired, nor the foundation such as was approved, lessons have been learned that should be equal to any emergency. Farmers have too often deceived themselves by adhering to a horse because he was good at farm work, not looking far enough ahead to see that if sold for hard street service, his legs, or hoofs, or perhaps both, would fail him. The dealer is not slow to see these tendencies, and either discounts heavily, or rejects altogether. The foot and leg of the horse are a study mastered but by few; yet, every man who breeds from a single pair of mares should learn, partly by reading, but mainly by observation, the peculiarities of hoof and limb that will carry a horse, on hard pavements, at least one-half of his working life, without his becoming a confirmed cripple.

"Wildest enthusiasts," *The National Live-Stock Journal* remarks, make "extravagant claims" for the silo system.

There are about 600 creameries in the State of Iowa, and the yield of butter is estimated at 100,000,000 pounds per annum, which, at twenty-five cents per pound, amounts to \$25,000,000. The cheese product is valued at \$2,000,000, making a total of \$27,000,000 from that branch of industry alone. Iowa has one-thirtieth of all the milk cows in the United States.

Col. John D. Gillette, of Logan County, Ill., has wisely come to the conclusion that he will no more fatten the extremely heavy bullocks, for which his feed lots have been famed for years past. He declares that 25 per cent. more can be made on younger beeves. Big beeves are wanted, but not as a regular thing, as of yore. Early maturity is now the watchword of every progressive breeder.

Stock.

Management of Sows.

ATTENDANCE AND BEDDING.

As opinions differ upon the matters of attendance, bedding, &c., I will give *my reasons* for advocating this system that I follow myself, as all who venture to offer advice to others should be able to do.

Many pigs frequently meet their death in their early days, even with the best of mothers, from two causes. Most sows get as close to the wall of the sty as possible; and when the bed is scanty, there is nothing but the young between the mother and the wall. After suckling, the noses of the pigs that take the bottom row of teats are often completely covered by the udder (especially where the udder is largely developed), so that while mother and young are sleeping, several of the latter are suffocated for want of air. To avoid this the rail is advocated, and no doubt, though not an absolute safeguard, is very beneficial; but where there is a good elastic straw-bed, the side forms a cushion against the wall, and prevents the sow crushing up to it; while, from its porous nature, sufficient air penetrates it to supply the youngster, who with his head under the udder would otherwise be suffocated. Then some sows, particularly those who are large and unwieldy, throw themselves down most awkwardly among their litter, and the poor little one lying on the hard floor is crushed to death in a moment. This would not be the case when there is a good bed; a pig may be so lain on for a considerable time when there is a good foot of straw under him, and come out quite fresh; he is also able to protest against the treatment, and this he generally does vigorously, when all but the most careless mothers will get up and give him a chance; add to these, which I think sufficient reasons, that both mother and young are much more comfortable, and do so much better upon a nice, warm soft bed than they do upon a sawdust or chaff-sprinkled floor, that I am satisfied of the excellence of the plan of providing them with plenty of straw.

DIFFICULT PARTURITION.

There are many reasons, too, why it is wise to be in attendance upon a sow during pigging. Cases of difficult parturition occur, when assistance is imperative, though in anything like extreme cases proper veterinary assistance should be sought; some sows also are extremely restless, and with continually getting up and lying down are likely to hurt their pigs, which at first are almost always very helpless. I once lost nearly an entire litter of my sow Nellie (whose breeding properties have previously been noted), through no one being with her. For her first four or five litters she had the habit, directly a pig was born, of jumping up and standing till the next labor pain, when down she went, all in a heap, right on the top of any youngsters that might happen to be there. Bed or no bed, when weak and new-born, none could survive such treatment, and in the case in point, expecting her to pig during my absence from home, I gave particular instructions to my men how to act. She was rather inclined at such times to be savage, and they durst not go near her; the consequence was that thirteen out of seventeen pigs were lost through not being safe-guarded till parturition was over, after which no more careful mother could be found.

PUERPERAL FRENZY.

Sometimes sows devour their young directly they are born, probably through an unhealthy craving of their semi-carnivorous nature; and here it is obvious attendance and removal are the only measures. Sows are also occasionally, though rarely, seized with a sort of puerperal frenzy that induces them to jump up and worry to death each unfortunate youngster directly it is born; this is altogether different to the propensity to devour them, and is akin to the frenzy which sometimes induces a young heifer to attack her calf, and to the frequent massacres of their young by rabbits and ferrets.

USE OF A HURDLE IN THE STY.

If ever I am apprehensive of an outbreak, or am consulted by others in a like fix, I arrange for a hurdle to be firmly fixed parallel to one wall of the sty, with just sufficient room between it for the sow to stand up and lie down in without turning round; the one end of course is close to the wall running at right angles. Within this the bed is placed, and when the sow is in, another hurdle is

firmly driven in crosswise, and well fastened, thus forming a cage, which prevents her damaging either her offspring or attendants, as she is only able to get up and down, and cannot possibly turn round. The little ones are removed as fast as pigged; and, when parturition is quite completed, it is tried to soothe her by gently rubbing her udder; if she turns over and seems pleased with this, one of the strongest of her pigs is brought and kept by her, taking care not to let it get near her nose till it has sucked; but if she gives it milk pretty freely, then it is allowed to go into danger, when generally after a little she will take to it. The others then may be introduced to her, taking care in like manner that all suck before getting up to her head; and should she, as is mostly the case, become quiet with them, the hurdles may be taken away, as the crisis is over. Sometimes two or three trials are necessary before all is happily arranged, but it is very rare indeed, when labor is over and the pigs have sucked, that any but the carnivorously disposed will willingly harm them.

After either one of these experiences with a sow, it is not wise to retain her, as she generally behaves just as badly the succeeding litter; there are, however, cases where the intrinsic value is so great that it is desired to retain them at any risk, and as the best preventive of the evils of puerperal frenzy, I offer the above suggestion of enclosing them between hurdles as the most practical I am acquainted with for those who are given to devour their young. A safeguard is more difficult, but, if inveterate, the mother may be kept so confined altogether, the young ones only allowed with her just for their food, and then removed to a place of safety till too large for her to hurt; but this entails a deal of work and attention, and certainly one experience of the sort would satisfy me; the butcher would save all further trouble.—[W. Godwin in English Live Stock Journal.]

The Brood Mare.

The object we have in view in horse breeding should be an annual improvement. The investment is remunerative when applied in good shape, soundness, and vigorous action, combined with the stoutest and most fashionable blood in the several classes. Horse breeding can alone pay by the breeding of the very best, for which the demand exceeds supply, and which phase of the market has ruled strong for years without alteration; the difficulty is to get horses good enough.

It is important to regard constitution in the parentage, apart from the essential consideration of size, freedom from hereditary blemish or defect, good sound legs and feet, a symmetrical body, wind, eyesight. Action is contributed by the mare in regard to force, by the sire with regard to direction. These are influenced by the deep shoulder, the moderate arm, length and muscularity of the forearm, a well defined trapezium at the back of the knee and well-defined sesamoid-bones at the upper posterior portion of the fetlock, shortness from the knee down; length in all bones, capability of mobility in the superstructure. Good shoulders are deep and well laid back in all good horses. Quality in the hind-quarters is determined by proportion of parts. Loins, thighs, gaskins, hocks—strong loins, muscular thighs and gaskins, clean bold hocks, the point of the hock in all cases well defined. We thus have considered the bases of speed, action, endurance. Beauty of proportion and style of movement are features no harness, hack, or hunter breeder can afford to despise; and the same holds good in regard to heavy draught horse stock for export.

Leading breeders have always a high standard as a fixed aim; in some cases their efforts excel, in others fall short of their beau ideal. When such is the case the mare is invariably at fault. An up-standing roomy mare—that is, one with a lofty forehead, a long barrel, well coupled up or ribbed home, wide across the hips, deep at fore and back rib, evidencing length, and gentle obliquity, but no droop, in the quarter, on short fat, clean legs—this would be the brood mare of our choice to recoup outlay.

Mares with their first foals require the greatest attention. The mare should be served nine days after foaling, and again tried at the end of a fortnight. If the mare then refuses, it is conclusive; but should she stand, she must be tried on the termination of another fourteen days' interval. Mares have a strong aversion to smells—viz., tar, carrion, vegetable putrefaction. The leaves of the willow and of the savin are equally obnoxious. Pine varnish is the material that should be used,

rather than tar for palings. All excitation should be avoided—the neighing of entires, &c.

The most eligible time for foaling are the months of March, April, and May. In the first of these months they must be housed, unless the weather is most favorable. A roomy, sheltered, and well-ventilated box is a desideratum. No draught, nicely littered down, level and soft in surface, not too deep. The mare must be watered three times a day. Mares at this season are liable to gorge themselves with clean litter, and they frequently exhibit a morbid appetite, which must be restrained. Therefore dry, used litter, taken from under other horses, is the best for present use. Register the time when the mare should foal down. Ten days before she is likely to foal make the necessary preparations, and frequently examine her at least twice or three times a day without disturbing her; and as the event nears, a nocturnal visit or two must be paid. A roomy mare, naturally fed, neither too gross nor too poor, seldom requires external aid. A waxy substance on the teat, a sinking and expansion of the pelvis, rendering the act of parturition easy, are unmistakable signs. After delivery the mare will lick her foal—leave her to it, but watch the placenta or afterbirth that it does not recede, and when it has come away, remove it. Give the mare a nice pailful of warm linseed gruel, succeeded by a bran mash. Get the foal to suck as soon as you conveniently can. In any case of difficulty or doubt, do not delay to call in your professional friend and adviser, the qualified veterinary surgeon.

Variety of feeding is held by many to be a very safe plan. Just prior to foaling down, and after foaling, reliance for a copious supply of milk is usually looked for in those seasonable products—green meat or tares, lucerne, trefoil, and clovers. Most of the treatment relative to the brood mare accepts the cardinal features of first-rate management applicable to neat stock—quiet, cleanliness, supervision.—[Agricultural Gazette.]

Breeding Large Males to Small Females.

There are different opinions entertained as to this, whatever may be the advantages sought for in the practice, such as obtaining an increase of size in the offspring, improving their quality, etc. But if a few plain rules were carefully considered in carrying out this system, I think a more general agreement would follow among breeders in its practice.

We will take the stallion and mare to begin with. If he is the tallest by 6 to 8 inches, and is extra heavy and coarse-boned, while she is light in weight and thin in form, the fetus she bore would be so disproportionately large as to make it very hard and painful for her to give birth to it; and in doing so, neither she nor her offspring might survive the parturition. But if the colt happened to live, it would probably grow up a weakly, misshapen horse, of small value. Supposing the stallion to be very compact in form, with fine bones, and especially a fine head, and the mare be also of compact form, with rather a broad pelvis and large belly, although not so tall by 6 to 8 inches, and of considerably less weight, she may be safely bred to a male so much larger than herself; and, as a general rule, she would give birth to the fetus without danger to life, and it would grow up even in shape, and make a smooth, serviceable animal of increased size and power.

These principles will apply to breeding cattle, and more particularly with Shorthorns, for their calves are almost invariably dropped of small size. The bones of the parents are so fine, they have the faculty, in growing up, of clothing them with a greater percentage of flesh according to the size of bone than any other breed of cattle.

The same line of conduct may be pursued in breeding swine and sheep. In the case of long-wooled rams, like the Leicester and Cotswold, one of nearly double the weight of a full-bred or high-grade Merino ewe may be safely bred to it, for the bones of the ram are but little if any coarser or heavier than hers, and the offspring will come so small as to make parturition safe and easy. After this, if the ewe proves a fair nurse, the lamb will grow with surprising rapidity, mature a year or more earlier than its dam, and attain 50 to 75 per cent. greater weight, full form, fatten much more rapidly, and make mutton of a superior quality.—[A. B. Allen in National Live Stock Journal.]

Poultry.

Early Rearing of Broods.

BY R. A. BROWN.

Most every one desires early chickens, and many take great pains to secure this end; but sometimes with all the earnestness and enthusiasm that is often thrown into the labor in trying to get out early chicks for market and show purposes, many come sadly to grief. Sometimes we are too good to the setter and to the chick. Tiny, wee things they are, tender as a babe; but how often are their wants not supplied, not knowing what they are. We often overdo our work and kill them by kindness, but more often with neglect. We get the hen on the nest and keep her there, supplied with every comfort and requirement so near, that she may not leave the nest a minute during the term of her imprisonment, so that when the days are past that chicks should have appeared, we find none. We go anxiously to the nest, take out the eggs one by one, look at them, shake them, put them to our ear, and revolve the question in our mind whether to break the shell or not. We do so, and peep anxiously inside at its opening. We part the shell and out comes a dead chicken, to all appearance perfectly developed and ready to encounter the outside world. Now we take up another after another, and dispose of them in a like manner. Some matured like the first, some nicely started, some apparently fresh, and some rotten. We are startled at the state of things and feel very vexed; sometimes, perhaps, they are eggs from a distance that cost us probably a good figure. However, those eggs were carefully selected, and we have spared neither time nor labor to have them properly incubated, and the end is one of mere vexation. We wait a few days, and after half a dozen hens have come off with about as many chicks, they are placed under one hen, the other hens being supplied with fresh eggs. This hen is the choicest of the lot and takes kindly to the young brood. Now we feel assured of something, and try our luck again, after denouncing the evils of the old hen, of the weather, and sometimes the man that sent those eggs packed as they were. One night over, all well; but before evening comes again a chick is stiff in death, having been probably trampled to death by that "ungainly wretch," and another is dumpish, or seems chilled. Next day one is pecked to death, the one that was dumpish is now dead, and another along with it. At the end of a week the rats take away the last one; with this we feel a relief, but oh! so mortified. Now we hunt up our books and papers and carefully peruse their columns to see if any fellow is as lucky as ourselves, but cannot find any solace or remedy in them. Our neighbor comes across on an errand, takes a peep in at our poultry house, looks at its contents, and asks how many chicks we have. We say not any, but have about half a dozen hens sitting. This man who keeps no particular breed, but a mixture of all sorts, says: Why, we had two old hens come out last week with a great swarm, and all are smart and growing like weeds. We feel, "oh, below zero," and probably would like to "lick" him, but like Edgar Poe's raven, "say never, oh, never a word." To be successful in chicken raising or rather hatching, the hen must not sit too close or be off too long, or too frequently. Hatching eggs is similar to scalding pigs, which, if left in the hot water too long, will set the hair, which, to be successful, requires a dip and some fresh air. Just so with the eggs; they require fresh air, especially as the chick becomes nearly perfected. After an egg has been sat on for 18 days the chick then breathes air into the lungs from an opening made into the air bubble by the beak of the chick, and consequently if the hen sits too close there is not sufficient fresh air coming to the exterior of

the shell to supply the requirements of the chick, which will die from poisonous gas made from its own breath. If the hen is kept constantly on the nest at that time the feathers of the hen surrounding the eggs smother the chick, the same as if a person's head were enveloped in a feather bed. Eggs from an old hen that has been mated with a young rooster, prove more productive than eggs from pullets, as the latter's eggs are small and have not vitality enough about them to be strong, while the eggs of the hen are large, which gives the chick size and also plenty of nourishment while it is being incubated. The young father entails life and energy, which enables it to keep out of the way of the "old hen's feet," and saves it from being trampled to death, and also helps to keep its blood warm by moving around nimbly, while the chicks sired by an old bird are dumpish and weak, always in the way, and never on time to get the choice bits which are thrown to them, but are picked up by its more nimble brothers. Early set eggs require to be set in deep boxes sufficient to keep off cold drafts from the eggs when the hen is off, but with sufficient footing for the hen to get on and off without jumping down on the eggs when she returns to her nest.

Guinea Fowls.

The *Poultry World* says that Guinea fowls are among the most neglected breeds of domestic poultry known, and there are but few farmers or others who ever take the pains to give them even ordinary care and attention, permitting them to roam around at pleasure, to roost in trees or on the top of the barn, or wherever they take a fancy to, and permit them to lay and hatch just where fancy dictates. As a marketable commodity, the Guinea can not yet rank very high, on account of the fact that but few persons have ever eaten them, consequently do not know or appreciate their merits as a table fowl. There are, too, hundreds of farmers who raise a small flock of Guineas each year, who have never tasted the flesh of this bird.

Those who are fond of game, or of poultry which has a gamey flavor, will not fail to be abundantly satisfied with the Guinea fowl, which is composed entirely of dark meat, and which has retained, through long years of comparative domestication, the half wild habits which, it seems, can not be effectually bred out of them.

As they are not at all easy to capture, no matter how hard one tries to make and keep them tame, when one or two of them are desired for table use, it is a good plan to shoot them—with ball, if you are a good shot—and aiming only at the head, so as not to riddle or injure the other parts of the body. And do not kill the old birds, for they make rather tough eating, but select the cocks between one and two years old—not older, as these have their full growth and are juicy and splendid eating, when nicely roasted in a moderate oven.

The eggs of the Guinea are very rich and of fine flavor, and what they lack in size is fully made up by the large number laid by the hens each season, though it is not the easiest thing in the world to find just where the nests are, even though careful and persistent search be made. The size of the eggs and the comparative difficulty to tell whether they are fresh or not, until they are broken open, prevents, in a great measure, their ever becoming popular in our markets, or much sought after by those lovers of good, fresh eggs, who are able and willing to pay a good round price for the genuine article—a fresh egg.

Fowls can be improved more easily than can anything else on the farm, as the chicks invariably follow the markings and peculiarities of the cocks. It will be no use, therefore, to breed from favorite hens unless some care is bestowed in the selection of the males. The cocks must always be of a pure breed, if uniformity and desirable results are to be attained, for should the slightest degree of mongrel blood be in the cock the young stock will come of all colors, shapes, and imperfections.

Never cross non-sitters, such as the Leghorns and Black Spanish, or Polands and Hamburgs, for the progeny of the cross between any two of them usually turns out to be a scrub. The good qualities of both parents are lost in the union, and good sitters and indifferent layers are the result. The non-sitters cannot be improved in their dominant peculiarity (disinclination to sit) by any kind of a cross. They must be bred pure, each breed distinct.

Annual Meeting of the Ontario Poultry Association.

The exhibition of this association took place at Toronto from the 7th to the 13th Feb'y. The entries were exceedingly large, and the judges had no easy task. At this season of the year the birds are in full feather, and appear to the best advantage, and in this respect the exhibition has a great advantage over the fall shows, which generally catch the old birds in the moult, when their plumage is in a very ragged condition. The collection of poultry on the whole was pronounced to be the finest ever held on the continent. In that deservedly popular and attractive breed the Light Brahmas, which are now to be seen at the best in all the glory of their snowy plumage, the show has never been equalled in the Province. The birds, both old and young, were all fine specimens, both in regard to the fancy points, size and general excellence. Several of them were what a prominent United States breeder pronounces extraordinary specimens. The same remarks apply to the Dark Brahmas, which are still considered a standard breed, although they are not such favorites on this side of the Atlantic as the lighter colored variety. The Cochins, as a class, were not heavily represented, but the prize-winning birds were nevertheless exceptionally fine. The games made up the best collection ever gathered at one show on this continent. They were very numerous, the entries totalling about four hundred. The Montreal birds swept off a large number of the prizes. The competition was so keen and close that many fine birds had to remain unrecognized so far as the awards are concerned. The Plymouth Rocks were unusually good this year. The first prize went to Sherbrooke, Q. The Hamburgs formed a most beautiful collection, as nearly all the varieties in this class were exceedingly showy. The golden-pencilled variety were perhaps the best in the class for fine points. The Leghorns were also well represented. The Black Spanish show no sign of deterioration, although a comparatively old fancy variety. The French varieties are represented by Houdans, of which there were many good birds. Of Polands, there was not a poor bird in the place, and the prize winners leave little room for criticism.

The display of turkeys, geese and pigeons was magnificent, being very large. Mr. Main sent some gigantic bronze turkeys.

Diarrhoea in Fowls.

As soon as it is observed that a fowl has diarrhoea, which will be noticed by a wet, slimy appearance behind, it should be given about the size of a hazel or hickory nut of butter, three or four times a day until cured. But when the disease has run for some length of time, and has become chronic, it is generally very difficult to cure. Then give a full teaspoonful of castor oil and three or four drops of laudanum, night and morning, for a few days. This will be found a permanent cure.

A most excellent food is wasted when fresh bones are allowed to lie neglected about a chicken-house. Raw bones of about all kinds are greedily devoured by fowls, and the more marrow or meaty matter adhering the better. The latter, however, they will trim off if allowed the opportunity, and then if the bones are crushed under an old axe, hammer or sledge, they will put every fragment out of sight in a hurry. Chicken's bones are eaten as greedily as the rest. A chicken has no sentiment in such matters.

Too many hens with one cockerel is one cause of chickens dying in the shell. Several cocks together causes heavy battles, which is just as bad. All hens that are kept as breeders should be mated in a separate yard with a good vigorous cockerel, not over ten hens in the flock, (seven, if convenient) and there will be less complaint about bad hatchers.

A correspondent in an exchange says: Our supply of Indian corn, on which we had been feeding the ducks, gave out. Prior to this they had been laying well. Having plenty of barley on hand, we fed with that. The first week there was a sensible diminution in the return of eggs, and in the second we only got one-half the quantity. We then went back to Indian corn; the first week the eggs increased, and the second week of the return to the old diet, we had again a full supply. The conclusion we have come to is that the laxative nature of barley led to the decreased supply of eggs, but the decrease was not so marked in the hens as in the ducks.

Correspondence.

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 1/4 ounce. We do not hold ourselves responsible for the views of correspondents.

How to Make a Hot-Bed.

SIR,—How can I make a hot-bed under glass, and what degree of heat must be maintained? Please answer.

J. W., Strathburn, Ont.

[An exchange gives the following concise directions for making a hot-bed: "Some gardeners make hot-beds by building a mound of manure on top of the ground, but I prefer a pit, as I think it holds moisture better. Select a place where the ground lies fair to the sun and slopes to the south and east. The north side of the garden, if the ground lays right, is a very good place. The fence opposite the hot-bed should be six feet high and made tight to keep the cold wind off. The pit should be three feet wide, fifteen inches deep, and as long as the needs of the gardener may require. After the pit is dug it should be filled full of fresh horse manure well mixed with straw, or better still, forest leaves, which should be put under the horses and trampled well into the manure. In filling, shake the manure up well as it is forked into the pit, and then tramp solid as soon as you have six inches deep in the pit; continue in this way until you have the manure several inches above the level of the ground, then make a frame of inch boards, three feet wide and ten inches deep on the front side and sixteen inches on the back side; set the frame over the manure, and fill up outside with the dirt taken out of the pit, nearly to the top of the frame all round. Then if the manure is pretty dry, pour on several pails of warm water and cover with the glass right away, and leave it two or three days, till the heat begins to subside, then cover with soil six inches deep; 70° to 80° is the required heat. This soil should be rich and mellow and dry enough to crumble easily. Then in a few hours, if the sun shines, your bed will be ready to plant.

"If any one wishes to make his own sash, he can do so by following these directions:

"Take a strip of soft wood two inches wide, cut the side pieces six feet long and the cross pieces three feet long, groove the cross pieces with a small groove plane on both edges, so as to hold the glass, halve the ends of the cross pieces so as to fit down on the side pieces; then with some inch screws fasten on one end piece, then put in one row of glass and fasten on the next cross piece, and so on until it is finished. By this method the glasses are held firmly in their places and can be removed by simply loosening one screw in each cross piece.]

You are very punctual in answering questions, enabling every farmer to be his own doctor and veterinary, which alone is worth many times the subscription. Where would you advise a man with a small family to invest \$3,000 in a farm?

S. S., Delta, Ont.

[This is a very delicate matter to advise any person upon. There are good opportunities in almost any part of the Dominion.]

SIR,—Can you, or any of your readers, inform me which is the best class of cattle to raise working oxen from? Fast walking oxen is what we want. Which is the best way to break them in, single or double; in traces or in yoke? If in yoke, what distance from bow to bow would you give between the oxen, as we make all our own yokes and harness? Yours truly,

J. M. B., St. Paul.

[The Devons or Grade Devons are the most active and make the best working oxen. Break them in to double yoke during the winter. The distance between the bows will depend upon the size of the cattle. They should be just close enough together to work well without crowding.]

SIR,—I bought two pigs last October which are now about four months old and growing well. They are kept on my employer's farm, and I am experimenting to see if any profit can be realized by selling them about next August. Can you inform me what is the best food to buy for them, which will in the end turn out to be the cheapest? I think barley meal at \$1.25 per 100 lbs. is too dear to make any profit. Would bran do just as well, or what would you advise? How much capital would be required to rent a 50 acre farm? Kindly answer the above and you will oblige.

A SUBSCRIBER, Strathroy P. O., Ont.

[It will depend altogether upon the prices of the different grains from now to the time your feeding will finish. Corn or cornmeal, peas or peasmeal will be the cheapest. Use your judgment. It will take about the same machinery to work a 50 acre farm as a 100 acre farm. The capital required would be from \$800 to \$1,000.]

SIR,—Please inform me through your paper how to raise apple trees from the seed, and at what age they should be grafted. I have heard people say that a flat stone should be put under the roots when they are planted. Whether this is right or not I do not know. J. S. M., Bayview, P. E. I.

[Apple seedlings should be root-grafted at a'out two years old. There is no virtue in placing a stone under the trees, excepting drainage, and there are better methods of draining than that.]

SIR,—I have a Durham heifer that has a calf, and she does not give enough milk for it. She has the best of milk producing food that can be obtained. Would a farrow cow's milk, added to the new milk, be any benefit to the calf? What kind of meal would you recommend to mix in the milk, and how much? R. E. T., Brownsville, Ont.

[Would not give milk from a farrow. The milk from a cow that has calved recently would be preferable. Boiled oatmeal with the addition of a little linseed meal will be the best. If you have plenty of rich milk very little meal will be required till later.]

SIR,—I have two hives of bees in the old fashioned box hive, which I intend to transfer next spring to the movable frame hives. They are the first of the kind that I purchased. The bottom board is nailed on firmly, and what I wish to know is how can they be cleaned out with the bees in them, or if they are a good kind of hive? Perhaps you or some of the readers of the ADVOCATE would kindly answer the above. 2. I have a cow 5 years old in spring that never raised her calf. She lost it about the same time each year, for three years back, and do not know of her getting any hurt to make her lose it. Is there any remedy for her, as she is a fine animal? 3. What is the best feed for young colts the first winter? Some people tell me they should be fed very little oats; if so what is best for them? G. G. McK.

[1. Perhaps some of our readers who are interested in bee-raising will give the desired information. 2. The best thing you can do with the cow is to feed her up for the butcher. 3. Colts should be fed oats, but in limited quantities; they can be given scalded or boiled occasionally.]

SIR,—I see in the ADVOCATE you have the Concord Grape for a premium. I have seen it stated in some farming journal that it is perfectly hardy. Do you think it could stand our winters without protection? Sometimes it is 30 degrees below zero. Have you had or do you know of any who have had experience with it to that extent? I do not know of any grape vines in this neighborhood but one (a Clinton), and that is killed to the ground every winter with or without protection. I should be glad to receive some information on that point. VERDANT, Stanley, N. B.

[The Concord Grape is certainly the hardiest variety we have in this country, but whether it would stand such an excessively low temperature as you state, without protection, is doubtful.]

A subscriber asks THE FARMER'S ADVOCATE to give the plan and details of a brick root-house to be frost proof. "If one has lots of cash the problem of building is easily solved—but to combine comfort and durability with economy is what we want." We should be pleased to receive plans from any of our experienced readers. Pencil sketches, if plain, will enable us to present the engravings.

SIR,—What is the best way to work an orchard that has been standing for a number of years until last fall, when it was broken up. Would it do well to sow oats on it in the spring and cut them green? Could any composition be put on sleepers that are over a root house under the 'arn, to prevent them from rotting? By answering these questions you will oblige.

D. McK.

[Sowing oats, as you suggest, will be the best and lay the orchard down with orchard grass. A good coating of tar or creosote; the latter will probably be too expensive.]

SIR,—As you always kindly answer questions, I have been encouraged to ask you these questions concerning fences: Was there a law passed compelling a board or pole to be put on top of wire fences? I think that a pole on top is more dangerous than if there were none at all on, as horses would have a chance to plunge over it the same as a rail fence, and get their feet over the lower wires I think that the pole ought to be placed under the top wire. When I came on this place the fences were very poor, and my cattle got into my neighbor's meadow. I put up a four-wire fence, and they have not been in since. One of my neighbor's horses jumped it and was scratched some. Can he compel me to change or put a pole on it? The fence is not on the line and it runs in a zigzag way. He has land that belongs to my place, which he held by possession when I bought it. Can he compel me to build a fence in this crooked way, or can I have the line run and put the fence on it without his consent? By answering these questions you will confer a favor on an old subscriber.

E. B., Brockville, Ont.

[A bill was brought before the Ontario Parliament to make it compulsory to have a board or pole placed on top of a wire fence; but it never became law, the bill being withdrawn. You had better consult a lawyer; probably your neighbor has, by the Statute of Limitations, become the owner by undisputed right.]

SIR,—I am better pleased than ever with the paper. The wheat crop in this county was rather light last season. The best wheat seemed to be the Lost Nation variety; the Fife did pretty well, but the spring being so late, there was none a full crop. H. S., West Cape, P. E. I.

SIR,—How can I kill or keep down the suckers of lilac trees? I have cut them off close, and, in fact, dug down and cut repeatedly, so that I was afraid I would kill the tree.

C. N., Northport, Ont.

[The only effectual remedy will be to remove the roots upon which the suckers grow.]

SIR,—What would you think of the idea of attaching a threshing in place of a binding appliance to the harvesting machinery for this country. After five years of experience in farm life here, I am of opinion it would answer well, for reasons which I will try to make plain: Our country is generally level and dry, allowing us to sow our fields all at once, therefore ripening the same way; then we do not want the straw, so that the heads of the grain with very little straw would have to go through the machine; of course, we would need more power, but by leaving off the binder and substituting the cylinder, the weight of the machine would be about equal. I have found the difficulty of getting our threshing done here in proper time to be one of the greatest drawbacks which I have experienced. A great many may hold that the grain will not be dry enough, and not fit to be carried to the granaries. Now I think there is more soft grain by bad stacking than there would be by threshing at once; then there would be no more help required than we would have in our harvest field, say three men, which would be a great saving of expense and trouble, as well; having but very little rain in the harvest time, we could leave our bags out until we had got our field cut.

J. B., Morris, Man.

[This is no new idea; machines called Headers are extensively used on large farms in the Western States, and on the Pacific coast, Oregon and California.]

SIR,—Where can I obtain the Report of the Agricultural Commission or Arts Association?

J. B.

[Apply to Henry Wade, Esq., Toronto, Secretary of the Association.]

SIR,—I have a field of six acres which I seeded with clover and timothy last spring, along with oats. There is a fair catch of clover. As I intend pasturing this field for a number of years, I would like to sow a few other grasses on it this spring. How would it do to sow Meadow Fescue, Kentucky Blue Grass, and Orchard Grass during March or April?

FARMER, Brucefield.

[You could not do better.]

SIR.—Will you please inform me through your valuable paper if there is a Stud or Herd Book kept in Canada for the registration of Clydesdales, and what are the necessary requirements and how to proceed to register. I have a colt bred in the following manner: Sire, Imp. Royal Exchange, sire of dam imp. Netherby, sire of G. dam imp. Comet, sire of G. G. dam imp. Clyde. Will he be well enough bred to register. My own opinion is that he is as well bred as many of the imported colts, as he is an excellent type of the pure Clydesdale?

G. W., Salford, Ont.

[Communicate with the Secretary of the National Clydesdale Stud Book, Chicago. There is no Clydesdale Stud Book for Canada.]

SIR.—I would like to hear through the ADVOCATE your, or others', opinion of the Devon cattle. Would they not be likely to pay better on many farms than Durhams?

F. M., Westbrook.

[This class of cattle are good for all purposes, especially for working oxen. They have not as many admirers in this country as some of the other classes.]

SIR.—I would like to know if tomatoes would pay raised on light, sandy soil.

P. G., Brantford, Ont.

[Yes, if properly manured and careful attention be paid to cultivation.]

SIR.—1. What is the best and cheapest way to make a hot bed? 2. What time should seeds be sown to raise plants for market? 3. Would it be a good plan to start grape and currant cuttings in a hot-bed? 4. How, and the best time of year to propagate cedar hedges?

A SUBSCRIBER, Leskard, Ont.

[1. For how to make a hot-bed, see answer to J. W., Strathburn, in this issue. 2. As early as possible. 3. No, better wait till spring. 4. In the spring of the year, by planting young trees about one to two feet high, and plant as close as possible.]

SIR.—I see advertised by seedsmen, "for sale, Barley, also Chavelier two-rowed barley," strangers to us down here. Please let us know through the ADVOCATE what are their particular merits.

J. H. B.

[The Black Barley has been grown extensively in the neighborhood of Chatham, Ont., and is reported as being an excellent variety for feeding purposes, but of no value for malting. The "Chavelier" has not answered in this country.]

SIR.—Will you kindly answer the following questions in your next number. 1. Is whole flax seed, raw or boiled, good for sheep instead of oats when oats are scarce? 2. Which is the best breed of sheep for a beginner to buy to raise for wool and mutton, in this latitude, and near several small towns, where there is a market for a good deal of mutton. 3. Would pure Merino rams be good cross for the common sheep of Minnesota, when brought here to Pembina country?

M., Pembina, D. T.

[We would not advise feeding of flax seed to sheep instead of oats, flax seed being too laxative. The best breed of sheep for your locality would be those natives that have been bred in the neighborhood, and can stand the climate; then improve by crossing with any close-wooled ram.]

SIR.—I have a piece of land that is very sandy, and I wish to know if clover sown alone would do, and if I could expect a crop the same season?

DUNCE, Bowmanville.

[If the land is in good tilth and well manured, you might expect a good crop of clover, but not the first season. Calves might be pastured on it late.]

SIR.—I received your sample copy, and am very much pleased with it. Please give me hints for starting an orchard, as I am going to start one next spring in Canada. F. J. R., Lowell, Mass.

[We are unable, in a condensed form, to do justice to this subject. But we may say for your general guidance: Have the ground properly prepared by drainage, manuring and cultivation. Select thrifty trees from a reliable nurseryman, even if you have to pay a higher price for them. The trees should be from three to four years old, and for variety the Ontario Fruit Growers' Association only favor 5 varieties, in the selection of which you will have to use your individual judgment, as a deal will depend on the locality. The fewer varieties you grow the better, as they can be more readily sold for shipment. The distance apart to plant the trees will depend whether you intend to occupy the land solely by the trees, or intend cropping. If for the former, 25 to 30 feet apart is the distance, and if it is intended to crop the land, then the trees should be at least from 40 to 50 feet apart. However, we should advise you only to grow root crops until the orchard is well established, when it can be seeded down. Never sow grain or grass seeds in young orchards. A plan highly recommended is this for one acre:

O	X	O	X	O	X
X	P	X	P	X	P
O	X	O	X	O	X
X	P	X	P	X	P
O	X	O	X	O	X

The letters O represent standard apples 30 feet apart, and the P, standard pears, and the X, cherries, plums, &c.]

A. B., Ont., wishes to know if potatoes can be grown successfully under straw, the ground being clean; also if beans can be grown successfully, sown broadcast on clean ground, and how much should be sown to the acre? What kind of beans are most suitable? What time should they be sown?

[Potatoes can be grown under straw, but the advisability of this course is another question altogether; only as an experiment would we advise potato growing in this manner, as there are so many more better methods. With regard to your second question: Beans can be grown broadcast, but if a profitable crop is wanted it would be better to plant in hills or drills.]

SIR.—I have about 50 fine young fruit trees completely girdled with mice. Will you, in your next issue, please give a remedy, as I presume there are plenty of others who have met the same misfortune?

J. J., Boston.

[Brown paper or hay bands saturated with tar and tied tightly round the trees will prevent further depredations. These can be removed when spring comes. If the trees are completely girdled the chances of reviving circulation are extremely small, unless you united the bark by engraftment.]

SIR.—I shall be much obliged if you, or some reader of your valuable paper, will inform me how many years a pig will grow, if let live and well cared for, and what kind of grain will make the most bone and muscle, or which is the best of any other kind of food, and how many times a day is it best to feed it? What makes me ask the question is, I have a Poland China pig about two years and a half old, weighing about 1,000 lbs., and is well, smart and healthy, and I think that he will gain three or four hundred more, yet I would like to have some one advise me as to keeping him through the hot weather in summer, and I would like to know the best plan, as I want to make him as heavy as possible.

YOUNG FARMER.

[Unless you are desirous of going into the show business it would be better to kill the animal before winter departs. It would be extremely risky to keep such a large pig during the hot summer months. He is at present sufficiently large for profit. To keep it longer would entail loss.]

SIR.—Please to state in next issue of the ADVOCATE what kind of oats would be best to sow on river flats, as most kinds go down before being filled. Is there any kind stronger in straw than others?

A. C., Middlemiss.

[We would advise the sowing of any of the Tartar varieties, as they are the strongest in straw.]

SIR.—Having read an article in the FARMER'S ADVOCATE, December number, 1882, page 328, in which the article sets forth that the theory of wheat turning to chaff was not yet exploded, allow me to state some of my observations, that can be vouched for by many beside myself. In the fall of 1869 my neighbor had a fallow of 12 acres of new ground, or, in other words, 12 acres of land just cleared of heavy timber, that until now had never bore any cereal of any kind. He procured as fine, clean seed of the Treadwell variety as I have ever seen, not a sign of chaff to be found in the grain. The grain was sown, if anything, late for fall wheat. In spring time it gave promise of a very good crop, but at harvest time there was not one head of wheat to twenty of chaff, and he did not receive in return more than twice the amount of wheat that he had sown. In this Northwest such a thing is unknown as yet, and fall wheat is now being introduced, and according to past experience will no doubt be a success. This country has produced, under very adverse circumstances, the best spring wheat that I have ever seen, either in Canada or the United States, and I have been in the grain trade for 35 years. Extreme wet caused the failure of two crops—1880 and 1881—and the crop of 1882 was not first-class, owing to the seed being of a very poor quality, but still we have samples that cannot be beaten very easily. Very severe winter, so far; the hardest I have experienced for three years. This country only requires to be known to become the garden and paradise of the farmer, which it is soon destined to be.

J. K., Edmonton, N. W. T.

SIR.—Kindly reply in your first issue, or otherwise, as to the most secure and profitable investments in Canada for English capital, non-resident.

R. T. S., Ockley, Eng.

[This is just what we would like to know ourselves, even resident.]

SIR.—Will you please give the standard weight of apples, plums, &c., in your next?

K. C. E., Roger Hill, U. S.

[Sixty pounds to the bushel.]

SIR.—You would oblige me by answering the following questions: 1. In onion raising do you put on the salt and ashes before you plant or after they come up? 2. What is the average yield per acre of onions, also of bush beans?

A SUBSCRIBER.

[1. Put on the salt and ashes before planting. 2. Onions, from three to five hundred bushels per acre. Beans, from thirty to forty bushels.]

SIR.—Should I make any difference in the feed of a heifer that will come in the last of April than that of an older cow? If so, please inform me as to what treatment I should adopt.

A SUBSCRIBER, Yarmouth, N. S.

[A young animal should not be so highly fed as an older one. They are more liable to fever.]

SIR.—Would you please tell me through your ADVOCATE where I could purchase the James Vick and Manchester strawberry plants; also at what price they can be bought?

A SUBSCRIBER.

[Enquire of nurserymen, whose advertisements appear in the usual columns.]

SIR.—Would you please inform me either through the FARMER'S ADVOCATE or by private letter, your opinion, or the opinion of some experienced individual, if the Watson Gleaner and Binder will give satisfaction.

J. C., Bripou, P. Q.

[Information on above from any of our subscribers will oblige.]

SIR.—Please inform me through your valuable paper what will cure warts on cattle's heads.

W. D. F., Hampton, N. B.

[Apply lunar caustic, which can be obtained at your nearest drug store.]

I like the ADVOCATE very much. As long as I am a stock-raiser I won't be without it. It is one of the best agricultural papers with which I am acquainted.

T. W. HUGHES, Donelson, Tenn.

Veterinary.

SIR.—1. I have a mare 8 years old that bites herself and rubs the hair of her head and back of her ears on her neck. I got her last spring. She had the Pink Eye before I got her; she coughs at times. Last summer she had a turn of the belly ache or fots on the grass, and I gave her new milk and molasses. She soon got over it, but had another this winter a good deal worse. She paws, and lays, turns over; she laid on her back for a time. She is broad and heavy, part French, pretty fast. Her skin is loose, hair looks pretty healthy. I am feeding Thorley's condition powders.

2. What is best for a horse that is kicked? I put on Yellow Oil and it took the hair off.

3. I let my 2-year old colt out to water and it ran back the path, I holding it only part of the time. It is lame in the hind leg, I think in the stifle. It is not swelled. What can I do?

A SUBSCRIBER.

[1. Give the mare a purgative drink, Barbadoes aloes, seven drachms; carbonate soda two drachms; ginger two drachms, dissolved in pint of water. Then follow up every second night with a powder: Saltpetre two drachms; sulphur two drachms, in bran mash.

2. Take Acitate Plumbi two drachms; sulphate zinc one drachm; carbolic acid one drachm; water one pint. Apply to wound and around twice a day. Apply Friar's Balsam with feather to wound once a day.

3. Examine the foot well, and in case you find it bruised, apply a poultice of hot bran.]

The Russian Mulberry.

It is claimed that this tree gives larger profits and quicker returns than any other. It is hardy and will grow on any soil that is not too wet, and is easily transplanted. The wood is as durable for posts, when small, as cedars, and when large is valuable for manufacturing into furniture. The tree is very ornamental when growing, and about three years after planting bears delicious fruit about the size of the blackberry. The Russian Mulberry tree is a very rapid grower, sometimes attaining the height of 50 feet in a very few years. Small trees, when first planted, will frequently grow three feet in one season. To show how it will grow, the following is a sample of letters received:

"The Russian Mulberry grows more and more in favor with us every year. We are now having one of our severe drouths, and many cottonwoods are burning out, while the mulberry, where established at all, never dries out. Even when so dry that the foliage droops for days, the first rain freshens them, and they grow again right along. They are very prolific bearers, and while the tree is small the fruit is not so large as on older trees. There is much difference in the size and flavor of the fruit on different trees, of which there seems an endless variety, differing in shape of leaf and in color and flavor of fruit. Some trees bear very sweet fruit; others more acid.

"The Mennonites make fences and wind-breaks of the mulberry. Beside all these they plant pieces of ground very thick, which they cut off close to the ground every three or four years for fuel. In five years it will make a fence post that will outlast oak or cedar.—[A. Ellsworth, Renno County, Kansas.]

The Patrons of Husbandry

Held their annual meeting of the Dominion and Provincial delegates on the 20th ult., in the chambers of the Legislative Assembly of Ontario, at Toronto, and among the business other than routine, the Legislative Committee reported, making the following recommendations: That the Masters and Servants Act be amended so that the servant shall have the first lien on the property of his master for his wages; that the Assessment Law be changed so that the assessments be made once in three years instead of yearly, and that it be made in the summer time; that all property—both real and personal, in mortgage, bonds or stocks—be equally assessed; and that the present system of grading barley is not satisfactory. These recommendations were adopted. The Committee of Agriculture reported, making suggestions for a better system of farming than is generally adopted, urging the keeping of a better class of stock, and the fattening of more cattle for the market as a means of improving the farms. The report was adopted.

Sister Nelles moved that the question of butter making be discussed in the Granges until some conclusion be reached, they to report to the Division Granges, and the Division Granges to the Provincial Granges. The motion was adopted. Sister Nelles moved that the respective railway companies be requested to provide cars suitable for the conveyance of fresh fruits. Carried.

The Committee of Temperance reported, recommending that the habit of treating be discontinued; that there be further restrictions placed on the sale of liquors; that the Provincial Grange give its support to the total separation of the sale of liquors from all other business interests; and that the members of the Granges rise above all party lines on the subject of temperance. The report was adopted.

The following were elected officers of the Provincial Grange:—Master, R. J. Doyle, Owen Sound; Overseer, P. W. Noxon, Bloomfield; Secretary, A. Gifford, Meaford; Lecturer, Robert Currie, Wingham; Treasurer, R. Wilkie, Blenheim; Chaplain, W. J. Wood, Smith's Falls; Steward, Levi Van Camp, Bowmanville; Assistant-Steward, S. A. Nelles, Grimsby; Gate-keeper, Wm. Brock, Adelaide; Ceres, Sister Lethbridge, Strathburn; Pomona, Sister S. A. Nelles, Grimsby; Flora, Sister Garbett, Peterboro'; Stewardess, Sister O'Neil, Lindsay. Executive Committee—Jesse Trull, Oshawa; Robert McMurdy, John Tolmie, Tibberton; G. B. Miller, Uxbridge.

Mr. Jabel Robinson was appointed a delegate to represent the Dominion Grange at the meeting of the United States National Grange to be held next year, and the following were elected as officers of the Dominion Grange for the ensuing year: Worthy Master, Jabel Robinson, Middlenarch; Overseer, W. F. George, Sackville, N. B.; Secretary, Luther Cheyne, Brampton; Treasurer, J. P. Bull, Downsville; Lecturer, E. H. Hillborne, Uxbridge; Chaplain, S. A. Nelles, Grimsby; Steward, George Lethbridge, Strathburn; Assistant Steward, Wm. Brock, Adelaide; Gate-keeper, Levi Van Camp, Bowmanville; Ceres, Mrs. W. F. George, Sackville, N. B.; Pomona, Mrs. Nelles, Grimsby; Flora, Mrs. Van Camp, Bowmanville; L. Assistant Steward, Mrs. Lethbridge; Ex-Com., Robert Curry, Wingham, and Henry Glendenning, Manilla; Auditors, Thomas McLeod, Dalton and Jesse Trull, Oshawa. The Grange adjourned at 10.30 p. m., to meet in Ottawa next winter.

During the session the delegates were entertained by the Lieut.-Governor at his residence, and also by the City Council of Toronto.

Seed Catalogues.

The leading seedsmen and fruit-growers of the Dominion and the United States have forwarded us their seed catalogues, many of which are beautifully illustrated with colored cuts and engravings, and are got up in a superior manner, containing much valuable information.

Messrs. Sutton & Sons, of Reading, Eng., one of the most prominent seedsmen in the world, as usual have issued a most elaborate, artistic and costly book. It contains an engraving of the floral decorations made by the firm, of the pavilion at the last Royal Agricultural Society's meeting, which evoked much praise from the Prince of Wales. We are pleased to note that these gentlemen have appointed Mr. J. W. Dow, of Kingston, Kent County, N. B., as their agent in this country.

W. Rennie, the well-known seedsman of Toronto, offers a specialty in a six-rowed barley, which, for yield and quality, is a great improvement on the old varieties. Excellence is also claimed for his mixture of seeds for laying down permanent pastures. His collection of agricultural implements are worthy of special note.

J. A. Simmers' Sons, of Toronto, now carry on the business so long and ably conducted by their respected father, who for many years was pre-eminent for his choice flower seeds. Their general collection of agricultural and garden seeds is excellent.

George Keith, seed grower and importer, Toronto, gives special attention to all kinds of seed grain, and is well to the front again with his collection of clover seeds. Mr. Keith's seeds may be relied on, the majority being grown on his seed farm, "Fern Hill," Scarborough.

Steele Bros., Toronto, are noted for the collection of seed for pasture as well as for their root seeds. They are agents for S. L. Allan & Co., of Philadelphia, the patentees, &c., of the Planet jr. garden implements. Steele Bros. have a branch establishment at Oshawa, Ont.

Leslie & Son, of Leslie P.O., near Toronto, are the pioneer nurserymen of this Province, have 200 acres of nursery grounds, and their catalogue sufficiently tells what is reliable in fruit and ornamental trees, as well as shrubs, &c.

Pearce, Weld & Co., London, Ont. Among the numerous specialties offered by this firm are the Russian Mulberry, the Mammoth Southern Sweet Corn, for soiling or ensilage, and the new field corn, "Longfellow," which is claimed to have the largest kernel and smallest cob of any known variety; 76 bushels per acre have been raised from this excellent variety in the neighborhood of London. Besides their general assortment of seeds, Pearce, Weld & Co. deal largely in dairy supplies.

George McBroom, London, Ont., has several novelties, prominent among which are several varieties of potatoes, notably Wall's Orange and the Bell. To the horticulturist he presents a choice importation of the leading bulbs and flowers. In testimony of the general excellence of the seeds sold by Mr. McBroom, we give the following:

"I have a piece of ground 96 feet by 46 feet, on which I sowed half a pound of Yellow Globe Danver Onion Seed, which I purchased from George McBroom, London, and had a return of seventy-six bushels of first-class onions.

EDWIN C. BARTLEY,

West Harrington, Ont."

John A. Bruce & Co., of Hamilton, offer the new forage plant, Soja Bean, an illustration and description of which appears in another column. Mr. Bruce also makes a specialty of onion seeds, for which he has long been celebrated. His mangels and other seeds have a high reputation. In connection with this firm they have a test farm, upon which most of the new varieties of seed are tried before offering them to their patrons.

W. H. Marcon, Guelph, Ont., is forward with a new variety of potato, and a general collection of seeds, both agricultural and horticultural, amongst which is his peoples' packet of flower seeds, containing no less than 25 beautiful varieties for \$1.

W. Evans, of the Canada Agricultural Warehouse, Montreal, has an extensive catalogue, containing everything in the agricultural seed line, flowers, bulbs, etc., particularly cabbage and celery, besides agricultural machinery and implements; also garden tools.

D. M. Ferry & Co., Windsor, Ont., and Detroit, Mich., present a handsomely designed catalogue. Their seeds are popular throughout the length and breadth of the land. They are well known for their efforts in introducing new varieties of tomatoes, which are grown upon their test farm, which is situated near Detroit, and is one of the finest and best conducted that we have ever visited; many good and new varieties of wheat have emanated from this farm.

Peter Henderson & Son, of New York, the pioneer market gardener of this continent, presents a most attractive selection of garden seeds, flowers and bulbs. His early Snow-ball cauliflower is claimed to be the earliest of all known varieties, being ready by the 10th June. The extensive range of glass houses belonging to this firm are probably the largest and most extensive on the continent. Thus they are enabled to grow millions of early plants of all descriptions for the supply of the trade in the different cities, not only in the States but in the Dominion.

James J. H. Gregory, of Marblehead, Mass., is forward with his general catalogue. His Marblehead Squash, cabbage and sweet corn have such a reputation for excellence that comment from us is unnecessary.

J. T. Lovett, of Little Silver, N. Y., offers the "Hansell," the earliest raspberry in existence, and a popular variety of blackberry called the Early Harvest; also the Manchester strawberry, besides a large and choice collection of small fruits, &c.

Samuel Wilson, of Mechanicsville, Bucks Co., Pa., delights in novelties. He recommends a new variety of oats called the "Welcome," and the Golden Grain Wheat, or Mammoth of Palestine, from which he claims wonderful results. Among his garden seeds will be found the Japanese nest egg gourd, the fruit of which can be used for nest eggs. It is a very desirable plant to cover arbors, &c.

T. C. Robinson, of Owen Sound, Ontario, sends us his catalogue of small fruits and grape vines. In this catalogue will be found all the choice and new varieties of small fruits.

Farming for Boys.

BY THE AUTHOR OF TEN ACRES ENOUGH.
CHAPTER XI.

Mismanaging a Horse.—Value of an Inch of Rain.—Planting a Tree.—Value of Sharp Hoes.—A Tree-Pedler.—How Plants grow.

One of the striking results of the boys' visit to their neighbor's model farm was the change of conversation in the Spangler family. When they came into their meals, they talked continually of what they had seen there, and when out at work there was no end to the references to what had somehow become a sort of standard for their imitation. Uncle Benny was therefore careful to encourage all the good resolutions which his pupils seemed insensibly to be making, as well as to answer the crowd of new questions that were put to him at every turn. The boys could not help making comparisons between the general neatness of the Allen farm and the squalid condition of their own; and they were not slow in endeavouring to copy their neighbors, though their opportunities for doing so were not very great.

Farmer Spangler was of necessity obliged to listen to numerous discussions, in which his neighbor's superior management was so highly extolled and his own so much condemned. Luckily for all, Spangler was a man of few words, and hence a capital listener. He very seldom replied to any attack on his management, as much because of his habitual taciturnity as from a conviction that was insensibly taking possession of him, that there must be some truth in what was said. Generally, Uncle Benny was quite moderate in his depreciation of Spangler's style of farming, as he was unwilling to give offence. But there were occasions, such as when he witnessed some gross departure from good management, or some example that would be really injurious to the boys, and then he would explain himself for Spangler's especial benefit. But even then he spoke to Spangler over the boys' shoulders; that is, though he addressed his words to them, he was really intending them for the father. In this way he could drop hints in much sharper language than if he had spoken to the man himself. Spangler took no offence at these side thrusts, and rarely made any reply.

On one occasion, when the latter was putting a young and skittish horse to the wagon, he threw the harness suddenly and with great violence on its back, instead of gently placing it there. The timid creature, not yet accustomed to being harnessed, shrunk back and became quite unmanageable, and ended by treading on the wagon-shaft, which he broke in two. Seeing this, Spangler became enraged, and gave the horse a violent kick in the side. Uncle Benny and the boys were standing by, and saw it all.

"That will never do," said the old man, addressing the boys, but loud enough for Spangler to hear. "A horse should never be kicked, or even punished. It is gentle treatment alone that makes a horse valuable, and cruel treatment makes him worthless. We abuse our horses more unfeelingly than any other people, and control them through fear instead of love for us. Even the unchristianized Arabs never abuse their horses, nor do the Chinese ever punish theirs. 'As obstinate as a mule' is a common expression; but a mule is not naturally obstinate, but is made so by being educated to bad treatment. The mule, which, in the hands of most people, would be not only useless, but dangerous to all who came near him, would, in the hands of a Chinaman, become quiet as a lamb and tractable as a dog. A vicious, balky, or runaway mule is almost unknown among the Chinese, because of the uniform gentleness with which they treat them. They educate all other domestic animals by the same rule, securing obedience through the agency of love instead of fear. Cattle, pigs, ducks, and birds are equally cared for. These dumb beasts have sensibilities and affections as well as ourselves. Never let me see a horse kicked by any of you. A hired man who should kick my horse, or beat him with a shovel, as is often done, should be turned off immediately."

"That must be the reason why our Nancy and the pigs like me so well," added Bill Spangler when the old man had concluded. "I curried them up, and never scolded them, and they come to me just like a dog."

"Yes," replied Uncle Benny, "the law of kindness operates as strongly on the brute creation as it does on human hearts. The man who is truly

merciful will always be merciful to the dumb, dependent creatures around him."

This accident to the wagon-shaft delayed Spangler a whole hour in starting for town, because, as he had but one wagon, the damage must in some way be repaired. It was so broken that nailing would not answer; so they tied the shaft round with a small horse-blanket, and kept that in its place by ropes and straps, and with this unsightly contrivance Spangler drove off. There was no real necessity for his going, even before the breakdown; but then there was to be an auction sale of household goods and farming utensils, and though he had no occasion to purchase any of them, yet he thought it would be well for him to be there, "just to see how they sold." There are some people in this world who have a passion for attending funerals, and one of Spangler's fancies was for attending sales, no matter how much home business he might neglect by going.

All this happened just after dinner, in the month of June, when there were strong indications of a thunder-gust. But off Spangler went, and as Uncle Benny had expected, the gust broke upon him while he was on the road, and gave him a complete drenching. Of course it drove all hands into their usual refuge,—the barn; and there they sat while the rain poured down in torrents. It was the first good rain there had been for two weeks, and was much wanted by the farming community. It poured down so heavily, and continued so long, that Uncle Benny observed, "There must be at least an inch of this rain."

"What is an inch of rain?" inquired Joe Spangler, looking through a knot-hole in the side of the barn, over a great pond that had been suddenly filled by the shower. "I should say it was a foot."

"Well, boys," replied the old man, "an inch of rain don't mean the water that is collected in puddles where the ground happens to be full of holes, but that which falls on a level all over the land. Now, when this shower is over, look into the bucket out by the pump—I remember it was empty when the rain began—and whatever depth of water you may find in it will be the extent of the rainfall. This is what we call a rain-gauge; and it is by having so simple a contrivance at all times in use that observing men, that watch the clouds and weather, have been able to prove that about as much rain falls in one year as in another. Thus, if we have long spells of dry weather, they are succeeded by heavy rains, and thus very extraordinary rains are followed by long dry spells, making the rain-fall of many years average about the same."

"But an inch of rain don't sound much, though it looks to be a great deal," exclaimed Tony King.

"Why, Tony," replied Uncle Benny, "an inch of rain weighs more than a hundred tons to the acre, and is equal to nearly twenty-three thousand gallons. A watering-pot must have a big nozzle to discharge that quantity in an hour, as the clouds often do for us. This rain will be worth a great many thousands of dollars to the farmers about here, especially if it should be followed by really fine weather."

"Fine weather," he continued, "is a wonderful thing for the farmer—next among his blessings to the Divine promise that seed-time and harvest should never fail. A single day of sunshine is considered worth ten millions of dollars to the farming interest of England in a season of doubtful harvest. There is said, in Europe at least, to be more war in a day's rain than in the ill-temper of the most quarrelsome monarch, and more peace in a morning's sunshine than even in a treaty of commerce; because people, having their time occupied and their stomachs full, have neither leisure nor disposition to quarrel."

"What can be the use of so much rain, Uncle Benny?"

"Use?" returned the old man; "it has a thousand uses. Water is the great nourishment and stimulant of vegetation. Some plants will seem to live on water alone, neither needing nor receiving manure beyond what nature enables them to gather from the water below and the air above. Take one of your corn-hills as an illustration. The cornstalk stands exactly where it grew. It spreads its roots all around, but does not change its place. As it cannot travel about in search of food, such as it may need must therefore be brought to it. Who is to do this? Not you, because you supposed you had done all that was necessary when you planted the grain. It is water, the rain-water, that per-

forms this important office of bringing to the plant the food which has been deposited in the soil. A mere sprinkle will not do this; it must be just such a soaking shower as we are now having. Besides, water dissolves many substances which exist in the air as food for plants—so graciously has Heaven provided—and then, when these are brought into the soil by rains, they there come in contact with another set of substances which the plants require also, and the whole being thus combined and liquefied with water, they constitute the very food by which vegetation lives and grows. The water, thus saturated with vegetable food, travels along under ground, feeding the plants which Providence requires to remain stationary. This is one of the great uses of so much rain."

The next morning being bright and sunny, the old man piloted the boys into the two-acre cornfield they had planted. On the way thither they passed under a fine Mayduke cherry-tree, then loaded with delicious fruit. The rain and wind had shaken off quantities of cherries, which lay upon the ground. These the boys stopped to gather and eat, spitting out the stones in every direction. Noticing their actions, Uncle Benny spoke up: "Boys, when I was in Spain, I learned a proverb which has been in use in that country for centuries—'He who plants trees loves others besides himself.' It means, that, as it takes nearly a lifetime for many trees to grow and produce fruit, the chance is that he who plants the tree will hardly live long enough to eat the product, and that he must therefore love those who are to come after him, or he would not plant trees of whose fruits they are more likely to partake than he. Now, whenever a Spaniard eats a peach, a cherry or a pear by the roadside, he works out a little hole in the ground with his foot, and plants the stone; he thinks of those who are to come after him—he loves others beside himself. It is a thank-offering to the memory of the kind soul by whom the tree was planted from which he has just eaten. Hence the roadsides throughout that beautiful country are lined with abundance of the most tempting fruits, all free to every one. Boys, not one of you have ever planted a tree. It is time for you to begin. I shall never live to gather the fruit, but all of you may be spared to do so. It is our duty to leave the world as good at least as we found it—better if we can. I have no good opinion of the fellow who is content to snore under the shadow of a noble shade-tree without planting another for the next generation to enjoy, or to eat the fruit from trees which others have planted, without at sometime imitating their example. The sooner one sows, the sooner will he reap. There, boys, right along the fence, two or three for each of you."

Each boy struck his heel into the soft ground, made a slight hole, dropped into it a couple of cherry-stones, covered them over, and pressed down the earth with his foot. It was certainly a very small affair, but it was nevertheless something for the boys. Each one could not help feeling that he had done a good deed, for he had planted a tree.

"O," exclaimed the old man, "what a country this would be if every farmer would go and do likewise! The roadsides would everywhere be lined with noble trees, glorious to look upon, grateful in their nobleness, and affording bountiful harvests of delightful fruit, free to the passing traveller, and yielding a profusion even to the birds. There would be plenty of fruit for all. Even the thieves who now prey upon the fruit-grower would have no further inducement to steal."

Finding the ground too wet for hoeing, they deferred that operation for a week, when Tony ran twice over the cornfield with the cultivator, to mellow up the ground and cut off the weeds. Then all hands turned in with hoes to clean up the rows and give the corn its first hilling. Before undertaking this, Uncle Benny has brought a large file from his tool-chest, with which he had sharpened up the boys' hoes to such an edge as had never before been seen on Spangler's farm. The hoes were great, clumsy things, unfit for the hands of a small boy; but they shaved off the weeds with so much ease that the excessive weight of the tool was forgotten in the sharpness of the edge. Instead of two or three chops being required to cut up a stout weed, a single clip went clean through it. There could be no doubt that the trifling work of filing enabled the boys to get over two or three times as much ground as if they had been working with dull hoes. There was a real economy of time in thus beginning right, besides comfort and a thorough execution done upon the weeds.

[To be continued.]

Family Circle.

Trials of an English House-keeper.

A CHAPTER OF BLUNDERS.

MUSE NOT THAT I THUS SUDDENLY PROCEEDED;
FOR WHAT I WILL, AND THERE'S AN END.

—Shakespeare.

I had been having a whole string of little girls to nurse my darling Kitty for me, but they were all as slovenly as slovenly could be—and as careless of my poor little dear as if it had been a little doll. So I told Edward, very quietly, that, for the sake of a little miserable economy, I was not going to be worried to death in this way; and that I had made up my mind to have a regular nurse, who, at least, would be some credit to the family, and on whom I could place some little dependence.

Accordingly, I set about looking for a nurse. I had several times, when I had gone out to take a walk and look at the shops, noticed what seemed to me a very nice servant's institution in Oxford street, and although I had never tried anything of the kind before, still, as I knew they professed a great deal, and made out that they were a protection to housekeepers against fraud, and said a whole host of other grand things into the bargain—why, I thought I might as well just try that means of getting a servant for once—though I couldn't help saying to myself at the time, "Fine words butter no parsnips;" but for the matter of that, how any other kind of words could, was always a mystery to me. Besides, it is such an expense putting advertisement after advertisement in the *Times*; and certainly the "Institution" would save me a deal of trouble, as well as four or five rows of postage stamps, in writing, prepaid, to a whole regiment of A. B.'s, who after all, might never suit you.

However, before I set about taking any steps towards suiting myself with a nurse, I made up my mind that I would have a grass-plot laid down in our garden, at the back of our house, where the nurse could let the child roll about, and no harm could possibly come to it, as I should always have the little pet under my own eye. And it struck me that, whilst I was about it, I might just as well have a few really good plants put in, particularly as Dick Farden said he knew a florist in the neighborhood who would do the whole thing for a mere nothing for me, and attend to it afterwards, either by the day, month, or year, on the most reasonable terms. So, as I couldn't see any great harm in hearing from Dick Farden's friend himself what he might consider "a mere nothing," I arranged in my own mind that the best way would be to let Farden call upon him, and send him round to me on his way down to deliver the letter I intended to write to the director (for there's nothing but directors now-a-days) of the Servants' Institution. Accordingly, having scribbled a note to the institution—saying that, as I was in want of a nurse, I should feel obliged if they would send one of their young men round to me as soon as possible, from whom I could learn the terms and advantages of the establishment—I told Dick Farden to take it to Oxford street, and, while he was out, to run round and tell his friend the florist to call on me in the evening, so that I might talk over with him about the flowers.

When Dick Farden came back, he told me he had brought with him the gentleman I had sent him for, who, he said, had written down a few of the names of such articles as he thought would suit me, and which he could recommend, as they had all been in the nursery a long time. Of course, I imagined the stupid fellow was alluding to the maid I wanted for my little Kitty, and not a pack of flowers, as I afterward found out to my great horror; and there was I going on for upwards of twenty minutes asking all kinds of odd questions of the stranger, fully believing that he was the person from the Servants' Institution, and not that friend of Dick Farden's, who was in the gardening line.

When the man came in, I said to him, very naturally, "My man servant tells me that you have brought with you a few of the names of such as you think will suit me. They have all been in the nursery a long time, I believe; and what kind of places have they been accustomed to?"

"Oh, a very nice place," he replied; "about the same as yours might be, mum. They had a warm bed, and have always been accustomed to be out in the open air."

"Yes, I should want them to be out in the open air a great deal," I answered, though it struck me as rather odd that the man should allude in particular to their warm beds. "Now I should like you to recommend me one," I continued, "that is healthy and strong, and likely to remain with me for some time, for it is so distressing to have to provide yourself with a new one every year."

"So it is, mum," he returned. "I think I know the very one you want, mum. It's a remarkable fine color, mum."

"That certainly is a recommendation. I like them to look healthy," I replied, thinking, of course, that the man was talking about a nursery maid, and not of a rose.

"It's a very dark colored one, mum; indeed very nearly a black," he continued.

"Oh, mercy!" I cried out, "I don't want a black one about my house."

"Then may be, mum," he continued, "you'd like one a trifle gayer. Now, there's a Madame Pompadour we have that I think would just suit you. That's a remarkable showy one."

"Oh, I see," I replied, "a French thing! No, thank you; they are all of them a great deal too gay to please me."

"Well, mum, if that won't suit you," he replied, "what would you hink of a nice Chinese? We have a perfect beauty, I can assure you—just the very thing for you, mum—climb up anywhere—run all along the area-railings, mum—crawl right over your back garden door—then up the house into your drawing-room balcony—almost like a wild one, mum."

"Like a wild one!" I almost shrieked, horror-stricken at the idea of intrusting my helpless little angel of a Kitty to the care of a creature with any such extraordinary propensities.

"Too like a wild one for me. I don't want any such things about my house."

"But if you object to their running about so much, mum," he went on, "it's very easy to tie them up and give them a good trimming occasionally, and then you can keep them under as much as you please."

"I don't want one," I replied, "that will require so much looking after, but one that you know could be trusted anywhere—especially as there would be a little baby to be taken care of."

"A little baby! Oh! then, if that's the case, mum, I should think you had better have a monthly one while you are about it."

"A monthly one!" I exclaimed. "What can you be thinking of? I tell you I don't want anything of the kind."

"Yes, but I'm sure you don't know how hardy they are, mum," he added. "I can give you my word we have one now, mum, that went through all the severe frosts of last winter with nothing more than a bit of matting as a covering at night-time. Though, for the matter of that, almost all our monthlies are the same, and don't seem to care where they are put, for really and truly I do think that they would go on just as well, mum, even if their beds were full of gravel."

"I tell you I don't want anything of the kind," I said, half-offended at what (thanks to that blundering Dick Farden) I thought the man's impudence.

"I hope no offence, mum," he replied, "but you see I must run over what we have. Now, there's polianthus; I am sure you couldn't have anything much nicer or quieter than that, mum."

"Polly who?" I inquired.

"Anthus, mum," he replied.

"Well, what's that one like?" I asked.

"Oh! the sort is common enough, mum," he continued, "not very tall, and rather delicate, and will generally have five or six flowers in a cluster at the head—wants glass, though, if the weather sets in very cold, mum—and—"

"There, that's enough," I interrupted; "I'm sick and tired of those common kind of things—they wouldn't have a glass here, I can tell them."

"Maybe, then, mum," he went on, "as it don't seem as we can suit you with any of those I've mentioned, perhaps you don't want such a thing as an old man."

"Old man!" I cried. "No; what on earth should I ever do with any old man here, I should like to know?" of course, little dreaming that he was alluding all the while to the plant of that name.

"Oh! I beg your pardon, mum," he replied, "but I thought your's was just the place for a remarkably handsome one that we've got; and it struck me that you might have a spare bed that you would like to fill, especially as it would be little or no extra expense for you."

"No, no, no; I answered; "I tell you once for all, I've no room for any old man here; and, besides, if I had, a nice thing it would be to have him dying directly the cold weather set in."

"Oh, bless you, mum," he replied, "a good healthy old man will never die, and look quite lively all the winter through! However, mum, perhaps you'd be kind enough to step round, some day, to our place, and then we could show you what we've got, and you could choose for yourself, mum."

"Yes," I answered; "perhaps that would be best; and then I can please myself."

When the man had gone, I said to myself: "Well, my fine gentleman, I shall never trouble you again;" for I declare that, of all the servants I ever heard of, his seemed to be the worst; for, of course, how was I ever to be able to tell that he was only talking of a set of trumpery plants that he had got for sale? I'm sure if he had two grains of common sense, he ought to have seen that there was some mistake somewhere; though for the matter of that, I don't suppose I should ever have found it out myself, had it not been for the gentleman from the Servants' Institution calling to see me half an hour afterwards. And then if I didn't go taking him for the nurseryman, though I certainly must do myself the justice to say that I couldn't help thinking that he looked rather grand for a gardener, with his white cravat, and black coat buttoned up to his chin, and black kid gloves with the fingers all out, and looking as crumpled and shrivelled as French pinks.

No sooner had Dick Farden told me that the other gentleman that I had sent him for had come than I had him into the parlor, and told him that, if he would step with me into the garden, I would arrange with him what I wanted done to it, and he could let me have his opinion about it. The man opened his eyes, and looked at me as wise as an owl; as, indeed, he might; for what on earth could tell him what my garden wanted doing to it he was I never to be able to tell that he declared he must have thought me mad, for I took him right up to the middle of it, and told him I had made up my mind to have a nice grass plot laid down in the centre, so that my dear little pet might play about on it without coming to any harm. But he only stared the more, and said, "Very good;" though, of course, if he had spoken his real opinion, he would have said, "Very strange." Then I told him I had settled upon having some nice flower-beds all round the sides, and said I thought it would look very pretty; upon which, he looked at me for a short time, with his mouth wide open, as much as to say, "Surely the woman must be one of her kind." But he only answered, "Indeed!" After that I asked him what plants he would advise me to have, and whether he thought the soil would be rich enough for dahlias. But without looking at the ground, and keeping his eye fixed intently on me, he answered, "Certainly." And then, clutching the handle of his umbrella as tight as he could, he retreated several paces off, in a way that I couldn't, for the life of me, understand at the time, but which, now that I come to think of it, clearly convinces me that the poor man must have fancied that I had broken loose from Becliam, and that he expected every minute I should seize hold of the spade, which was within arm's length of me, and race round the garden after him with it. When I told him that most likely he was not aware of how hard the ground was, and I stamped on it two or three times, and raised myself up on my toes, just to show him that I couldn't make any impression upon it, the stupid dunny began jumping about, and dancing away, and staring at me, till, I declare, his eyes looked for all the world like two farthings. Coupling this with the whole of the man's previous strange behaviour, upon my word, I thought he was gone stark raving mad; though it's quite plain to me now that he thought the same of me, and was only playing those antics just to humor me. I seized the spade, and he his umbrella, and there we stood, face to face, thrusting away at each other as hard as ever we could, and all the time jumping and skipping about like two dancing bears. I gave a loud scream, and he, poor man! retreated as quickly as he could do so backwards to the door, where he met with that scoundrel of a Dick Farden, who had been the cause of it all, and whom I no sooner saw than I told him, for Heaven's sake, to seize that mad friend of his. Then out it all came; and I learned, to my great horror, that I had been confounding the two men. Of course, I apologized to the gentleman from the Servants' Institution as a lady ought to, telling him that I was extremely sorry that I had mistaken him for a gardener and a madman; but the man went as red in the face as a tomato with passion, declaring that he had never been so insulted before in his life, and vowing that he would make me pay for having dragged him all that way, through a boiling sun, upon a fool's errand; and then out of the house he bounced like a human cracker.

When the man had left, I was so vexed at having been made such a stupid of by that shameful vagabond of a Dick Farden—for, of course, if it hadn't been for him, the mistake would never have occurred; and I shouldn't wonder at all if he had brought it about intentionally, just so as to have a good laugh at me, out of sheer spite of me stopping his wages;—I was so vexed with the fellow, I repeat that I had him up then and there, and told him that he had better not let me see his face within my doors again, or, as sure as his name was Dick Farden, I would give him in custody.

Uncle Tom's Department.

MY DEAR NEPHEWS AND NIECES.—I have received, from one of my nieces, a pleading letter about juvenile reading, which I insert:

DEAR UNCLE TOM.—"My youngest brother is a smart, active lad of 14 years. He used to be fond of being read to, and my sister and I gratified him all we could. But last month when he came home from school, I found that he had a whole pile of trashy papers, and various 5 cent pamphlets, the illustrations of which are enough to disgust any refined taste, being principally bar-room scenes, brutish faces of every kind, etc. The reading matter is but too well suited to the cuts, and the hero is always represented as the champion fighter, scapegrace or Indian scout. I cannot write about them calmly. You with your trenchant pen can do better service in showing up their vileness than I can. I remonstrated with my brother about reading them, but am only met with, 'They're boss stories, anyhow,' and my offers to read him other things are utterly rejected. I have appealed to mother to forbid him receiving these vile papers and periodicals, but she does not seem to realize the utter worthlessness of the papers, or the danger of them to the boy's mind. It is hard for a sister, who loves her brother as I do, to think of enjoying things I am ashamed to have in the house, and to be powerless to prevent it. Will you not say something about the danger of these publications, and so bring it home to her as well as others, who, like her, only see their children reading, and never think what it is that interests them.

EDITH.

What a dear, good, careful sister Edith is! Who will not admire such strong example of affection? And she has cause to be alarmed since corrupt reading has such a bad influence. In great cities every day, boys are brought up in police courts for crimes and misdemeanors, which are the confessed result of reading sensational, vicious, depraving books and newspapers—just such literature, doubtless, as the sister above quoted is ashamed to have in the house. If the careful mother should see her young son playing with a dirty, ragged, profane, ill-mannered boy, how quickly would she draw him away from such companionship. If she should see him in young manhood associating with clean, well-dressed gamblers and confidence men, what forebodings would fill her soul! But the companionship of a vile book is incomparably worse and more corrupting than either of these, for the book is taken into the soul, lodged in the memory, made part and parcel of the intellectual and spiritual man. It moulds the thinking, influences the motive, quickens the impulses, colors the feeling. Now, my dear nephews and nieces, I beseech you not to read trashy novels, and low, vulgar books of any kind; try and cultivate a taste for good, instructive books, papers and periodicals, even though at first it may seem rather dry; read it over again, and then you will be likely to understand it the better. Then when you are grown up you will be noble, intelligent men and women, an ornament to society and an honor to your parents.

UNCLE TOM.

"Pap, has Mr. Sones's eyes got feet?" "Why my boy?" "Because I heard mother say to Mr. Doolittle, that at a party the other night Mr. Jones's eyes followed her all over the room."

The Great Tumble Weed of the Prairies.

JOHN B. CORYELL.

During his wanderings in the great West, Mr. Daniel C. Beard, the well-known artist and naturalist, came upon a curious vegetable growth known popularly as the tumble weed and scientifically as Cyclotoma platyphyllum. At the time he was unable to secure a specimen of the weed, but lately, through the kindness of Mr. Henry Worrall, of the Department of Agriculture, Topeka, Kansas, he was enabled to obtain photographs of some of the finest specimens of the great weed preserved in the buildings of the department. The genial gentleman referred to was even courteous enough to permit himself to be used as a medium for comparison.

A startling story is told by the veracious Western man of a party of English tourists who were out on the plains on a shooting excursion. They had been out the greater part of the day without meeting with any game, and were repeating for the hundredth time that their luck was "beastly," when one of them noticed a large animal some distance away, which was approaching them in a leisurely but apparently inquisitive manner, for it paused occasionally as if to study them.

The Englishman pointed the animal out to his companions, and they agreed among themselves that it must be a bison, though its movements were different from those of any four-legged creature they had ever seen before. However, they did not make much of that fact, as a breeze had sprung up and had raised considerable dust and made it impossible to see very clearly.

It was so evident that the bison—if such it were—was attracted by curiosity, that one of the hunters determined to beguile it by a device he had spoken of as very successful with the antelope. Accordingly he laid upon his back and kicked his heels in the air, while the crack shot of the party prepared to shoot when the proper time came. The creature was so far away and approached so slowly that the decoy grew tired and had to be relieved. It was so evident that they were drawing the creature toward them, however, that each in turn cheerfully and even enthusiastically kicked himself tired.

The breeze had grown momentarily stronger, and though it was fortunately blowing towards them, it created so much dust that it was not easy to get good aim. However, the animal had increased its pace, and with an occasional bound into the air, was rapidly approaching them. It was impossible to make out which was his head and which his side, so the appointed hunter, with as careful aim as the strange character of the game rendered possible, fired.

The animal had been hit, for they could see the fur fly, but it paid no attention to the shot, unless it was to bound into the air and increase its speed so much that in a few moments it was near enough to be easily distinguished. It was an uncouth monster of huge proportions, and progressed not in the usual way, but by a series of prodigious leaps. The hunters were greatly startled by the appearance of this unknown animal, but they realized that they must lose no time in shooting, if they hoped to keep it from them. They all fired

at once; but whether wounded or not, the monster only sped the swifter.

They paused in amazement for a moment, but were roused into sudden activity when one of the number shouted that a whole herd of the monsters was upon them. True enough, all over the plain they came with frightful rapidity, making such tremendous leaps that there seemed as many in the air as on the ground. The hunters lingered no longer, but with the haste of terror threw everything from them, and ran to such purpose that

sizes can easily be imagined. And as the English tourist with his store of wonder adjectives and odd expletives is the stock butt of the Western man, it is not strange that he should be brought into service to illustrate the most striking feature of the tumble weed.

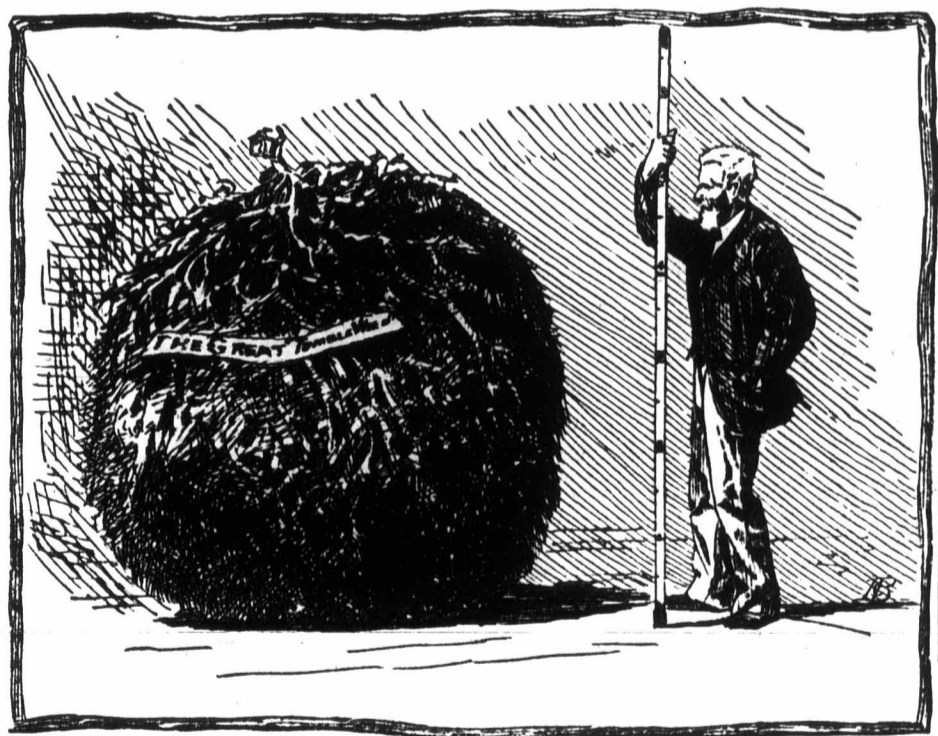
Aside from its peculiar phase, this habit of the tumble weed may be viewed in an even more interesting light. Man sees everything from the standpoint of utility to himself, and he may not comprehend the necessity for the existence of the tumble weed at all; but in every created thing there seems to be inherent a continual effort to propagate its kind. Examples of the working of this spirit cannot be necessary, for even in the cities, the trees—the ailantus, for example with its winged seeds give evidence of it. The fantastic and seemingly senseless whirling, rolling, and bounding of the tumble weed, when understood, tell the story of a unique plan for distributing seed.

Knows too Many People.

The older we grow the more fastidious as a rule we become socially. We like the friends we are count upon—who are "as easy as an old shoe" with us; but we shrink from the new ones, especially, I need not say, from any that give the least suggestion of patent leather. There are those for whom the companionship of persons of title makes amends for anything; but I am speaking of a class who have over-lived such illusions and made up their minds, during the span left them in this world, to be comfortable. Old friends, or, if new ones, nice ones; intelligent society with a humorous bent in it; the most perfect freedom of thought and speech; these alone to mature persons make social life worth living; all the rest is strained, pretentious, and uncomfortable. As a very young man I once sought an introduction to a well-known woman of letters in London. She is not now of much importance, being dead and forgotten; but all literary persons had then an attraction for me, (as indeed they have now), and I expressed a wish through a common friend to know her. "My dear fellow," he wrote, after making his application, "she will have nothing to do with you. She says she knows a great deal too many people already." At the time I thought this rather rude, but I have long learned to envy that lady's moral courage. How delightful it would be, if one dared, to have that noble truth printed on one's card, and when new folks call upon us whom one does not want to know to return them this by post: "Mr. So and So's compliments, but he knows a great deal too many people already!"

—Longmans Magazine.

EATING BEFORE SLEEPING.—Man is the only animal that can be taught to sleep quietly on an empty stomach. The brute creation resent all efforts to coax them to a violation of the laws of nature. The lion roars in the forest, the horse will paw all night, and the pig squeal, refusing all rest or sleep until they are fed. Man can train himself to the habit of sleeping without preceding meal, but only after long practice. A child's stomach is small, and when perfectly filled, if no sickness disturbs it, sleep follows naturally.



pig weed family, is very abundant in the great Arkansas valley, and varies in size from the huge specimen shown in the illustration to one foot or less in diameter. It grows upon a disproportionately small stem, which, however, is of sufficient stoutness to sustain them until it has ripened and dried, when a slight gust of wind will suffice to blow it over and snap the brittle stalk.

It now rolls over and over at every puff of wind, and being both light and elastic will perform a series of bounds over any impending boulders or bushes. In a high wind the fantastic spectacle produced by a number of these balls of varying

PUZZLES.

1.—DIAMOND.

1. A consonant. 2. Part of the face. 3. Pertaining to the moon. 4. A sour liquid. 5. Heathen. 6. Conjugation of the verb run. 7. A consonant.

MAGGIE F. ELLIOTT.

2.—WORD SQUARE.

1. Name of a country. 2. Shape of an arch. 3. A post pag. 4. A girl's name.

MAGGIE F. ELLIOTT.

3.—TRANSPOSITION.

Stohe ohw itlo rabveyll rea sogstntre hte mbuhle
nda appo bombve gtera.

LINA BROWN.

4.—RIDDLE.

What is in mountain, not in hill?
What is in meadows, not in fields?
What is in me, not in you?
It is in every man and woman too.

5.—SYLLABLE PUZZLE.

A farmer's tool is my first,
A useful fowl is my second,
A New England town is my third,
My fourth as a cave is recorded.
Combine these three parts without fail
And read them through aright,
And one of Campbell's poems
Will quickly come to light.

E. C. RIDDELL.

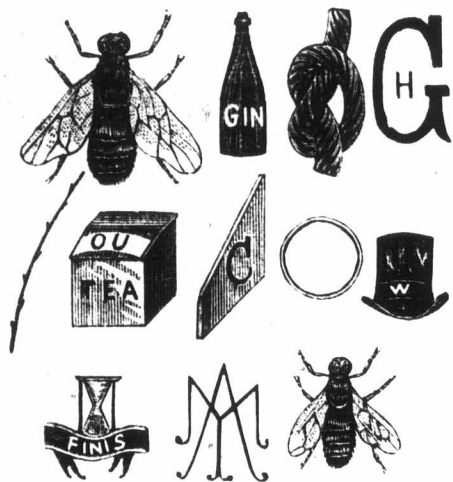
6.—Put five strokes to these six and make nine,
| | | | |

HANNAH CONNELL.

7.—Take six and fifty-one, place nothing between them and add an N. The result will produce a musical instrument.

BARBARA TEGART.

8.—ILLUSTRATED REBUS.



9.—LETTER CHARADE.

DEAR COUSINS.—While reading Uncle Tom's description of a carnival, I thought I would tell you that we have lots of them down here in Nova Scotia. We have all gone (my 1st) about skating. We have (my 2nd) rink, sometimes lighted with electric light, which is more brilliant than my 3rd. A (my 4th) leaves here at midnight to carry strangers home.

I doubt if ever the children in my whole even heard of such a thing as a carnival.

Your affectionate cousin,

HARRY A. WOODWORTH.

Answers to February Puzzles.

- 1.—
D I R E
I T E M
R E A M
E M M A
- 2.—Beaconsfield.
- 3.—Give me liberty, or give me death.
- 4.—
R
R A T
P E D R O
R A D I A N T
T R A D E
O N E
T

5.—Venice.

6.—Birds of a feather will always flock together.

7.—Leon Gambetta.

Names of those who sent Correct Answers to February Puzzles.

Addie V. Morse, Lina Brown, Maggie F. Elliott, S. E. Miller, Fred Porte, Elizabeth C. Riddell, Wm. J. Cowd, Maud Dennee, Cora Leonard, Tom Pepler, Harry Guston, Ed. E. Morley, Dick Johnston, Jessie Cowan, J. G. Horton, Mary Montgomery, Tom Reynolds, H. S. Cousins, James Traver, Joseph Sorrington, Hannah Connell, Barbara Tegart, Becca Lowry.

The most absent-minded man was not the man who hunted for his pipe when it was between his teeth, nor the man who threw his hat out of the window and tried to hang his cigar on a peg; no! but the man who put his umbrella to bed and went and stood behind the door.

Little Ones' Column.

Only a Baby.

"Only a baby small,
Dropt from the skies;
Only a laughing face,
Two sunny eyes;
Only two cherry lips,
One chubby nose;
Only two little hands,
Ten little toes.

"Only a golden head,
Curly and soft;
Only a tongue that wags
Loudly and oft.
Only a little brain,
Empty of thought;
Only a little heart,
Troubled with naught.

"Only a tender flower,
Lent us to rear;
Only a life to love
While we are here;
Only a baby small,
Never at rest;
Small, but how dear to us
God knoweth best."

The Bug with a Mask.

There is a funny little creature that wears a covering all over his face just like a mask. And what do you think it is for? Let us see.

Perhaps you have seen the beautiful dragon-flies that look so much like humming-birds and butterflies too. They have broad wings, as thin as a fly's, that glitter in the sunshine. Their backs are just like blue steel.

You will always find them in the hot summer months flying through the fields, or over ponds and rivers. In the country they are called "devil's darning-needles," because they are so slender, perhaps. The French people call them "démousselles," which means ladies.

Now this handsome, swift creature grows from an ugly bug, that crawls over the mud at the bottom of the pond. And this is the way it comes about.

Little white eggs are laid on the water, the ripples carry them far away, and then they sink into the mud.

The warm sun hatches them, and from each egg creeps a tiny grub of a greenish color. They are hungry creatures, with very bad hearts. They eat up every little insect that comes in their way. They are very sly, too. They creep towards their prey as a cat does when she is in search of a rat.

They lift their small hairy legs, as if they were to do the work. It is not the legs but the head that does it. Suddenly it seems to open, and down drops a kind of visor with joints and hinges.

This strange thing is stretched out until it swings from the chin. Quick as a flash some insect is caught in the trap and eaten.

This queer trap, or mask, is the under lip of the grub. Instead of being flesh like ours, it is hard and horny, and large enough to cover the whole face.

It has teeth and muscles, and the grub uses it as a weapon too.

It is nearly a year before this ugly-looking grub gets its wings. A little while after it is hatched, four tiny buds sprout from its shoulders, just as you see them on the branch of a tree. These are really only water sacs at first. Inside of them the wings grow slowly until you can see the bright colors shining through.

Some morning this hairy-legged little bug creeps up a branch. Then he shakes out his wings and flies away into the air, a slender, beautiful dragon-fly.

I have told you of the only creature in the world that wears this curious mask.

Minnie May's Department.

MY DEAR NIECES.—Among the many enjoyments resorted to for the entertainment of the family circle, there is hardly one less encouraged or less appreciated than that of reading aloud. Why is it? Surely there can be nothing more pleasant than to gather the family about the fire-side and take turns in reading aloud for an evening's enjoyment, thereby drawing the dear ones more closely together; all have listened to the same subject and may express their several opinions, thus awakening the mind which would otherwise be dormant. To be sure, in many families there is plenty of reading done, but each individual is absorbed in his or her book, which encourages unsociability and selfishness. None can tell the benefit derived, where the gift of reading aloud is cultivated and practiced. Music is very nice in its way, but the gift of music is only bestowed on a few, comparatively, and the expense of cultivating places it beyond the reach of many who possess that gift. The art of reading well is easily acquired and the expressions of literature abundant and varied. "History, tragedy, comedy, wit, pathos, sublimity, every spring at which the human mind loves to drink can be opened, and the sweet waters be given freely to every one." Many of my young friends may lack the confidence to read aloud. Now take my advice and make the attempt no matter how poorly you may read, only ask your friends to have patience with you, and each trial will find you gaining the necessary confidence. I know just how you feel, for I was young once myself and used to tremble in limb and voice if obliged to read aloud, but thanks to my parents and teachers, who kindly insisted upon it, I was in time enabled to put aside that timidity in reading before my own family, which so many of my dear girls may be experiencing. The younger you begin this practice the better and easier for yourself, but remember that none are "too old to learn."

These home readings may be made so cozy—a treat looked forward to by every member of the family, each one longing for the evening to arrive. Give them a trial, my dear friends, young and old, and note the happy result.

Next to the impulse of love, as a means of drawing families together, is the influence of intellectual fellowship.

MINNIE MAY.

Answers to Enquirers.

BIRDIE—Keep an oyster shell in your tea kettle, or some say a common marble is equally as good, as the lime will adhere to that instead of the kettle. The only objection to the marble being that it might get into the spout of the kettle, thus preventing the flow of water.

JULY.—1. The reason of your cakes sinking in the middle is that you open the oven door too soon after the cake is put in, and move your cake, which should never be moved until it is done, or it will certainly sink in the middle. 2. We do not advise the use of any acids to reduce your size, but instead leave off sugar and sweet things as well as pastry and pudding, which you may find a benefit.

HOPE.—The best self-cure for stammering is to speak very slowly, pronounce every syllable very distinctly, beat time with your hand or foot at regular intervals, pronouncing a syllable at every beat. Read aloud in a room by yourself for a certain length of time daily, following this plan. Then recite a piece of prose or poetry in the same way. When speaking to any one think of what you wish to say before you begin to speak. Practice saying words commencing with "M," "N," "B," and "P."

COUNTRY COUSIN.—1. The marking of a bride's tresseau, either in her maiden or newly assumed name, is perfectly optional. Many prefer to leave them unmarked until after the marriage has taken place. 2. Shake hands with your host and hostess, and any member of the family near you, but do not make a tour of the room shaking hands with everyone to whom you have been introduced.

B. W. G.—At a quiet wedding, where there would be only twenty or twenty-five persons present, sandwiches cut very thin, fancy cake, chocolate, lemonade, a pyramid of fruit and the bride's cake would be sufficient. As your dining room is small, why not have the refreshments handed around? There should be no confusion, and the comfort will be greater than if you attempt to pack twenty-five people in a room only capable of holding twelve.

B. WILSON asks for a description of the "fancy hat band" made by ladies for their gentleman friends. We think from her letter that she has a wrong impression as to its use. It is not as she suggests, a misnomer. That they may excite tender memories in the breast of the wearer is not improbable, and their usefulness is quite apparent, as by the description you will see that the wearer is enabled to distinguish his hat from any number of others, for one seldom meets with two people who bear the same initials. This hat band is not worn on the outside of the hat, as our correspondent may have imagined, but is fastened diagonally into the crown of the hat. It is made of a piece of satin ribbon of any desired color, about 2 or 2½ inches wide; the length depends some upon the depth of the hat, from ¼ to ¾ of a yard for an ordinary hat. The ends may be either turned under and fastened to the lining or allowed to run under the inside band. The initials of the recipient are embroidered on the ribbon with some contrasting color; for instance, gold and white letters on a cardinal satin. The letters should be chosen sufficiently large to be in keeping with the width of the ribbon, as very small letters would not look well on so wide a ribbon.

Recipes.

TO KEEP EGGS FRESH.

Rub them all over with a little butter when taken from the nest, and they will keep fresh for two or three months in a cool place.

DIPHTHERIA.

Put one teaspoonful of flour of brimstone sulphur into a wineglass of water; stir it with the finger and use as a gargle, swallowing some of it if possible. If a patient cannot gargle, take a live coal, put it on a shovel, and sprinkle a spoonful or two of flour of brimstone upon it; let the patient inhale the fumes, and the fungus will die. In extreme cases blow the sulphur through a quill into the throat, and after the fungus has shrunk give the gargle.

PRINCESS PUDDING.

1 quart of milk, 1 cup of sugar, 2 cups of bread crumbs, 3 eggs, yolks only, 1 teaspoonful baking powder; any kind of flavoring. Beat the whites to a stiff froth and put on the top of pudding after it is baked; set back in the oven to get a delicate brown; put three teaspoonfuls of white sugar into the eggs before you stop beating.

TO KEEP THE LAMPS IN ORDER.

All that is required is to take off the burners and put them in a small iron pot or tin pail with some hot water and a handful of wood ashes and boil them for a few minutes. Then wipe them with a soft dry cloth, and they are good for six months' wear. When the wick will not turn up, or the lamp burns dim, this is all that is required to put them in good order again.

A clergyman was walking out one day and passed two little boys, one of whom made a bow. As he walked away he heard the following amusing conversation: "Why, John, didn't you know that was Parson May?" "Of course I did." "Why didn't you make a bow?" "Why, mother don't belong to his church."

Art of Leave-Taking.

Not all have learned the fine art of leave-taking in an appropriate manner. When you are about to depart, do so at once, gracefully and politely, with no dallying. Don't say, "It is about time I was going," then settle back and talk on aimlessly for another ten minutes. Some people have just such a tiresome habit. They will even rise, and stand about the room in various attitudes, keeping their hosts also standing, and then by an effort succeed in getting as far as the hall, when a new thought strikes them. They brighten up visibly and stand for some minutes longer, saying nothing of importance, but keeping every one in a restless, nervous state. After the door is opened the prolonged leave-taking begins, and everybody in general and in particular is invited to call. What a relief when the door is finally closed! There is no need of being offensively abrupt, but when you are ready to go—go.

Every woman who has kept house for a few years has a theory which is dear to her heart as to how beef should be roasted. One says that it should be put into the oven without a drop of water in the pan; another that it should be rolled in flour, a little lemon juice squeezed on it, and so on indefinitely—each one thinking her way is the best. As for me, I am sure that my ways are the best, for I have two of them. If the beef is fat and seems juicy I put it into the oven with just about a tablespoonful of water, and roast, allowing an hour and a half for five pounds of beef. If the meat is lean and dry and gives an impression that it is tough, and especially if any butcher has been betrayed into confessing that it is not very tender, then I put it into a dripping pan on the top of the stove with half a pint of water, turn a tin pan over it and let it steam for half an hour, then put into the oven. I have in this way served what appeared to a confiding and unsuspecting family as a delicious roast, but which I knew to be a very tough and unpromising piece of meat; so unorthodox is this way of roasting beef that I almost fear to make it known.—*Some Woman.*

Humorous.

A MAN WITHOUT A FRIDAY.—The people of an episcopal church in this city, who is regarded as a very low one indeed by those who strictly observe times and seasons, do not know whether to be angry or amused, whether to storm or laugh at present. Last Sunday they were visited by a very high dignitary of the church, who is not only high in office but is high as to observances. While reading the lesson or perhaps preaching, he referred to the rich man who fared sumptuously every day, and who came to such a bad end; the reverend preacher laid a very heavy emphasis on the word "every" and then remarked, "ah! there was no Friday for him." The question that is puzzling that congregation now is, whether they were expected to draw an inference and apply it.

ODD NOTICES.—A gentleman near Winchester made a rockery in front of his house in which he planted some beautiful ferns, and, having put up the following notice, found it more efficient and less expensive than spring-guns or man-traps. The fear inspiring inscription was: "Beggars, beware; Scolopendriums and Polypodriums are set here." The wall of a gentleman's house near Edinburgh some years since exhibited a board on which was painted a threat quite as difficult for the trespassers to understand as the preceding: "Any person entering these enclosures will be shot and prosecuted." An eccentric old gentleman placed in a field on his estate a board with the following generous offer painted thereon: "I will give this field to any man who is contented." It was not long before he had an applicant. "Well, my man, are you a contented fellow?" "Yes, sir, very." "Then why do you want my field?" The applicant did not wait to reply.—[*Chamber's Journal.*]

POETICAL.—Some genius has been endeavoring to describe a railroad incident in poetry. As it is a "first effort," we shall not say much about it. Here it is:

Goods and mail
Were on the rail,
And mail pulled up to water,
Goods, slap, dash,
Ran in—crash—smash!
And express came tumbling after!

The Bairns a' at Rest.

There was din, as ye ne'er heard the like,
'Mang our bairns the nicht roun' the fire-en';
A' were busy as bees in a birk;
A' were blithe as the birds in the glen.
What wi' castles and kirks built wi' tools,
What wi' rhyming at spellings a' roun',
What wi' playing at ball and at bools,—
But there's peace now, they're a' cuddled doun.

Now, the bairns are asleep and a calm
Has fa'n roun' like a soft gloaming shade,
And a kind hand unseen sheds a balm
O'er their wee limbs in weariness laid.
On their fair chubby faces we see
Sic an evenly sweetness o' rest,
That ye'd doubt but they'd borrow'd a wee
Frac the far-awa' realms o' the blest.

Like we birds in a nest do they cow'r,
By ilk other so cozy and kin';
O, their bed's like a rose-bed in flow'r.
And our glances o' love on it shine.
O, awa' wi' your glairy gowd crown,
But, hurrah for the bairns that hae grown
Like a living love-wreath roun' the heart!

Ha, let's wheesh! † As we warm in their praise,
We might waken some flaxen-hair'd loon;
See, already shot out frae the claes
Just as lithe a wee limb's in the toon!
Hap it o'er, hap it o'er. Bonnie bairn,
Whaur awa' may that wee footie pace?
The richt gait o' the world's ill to learn,
And fair fortune in fickle to chase.

There are hid 'neath these lashes so long,
The full een that are stars o' the day;
There lies silent the nursery song,
On these lips fresh as mornings in May;
And there beats in these bosoms a life
More o' promise that spring-buds are giv'n,
That must meet the world's favor on strife,
And shall make them or mar them for heav'n.

Will ye guard them, ye angels o' Peace,
In this haven, in the curtains o' night?
Will ye guide them when dangers increase,
Heaving out in their day-ocean fight?
For O, whaur, frae the bairnie so wee
To the bairnie the biggest o' a',
Is the ane we'd first part wi', and see
To a bed in the mools; taen awa'?

*Marbles. †Whisper. ‡The grave.
—[Good Words.]

Frankness with Children.

A clever writer in *Education* says of the would-be infallible teacher: A bright child asks a question that a gray-haired philosopher would be cautious in answering; yet a teacher of limited learning and less sincerity gives a glib reply to keep the child from doubting his scholarship. He wishes the pupil to think that all knowledge worth having has been attained in a few years by one person, namely, himself.

Between devotion to text-books and the careless dogmatism of such teachers, children leave our schools with the conceit that they have compassed the universe and settled all the problems of existence. A young teacher once followed an older one of this infallible type. During the first week a bright boy propounded a question to which she quietly answered, "I do not know, but I think you will find it in—" naming a book. The class looked surprised. From that day several of the students threw test questions at her on all occasions, to about half of which she simply replied, "I do not know." Contempt for her began to grow; but meanwhile, she had interested them in her daily class-work, and gradually they forgot to ask her puzzling questions. Before she had been there a year, it was reported about town, in their western phrase, "The scholars all swear by Miss —." The pupils would accept no statement that varied from what she had told them without careful investigation; and when such investigation had proved her mistaken, the pupils carried the knowledge to her with joy, knowing that she would sincerely thank them for correcting her. Compare the results of the two kinds of work,—results to the character of the teacher and the development of the pupil. If a teacher is to be truthful, it follows that he must be unexceptionable in character, and well prepared in scholarship.

Commercial.

THE FARMER'S ADVOCATE OFFICE, London, Ont., March 1, 1883.

The month just closed has been one of pretty steady cold, and very stormy and blustry. Railroad men have not had a very pleasant task the past month, neither has it been all pleasant nor agreeable to those who were snow-bound in many places the past month.

WHEAT.

The English wheat markets are again weak, in marked contrast to what they were a few days ago. Storms and floods, both in Europe and America together with blockaded roads, causing light receipts, have had much to do with the recent advance, and should the weather become fine, with the prospects of a good spring, we may look for quieter markets.

FLOUR.

The Montreal Gazette makes the following remarks about flour:

"If wheat is not moving out of the country freely, flour is, the shipments of flour from New York last week being 192,000 sacks, of which 112,000 sacks went to Glasgow. If England continues to take such large quantities of the manufactured article, she will require less of the raw, and we shall have less to export.

CLOVER SEED

has taken a tumble, and those who took our advice in the last issue will not regret having done so. We know of plenty of farmers who thought clover was going to go to \$10 per bushel, and we were told the other day of a farmer who asked one of his neighbors \$12 for a bushel of seed.

THE CATTLE TRADE.

The Pittsburgh Stockman says: "A great many farmers and stockmen have expressed the intention of feeding cattle for next June market, and, if we mistake not, the number of these is unusually large. There is a general unanimity in the expectation of good things at this time, for which, indeed, there is apparently good ground.

making not a few stockmen over-sanguine. To expect good markets is reasonable but to so fix themselves that only extravagant prices will let them out is a risk which prudent men will not care to take."

Late reports from the Western States give us some insight into the prospects for the coming season. Reports from the Indian Territory indicate unusual activity in the cattle interest. Prominent cattle dealers estimate that between 300,000 and 400,000 head will be driven up the trail.

The outlook for 1883 is somewhat different from last year. Last season there was a strong speculative element, backed up by high priced corn and a limited supply of cattle. Prices were carried higher than ever known before. Never before did the United States and Canada raise so much corn, hay and wheat as last year.

CHEESE.

The local market is very steady, and a good enquiry for home wants. English markets have been weaker, but not to the extent the cable quotations would lead one to suppose. There is no doubt that all the cheese held will be all wanted before new ones come forward to any extent.

BUTTER

rules steady, with a scarcity of fine for house use.

In a letter from Elgin, Illinois, to the Milwaukee Sentinel, the correspondent says of the butter trade: With but few exceptions the buyers from the East and South, as well as from Chicago, were surprised at the upward movement of butter, and it was some time before it could be learned why the manufacturers had become so unanimous in holding for high figures.

The Sentinel correspondent made some inquiries among the representatives of the butterine establishments as to their heavy purchases of butter at the present time and learned that the Eastern demand for a fine grade of butter had of late been very active, and the manufacturers had found it necessary to materially increase their product. One agent said: "We have received orders for choice goods, and, of course, must get the choicest butter to work up. Our orders are increasing at a wonderful rate lately, and we are now manufacturing more butterine and a better quality than ever before.

FARMERS' MARKET.

LONDON, ONT., Mch. 1st, 1883.

Table listing various farm products and their prices, including Red wheat, Deihl, Treadwell, Clawson, Corn, Oats, Barley, Rye, Poultry, Ducks, Turkeys, Chickens, Live Stock, Dressed hogs, Eggs, Potatoes, Apples, Roll butter, Tub, Crock, Cheese, Onions, Tallow, Lard, Wool, Clover seed, Timothy seed, and Hay.

TORONTO, ONT., Mch. 1st.

Table listing various commodities and their prices, including Wheat, Barley, Oats, Peas, Flour, Rye, Beef, Mutton, Lamb, Veal, Hogs, Potatoes, Apples, Tomatoes, Beans, Onions, Chickens, Ducks, Geese, Turkeys, Butter, Eggs, and Hay.

GRAIN AND PROVISIONS.

MONTREAL, Mch. 1st.

Table listing various grain and provision prices, including Wheat, Corn, Oats, Peas, Flour, Superior ex, Superfine, Strong bak, Pollards, Ont Oatmeal, Cornmeal, Butter, East'n Tp's, Morrisburg, Brockville, Western, Creamery, Mess pork, Lard, Ham, Bacon, and Cheese.

CHEESE MARKETS.

Liverpool, Eng., per cable, 66s per 100 lb. LITTLE FALLS, N. Y., Feb. 26.—Factory cheese, resales today, 500 boxes at 18c. @ 12c. Butter—Sales of 70 packages at 22c @ 26c.

LIVE-STOCK MARKETS

BRITISH MARKETS, PER CABLE.

CATTLE.

Liverpool, Feb. 27, 1883.—Supplies of cattle have been light, but there has been a weakening in the demand, and prices since last Monday have declined 1/2 per cent. Prevailing prices are as follows:

Table listing cattle prices, including Choice steers, Good steers, Medium steers, Inferior and bulls, and Sheep.

SHEEP.

The sheep market has shown no quotable alteration during the past week. Supply and demand are about equally balanced. Best long woolled, Seconds, Merinos, Inferior and rams.

GLASGOW, Feb. 27.—Our foreign supply consisted this week of 320 States cattle. We quote trade slow at lower prices for cattle. The supplies were more than were required and some are being held over for next week.

Our home supplies consisted of 2,000 cattle and 1,575 sheep. We quote as follows:

Table listing various types of cattle and sheep prices, including Good American steers, Medium American steers, Good American Sheep, Good Canadian steers, Medium Canadian steers, and Good Canadian sheep.

AMERICAN.

East Buffalo, N. Y., Feb. 27. Cattle market steady and unchanged; light receipts; bulk of offerings sold; few fresh arrivals; supply mostly light grades milch cows; good supply lower. Veals steady, at \$7.50 to \$8; common, \$5 to \$6. Sheep and Lambs—Fresh arrivals moderate; market dull and slow, buyers offering lower prices. Sales of best sheep, at \$6.25 to \$6.75; the latter for export; fair to good sheep, \$5.50 to \$7.12; common, \$4 to \$5. Good to extra lambs, \$5.50 to \$7.12; common, \$4 to \$5. Hogs—Supply limited, with good demand; market fairly active at a shade better prices; all offerings sold; good to choice Yorkers, \$7.25 to \$7.75; a few extra York weights, \$7.40; lig t do., \$7 to \$7.20; good butchers and mediums, \$7.40 to \$7.50 and \$7.60; good heavy quotable at \$7.60 to \$7.70.

TORONTO LIVE STOCK MARKET.

The Toronto live stock market has fallen away in receipts till the clerk has ceased to report arrivals any longer. There have been occasional cars of cattle arriving, but market days have been abandoned. There are no longer any cattle taken for shipment. All that are arriving now are taken for the local market. The demand here is still not active, as butchers report that the local consumption has been very limited for some time past. It is only possible to give quotations:—Good butchers' cattle are worth \$4.00 for second-class to 6c. for best; and third-class 4c. Sheep are worth 5c. per lb. for 5c. to 6c. Calves bring, on the market, 9c. per lb. for dressed weight. Larger supplies are looked for shortly.

Dairy Notes.

Scan all our advertisements; they cannot fail to give you valuable information.

In a single week recently, a New Jersey dairyman lost 22 cows from typhoid fever.

The attention of our readers is drawn to the channel can creamery advertisement of W. C. Lincoln, Warren, Mass., U. S. A.

Jersey cream requires much less churning than that of other breeds, and to prevent injury to the quality of the butter by its coming too quickly, the churn is revolved slowly.

A disputed point, and one which Mr. Cooley has exploded in his submerged cans, is the opinion held by some dairymen, that contact with pure air is necessary to produce good butter.

Commenting on the "most extravagant claims" made for ensilage, The Western Rural expresses the belief that "better results can be reached through feeding the sugar-beet, and at a reduced expense."

Given a well-bred cow, with food that is rich in cream-producing qualities, and everything possible to favor butter of an excellent brand, and all this may be spoiled by uncleanness in milking and by the impure odors which may infect the milk.

In churning, as well as in handling the milk and cream, a thermometer is almost indispensable. So much depends on having the milk and the cream at the right temperature in order to insure the best results, the occasional testing with the thermometer cannot well be dispensed with.

"Wild butter," or that which after the first appearance in the churn will not collect together in larger lumps, but remain flaky and apart, was analyzed by Schultze; and found to contain an excessive quantity of casein. The trouble was caused, he thinks, by too much souring of the cream.

TASTE OF TURNIP IN MILK.—The remedy is simply to have the turnips given to the cows immediately after milking, instead of before as is generally done, and to dissolve a teaspoonful of carbonate of soda in a teacupful of warm water, and add to each six gallons of milk when set in the pans. Saltpetre is also a fine thing to put in the cream, and a great help to the butter.

It is stated by The London Provisioner that the majority of the large number of milk-supply organizations projected abroad during the past two or three years either have been failures as conceptions or in actual working. "A fresh field that looks calculated to yield further harvest of disappointment seems waiting for cultivation in the shape of dairy farming companies."

THE DAIRY SHOW.—At the Dairy Show of the National Butter, Cheese and Egg Association at Milwaukee, there was a large obelisk, to build which required 15,000 pounds of cheese. A log house 14 by 18 feet and 20 feet high, was built of cheese of various sizes, weighing in all 45,000 pounds. There was also an attractive exhibit of little fancy cheeses arranged to form a Swiss chalet. There was a fine butter exhibit.

Churns.

There are over 300 patents registered for different kinds of churns, many of which are being sold in Canada by good talkers; high commends and first prizes have been awarded to some of these, but such prizes have not been gained by merit. Interested parties have desired to use this journal in trying to fleece our readers, but we have rejected all such offers, just as readily as we have declined receiving hundreds of dollars from demoralizing and injurious patent medicine dealers. But we with pleasure insert the advertisement of the Union Churn. The majority of people favor the old dash churn, because of its simplicity of construction and being easily operated, but we recommend the Union Churn as being superior to this in every respect, as we have seen them in use, and they give satisfaction to those that have tried them. C. T. Brandon & Co., of Toronto, Ont., are very extensive manufacturers of the "Union."

The Brown & Ranking Manufacturing Company, of Belleville, Ont., write: We think THE FARMER'S ADVOCATE, for our business, the best advertising medium in the Dominion.

NEW ADVERTISEMENTS.

AYRSHIRE CATTLE FOR SALE

—AT— BORELAND CASTLE, DOUGLAS, SCOTLAND

This splendid sale of the whole herd of over 100 pedigreed Cows, Heifers and Bulls takes place at

Boreland, on the 5th of APRIL.

SHIRE HORSES

Five Imported Superior Shire Stallions FOR SALE

—ALSO— Five Imported Shire Mares. Terms reasonable.

N.B.—To Agricultural Societies.—One or two of these fine Shire Horses may be engaged for the coming season by a good Society where good mares are kept.

For particulars address GEARY BROS., 208 Bli-Bro Farm, LONDON, ONT.

BREEDERS OF HORSES.

A CONVENTION of those interested in the breeding of Horses will be held in the TEMPERANCE HALL, Temperance Street, Toronto, Tuesday, March 6, '83

at 1 o'clock, p. m., for the purpose of forming an association for the better protection of those engaged in the stud horse business. All interested in the breeding of good stock, as well as those engaged in the business, are invited to attend.

THOS. PHILLIPS, Secretary, Bondhead. J. T. FLINTOFF, Chairman, Aurora P. O.

AUCTION SALE

—OF— Thoroughbred SHORTHORNS

—AT— CLOCHMHOR, near GALT, on Thursday, March 15, 1883,

VIZ: 16 COWS AND HEIFERS AND 13 BULLS.

Send for Catalogue. JAM S COWAN & SONS, Clochmor, Galt, P.O.

FOR SALE.

Jerseys & Ayrshires.

First Prize Jersey Bull, 3 years old, nearly solid, Brown and Grey. Six High Grade Jersey Females, three with calf. Also

YOUNG AYRSHIRES.

male and female, from imported and prize stock

WM. RODDEN,

207-c FLANTAGENET, ONT.

Advertisement for TORONTO ENGRAVING CO. featuring 'FIRST CLASS' and 'WOOD' designs.

IMPORTED

HEAVY DRAUGHT STALLION FOR SALE.

DUKE of EDINBURGH,

Rising 12; 17 1/2 hands; 3,000 lbs. weight; jet black; sure foal getter, and leaves first-class stock; small head; feet, action and temper all extra good; handsome and thoroughly sound, healthy and perfect in all respects. Sold for no fault. Can be bought at a bargain for cash if taken at once to close a partnership. Can be seen or particulars obtained by calling upon or addressing

F. YOST, HANOVER P. O.,

207-b Co. Grey, Ont.

Prize Fowls

—AND— FOWLS FOR THE FARMER

Unapproachable Black and other Hamburgs, Plymouth Rocks, Brahmas, Polands, Spanish, Leghorns and Cochins.

Sold at once for Eggs and circular describing.

FRANK SHAW,

Breeder of Prize Fowls,

207-b LONDON, ONT.

FRUIT & VEGETABLE EVAPORATORS

The Pacific all brick and iron stationary, and the Little Giant Portable Fruit and Vegetable Evaporators have the largest drying capacity for price of any in the market. They are designed for the rapid curing of all kinds of fruits and vegetables, meats, &c., which retain their natural flavor and color for any length of time in any climate. Send for circulars (illustrated) and particulars to

J. A. & H. BARTHOLOMEW,

Managers and Proprietors for the Dominion of Canada and State of Michigan, 207-1 Vanessa P. O., Ont.

MATTHEW'S SEED DRILL.

THE STANDARD OF AMERICA.

Admitted by leading Seedsmen and Marked Gardeners everywhere to be the most perfect and reliable drill in use. Send for circular. Manufactured only by

EVERETT & SMALL,

BOSTON, MASS., U. S. A.

Or JOHN A. BRUCE & CO.,

206-c HAMILTON, CANADA, Agents.

VIRGINIA FARMS & MILLS For Sale and Exchange. With the REAL ESTATE JOURNAL. E. B. CHAFFIN & CO., Richmond, Virginia

Sawing Made Easy With the Monarch Lightning Saw!

Sent on 30 Days Test Trial.



A boy 16 years old can saw logs fast and easy. H. W. MURRAY, Portage, Mich., writes: "I am much pleased with the MONARCH LIGHTNING SAW. I sawed off a 30-inch log in 4 minutes." For sawing logs into suitable lengths for family stove-wood, and all sorts of log-cutting, it is peerless and unrivaled. A great saving of time and money. Sent on Test Trial. Illustrated Catalogue, Free. AGENTS: W. H. BATES, mention this paper. Address, MONARCH LIGHTNING SAW CO., 103 Randolph Street, Chicago, Ill.

HORSES.

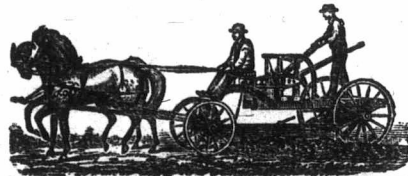
The most extensive sale stables west of Toronto,
160 HORSES NOW ON HAND.
Orders filled. Address
MOODY & RATTENBURY
207-11 Clinton, Ont.

NOTICE TO DAIRY AND CHEESE FACTORY MEN

I am manufacturing Cheese Vats and Dairy
Utensils, also the

Stevely Iron-clad Milk Can

which for strength and durability surpasses all
others. Orders solicited. Prices on application.
WM. STEVELY,
207-b 262 Richmond-St., London, Ont.

**THE CHAMPION ROAD MACHINE**

THE BEST IS ALWAYS CHEAPEST
WHERE MUCH WORK IS TO BE DONE.
Address for circular G. W. TAFT,
207-b Abington, Conn.

**BROWN'S
PATENT HAY LOADER.**

Since the first introduction of the Hay Loader,
each succeeding year has added every evidence of
its practicability, and it is now considered one of
the greatest labor-saving machines of the
age. It requires no extra men or horses, being
attached to the rear of the wagon and operated
by the same team that draws the load, adding to
the draft the power of one man. It will load a
ton of hay in five minutes, taking it up as
clean as can be done with a fork. Although
originally intended to run on hay raked in wind-
rows, it may be used in heavy unranked hay, and
will work equally as well in all kinds of loose
grains, especially barley. For price, testi-
monials, and all particulars, address

JOHN RUSSELL & CO.,
Proprietors Ingersoll Foundry and Agr'l Works,
INGERSOLL, ONT.
Manufacturers of the Ingersoll Reaper, Ingersoll
Mower, and all kinds of Agricultural
Implements. 207-d

Early Estampe's—Best early Cabbage; heads
in 90 days. Per pkt. 10; oz. 50c.

Island Gem Cabbage—18 to 25 lbs. in
weight. Per pkt. 10c; oz. 40c.

Fottler's Improved Drumhead—Of Cana-
dian growth. The finest Cabbage yet offered
under this name. Reaches 25 lbs. weight. Per
pkt. 15c; oz. 50c.

Earliest Erfurt Cauliflower—Finest in
the world. Pkt. \$1.

Alpha Tomato—Unexcelled. Ripens in 100
days. Per pkt. 50c.

President Garfield Tomato—Most de-
licious flavor. The largest—frequently weigh-
ing 2½ pounds. Pkt. 50c.

Evans' Superb Montreal Nutmeg Melon
—Finest extant. Per pkt. 25c.

Carter's Stratagem Pea—Finest half dwarf
wrinkled sort. Per pkt. 25c.

Carter's Pride of the Market Pea—
Enormously productive; will prove the most
profitable market Pea; fine appearance and
flavor. Per pkt. 25c.

Evans' Mammoth Long Red Mangel—
Best in cultivation. Per lb. 40c.

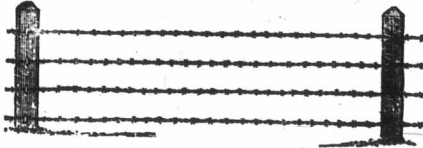
Evans' Mammoth Purple Top Swede—
Vigorous and of rapid growth. Per lb. 35c.

Clyde Improved Purple Top Swede—
New; of fine form. Per lb. 35c.

One packet of each of the above sent post-
paid for \$2.50. All orders accompanied by cash
mailed free.

Catalogues free on application.
WM. EVANS, Seedsman, Montreal.
ESTABLISHED 1855 206-b

NEW & OLD FRUITS
LARGE & SMALL
Now Ready! 36-page Semi-annual
Illustrated Catalogue SENT FREE
CAYUGA LAKE NURSERIES (Established 1833)
H. S. ANDERSON, Union Springs, N. Y.

**The "Glidden" Patent
TWO POINT
BARB FENCING.**

The PATENT STEEL BARB FENCING of the
WASHBURN AND MOEN MANUFACTURING Co., con-
sists of two stout wires, carrying at short in-
tervals of space (five inches), a firmly twisted barb,
that presents two THORN-LIKE POINTS to REPEL
assault and COMMAND the respect and forbear-
ance of all trespassers, human or quadruped.
Certain well ascertained facts have been ascer-
tained as follows:

1. BARB WIRE FENCING should consist of
at least TWO WIRES twisted together; for the
sake of STRENGTH, and the better to resist all
Changes of Temperature.

2. The BARB used in connection with two
wires should not be twisted around both wires,
which defeats the object of the two wires, pre-
venting their coiling together or uncoiling lightly
with the cold or heat.

3. The BARB must be short enough, so that
it will not necessarily tear the animal. A sharp
instantaneous prick is all that is needed.

4. The BARB must be firmly twisted upon
ONLY ONE of the two wires; the second wire
thus holds it in its place.

5. The BARB, with reference to the main
wire or wires, should not form in the slightest
sense a HOOK.

6. BARBS two in a group are more effectual
than four in a group.

7. The BARBS should be as light as possible
in weight, and still be efficient, for the MATE-
RIAL IS BOUGHT BY THE POUND.

The BARB WIRE FENCING manufactured
by us includes and assures the foregoing essential
merits.

Farmers, insist upon having
the TWO POINT and take no
other style, no matter how
persistently you are urged.

Write us a Postal Card and we will
send Pamphlets, &c.

Washburn & Moen Mfg Co.,

207-1 59 and 63 COLLEGE ST., MONTREAL.

MR. C. B. RUDD,

VETERINARY SURGEON,

can now be consulted at

175 Horton St., London, Ont.

207-11

Imported Clydesdales for Sale

THE subscribers offer for sale 7 STALLIONS
and 2 MARES, including the First Prize and
Gold Medalist Stallion VICEROY, and First Prize
two-year-old at the Dominion Exhibition at King-
ston in 1882.

The above animals were selected with great
care and sired by such noted horses as Farmer
286, Topgallant 1520, Luck's All, General Neil,
Barron Pollock and Old Times.

For further particulars apply to the proprie-
tors.

207-a H. & R. BEITH, Bowmanville, Ont.

LINSEED CAKE

—AND—

Linseed Cake Meal

The Best Food Known for Stock. For
sale by the Manufacturers. Quality
guaranteed pure. Quotations for
any quantity sent on applica-
tion.

Wright & Lawther Oil and Lead Man'g Co.

206-1 Chicago, Ill., U. S. A.

WHITE RUSSIAN OATS

Grown from Imported Seed.

The best and most reliable White Oats, free
from rust and smut. Price, per 80 lbs. with bag,
\$2. Also, Arabian, a new gray oat, three years
grown in Canada. Price per bag of 2½ bushels,
with bag, \$2. Being farmers ourselves we test
all new grains two years before offering for sale.
Remit by registered letter or P. O. Order. Give
name of Post Office, also of Railway Station and
Express Office. State how you wish it sent.
Address—

Thos. & Jas. Manderson,

207-b Box 110, Cuelph P. O., Ont.

Stock Notes.

A meeting of Breeders of Horses will be held, as
per advt., in Toronto, on the 6th inst., to which
those interested are invited.

J. M. Fraser, of London, Ont., has sold to T. D.
Hodgins, London Township, Lady Garland 3rd,
also 2nd Duke of Kelvin Grove to Ferguson Bros.,
St. Thomas, Ont.

R. L. Denison, Secretary of the British American
Herd Book, has kindly forwarded volume one of
this new Registry. The work is well got up, and
no doubt its accuracy will demonstrate that Col.
Denison, the Secretary, is the right man in the
right place.

John Isaac, of Bomanton, has made the
following sales: To F. R. Shore, of White Oak,
Ont., imported bull "Prince of Northumberland,"
3 imported cows and one heifer calf; to Hugh
Thompson, St. Marys, Ont., imported cow Magnet
and 3 yearling heifers.

The attention of our readers is directed to a
public sale by Jas. Cowan & Sons, of Clochmor,
Galt, Ont., on the 15th inst. The Clochmor herd
is one of the oldest and best bred in Canada, and
its proprietors have been judicious in introducing
from time to time the animals of the very best
strains.

Hon. M. H. Cochrane writes: "My stock is
all wintering well, and I have more than my usual
number of enquiries for thoroughbred stock. I
now have on the Atlantic 40 Herefords and about
30 Polled Angus, but cannot give particulars now,
but will later. My son has been in England and
Scotland the past two months making the selec-
tions."

Mr. Geo. Ballachey, jr., has commenced a herd
of Shorthorns. He has now six females, all re-
corded in the British American Herd Book, two
by a son of the celebrated fourth Duke of Clarence,
of Bow Park. The bull he is raising now was im-
ported by the C. W. F. S. A., of Bow Park, and
claims for an ancestor the world renowned Third
Lord Oxford (22,200). Mr. B. has lately sold a
young bull of good promise to Mr. Stoddart, of
Paisley, Ont.

The following are the recent sales from the
"Maple Lodge Herd" of Shorthorns: To David
Fletcher, Fletcher, Ont., "3rd Prince of Thule;"
to Thos. Becton, Glencoe, Ont., "Prince Serid;"
to John Hurd, Parkhill, Ont., "Belle Watchman,
5th;" to George Fulton, Mount Clemens, Mich.,
"Sixth Earl of Goodness." They have purchased
from John Gibson, "Manor Farm," Iderton, Ont.,
the finely bred Constance bull "Baron Constance
5th," to place at the head of the "Maple Lodge
Herd" of Shorthorns. They have now 30 females
in their herd.

Robert Marsh, Richmond Hill, has made the fol-
lowing sales, viz., to W. A. Wood, East Smithfield,
Penn., U. S. A., one ram and three imported ewes;
A. Lundy, Sharon, ram-lamb; Arch. Stewart, Al-
monte, one ram and two ewes; Thos. E. Kershaw,
Holstein, ram and four ewes; Thos. W. Bates,
Brighton, ram lamb; Jas. O. Stewart, Goderich,
ram lamb; Wm. E. O'Brien, Shanty Bay, ram
lamb; Wm. Pugsley, Richmond Hill, ram and
three ewes; Wm. Boss, Newburgh, ram lamb; R.
Atchison, Newburgh, shearing ram; Wm. Leggitt,
Newburgh, ram lamb; J. T. Bolton, Newburgh,
ram lamb; C. Keys, Palmyra, ram lamb; John
Rutherford, White Oak, shearing ram; Jas.
Dimana, Green River, ram lamb; Scott McNair,
Vaughan, ram lamb; Thos. Wilkinson, Renton,
three rams; R. Dunlop, Beaverton, shearing ram;
Wm. M. Miller, Clairmont, shearing ram; Jas.
Rogers, Eversley, ram lamb; David James, Thorn-
hill, ram lamb; John McCallum, Kinghorn, ram
lamb; J. Lamont, Caledon, two ewes; J. S. Hanna,
Streetsville, ram lamb; Arch. McCallum, Laskey,
ram lamb; Arch. McCallum, Strange, ram lamb;
Jas. Dunning, German Mills, ram lamb; E. Whit-
more, Edgely, ram lamb; Jas. Tate, Everett, ram
lamb; Jas. Monkman, Bolton, ram lamb; D.
Girvin, Goderich, ram lamb; J. A. McDonald,
Cornwall, ram lamb; Geo. Quantz, Markham, ram
lamb; J. Shunk, Edgely, ram lamb; Wm. Phillips,
Perry Centre, N. Y., U. S. A., shearing ram; D.
Reaman, Concord, ram lamb; James Fleming,
Kilsyth, ram and two ewes; J. Marsh, Cape Rich,
shearing ram; Thos. Hamilton, Chesterville, ewe
lamb. Thirty-nine rams and fourteen ewes. A
number of the above sales were made through ad-
vertising in the ADVOCATE.

(Continued on page 95.)

PAT. CHANNEL CAN CREAMERY.
DEEP SETTING WITHOUT ICE!
PERFECT REFRIGERATOR INCLUDED!
 Suited for large or small Dairies, Creameries, or gathering cream. Special discount on large orders. One creamery at wholesale where I have no agents. **Send for Circular.** Agents wanted.
 WM. E. LINCOLN, WARREN, MASS.

SARNIA AGRICULTURAL IMPLEMENT MFG Co
 (Limited.)
 MANUFACTURERS OF
Reapers, Mowers, Binders and Threshers
 See the **DOMINION SEPARATOR** before you purchase. The easiest running, simplest and most durable machine in the market.
Live Agents Wanted. Address
GEO. A. ROSS,
 General Agent for the Northern Route,
 GODERICH, P. O., ONT.

LAMB'S
SUPERPHOSPHATE OF LIME
 - AND -
FINE BONE DUST.
 Send for Price List.

PETER R. LAMB & Co.,
 Fertilizer Manufacturer,
 TORONTO, ONT.

320 ACRES FREE
 IN THE
DEVIL'S LAKE,
TURTLE MOUNTAIN
 AND
MOUSE RIVER COUNTRY,
NORTH DAKOTA
 Tributary to the United States Land Office at
GRAND FORKS, DAKOTA.
 Sectional Map and full particulars mailed free to any address by
H. F. McNALLY,
 General Travelling Agent,
ST. PAUL, MINNEAPOLIS & MANITOBA R. R.
 206-b 28 E. Front St., Toronto, Ont

OFF WITH THE TARIFF ON SEEDS.
THE BEST COLLECTION EVER OFFERED!
 16 PACKETS, OR \$1.50 WORTH FOR 50 CTS.
 In order to extend our trade, we make the above remarkable liberal offer. Our collection contains one packet each of the following: **Wilson's Improved Blood Turnip Beet**, the earliest and the best; **Wilson's Early Green Cluster Cucumber**, none earlier or better; **Fowler's Improved Early Brunswick Cabbage**, good for early or late cabbages; **Hanson Lettuce**; **Cuban Queen**, 100 lb. Watermelon, the largest, finest, sweetest watermelon in the world; **Honey Dew Green Citron**, a native of the Sandwich Islands, most luscious flavor, and sweeter than honey; **Giant Rocca Onion**, grows onions from seed 1st year to weigh 3 lbs.; **Sutton's Student Parsnip**; **Golden Dawn Mango**, the finest, sweetest and most beautiful pepper ever seen; **American Wonder Pea**, enough seed of this wonderful pea will be sent to plant a row 40 feet long, needs no sticks, comes in thirty days from planting; **Improved Early Long Scarlet Radish**; **Perfect Gem Squash**; **Early White Egg Turnip**; **New Mayflower Tomato**, earliest, largest and best tomato in cultivation; **Japanese Nest Egg Gourd**, the most beautiful and useful novelty ever introduced, hard shell, makes the best nest eggs; this alone is worth to any one ten times the price of the whole collection; **Zinna Darwin**, fl. pl., the choicest strain of this popular flower, beautiful as the Rose, double as the Dahlia. (The above 16 packets, each containing seed enough for an ordinary family, with directions for planting etc., will be sent by mail, post-paid, on the receipt of 50 cents, in postage stamps or money. Our Collection of Choice Flower Seeds, 11 packets or 90 cts. worth for 30 cts., comprising *Asters New Victoria, Calliopis, Drummondii, Large Double English Hollyhock, Verbena Montana* (12 choice colors mixed), *Phlox Drummondii*, *Portulaca* (finest strain mixed), *Sweet Alyssum*, *Pansies* (mixed), *Celosia Japonica Iponna* (Ivy Leaf Cypress Vine), *Dahlia Sunflower* Or both Collections, making 27 packets, amounting at lowest catalogue prices to \$2.40 will be sent for 75 cts., accompanied with our illustrated and descriptive catalogue of new seeds, giving much useful information, and a certain remedy for the **Cabbage Worm.** Address
SAMUEL WILSON, SEED CROWER,
 207 MECHANICVILLE, BUCKS CO., PA.



GRAND'S REPOSITORY

 47, 49, 51 AND 53 ADELAIDE ST., TORONTO.

THE GREAT ANNUAL SPRING SALE OF 500 HORSES
 Will take place at the above well-known Repository, APRIL 17th, 18th, 19th, 20th and 21st, when upwards of 500 Horses of all descriptions and classes will be offered for competition to the highest bidder.
 Farmers, breeders and others having sound young horses to dispose of will find this an unrivalled opportunity, this sale being largely advertised throughout Great Britain, Canada and the United States.
 In view of the great demand the proprietors have determined to make no charge, either for entering or offering horses if not sold. Entry book now open.
 207-b W. D. GRAND & CO.

EGGS for HATCHING
 Langshans per 13, \$2.00. Buff Cochins, Brown Leghorns, White-footed Bantams, prize winners at Industrial, Pekin and Aylesbury DUCKS at \$1.00 per sitting. 13 first and 2 second prizes on 15 pair shown at Perth Show, in competition with 146 pair on exhibition. Address
 207-tf R. A. BROWN, Cherry Grove, Ont.

Superphosphate.—\$28 per ton. Free on cars.
Cotton Seed Meal.—\$36 per ton. 100lb. bag \$2.
Onion Seed. Red Wethersfield & Yellow Danvers \$1.50 per lb. Free by mail.
PEOPLE'S PACKET OF FLOWER SEEDS.—Containing 25 beautiful varieties. Excellent selection. Free by mail, \$1.
ILLUSTRATED SEED CATALOGUE FOR 1883.—Free to all who apply.
 206-c W. H. MAROON, SEED MERCHANT, QUELPH.

ZIMMERMAN
Fruit and Vegetable Dryer!
 MANUFACTURED BY
RICHARDS BROS.,
 404 & 406 Yonge St., Toronto, Ont.
 Highest Awards at the Provincial Exhibitions at Hamilton, 1880, and London, 1881.
 Dries all kinds of Fruit and Vegetables better than any other apparatus, and ADDS 50 PER CENT TO MARKET VALUE.
 It is the Standard Fruit Dryer of Canada, and the only one made of galvanized iron.
 AGENTS WANTED. Liberal discounts to the trade.
 196-tf

HAMILTON AGRICULTURAL WORKS

The Pioneer Threshing Machine Works of Canada.



Our Celebrated GRAIN SAVER is the Best and Most Perfect THRESHER and SEPARATOR made in the Dominion, being first over all others for
Durability, Workmanship, Fast & Clean Work, Perfection of Parts, Ease of Management, Simplicity of Construction, Lightness of Draft, Capacity for Work.

We have Machines working in all parts of Canada, giving the very best satisfaction, when driven by either Steam or Horse Power.
 It is a General Favorite with the Farmers, who prefer it for Fast and Clean Work.
 SPECIAL SIZE MADE FOR STEAM POWER.
 Address us for Circular and Price List of THRESHERS, CLOVER MILLS, HORSE POWERS, REAPERS AND MOWERS. A personal inspection is solicited.
L. D. SAWYER & CO.,
 HAMILTON, ONT., CANADA.

MANN'S Broad-Cast Seeder and Harrow COMBINED.



SOWS OVER SEVEN FEET IN WIDTH.
 The above cut represents our NEW BROAD-CAST SEEDER, with SPRING TOOTH HARROW ATTACHMENT for covering the grain. This Machine we have perfected to meet a growing demand for an implement that will sow broad-cast and complete the work in once passing over the ground. The principle of sowing is the same as that in our well-known Broad-Cast Seeder, while the covering attachment has proved itself to be as complete a success in its work as the Seeder has shown itself to be for sowing.
 This Machine may also be used as a Harrow alone, making one of the best implements of the kind in the market; and by the construction of the teeth they may be quickly changed to work at any required depth or angle, having a range of from two to six inches in depth of working, thus making a Cultivator or Harrow as required.
 In durability, lightness of draft and perfection of its work, we claim for this Machine that has no superior among the many implements of the kind now before the people.
 Order early, as only a limited number are being built for this season's trade.
J. W. MANN & Co.,
 BROCKVILLE, ONT., and OGDENSBURG, N. Y., U. S. A.

Seed Catalogues (continued).

Charles A. Green is well known in connection with the James Vick strawberry. His catalogue also represents a large and choice collection of small fruits.

A. M. Purdy, of Palmyra, N. Y., is a name well known as the editor of the *Fruit Recorder*, and as a leading fruit grower. He offers several varieties of fine strawberries, notably the Big Bob, which, as its name indicates, is a very large berry. His collection of grapes is very fine, among which will be found the Iron Clad, claimed to be the largest grape grown out of doors. His catalogue contains a large collection of other fruits.

STOCK NOTES.

(Continued from page 94.)

Do not fail to scan our advertising columns this month.

The Mount Forest cattle fair held on the 21st ult., was well attended. Some fine looking animals were brought in and disposed of at a good price.

The attention of our readers is called to the advertisement in another column of the great sale of Ayrshire cattle, which takes place at Castle Douglas, Scotland, April 5th.

If you want "Randall's Practical Shepherd," the best sheep book out, price \$2 and postage, you can have it as a gift, by sending us seven new subscribers to THE ADVOCATE at \$1 each.

Mr. John White, Milton, has sold his thoroughbred colt, "Williams," to Mr. A. Gates, of Toronto; price \$600. Williams ran and was beaten by half a neck for the Queen's Plate last season by his half sister, Fanny Wiser.

Messrs. Rogers and Hamar have fixed their second annual show and sale of pedigree Hereford cattle to be held at Hereford, England, on Tuesday, March 27th (the day previous to Hereford Easter fair). They expect to be able to offer prizes amounting to £50.

A breed of sheep is kept in Northamptonshire, England, called "Westerns," which have the peculiarity of not growing any wool on the back. But, notwithstanding this, they are in such repute for producing large, fat, early lambs, that they are considered superior even to the famous Dorset for this purpose.

Every stock raiser in the land ought to have a copy of Prof. Law's "Farmers' Veterinary Adviser" in his home; it may save ten times its cost each year. Price \$3 and postage. We will send it free for eight new subscribers to the ADVOCATE, at \$1 each.

Mr. V. E. Fuller, of Oakland, near Hamilton, reports the death of his Jersey calf, Bertha Morgan 2nd 18121; sire, Regnias Gilderoy 5042; dam, Bertha Morgan 4770. He says that the calf was a beautiful one, showing marvelous fineness of coat and skin.

COLOR AT THE PARIS CATTLE SHOW.—As an illustration of the inferiority—so loudly attributed as an inevitable accompaniment to white as a color—it may be pointed out that the best of all the bullocks at the Paris Show, which had been calved since 1880, was a white. The best cow was also a white.

The *Agricultural Gazette* says: Why should two-thirds of our stock-breeders go in for simply fat stock, leaving the question of milk to be looked after by the dairyman? We hold, rightly or wrongly, that cattle may be bred by proper selection, which will give a good quantity of milk, and fatten quite as well as those that are bred to give practically no milk at all, and we maintain that an immense loss is suffered by this neglect of milking qualities.

The steamer Montreal, which arrived at Halifax on the 23rd ult., from Liverpool, brought out a large consignment of thoroughbred cattle for the range of Cochrane & Co., to be forwarded to their grazing grounds at Fort Calgary, Bow River. The lot comprises 32 Herefords, in age from ten months to two years; 32 Polled Angus, from three months to three years; two Jersey bulls, three Guernseys (one bull and two females), and one Shorthorn Durham bull; besides which there are eight Herefords for Mr. Vernon, of Comp-ton, P. Q.

(Continued on page 98.)



is now ready for distribution, and is conceded by both Press and Public to be "The most beautiful and useful Fruit Catalogue ever published." It is profusely illustrated with truthful engravings of the best fruits, and is embellished with several splendid colored plates. The descriptions are accurate, honest, and prices moderate. It tells how to get and grow Fruit Trees and Plants, and is replete with information, valuable to all interested in the culture of Fruits. Free to all applicants.

NEVER BEFORE WAS SUCH AN ARRAY OF DESIRABLE VARIETIES OFFERED.

Strawberries.

Besides the long list of old varieties, MANCHESTER denominated "The Greatest Strawberry on Earth" The loyal Jersey Queen, James Vick, Phelps' Seedling, Bidwell, Primo, Big Bob, Fairy and many other tempting novelties.

Raspberries.

HANSELL, the most wonderful Raspberry ever produced: SOUTHGATE, superb extra-early Black Cap Gregg Tyler, Cuthbert, and all the standard kinds; with several other novelties.

FRUIT TREES.

Besides the large collection of APPLES, PEARS, PEACHES, PLUMS, CHERRIES, etc., special attention is invited to the stock of Nut-bearing Trees.

Grapes.

The collection embraces Pockington, Lady Washington, Prentiss, Duchesse, and other new white Grapes, with Jefferson, Early Victor, Moore's Early, Lady, Brighton, Worden, and an extended list of other sorts, both new and old.

Blackberries.

The "Iron Clad" varieties that succeed everywhere, with the great novelty EARLY HARVEST and all the standard varieties. Also, a full assortment of Gooseberries and Currants.

Remember the Catalogue costs you nothing and may save you a great deal.

Four Fruit Farms. { Address, J. T. LOVETT, } Introducer of the Cuthbert Rasp-
Two Greenhouses. { Little Silver, New Jersey. } berry and Manchester Strawberry.
N. B.—As this will not appear again, apply at once. 207-a

J. A. SIMMERS'

Cultivators' Guide and Priced Catalogue of

RELIABLE SEEDS

contains the largest variety of Field, Garden and Flower Seeds.

N. B.—Now ready and mailed free to intending purchasers.

J. A. SIMMERS,
206-c 147 King St. E., Toronto, Ont.SEEDS! SEEDS!
FOR 1883.

Keith's Gardeners Assistant and Illustrated and Descriptive Catalogue for 1883.

Now ready and will be mailed to any address free on application. Special attention given to all kinds of Seed Grain. Having grown a number of varieties on my Seed Farm, and fitted up my warehouse with mills and machinery especially adapted to the re-cleaning of Seeds and Seed Grains, can safely recommend them.

GEORGE KEITH,
SEED GROWER AND IMPORTER,124 KING ST. EAST, TORONTO,
Seed Farm—"Fern Hill," Scarboro'.
206-b

SPRING PLANTING!

GOLD MEDAL NURSERY STOCK!

100,000 Apple Trees; Grape Vines; Pear, Plum and Cherry Trees; Small Fruits; Ornamental Trees, for Lawn, Street Planting and Shelter; Flowering Shrubs; Roses; Dahlias, &c., &c.

BEST NEW AND OLD VARIETIES. Descriptive Priced Catalogue (illustrated) free to all applicants.

We advise early placing of orders, as the supply of nursery stock throughout the continent will not meet the demand the ensuing season.

GEO. LESLIE & SON,
Toronto Nurseries, LESLIE P. O., ONT.
ESTABLISHED OVER 40 YEARS. 206-aDISEASES OF THE EYE AND EAR.
186-t CROSS EYES STRAIGHTENED.J. N. ANDERSON,
M. D., M. C. P. S.
Ont.—Eye and Ear Surgeon, 34 James St., Hamilton, Ont. Dr. Anderson gives exclusive attention to the treatment of the various

VALUABLE OPPORTUNITY.

A FARM OF 400 ACRES IS OFFERED for sale in the best portion of Manitoba, situated 4 1/2 miles from High Bluff station on the C. F. R. and same distance from Poplar Point station; 2 miles from Assiniboine P. O. and 11 miles from Portage La Prairie. Well settled neighborhood. Schools and churches close at hand. Certified plan and description of property sent on application to J. B., Free Press Office, London, Ont. 207-tf

Choice, Fresh and Reliable

SEEDS!

Forwarded by mail to all parts of the Dominion and

Safe Arrival Guaranteed!

We will send to all applicants FREE the finest illustrated catalogue in Canada. It contains volumes of information and a complete list of everything for the

Farm and Garden.

Don't fail to send your name and Post Office address for a copy before ordering your supply.

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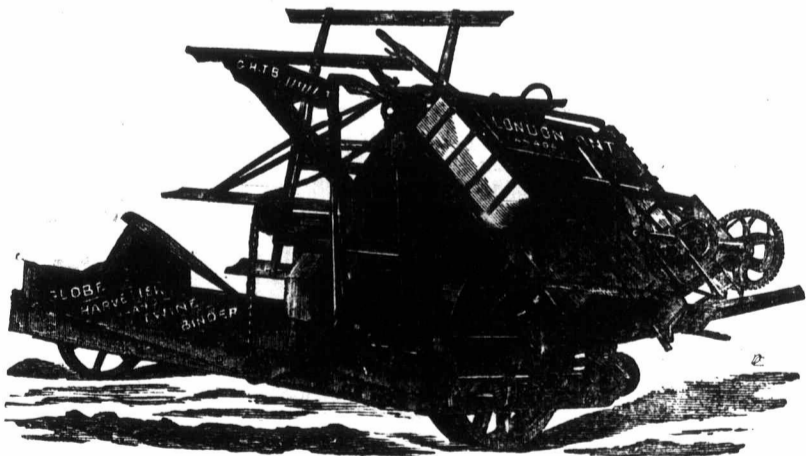
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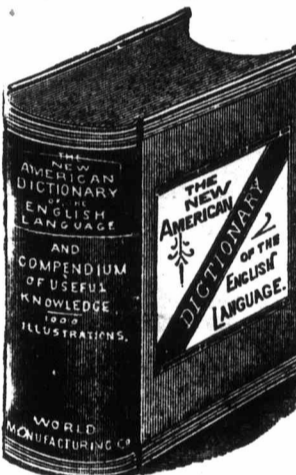
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D. POTTINGER
 Chief Superintendent, Moncton, N. B.
 Railway Office, Moncton, N. B., 28th November, 1882. 205-1f

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STOCK NOTES.

(Continued from page 96.)

Mr. Valancey E. Fuller, of Oakland farm, Hamilton, Ont., has recently purchased the famous Jersey bull Thalma 4288, bred by O. S. Hubbell, of Housatonic, Mass., to add some extra blood to his herd. He is a solid-silver grey, with a mellow skin and deep orange under it. He is by Ori 4286, dam Nepheta, 9188, and has nine crosses of St. Heliers 45, going back to Europa 121. Probably no better bred Jersey bull was ever brought into Canada.

Mr. James Gardhouse, Highfield, Ont., has recently imported a three-years-old Shire stallion, a dark brown, Hero, by Lincolnshire Hero, his dam by the famous horse Farmer's Glory. He is a very well built, stout horse; weight about 1,800 pounds. He seems to be a good specimen of the sort of horses that are bred in the midland counties. He has also imported a brown mare bred by J. C. Toffin, Musgrove Hall, Skelton, Eng. A very well bred Shire mare.

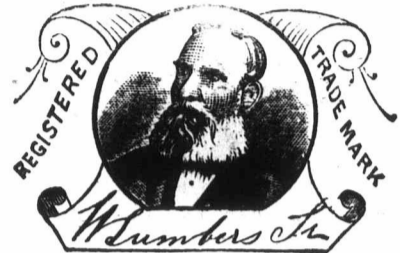
On the 22nd January, Mr. E. J. Arnold, of Sumnerland, Jersey, shipped from the Island two fine specimens of the Guernsey breed for Hon. J. C. Abbot, of Montreal, Canada, via Southampton and Liverpool. They comprise the champion prize bull Presto, No. 14, pedigree stock, Royal Guernsey Agricultural Society's Herd-book, purchased of M. James Martel Preel, Castle, for £60. Presto has obtained 1st prize R. E. A. S. 1881; 2nd class bulls, 1st prize R. E. A. S. 1882. Presto is a splendid type of the Guernsey breed, his richness of skin denoting great butter qualities to a remarkable degree. Juno, No. 76, R. E. A. S. Herd-book, with heifer-calf at side, purchased of Messrs. C. Smith & Son, Caledonia Nursery, for £75. Juno is an excellent cow, deep in body, with grandly developed udder; now giving twenty quarts of milk daily; winner of 1st prize R. E. A. S. May, 1877.

Mr. Arthur Johnston, of Greenwood, Ont., has sold to Mr. Harry Sodovsky, of Indianola, Illinois, the imported Shorthorn bull, "Lewis Arundell," for \$1,200. "Lewis Arundell" was imported by Mr. Johnston in August, 1881. He was winner of first prize as a 2-year old bull at the Toronto Industrial Exhibition in 1882. Mr. Johnston has sold to Mr. R. A. Rowe, of Freedom, Illinois, 1 weanling filly, 1 yearling filly, and 1 2-year old colt for \$750. To Wm. Boyd, of Toronto, 1 working mare, failed to breed, for \$240. Mr. Johnston has purchased from Mr. Jas. I. Davidson, of Balsam, Ont., the imported Cruickshank bull calf, "Premier Earl," of Mr. Cruickshank's Violet family—a family that has been in the Sityyton herd since its commencement in 1837. Mr. Johnston has also purchased from Mr. A. Ross, of Greenbank, the red imported Cruickshank 2-year old bull "Duke of Lavender," of the Sityyton Lavender family. Mr. Wm. Linton, of Aurora, has sold to Mr. A. Johnston the imported 3-year old heifer, Emily 2nd, and her imported heifer calf, Emily 3rd. Mr. Johnston reports the Shorthorn business brisk at paying prices, and adds that he finds "the ADVOCATE pays me better than any other paper I ever advertised in."

The first annual meeting of the British American Shorthorn Association was held in Toronto on the 21st February. There was a large attendance of the members, and a very satisfactory feeling of confidence and harmony prevailed. The annual report of the Executive Committee showed that the receipts had been \$1,783.06, and the expenditure \$1,238.58, leaving a balance in the bank, December 31st, 1882, of \$544.48. The Association has published the first volume of the Herd Book, containing 650 pages, (600 copies) at a cost of \$795, and has now money on hand to pay for this, and will present the volume free to members and offer it at \$2 to non-members. Mr. John Dryden, M. P. P., was re-elected President, and R. L. Denison, Recording Secretary, and J. C. Snell, Corresponding Secretary. The following resolution was adopted: In any case where a certificate of registration is required the breeder shall send in the pedigree in duplicate, and the Recording Secretary shall stamp one of these copies with the seal of the Association, and sign it as accepted for registration, the charge to be 10 cents extra for the certificate. In case the Secretary is required to fill out the duplicate copy the charge shall be 25 cents.

(A few stock notes are laid over until next issue.)

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A never-failing cure for Intermittent Fever, Fever and Ague, in all its stages.

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These remove obstructions of the Liver and act SPECIFICALLY UPON THIS ORGAN.

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For Rheumatism, Neuralgia, Spinal Irritation and Weakness, Lumbago, Sprains, Contraction of the Tendons, Ague in the Breast and Face, and all pains situated in any part of the body.

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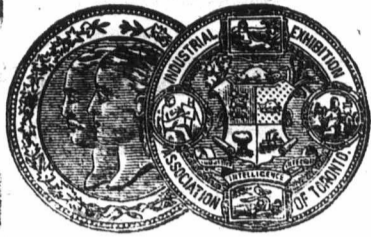
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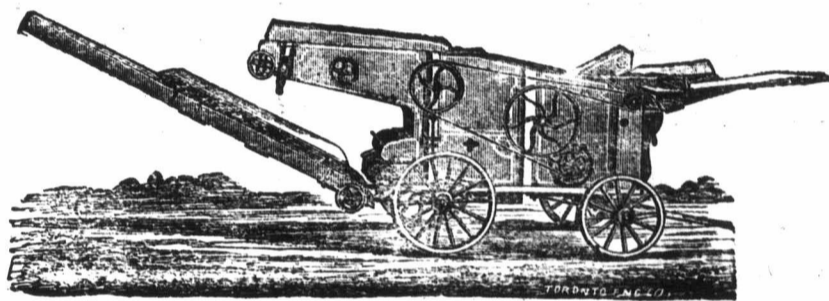
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"OAKLANDS" HERD OF JERSEYS.
(REGISTERED IN THE AMERICAN JERSEY CATTLE CLUB.)
RECORD OF PRIZES
AT THE THREE GREAT FAIRS OF CANADA, 1882.

DOMINION GOLD HERD MEDAL, Provincial Exhibition, Kingston. First prize, **SILVER HERD MEDAL**, Canada's Great Fair, Toronto; **FIRST HERD PRIZE**, Great Central Fair, Hamilton, and 16 **FIRST PRIZES**, 8 **SECONDS** and 1 **THIRD**, and "2 **SWEETSTAKES**" **MEDALS** in all, 30 prizes.
LE BREVE 5604 **FIRST PRIZE** 2-year-old bull, and **SWEETSTAKES SILVER STAKES PRIZE** "BULL of any age," at Hamilton. (Not exhibited at Toronto.) **HEADED GOLD MEDAL HERD** at Kingston, and **FIRST PRIZE HERD** at Hamilton.
OAKLAND'S REX 6339 **FIRST PRIZE** 2-year-old bull at Toronto, at head of **FIRST PRIZE Silver Medal Herd**, Toronto. Second-Prize 2-year-old at Kingston. First-Prize 2-year-old at Hamilton. He is a double grandson of Cash Boy, and is of the Albert-Pansy-McLellan combination.
OAKLAND'S FAITH Imp. "CHAMPION COW OF CANADA," Sweepstakes "COW of any age," Toronto. Same at Hamilton. Sweepstakes Silver Medal "COW of any age," Kingston. First prize cow with calf at Toronto. Special-prize cow with twin heifer calves, Toronto. Record, 3586 lbs. milk in May, June and July, 1882; daily average in June, 42 lbs.; 15 lbs. 2 oz. butter in 7 days.
OAKLAND'S NORA 14880 First yearling heifer, at Toronto, Kingston and Hamilton. The herd also embraces the following: **BERTHA MORGAN 4770** (not exhibited), 19 lbs. 8 oz., dam 18 lbs., 2nd dam 18 lbs., sister 16 lbs., daughter (Lydia Darrach) 16 lbs., in 7 days. **Bella of Glencairn 10222**, dam Patterson's beauty (dam of Bertha Morgan), record 18 lbs., sire Fortunatus 1152 (sire of Rosebud of Allerton, 17 lbs.); granddaughter of Moxul 532. Bella gave 16 quarts with first calf.
Violet of Glencairn 10291, sire Fortunatus 1152, dam Mollie Brown 7831 (full sister of Bertha Morgan), record at rate of 16 lbs. in 7 days. **Nancy of St. Lambert's 12964**, record 12 lbs. 13 oz. with first calf. **Victory 16379**, twice 3d at Royal Agricultural Show, Jersey; in Gold Medal Herd at Kingston; record 15 lbs. 2 oz. in 7 days. **Granddaughters of COOMASSIE** through her sons **GUY FAWKES** and **KHEDIVE**. **Daughters of FARMER'S GLORY**, **SIGNAL 278**, F. S., **HERO 90**, F. S., **Victor 148**, F. S., **Imbred Riders** and others, tracing to **Pilot (3)**, **Niobe (99)**, **Colonel-Europa 121**, **Major (75)**, **Sea Bull (398)**, **Lopez (313)**, **Flora**, **Earl**, **Monarch**, etc., etc.
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