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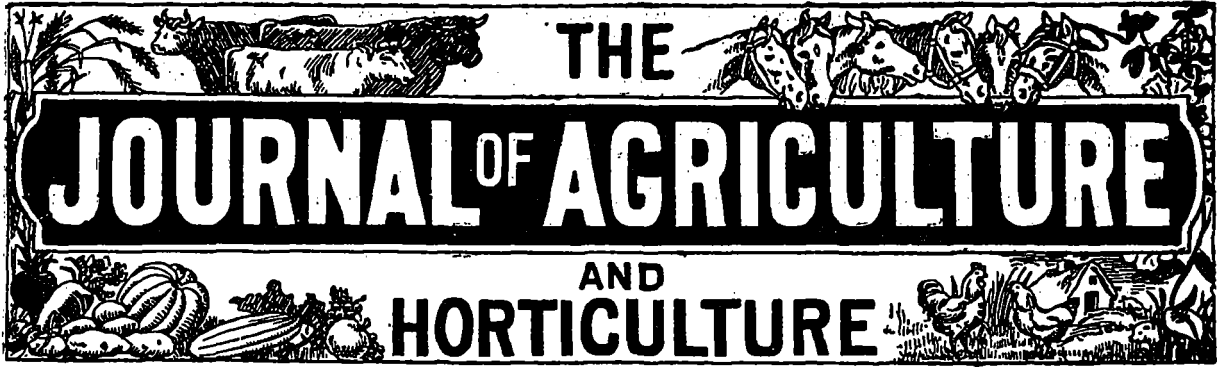
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THE JOURNAL OF AGRICULTURE AND HORTICULTURE

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THE
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The Farm.

NOTES BY THE WAY.

From the present date till the end of September, the editor's address will be: Ste-Anne de Bellevue, Jacques Cartier.

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The root-crop.—Says that very sensibly written agricultural paper the *Toronto Farming*: "A root-crop, well-looked after, is one of the most profitable that can be grown on a Canadian farm. Our long cold winters make it necessary to provide abundance of food for stock-feeding. In this, roots such as turnips, mangels, sugar-beets, etc., play a most important part, and our most successful stock-feeders are those who make roots an important part of each day's ration."

Just so; and if roots are so obviously necessary on a Canadian farm for stock-feeding, surely it would be wiser to give our clover, either as hay or as silage, to our stock, than to plough it into the ground as green-manure.

And this is what we were so glad to see advocated by Prof. Shutt, in his article on "The maintenance of soil fertility through the growth of legumes," in the *JOURNAL* for May 1st. "It might be urged that the burying of such a large amount of rich food-material as is contained in a crop of clover is wasteful and bad farming. This, in a certain measure, is true, if the farmer has the stock to consume it; for by feeding it there is the opportunity of converting a part into high-priced animal products, and returning to the soil by far

the larger portion (practically 75%) of the fertilising elements of the crop in the waste product of animal economy. On too many farms, however, there is not sufficient stock for this purpose."

Is it not quite clear, from this lucid exposition, that where land is properly farmed, that is, when an equal balance is observed between acreage of fodder-crop and the number of stock kept on the farm, clover should be consumed by the stock as the best and most profitable mode of treating it?

Where there is not sufficient stock kept to consume the clover-crop, by all means plough it in, for the only alternative we can see is to sell it, and that is doubtless one of the chief reasons why so much of our land in this province is exhausted, for the farming has in many districts, for years, consisted in growing grain or hay year after year, and selling everything grown on the farm off the farm.

If general purpose cows are so very unfit for practical farmers' use, would the Editor of *Hoard's Dairyman* be surprised to hear that nine dairy-farmers out of ten, in England, keep them? Surely they are not all fools! Our own family tenants, in the valley of the Severn, all of whom live by making cheese, pay two pounds an acre for their land in rent; the tithe and rates amount to another pound; \$15.00 an acre in all; not one of them but has stood the recent hard times bravely; and yet every man of them keeps Dairy-Shorthorns!

Mutton.—Our beloved sheep have risen wonderfully into favour in the States; but it will be a long time before the general run of people in that country learn to distinguish between the finer and the lower qualities of mutton, that is, how very much better the flavour of a down-wether is to the flavour of an old Leicester ewe. In England, where the distinction is well understood, the difference in price is always great, this difference is still more remarkable when, as to-day, mutton of all kinds is very high. For instance, 8 stone (64 lbs.) Down wethers are selling at 6s. 8d. a stone; that is a sheep of that class and of that weight when slaughtered, is worth \$12.80, whereas, a 10 stone (80 lbs.) ewe is to be had for just the same money, though it weighs 16 lbs. more than the former! Wool seems to have nothing to do with them arvellously high prices that the sheep sell

for now; for the last report received in London reads thus:

"Wool.—Trade keeps very dull, and almost imperceptibly prices give way. Holders do the best they can to support the market, but with little success, and some descriptions of English wool are quoted at about the lowest of last year. The coming sales of Colonial wool are anticipated with considerable interest, as a strong opinion is expressed that the market will hardly be in a condition to absorb the supply at current prices, and as another clip of English wool is shortly due, home growths are thus doubly affected. Spinners receive very low offers for fresh business, and unless wool can be purchased on easier terms cannot afford to deal. Downs, 8d. to 12d.; half-breds, 7d. to 7½d.; Kents, 6d. to 7d.; though, even now, the wool of the Down teg (hog or hogget) is considerably higher in price than the wool of the Kent or other long and medium wools." If farmers here want to benefit by the high prices now going in England, they must learn, as in the case of cheese, to suit the goods to the market. The sheep wanted there is a Down wether weighing anywhere between 60 and 72 lbs.; ripe fat, but not over-fat. The old ewe had better be kept for home consumption.

Prices of fat sheep.—It is necessary to go back some years to find the top price of sheep in the Metropolitan Market as high as it is at present. Last Monday, it was 6s. 6d. per stone of 8 lb., dead weight, sinking the offal, and, according to the latest complete Agricultural Returns, the average top price has not been over 6s. since 1890, when it was 6s. 3d. In that year, we find, the price touched 7s. 2d. in the spring for sheep in the wool, but fell to 6s. after the clipping season, only occasionally rising from 1d. to 4d. higher in the rest of the year. We notice, however, that the price touched 6s. 6d. for a little time in the spring of 1895. The highest average annual top prices were those of 1884 and 1883, namely, 7s. 3d. and 7s. 2d. From 1871 to 1890 inclusive sheep were at their dearest for any lengthened period, the average top price being below 6s. in only four years out of twenty.—*Ag. Gazette.*

Kale.—We do not often see kale grown as sheep-keep in this country. It is very much approved of in England, and is cultivated in about the same way as rape, except that it is always sown in

drills, and horse-hoed. The grand point in its favour is that it requires no hand-hoeing, which in England, as it is here, is not so easy to get as it used to be. Mangels and swedes must of necessity be singled by hand, but rape and kale need it not. If kale is sown pretty thin in the rows, and cross-harrowed once or twice, it will do pretty well, and there is no doubt about sheep doing well on it. Of course, the horse-hoe must be kept going between the rows as long as the leaves are not injured by the horse. Unfortunately, too many farmers turn out their horses as soon as the spring-seeding is over, and only get them to work again when the haying is ready. Read what Principal Wrightson says on this subject :

USE THE HORSES.

The horses should be made more use of. It is no use calculating as to the comparative cost of horse and hand labour, because the horse is there and must be maintained. He is a fixed expense, but the money for extra labourers has all to be found. If horses can be made to hoe our root-crops, cut our grass and corn, turn our swathes, work our elevators, tie up our sheaves, etc., we shall find a substantial saving in our money payments. Light implements which cover more ground, such as two-furrow ploughs, two-horse drills, one-horse harrows, wider drills and broadcasters, would all help to free teams for cutting grass and self binding corn. It is chiefly on large farms where these economies can be best practised, and by introducing them the large farmer ought to compete successfully with the small men who, by some imperfectly-understood system, manage to bring up families on wonderfully small holdings.

JOHN WRIGHTSON.

Calves.—Here is a, to us, quite novel food for calves, cod-liver-oil! Every one has heard of its utility as a medicine for consumptive patients, but, it seems, from the subjoined extract from Prof. Somerville's report, that it answers well as a substitute for the fat taken from the milk given to calves :

CALF-REARING AND WINTER DAIRYING.

Professor Somerville, in his newly published report on experiments with crops and stock in 1899 in the counties of Cumberland, Durham, and Northumberland, makes the following remarks on calf rearing and winter dairying :

In all, during the four years (nearly) that the

farm (Cockle Park) has been under the county councils, sixty-eight calves have been born and reared without loss. The first year boiled linseed with a little flour was used to supply fat to the separated milk on which the calves were fed ; the second year experiments were tried with new milk, separated milk, and separated milk with either boiled linseed or cod-liver oil ; the third year boiled linseed was used with some calves and cod-liver oil with others, with apparently similar results ; this year cod-liver oil only, at the rate of three table-spoonfuls to the gallon of separated milk, has been used with excellent results, the calves looking as well as those of previous years. The total cost of cod-liver oil to each calf is 1s. 5d. They get new milk for the first two weeks, half new and half separated milk for the next two weeks, after which time new milk is discontinued. They are kept dry by means of moss litter, get plenty of air and light, and are kept separate from each other for at least two months.

During the present winter no fresh rations have been under trial, but those used in previous winters have been again in use for verification, with the results, as before, that the following two come out best :

I.

- 42 lb. swedes.
- 14 " oat straw.
- 6 " hay.
- 4 " crushed oats.
- 4½ " decorticated cotton cake.

II.

- 42 lb. swedes.
- 11 " oat straw.
- 6 " hay.
- 4 " Indian meal.
- 4½ " decorticated cotton cake.

Cattle feeding experiments.—Some experiments on the feeding of cattle have been conducted for the East Lothian County Council. Forty bullocks were divided as equally as possible into four lots, in order to compare the relative merits of linseed cake and decorticated cotton cake, and those also of a heavy allowance of swedes against a light allowance with maize meal. Lots 1 and 2 each had 840 lb. of swedes daily among the ten beasts at starting, while the former had also 50 lb. of linseed cake, and the latter 50 lb. of cotton cake.

These foods were increased 16 per cent. later in the trial, to finish the fattening of the animals. Lots 3 and 4 had only 560 lb. of swedes each among ten animals, but received 30 lb. of maize meal to make up for the decrease in the supply of roots; and lot 3 had also 50 lb. of linseed cake, while lot 4 had the same quantity of cotton cake. The quantities of food were increased after a few weeks, as in the cases of lots 1 and 2. If the competing lots had received equal allowances of hay and straw, the trial would have been an excellent one; but they were allowed to eat all they pleased, and the report given in an address by the conductor of the trial does not state that any account was taken of how much of these foods each lot of cattle consumed. In fourteen weeks the ten beasts fed on the heavy allowance of swedes and 50 lb. of decorticated cotton cake showed a live weight increase of 19 cwt. 3 qr. 21 lb., as compared with 17 cwt. 2 qr. 3 lb. gained by those which had an equal quantity of swedes with linseed cake. As the cotton cake cost less than the linseed cake, its superiority was even greater in money's worth than in meat production. Valuing the swedes at 10s. a ton, and the cake at cost price, the cotton-cake lot showed a profit of £15 4s. 4d., and the other lot one of £6 8s. 7d. Lot 3 made a live weight gain of 18 cwt. 2 qr. 18 lb., and a profit of £8 5s. 6d., so that maize meal with linseed cake did better than extra swedes and the same cake. Lot 4 made a gain of 17 cwt. 1 qr. 5 lb., and a profit of £10 13s. 4d., thus showing that linseed cake did better than cotton cake with maize meal in each case in meat production, but gave less profit. In both comparisons, cotton cake proved the more profitable feeding stuff, unless the animals fed on it consumed a great deal more hay and straw than those fed on linseed cake—a point upon which no information has yet been given. As the manure made from the cotton cake is more valuable than that produced from linseed cake, it is not at all likely than the comparison in favour of the former feeding stuff would be upset by taking hay and straw into account.

SETTING TOMATOES IN FIELD.

A. A. HALLADAY, VERMONT.

When possible, run the rows of tomatoes east and west. This will expose every plant to the

sun. The tomato requires all the sun it can get. Tall growing plants, like corn or pole beans, should never be planted on the south or east of the tomato patch.

If for a field crop, mark off the land 4 x 4 or 5 x 5 ft with a common field marker, and with a small plow open a furrow about 4 or 5 in deep. If the land is very mellow, as it should be, I prefer opening the hills with a hoe. This leaves the land smooth and in better condition for the weeder, which should be used as soon as the plants are set. I find it pays well to take considerable pains to make the rows straight, and of equal distances apart. In a large field it is also well to skip say one row in 10, which will allow of driving through the field with the team in gathering the crop.

Water the plants the night before, or at least an hour or more before taking them up. As early in the morning as possible, dig them, using a strong garden hand fork. I very much prefer the fork to a trowel, as it does not destroy any of the roots. Leave as much of the soil on the roots as possible, and place the plants in a shallow box. I use as large a box as I can get on a wheelbarrow, and about 6 in high. These are easily wheeled about the field, a boy taking out and distributing plants and a man on each side of the wheelbarrow to follow and set. Be careful to firm the earth well about the plants, putting fresh dirt next the roots and finishing off by brushing a light covering of dry dirt on top as a mulch. I consider this latter very important. If the field is far from the hotbeds, the plants can be taken up in the boxes and then taken to the field on a drag, or a low-down wagon, which, by the way, is a very handy arrangement for many purposes.

It has been my experience that it is best to set the plants a little deeper than they stood in the hotbeds, unless the plants are "long-legged," in which case I would not put the roots any deeper than the others, but would lean the plant over so as to cover a part of the stalk with dirt. I have found that "drawn" plants will do very well when treated in this manner. The roots start out all along the stalk, and if these long plants have been well hardened off they will be found nearly as satisfactory as the more stocky ones.



THE BEET SUGAR INDUSTRY.

PEAS AND OATS AND VETCHES.

Considerable discussion has taken place both at Ottawa and Toronto about beet sugar. An agitation is being started to interest Canadian farmers in growing beets, and, of course, to enable the promoters to start this industry, a bonus of one cent a pound is asked for a number of years. This is a revival of what took place nearly twenty years ago. In the early eighties there was a craze started for growing sugar beets and making sugar. Grants were made by the government, bonuses paid the growers, and expensive buildings erected for refining the product. The eastern townships figured prominently in this. But the industry started at so much expense, was short lived and the expensive equipments were soon sold. Of recent years there has been a great revival of sugar beet growing in the U. S. and it is spreading to Canada. The Farmer hopes the Canadian government will keep its head and go slow in this matter. The beet sugar industry has apparently flourished only where the bonus system exists and we see no reason why Canada should bonus this industry.

At Toronto, Hon. John Dryden, introduced a measure to provide for supplying farmers with seed, instructing them how to prepare the land, produce the beets, and for analyzing them. Surely this is not necessary. It has been clearly demonstrated time and again that many parts of Canada can grow the beets successfully and that the beets so grown have a high sugar content. The secret of the failure of the sugar beet industry in Canada has been, and will be again if attempted, not that we cannot grow the beets, but that the farmers who grow the beets cannot get enough money per acre for their product to pay them. This is the true reason for failure. The returns figure nicely on paper, but farmers find the actual returns, after severe dockage at the refineries, so small that there is no profit left. They can obtain better returns from other crops. When we have a class of people who are accustomed to working for lower wages than generally obtains in Canada, and to living much cheaper than our farmers do, then sugar beets may be grown at a profit. But under no consideration should a bonus be given for the production of beet sugar.—*N. W. Farmer.*



Ed. Hoard's Dairyman:—For a ten cow dairy one acre of peas, oats and vetches sown moderately early will be right. Ground that has been fall plowed will be found best. If not surface manured during winter, it should be applied before the crop is sown. It is not necessary that a heavy coat of manure be applied. This manure may be worked into the soil with a disc harrow.

For seed, use one bushel each of field peas, oats and vetches. The variety of vetch best suited for spring sowing is the common English spring vetch, and not the winter, a sand vetch, so largely advertised this spring.

The difference in the price of the two varieties is worth considering. The sand vetch retails for about \$4.00 per bushels, while the common English vetch may be procured from Montreal seedsmen for \$1.25. Nevertheless a trial at Guelph of those two varieties of vetch show the sand vetch to do somewhat better for a spring crop. I, however, do not advise sowing the sand vetch in spring, preferring to sow it in early autumn, with rye.

The peas, oats and vetches can be sown broadcast; the peas and vetch mixed and the oats sown separate and all buried with one passing of the disc followed by a good Scotch tooth harrow and rolled firmly. Along in June another acre, or at least a half acre, of nice land should be planted to fodder corn. The best varieties for the Maritime Provinces are Lonfellow and Pierce's Prolific. With ten cows giving milk, all the corn of an acre will be used to advantage before severe frost.

About June 20 another one should be prepared by frequent cultivation during that month and sown to barley and peas at the rate of 2 bushels barley and 1½ bushels peas. This makes the best soiling crop for late sowing. This crop is a strong competition with rape as a late summer soiling crop for hogs and sheep; is grown with less labor and approaches very closely to rape in bulk and polatability. There is a great deal of labor connected with the growing of rape. The land must needs be very rich and made very mellow and the labor of repressing the weeds is not little.

As substitute for the rape crop, I know nothing so excellent as barley and peas sown in June and at any time when rape is usually sown. The ten cow dairyman fortified with an acre of peas, oats,

vetches, a half acre of corn and an acre of barley and peas, may rest assured of a good milk supply throughout the season, other things being equal. Should the cows not be able to use all these crops, the balance may be given to hogs or cured into hay. Seeds are very cheap this spring in the Maritime Provinces.

J. A. M.

THE CORN CROP.

There is no crop grown on a Canadian farm to-day that will pay better than corn. Its value is not in the direct cash returns it will bring, but in its great importance as a fodder crop and for supplying good succulent feed for stock during the winter season. In the older parts of Canada to-day the crop that will yield a large quantity of good feed for stock is of as much, if not of more importance, than the one yielding a direct cash as wheat. In fact, some of our most successful farmers to-day are those who give the crop for fodder purposes the first place in their crop rotations. Where too much attention is given to growing crops that will realize a direct cash return when the harvest is over, a deterioration in soil fertility is sure to follow.

Canada is not the natural home of the corn plant and consequently extra pains should be taken in selecting and preparing the soil for the crop. A high and dry soil will suit better than a low, damp one. In preparing land for corn it should be with a view to keeping it warm during the growing season. The kind of soil best adapted for this purpose is a well-rotted clover sod, thoroughly cultivated and prepared the previous fall. If manure has been applied during the winter or spring the best plan is to gangplow it in only three or four inches deep so as to incorporate the manure with the surface of the soil. The ground should be thoroughly harrowed and cultivated before planting and made in as fine tilth as possible. The clay subsoil should be loosened as deeply as possible and made fine on top.

The work of planting is not a very difficult task if the ground is in proper shape. The plan generally followed is to mark the ground two ways and plant at the points where the two markings intersect each other. This leaves the corn growing in rows intersecting each other and enables a field to be cultivated both ways, making the hoeing of the crop unnecessary if the land is pretty clean of weeds to begin with. By this

plan a couple of men with hoes can plant and cover three or four acres of corn quite easily in a day. As to the time for planting, on or about May 24th will be a suitable time for most of Ontario. In parts farther north a later date might be advisable in order to escape early frosts.

The success of the corn crop depends in a large measure upon the variety sown and whether it is adapted to the climate and conditions prevailing in each locality. It is largely a waste of labor to plant a variety which will not mature during the season. It is better to plant a smaller and early variety that will fully mature than a variety that will not mature, though giving a large yield of bulky, watery stalks. The value of the plant for ensilage or for feeding in other ways depends so largely upon the maturity reached in the fall that farmers cannot be too careful in selecting varieties for planting, that will ripen before the autumn frosts arrive. Mr. C. A. Zavitz, experimentalist, in the report of the Ontario Agricultural College, for 1899, just published, in regard to varieties of corn suited to various parts of the province, says:

"We have grown in all no less than two hundred and twenty-six varieties of corn in our experimental grounds within the past thirteen years. For general purposes, we have found (1) that the Mammoth Cuban and the Mastodon Dent are well adapted for the warmer soils of southern Ontario; (2) that the Wisconsin Earliest White Dent for southern and central Ontario, and (3) that the Sazer's North Dakota, Compton's Early and King Philip for central and northern Ontario."—*Farming*.

CULTIVATION OF POTATOES.

As soon as the field is planted, harrow. A light wooden harrow is best on a mellow, sandy soil. On a stiffish clay some heavier implement is better, and on such a soil I have used the roller to break down lumps and get a fine surface. In four or five days repeat the harrowing and make it thorough enough to kill all starting weeds. I harrow at least three times before many plants are up, and by so doing destroy the most of the weed seeds that are near enough the surface to germinate.

As soon as the drills can be traced by the young plants start the scuffer. If thistles are appearing I cut three inches deep and get over the field as quickly as possible, then turn round and go right

over it again the reverse way. This with the scuffler I use will cut every thistle off three inches below the surface and about finish them. If the sets have been planted at a proper depth the plants will in a week or ten days after they appear over the piece be six or eight inches high. After this scuffle not over one and a half or two inches deep and not oftener than is necessary.

If rains form a crust run through it lightly and break it up as long as there is room; but remember that the roots are interlocked in the centres of the drills and are as near the surface as there is any moisture in the soil.

Never "mould up" or "ridge up." These processes are all labor very much worse than wasted. It should be superfluous to say this now, but I see a deal of it still being done every day. The injury wrought by it is three-fold :

(1) The drilling up is generally done after the little, threadlike, feeding roots of the plants have occupied the whole field and are interwoven in almost every inch of the soil between the drills. When three or four inches of the soil is scooped out and thrown up against the plants, millions of these small feeding roots are brought to the surface and left to perish in the sun.

(2) A large percentage of the best soil in the field is thrown up into a ridge which inevitably and rapidly dries out and remains dry during the summer. So far as the crop then growing is concerned it might about as well have been removed out of the field.

(3) If the feeding roots of the plants had been broken and mutilated by running the scuffler too deeply, to the same extent as has been done in the drilling up process, nature, who always does what she can to remedy our blunders, would have proceeded to repair damages by pushing out a new supply of roots from the broken ends to re-occupy the soil. But the best of the soil has been thrown up to dry out at the base of the plants, and in doing this the mulch of loose earth has been scraped off the subsoil in the centres of the drills. The consequence is that it, too, loses rapidly its moisture by unchecked evaporation and dries and bakes to such an extent that whatever plant food it contains is not available for the crop.

I know that most of those who still practise "drilling up" will think I am greatly exaggerating the damage done to the roots by the process. These roots will not trip a man nor get entangled

around his field as he walks behind his plough or scuffler. Indeed as a rule he has never seen them, and has no idea that they extend into the centre of the spaces between the drills. If any doubter will put on his spectacles, get down on his knees, and make a careful examination, he will find that I have not overdrawn the picture.—(Address by P. Anderson, of Heyworth, Ont.)

NEGLECTED PEAT-MOSS LANDS.

Seeing some reference made in one of the daily papers to some peat-moss lands in the Province of Quebec, and hinting that they were going to be turned into some practical use, has induced me to point out some of the uses to which peat can be put.

Peat is best known to the million as a form of fuel which is nearly obsolete, except in parts of Ireland and the highland districts of Scotland. Even there it is now used, instead of coal, only in the lonely shepherds cottage, or in the more remote and outlying villages. Still, there is a great neglect of the possibilities of a product which nature has store most abundantly in certain districts, which are at present of no industrial importance, and where lands is of but little value. It is not impossible that, in the near future, these very districts may acquire a much enhanced value from the mere fact of their peaty products, which if properly manipulated, their intrinsic importance is far from insignificant.

Peat has many more other uses besides furnishing fuel. At the same time, it does not follow that even its value as fuel is to be nothing in the future.

Every now and then alarms are sounded that our coal fields are within measurable distance of exhaustion, but it is not necessary to raise an argument of this kind in support of the extended use of peat fuel.

For smelting iron, peat is just as good a fuel as coal, more especially where the deposit occurs in connection with limestone, or iron ore. If it will not pay to transport the peat to the works or factories, cannot some enterprising manufacturer be found to transport his factory to the peat field.

There is nothing extraordinary in such a notion. Iron smelting in olden times, was carried on by the aid of the forests, which supplied the fuel.

When these forests disappeared, this particular industry was transferred to the coal districts. What happened before may well be done again.

For other purposes than as fuel, however, peat is acquiring a commercial value, which some happy discovery in the arts, may one of these days give an unexpected importance to. There are certain kinds of peat, which can be converted into charcoal of a superior quality. Peat has also been successfully utilized in paper making. Peat fibre, when cleaned and disintegrated and mixed with hemp fibre, produces excellent blotting, filtering and wrapping papers. Fibrous peat has likewise been sent out in the shape of mill-board, papier-mâché, etc., at a cheap rate, and has been utilised with great success as a covering for steam boilers, and as a substitute for oakum for caulking ships' decks.

In addition to the many uses which have been found for peat fibre, it has given rise to a large trade in compressed peat-moss litter for stables. This trade has originated in Germany, and large quantities are still exported to England both from Germany and Holland; but during the last few years equally as good moss-litter has been made in Ireland, and marketed at a cheaper rate.

Even from a purely agricultural point of view it is not too much to suppose that peat will soon become valuable, and more generally utilised by farmers than is now the case. Crude peat-moss if ploughed in, may be used with a good effect as a dressing on sandy and on clay soils. It is of course, only in the immediate neighbourhoods of bogs that peat can be much used in the natural state, for, even when dried by exposure to the air, its bulk is too great to admit of its being carried to any great distance, unless at such expense as would render its application as manure unprofitable.

But with plenty of peat-moss at hand for composting with farmyard manure, and lime, farmers need spend very little on purchased manures.

The best way to form a peat and dung compost is to lay down a thick layer of dried and pulverised peat in the bottoms of the cattle sheds, and yards, adding occasional layers of the same during the winter as required. Dry peat is easily pulverised by passing it through a large-sized cake crusher.

In the form of ashes, peat becomes more widely available for manure, as the ashes are compara-

tively light and portable and can be carried long distances at small expense.

Many kinds of peat ashes contain abundant quantities of gypsum, by which they exercise a very favourable influence on clover and leguminous crops generally; but these ashes are found to be a quick rather than a lasting manure. In preparation of the ashes, the peat is "cast" or dug in the usual way; and after air-drying by the side of the pit (which may take two or three weeks, according to the weather), a fire is started with a small heap of the driest peat. When the fire is burning well, an additional quantity of peat is put on all round the heap, and this is repeated till the whole is consumed, the fire being kept up day and night—slow combustion at a low temperature being aimed at. The proportion of ash varies from 5 to 25 per cent, or more, averaging in the denser varieties of peat about 15 per cent. The ashes are poor in potash and soda, but abound in lime and free sand, and contain notable quantities of phosphoric acid, also sometimes sufficient pyrites to permit of the manufacture of green vitriol. To the present day, in parts of England, some of the old farmers, and some of the best farmers at that, never sow their root crops without drilling about twenty bushels of peat or wood ashes per acre along with the turnip or mangel seed — if they can get the ashes — in preference to artificial manures. A mixture of peat and wood ashes forms a manure which lacks nothing essential to plant growth except nitrogen, and if the ashes are made to produce a leguminous crop once every rotation, for which they are specially adapted, the leguminous crop will furnish all the nitrogen needed for growing the other crops, and so render the former independent of purchased nitrogenous manures.

If there are such deposits of peat-mosses in this Province, as I have only just heard of, their value for both commercial and agricultural purposes is very considerable. It is rather a curious reflection that, with such large possibilities awaiting development, these peat-moss lands, should be virtually lying idle.

W. R. GILBERT.



Household Matters.

(CONDUCTED BY MRS. JENNER FUST).

SEEING OURSELVES AS OTHERS SEE US.

If you wish to hear your true character, go among strangers to get it; for this is the only place where truth and no favour is shown.

The other day, a young friend of mine, who is at present at an English College, was listening to one of the professors in class-lecture, and in some way the subject of good and bad walking came up. After speaking of many parts of the world, and of the many peoples he had seen, he said: "The worst set of walkers I ever came across was in Canada."

He went on to say: "these people did not know how to walk; they only shuffled through the streets." I must confess in many cases this is only too true; and so the good man continued, little heeding or knowing that one pupil was listening with bated breath to hear if there was any more home-thrusts coming. In writing about it, she said she felt like saying: "You might add, we wear feathers in our hair and go about barefoot."

Now this same young person had been given many home lectures as to the bad habit she had of walking with head poked forward and it is to hoped truth coming from a stranger will have a more lasting effect. It is really sad to see on a fine day so many nice looking girls with hands hanging on either side or dangling with their gloves, always with the head poked forward seemingly in search of something on the ground.

It is quite a treat to see now and then one coming walking with head erect which indicates either that she has been taught how to walk, or that she is fond of sports, than which there is nothing better to develop the body and make it elastic. In a game mother-wit must always be on the alert to catch or throw as the case may be; no searching on the ground, but eyes must ever be on the watch and hands always ready for the unexpected; thus will the stooping habit soon be got rid of, as the chest gradually develops.

One or two years of good physical training would do these dear girls so much good, that they would scarcely know themselves, and would certainly free them from the odium of being called such bad walkers.

NEW MILLINERY.

It seems as if in the coming season our garments more or less are symbolical of the war, hence some of the smartest hats are copied in shape from those worn by the the New South Wales Lancers, which, as you are all doubtless aware, have the crown indented at the top, and turned up at one side with feathers. These hats, then, are of fine Dunstable straw, either white or khaki colour, trimmed with a Bandanna scarf, probably a Bandanna handkerchief, and plumed with the tail feathers of the Indian pheasant.

NEW BELTS AND BUCKLES.

As is usual when the cotton blouse appears again, there are the usual novelties in belts displayed, some of which will take the public eye, and others disappear. One, a belt of patent-leather, kid-lined, is cut in graduate width from one and-a-half inches wide in the centre of the back to one inch in front, where it closes with a nickel harness buckle. The silk belts are folded and graduated in width like this one; this is because the narrow fronts give the much-desired long-waisted appearance to the figure.

Another patent-leather belt has gilted hinges at the side which yield to the figure, and gilt harness buckle. A third belt is a simple fold of patent-leather one inch wide with a slide of the same, no buckle being visible. The belt looks very unobtrusive and refined. The small buckles and clasp which hold it are concealed underneath.

A one-inch belt of brown Suede, without buckle, is fastened by a narrow leather strap which is drawn back and forth between two rings in front. Hundreds of new clasps are in the shops. They are most of them, sparkling and showy, made in cut steel, in enamel, in French gilt, in rhinestone, and in white metal.

TO CLEAN A STRAW HAT.

White straw hats may be cleaned and renovated but a deal of course, depends upon the condition of the hat. First of all, off must come all the trimming, and should the hat be only slightly soiled, it may be made to look fresh and clean by brushing it well with a clean nail brush and warmed meal. This will remove a deal of the

dust. If, however, the hat has had a good deal of wear, is both soiled and sunburnt, it is likely to need washing and bleaching. The hat should be first well brushed and the wire removed from the brim. Then scrub it well with a nail brush, in a suds made of luke warm water and white soap. After this, it should be rinsed by dipping up and down in clear water. When there are any obstinate stains, which are not removed by the washing, they should be rubbed with lemon juice or diluted oxalic acid. This acid is very poisonous, so must be used with care. The hat is then dried in the open air. After this, it should be brushed over with the white of an egg, well beaten up, which will stiffen up the straw, and make it bright again. If the straw is very discoloured it will need bleaching, and must be put through a sulphur bath after the scrubbing. To do this, suspend it a tight barrel or box with a pan of burning sulphur in the bottom, cover lightly, and allow it to remain for one or two hours. It will be wise to put the bleaching box out of doors, so as to avoid the acrid fumes, which are poisonous.

CLEANING CARPETS AND REVIVING THEIR COLOURS.

Cut up a bar of soap and dissolve it over the fire in two gallons of water, put two quarts of this dissolved soap into a pail of warm water, take your scrubbing-brush, dip it into the soap liquor, and with it scour about one square yard of the carpet, swiftly but carefully, being of all things careful not to let the liquor soak through to the back. When this piece is cleaned rub the soap well out of it with a coarse flannel or sponge, sucking up all the wet and dirt made by the brush. Have a pail of warm water beside you, and in it frequently rinse out the flannel or sponge you are using to gather up the dirt the brush loosened, and have someone near to constantly empty the pail of water and refill it with fresh warm water. Having gone over the yard square as above, take a clean sponge and dip it in a pail of common sour, which you should have prepared and ready to hand. Squeeze the sponge out, and then rub the sour well into the portion of carpet just cleaned and rinsed. Rub as dry as possible with clean, coarse cotton or linen cloths before proceeding with the cleaning. The entire carpet is to be scoured, rinsed, cleaned, spirited,

and dried in the same way, working at a square yard at a time. The whole secret of successful carpet cleaning is to wash, rinse, and dry thoroughly without soaking them through. The common sour is prepared by stirring into clean water sufficient oil of vitrol to make it taste sharp on the tongue. You should get the vitrol not at the chemist's but at a drysalter's or an oilshop, the sort they sell being better for the purpose. Put the carpet on a large table, square by square, or on a clean flour. It of course must be first taken up and well beaten and swept to rid it of dust. The sour brightens up the colours.

A NOVEL PUDDING.

This is merely a rhubarb pudding in a new dress, but it makes a change from the boiled rhubarb pudding with which we are all familiar. Really, rhubarb is quite a blessing just now for the dearth of anything in the shape of fruit, makes the daily pudding somewhat of a problem; fortunately eggs are cheap and plentiful, but one gets tired of milk puddings when continued too long. Prepare rhubarb as for a pie; cut some thin slices of bread and butter: and with these line the bottom of a well buttered pie dish; over this place a layer of rhubarb cut in short pieces, sprinkle with sugar; over the rhubarb put another layer of thin bread and butter, then rhubarb repeat till the dish is full. Cover with a dish and let it steam till the rhubarb is soft, then uncover and bake till nicely browned.

SCRAMBLED EGGS.

Eggs are now so cheap and plentiful that more use can be made of them than in the winter-time. Many and varied are the different ways of cooking eggs besides boiling and frying them, and amongst them in the savoury "scrambled egg," which is such a favourite dish with gentlemen. Eggs are no more trouble to cook when scrambled than when fried or boiled, and if you have not tried them I would advise you to do so at once. Into a small saucepan put a lump of butter the size of a walnut, let it melt, but do not let it brown. Whilst the butter is melting, beat up two eggs lightly, just to break up the yolks into the whites, flavour with pepper and salt, stir the mixture till it begins to thicken, scrape from the bottom of the pan, so that burning is impossible. When of

egg has thickened, but not got too hard, pile on squares of hot buttered toast which have had a little anchovy paste or sauce spread on them. Dust lightly with pepper, and serve piping hot. The anchovy may be omitted if not liked.

RULES FOR BOILING VEGETABLES.

Choose fresh crisp vegetables for cooking; if flabby they are stale and will have lost flavour. Next cleanse them well by washing in several waters. Put all vegetables into boiling water, using a little soda with green vegetables, if not quite young. Use plenty of water, excepting in the case of spinach. Never put on the lid whilst cooking green vegetables. Cabbages and all kinds of green need cooking quickly. Green peas, asparagus, and canlifers need slower cooking, and last, but not least, be sure to skim your saucepan well.

CLEANING A SEWING MACHINE.

Procure a small screw-driver, a pointed stick the size of a lead pencil, a bent wire, a piece of cotton and some kerosene oil. Have a table near on which to lay the pieces as you remove them one by one, noting carefully where each bur and screw belongs. After taking off the movable parts, carefully clean the body of the machine. The kerosene removes hardened dust and oil. The pointed stick will do to reach the corners, the bent wire to draw the cloth through small places and around wheels. After cleaning, oil with best oil.

TO MAKE BIG SOAP-BUBBLES.

It is a great sport to make soap bubbles, but it is twice as much fun if the bubbles are big ones, strong enough not to break when they are floated to the floor. Bubbles twice as big as your head or as big as the biggest kind of a foot-ball can be easily blown by any one who knows how to mix up the soap-bubble material. To make these big bubbles, take a piece of white Castile soap about as big as a walnut. Cut up into a cup of warm water and then add a teaspoonful of glycerine. Stir well and blow from a small pipe.

This will make bubbles enough to last all the afternoon. And this is really all you care to make in one day. To make pink bubbles, add a few drops of strawberry juice, and to make yellow ones put in a little orange juice.

WHAT IS A ROUND ROBIN?

It has happened before, and will happen again that people sometimes suffer great injustice but do not care to complain of it directly for fear of dismissal from their situation, or of other unpleasant consequence of their action. They therefore adopt what is called a "round robin"—that is, they sign their names to their petition or letter in a circle, in which form it is impossible for anyone to detect the name that was first written.

The Dairy.

MANAGEMENT OF THE DAIRY HERD.

There can be no doubt that the dairyman who depends upon breeding and rearing calves for the maintenance of his herd and its improvement, the choice of a bull is of first importance. The bull is the head of the herd, and the saying: "The bull is half the herd:" should never be forgotten. Every calf added to the herd takes half its blood from the bull. Often this is the more important half. The bull is nearly always the main dependence for raising the average quality of the herd, and should ever be chosen with this object in view. This is especially true if the cows are grades and "grading up" is in progress. The grade dam may be selected and largely relied upon to give size, form, constitution, and capacity of production to her heifer calf; its dairy quality, the inbred power to increase the richness of milk, is derived from the pure-bred sire. One of the cows in a herd may prove a poor dam, or fail to breed, and still give a profit in milk. Such a loss is comparatively trivial and the fault easily corrected. But if the bull fails, or proves a poor sire, the entire increase of a year may be lost. When buying a bull, buy the best, or at least approach that standard as nearly as possible. Make a study of the animal's pedigree and the dairy history of his ancestors, and especially of the females among his nearest of kin. Some dairymen make the mistake of using immature bulls and disposing of good ones before their merit as sires has been fairly proved.

Bull calves are cheap, and young bulls are considered much easier to handle. But I should advise buying a bull of some age, whose progeny

prove his value as a breeder, rather than a calf of exceptional pedigree.

In rearing a bull, accustom it to being handled from calfhood, but, emphatically, without fondling or encouraging frolic. Give it kind, quiet, firm, and unvarying treatment, and keep it always under subjection, that it may never know its strength and power. Insert the nose-ring before it is a year old, keep this renewed so as to be always strong, and always lead and handle the animal with a staff in the hands of a discreet and trusty man. It is a shortsighted policy to allow the bull to run loose in the yard or pasture, yet he must be provided with abundant and regular exercise, always under restraint and full control. The best plan is to provide a suitable tread power with a governor attached, place the bull in this daily, and let him walk a fixed time or known distance. Incidentally, he may be made to run a fodder-cutter or creams-eparator and perform valuable service. As age and strength increase, let the staff be supplemented by strap, chain, or rope attached to a second ring. Let there be always a double hitching device, so that the bull may never by accident find himself loose when he should be tied.

It is much better to keep the bull as much as possible in the presence or in full sight of the herd than stabled by himself in a lonely place. Let him be in the same room with the cows during the stabling season, and at milking times the rest of the year.

As soon as the herd is established and in working order, the study of every individual animal should begin. To guide rational treatment and insure the greatest profit, the owner must become familiar with the characteristics of every cow. Peculiarities of temperament, susceptibility to surroundings and varied conditions, and especially the dairy capacity of the animal, should be matters of observation, deliberation and record, not merely of conjecture and memory. The record of the herd is a matter of utmost importance. The system of record should conform to the circumstances of the case and extent of the business. It is, of course, desirable to reduce the labour of book-keeping to a minimum, and yet secure accuracy and sufficiency of record. This record should include a concise history and description of every member of the herd, with a summary of the dairy performance. The latter requires a daily record of the milk yield of every cow, with

notes explaining irregularities or occurrences of interest. If the quality of the milk is of any importance, as it is in most cases, and ought to be, however the milk is disposed of, a fat test should be made of the milk of every cow, for several consecutive milking, as often as practicable. The Babcock tester is the simplest and is now within the reach of every dairyman. According to the size of the apparatus, a certain number of milk samples can be tested at one time, and thus the record of a large herd can be completed in a few days.

It is a good idea to make this test and record of the quality of every cow's milk at least once a month. The most satisfactory practical record in the average percentage of fat found in the milk of each milking throughout the month, samples from which may be mixed and kept in bottles, one for each cow, and this "composite sample" tested, thus obtaining the average; this method is easily learned and practised. This record of quality, taken periodically, joined with a summary of the daily quantity of milk, gives a full dairy record of the cow, upon which her value can be readily computed. To give the owner a more complete knowledge of his operations, there should also be a record, of at least approximate accuracy, of the food of every cow, with monthly summaries of quantities or value, so that the economy of production may be shown. Such records are far more easily made than this description may indicate, and they are well worth all they cost. They form the only accurate and safe basis for judging of the individual merits of the different animals. The improvement of every herd, which should be the constant aim of its owner, depends upon periodical culling and getting rid of unworthy members. No one can afford to do this upon guesswork alone.

Good judges believe that in the entire country one-third of the cows kept for their milk do not pay for their cost of keeping, and nearly a third more fail to yield annual profit. As a matter of ordinary business prudence, and a condition essential to best results, every dairyman should study the individuality of his cows, keep a sufficient record of quantity and quality of milk product, know approximately the cost of production, and systematically weed out his herd. After proper consideration and practical tests as to possibilities, set a standard for a satisfactory cow and maintain this standard by promptly disposing

of the animals which fail to attain it, unless reasonable excuse appears, with the prospect of better conduct in future, and gradually but persistently raise the standard.

H. WESTON PARRY.

(To be continued)

CHEDDAR CHEESE.

(Continued)

The Influence of Season.—This, in 1898, was exceptionally dry and warm, and was probably the main cause of a rapid decline in the milk yield as shown in the Table on p. 85. Whereas the average yield per head per day was almost the same during the month of June in 1897 and 1898, and by October 1897, had only fallen to 1.68 gallons, yet in 1898 it fell by October to 1.23 gallons per head per day. The yield of milk in October, 1897, was thus 33 per cent, more than in October 1898, from exactly the same number of cows, viz., 47, and from the same pastures.

The yield of curd per gallon of milk up to June was similar to that given in 1897, and small considering that the cows were not all calved down in the spring. After June it improved, and though this improvement was marked, so far as the results of 1898 are compared with those of 1897, the results still compare unfavourably with those obtained in former years. At no former Cheese School, except at Butleigh and Axbridge, has the yield of curd taken from press been less than 1 lb. to the gallon. This in 1898 is the more remarkable, inasmuch as we have already seen that the yield of milk was considerably smaller than in 1893, and, as a rule, a diminished yield is accompanied by an increase in the quality. It is even still more remarkable, considering the steps—to be referred to later on—which were taken to improve the quality of the milk. Probably the very dry season and shortness of keep had some effect in keeping low the proportion of solids other than fat, including the casein, as already drawn attention to.

Composition of Milk of Individual Cows.—In 1897, the milk was exceptionally deficient in casein, and one of the first objects of these experiments in 1898 was to try and discover the cause. There were two probable causes. Either it was peculiar to the cattle, or it was the result of some peculiarity in the food. If due to the cattle it would

probably be much more marked in some than in others, but if due to the herbage or food it would be common to all. Hence, it was decided to completely analyse the milk of every cow in the dairy.

This was a tedious process, for only a few such analyses can be carried out at a time, and as the herd was not originally kept for cheese-making, but for the sale of milk, some cows were being continually drafted out of the herd, and fresh ones introduced.

The work proceeded gradually, and it became evident that the deficiency of casein in the milk was not general, but was peculiar to certain cows. This made it necessary that the milk of every cow, except those soon to be withdrawn from the herd, as being near the end of their milking time, should be fully analysed. The milk of fifty-three cows was examined, and the results of these analyses are given in the following table. Among these cows four were found to give milk of most exceptionally bad quality. These four were tested again and again to make quite sure that no mistake had been made in the analyses. The average results of these tests are given in the following table, as also the average composition of the milk of the remainder of the herd:—

	Solids.	Fat.	Casein
Of four abnormal Cows . . .	10 21	2·52	1·87
Of remainder of Herd	12·95	3 25	2·53

Cattle Yielding abnormal Milk.—In the table showing the composition of the milk of individual cows there will be found four animals, Cherry, Ayshire Horns, No. 8, and Eighteen, who gave milk of such poor quality that it may be called abnormal. It will be seen that others were also peculiar. Thus, assuming 2·4 per cent of casein to be a fair minimum amount for milk during the month of April, and 2·5 for milk during the month of May, we find that eight cows tested in the former months, and six in the latter, fell below these standards. The first two were discovered on the 18th April, and the milk was again tested on the 21st and 22nd, to make sure that there had been no mistake in the analyses.

	Solids.	Fat.	Casein
June 7. Mixed Milk of all Cows.....	12.16	3.31	2.49
June 8. Abnormal Milk...	10.84	2.86	2.00
June 8. Remainder of the Milk	12.44	3.33	2.57

The effect of keeping the abnormal milk out of the cheese-tub was marked. Miss Cannon reported—"the curd came much firmer and nicer; it was shotty and of a good texture throughout. The curd here has never before been so good." Great difficulty was found in making a cheese from the abnormal milk alone. In the first place, the rennet seemed to have no action upon the milk. It was more than two hours after renneting before the curd set, though with the remainder of the milk, the same proportion of rennet had not only set the curd, but this was fit to cut forty-five minutes after renneting. The curd remained soft, and much fat was lost in the whey. The acidity developed very slowly at first, but, when it had started, went rapidly, which had been a characteristic peculiarity of the cheese making at Long Ashton. The yield was exceptionally small, being only 6 lbs. of curd from 9 gallons of milk.

(To be continued).

GUERNSEY CATTLE.

Will you please give through your paper the origin of the Guernsey cattle; also their value as a dairy cow compared with the Jersey, and would you advise the cross of the two for dairy purpose?

Gillsville, Ga.

J. M. G.

The origin of Guernsey cattle is involved in impenetrable obscurity. From a time "whereof the memory of man runneth not to the contrary" this particular breed of cattle has been bred and reared upon the island of Guernsey, one of the group of small islands in the channel off the coast of France, but belonging to England. They are kept unmixed with other breeds by regulations which prohibit the importation of any cattle into

the island except for immediate slaughter. Climate and a somewhat similar treatment for these hundreds of years have tended to develop in the cattle on the island of Guernsey very similar traits to those on the island of Jersey. The cows are especially noted for giving a very rich, highly colored milk in comparatively limited amounts. Guernsey milk is naturally of deeper color than Jersey milk, and this is, perhaps, the most striking difference between the two breeds.

Some very excellent cows have resulted from crossing these two breeds, but not better than those produced without crossing. On general principles we never advocate crossing breeds. However, if we had a herd of Jersey grade cows, and it was decidedly more convenient for us to procure a Guernsey bull of pronounced dairy form and ancestry, than to obtain a Jersey bull of similar qualities, we should not hesitate to prefer and use the former, and *vice versa*.—*Hoard*.

The English butter trade with Canada has increased 1,000 per cent in six years. The Canadians, high and low, frown down on all adulterations, frauds and counterfeits in dairy food. The people of the United States pursue a different course. The Canadians hold and increase their foreign demand because of their policy. We lose ours because of our willingness to condone and wink at any scheme whereby a man can make money, even if it is a fraud.

Hoard.

ALFALFA IN WESTERN NEW YORK.

Ed. Hoard's Dairyman:—For the benefit of the *Dairyman* readers I would say, that our experimental plat of alfalfa has come through in excellent condition, and promises to be a full grown crop by the last of this month. Now if this crop can be successfully grown in the lake states, the half of its benefits will hardly seem to have been told. As the season is somewhat backward, we would advise trying a plat as late as this. We have been waiting to see how our plat would stand the winter season, and am now thoroughly convinced that we must have a field as soon as possible, and as Prof. Voorhees has well said, a protein yield to the value of \$126.00

is possible in this great crop. Preferably, take land where a clean hoed crop was grown last season, manure with well rotted manure, and harrow in 30 pounds of seed to the acre. When weeds and alfalfa are about six inches high, run the mower over at minimum height, and repeat in a month.

C. H. WHITCOMB.

Niagara Co., N. Y.

PASTEURIZING CREAM FOR BUTTER MAKING.

Butter making is again coming into great prominence as an industry in the dairy sections of New York. Improved methods and increased cleanliness in milk handling, cream ripening, and churning are making the product of some of our creameries of high quality and great uniformity; but we still fail to reach the standard set by Denmark. Occasional butter faults will crop out even in high grade butter factories and the product of the State as a whole is far from uniform.

One reason for this difference between New York and Denmark lies in the fact that the Danes make great use of the pasteurizer in their butter making; New York, very little use.

This is perhaps due to the fact that early trials of the continuous pasteurizing machine in America were not favorable to its use.

Experiments made at Geneva in 1899, however, seem to indicate that the fault did not lie in the machines, but in the low temperature used in manipulating them; for at Geneva, using temperatures of 176° F. and 185° F, the germ-destroying power of the machine was most excellent. The numbers of bacteria present were reduced from hundreds of thousands or even millions to two or three hundreds at most, usually to much smaller numbers.

Butter made from milk heated momentarily to these high temperatures had very little cooked flavor; and if handled rightly, none at all.

Further experiments in making butter from pasteurized milk are to be made. Any-one interested in this preliminary work as discussed in Bulletin No. 172 may obtain the bulletin by sending name and address to the New York Experiment Station at Geneva.—*Hoard.*

POINTS OF A GOOD DAIRY COW.

At the last national creamerymen's convention, Prof. T. L. Haecker of Minn explained the principles involved in the selection of the dairy cow by the use of living models. He did not care whether the udder went well back or not, or well forward or not, or whether it was large or small. He looks first at the body or barrel, to see if that is large and deep, as this is the measure of the cow's ability to digest and assimilate food. Next he looks at the thigh to see what disposition she makes of the food beyond the amount necessary for support. The more the rear line of the thigh curves in, the cheaper will the cow produce each pound of butter. If she has a large barrel, he knows there is a communication from the throat to the barrel, that the food will go there and something will be done with the food nutrients. If the cow is fleshy and blocky, she puts these nutrients away as tallow in her tissues. If she is spare, angular, ewe-necked and cat hammed, he knows she turns the nutrients into milk solids.

If the udder is large, she puts large quantities of water in it with the fat and other solids. If the udder is small, she puts the fats and other solids in the udder, because there is no other place to put them, and puts less water in the milk. This is a startling assertion, but Prof Haecker asserted that for six years every pound of food given to each cow has been weighed and every pound of milk and butter fat produced from the food has been weighed and recorded, and the facts, without a single exception, are as stated. Prominent milk veins, dished face, yellow ears inside, slim tail, full, square udder, etc, he declares are points of no value. The only thing to know is that the cow has a spare, deep frame and small, thin quarters.

NEW YORK FARM AND DAIRY NOTES.

ED. *Hoard's Dairyman*:—The last week in April was very favorable for farm work. Many farmers have sown oats, and prepared ground for other crops. When conversing with a farmer, I asked him if he was preparing to grow any soiling crops for feeding late in the summer and fall, when the pastures are short. He replied that he would grow fodder corn to feed at that time. I tried to show him how that corn furnished mostly starch,

or the carbohydrates, and that he needed some protein crop to feed with it. Doubtless, when the cows are still on the pastures, where they can get some grass, the cows will do fairly well if fed what corn stalks they will eat, but I think it a better way to sow oats and peas early in the spring, and sow at different times, so they can be fed before the corn is ready, and also fed with the corn. I think a very good way is to give the cows one feed of oats and peas, and one of corn stalks each day, or, perhaps, a still better way would be to put up sufficient ensilage in the fall to feed the cows the following fall, beginning to feed it when the pastures fail, and feed it with the oats and peas. I think it pays to sow oats and peas as soon as the ground can be worked in the spring, and continue sowing every few days until June. With a good supply of these crops, there is no time that the dairy can make more money than during the fall months. Prices are higher at that time, and with the soiling crops mentioned, the outlay for grain will be small.

The dairyman who would take advantage of the man profitable time for selling his products, must plan for it now and grow the food he will need. Make the soil fairly rich for the oats and peas, and I prefer stable manure when I have it, perhaps supplementing it with commercial fertilizers, if the supply is short. Also, I advise trying a small piece of alfalfa, sowing according to the direction recently given in the DAIRYMAN. If you succeed with it, it will be one of the cheapest sources of protein."

THE CHEESE SEASON OF 1900.

Beginning with this month the cheese factories throughout the country will be in active operation. Quite a number ran through April, but the amount of cheese made has been small, so that the season for 1900 may be considered as beginning on the first of May. Prospects are bright just now for good prices and a large make during the next six months. There is now, practically speaking, no old cheese held in Canada and supplies in Great Britain are as low as they have been at this season for a number of years back. The situation there is strong and good profitable prices are assured at least for the larger part of the season.

While the outlook is good, and while a profitable season may be looked for, makers and patrons of factories would do well to remember that the

quality of the product must be kept up to the highest point of perfection. Whether prices are high or low it is quality that counts in the markets of the Old Land. There should, therefore, be no relaxation of effort on the part of those concerned in looking after the raw material from which good cheese is made. The patron should see that every can of milk he sends to the factory is in the best possible condition. If the milk supplied the maker is guaranteed to be of good quality then the patrons have a right to demand of every maker the very best quality of cheese. Unless the milk is of good flavor and quality when it reaches the factory the maker should not be expected to turn out the finest quality of product. It will pay every patron, then, during the season to give the best of care to the milk he supplies his maker with. If this is done, and the maker knows his business, there should be no difficulty as to the quality of the product turn out.—*Farming.*

The first-class herd of dairy Shorthorn cattle, the property of Mr. Charles A. Scott-Murray, was disposed of on May 3 at Hambleton, England. The 66 head sold averaged £40 5s. 8d. each. The largest price for bulls was 130 gs., and the highest for females 81 gs.

At a sale of Jersey cattle held at Roehampton Surrey, England, forty-five animals averaged £17 16s. 6d., thirty-seven cows averaging £18 14s. 3d., and ten bulls £13 14s. 4d. each.

A catalogue of the herd of Shorthorns, the property of the Hon. M. H. Cochrane, Hillhurst, Quebec, has been received. It is justly remarked that Hillhurst Farm, the first home in America of Baron Booth, of Lancaster, Rosedale, and Duchess 97th, "the 1,000 gs. heifer," needs no introduction to the older generation of Shorthorn breeders. The present herd was founded in 1894 by selection of thick fleshed, large-frame stock from some of the best Canadian herds. In 1898, an importation was made from England of nine cows and a bull of Cumberland and Gloucestershire strains, combining milking qualities with size and deep flesh. In 1899 the Collynie-bred bulls, Scottish Hero and Joy of Morning, were taken out, with a superior lot of cows and heifers of the popular thick-fleshed Scotch families. The herd comprises 51 females and twelve bulls.

The Garden and Orchard.

(CONDUCTED BY MR. GEO. MOORE).

ASCENT OF THE SAP.

At this season, while the process is going on, a few words on the "ascent of the sap" will not be inappropriate. In the first place, to have an intelligent idea of the action and uses of the sap, we will notice the process by which plants take in their nourishment. As a plant has no mouth, like an animal, it might be considered, by the unobservant, as not being capable of receiving nourishment, and yet leaves and flowers can be noticed to be refreshed by the access of air or moisture, which shows that they must be nourished in some way, either by absorption or inhalation, or both. Plants, when rooted in the soil grow and accumulate substance, therefore it is sure that they are fed through the roots.

The absence of a mouth as in animals, shows that plants must receive their nourishment either in a gaseous or liquid form, and taken into the system by numerous stomata or pores situated externally and not internally as in animals.

As regards the plant itself, it is well proved that the bark and leaves are full of minute pores.

De Candolle, an illustrious Swiss botanist, born at Geneva, in 1778, discovered this; and any one who uses a microscope of sufficient power can see it for himself. Another test is this: take a plant of some kind of moss which has been dried until it has shrunk or shrivelled, and immerse it in water. In a short time it will begin to imbibe the water and will reacquire its plumpness, and it is evident that it must have received the reviving nourishment through the medium of some orifices in its skin or bark, which we call pores.

So much for the means the plant has of obtaining nourishment from its whole surface, but it is more to our purpose to see how it obtains it by means of its roots. This may be easily illustrated by placing a hyacinth, or other bulb, in such a manner on a glass nearly filled with water that the root shall not quite touch it; in a short time there will start from the bulb a number of little radical fibres and then the elements of a stem, which will begin to grow and the quantity of water will be visibly diminished; hence, it is obvious that the water has been absorbed by the

spongioles and conveyed by means of the fine tubes which compose the fibres of the plant, the substance of which it elaborates; this process we call growth. All roots terminate with a great number of absorbing, drinking, spongioles situated at the ends of thread-like radical fibres. They are called "spongioles," because they imbibe moisture from the soil like little sponges, and from them it passes through the little ducts called fibres, undergoing a chemical change and obtaining from the soil its aerial, aqueous, and saline properties which are the materials of the growth and substance of the plant or tree.

With this knowledge, a gardener will understand how important it is that these delicate spongioles should be injured as little as possible in the process of transplanting, either by being bruised or exposed to the light and air which would destroy them. It also explains why a tree or plant should be lifted and removed, as much as possible, with a ball of earth; why as little of a root should be cut away as can be helped; also why a soft, wide bed should be provided for the reception of a newly transplanted tree, in order that it may quickly reform new radicals and spongioles, so that the process of growth may not be delayed. In fact, every farmer and gardener of ordinary observation, should, from the knowledge of these facts, obtain a great many valuable hints and suggestions, as to the hoeing, transplanting and all other operations which may affect the roots of plants.

Roots are all the time lengthening and increasing with the bulk of the plant or tree so as to be able to meet its requirements; the larger roots are covered with a bark or skin, on which it has not been proved whether there are any pores as on the trunk and leaves, but in place of this they are covered with fibres, at the extremity of which are innumerable spongioles. What power these spongioles possess of pumping the liquid into the tree remains a mystery to the present day, and can only be attributed to that mysterious and inexplicable principle of life which all living things, whether animal or vegetable, possess.

And now we come to the more immediate subject of our article. The ascent of the liquid, nutriment of the plants, which, having been imbibed from the soil by the absorbing organs is called sap or lymph; these liquids have undergone a chemical change in the process of absorption, as is proved by a familiar example in the

maple the sap of which is quite sweet although it looks like pure water.

A tree or vine will bleed, when the skin is pierced or cut, just as an animal will, and yet this loss of sap does not appear to do any serious injury to the trees constitution or growth. Maple-trees, which have been annually tapped for many years in succession, do not appear to have become less vigorous.

The sap is most copious just at the time the buds are expanding, and diminishes in quantity as the leaves are formed. A tree will not bleed at the falling of the leaf, or in winter, except in the case of palms and some other ever-greens, which bleed in autumn and winter, as well as in summer and spring.

The fact that there is an internal flow of sap is obvious, and that the sap discharged when trees are wounded is in the course of ascent, is also obvious, and is capable of easy proof.

Thus: if several wounds are made at the same time on the bark of a tree, the lowest will bleed before the others, and each succeeding one will bleed before that above it. If a branch of a vine be cut off, the standing part will bleed freely, and the part cut off will not bleed at all. Again, if a wide cut be made in the bark of a tree, the bleeding will be seen to come from the lower side of the wound. If a plant, with partially transparent bark, be placed in pure water tintured with some colouring matter, the ascent of the coloured liquid can be observed from the roots to the extent of the branches. Even the speed at which the sap ascends has been calculated by means of the following experiment, to the stem of a vine cut off about two feet from the ground, a mercurial gauge varnished with mastic was fixed. The gauge, in the form of a syphon, was so contrived that the mercury might rise in proportion to the ascending sap. The mercury rose accordingly and reached a maximum of 38 inches, equivalent to a column of water 43 feet 3 inches, showing a force in the motion of ascending sap altogether incredible to the common observer.

That the sap does ascend, that it is the medium by which the nourishment is conveyed to the tree; and the different chemical substances which are used in its composition are by this means, communicated, in a favorable condition, to be assimilated by the growing structure, is sufficient for the cultivator to know to induce him to do all he can to keep the crop in a healthy

condition by careful manipulation of the soil, and by destroying all weeds, fungi, or insects that might be likely to injure the natural flow and distribution of sap which is the vital fluid of the plant. To study and be interested in the wonderful operations of Nature, so far as we can understand and demonstrate them, is a means by which we can cultivate our own intellects and build up a sound mind in a sound body.

DIFFICULTIES.

All humanity is beset with difficulties, but instead of always being accounted hinderances they may be looked upon as spurs to renewed exertion. The man engaged in rural pursuits has quite his share of difficulties, but if he is wise, he will, in the name of religion, morality, or even common sense, make the most of his circumstances and although he may cheerfully accept the encouragements and aids of his friends and neighbours he should have dignity of character sufficient to have spirit enough to try to do without them, and to prove that although a poor and hard working man he can live in comparative comfort on his well tilled farm or carefully cultivated garden or orchards.

INSECTS INJURIOUS TO FRUIT.

(Continued).

THE GOOSEBERRY SAW-FLY. (*Nematus ribesii*).

FIG. 1.



1 and 2. Larva in the two last stages.
3. The Cocoon. 4. The Fly.

The Gooseberry Saw-fly is very troublesome in gooseberry plantations and gardens in some seasons. It also attacks red currant bushes, but not so frequently as gooseberry bushes. In many

cases the leaves are completely riddled, or quite cleared off, together with the young fruit, and unless the plague is checked it is likely to be renewed in succeeding seasons with greater intensity. When it has been once established in large plantations it has been found most difficult to eradicate. This insect appeared in Canada about thirty-five years ago. It has now spread over the greater part of the American continent, according to Professor Saunders, who believes that it was brought into America in the earth adhering to the roots of imported gooseberry and currant bushes.

LIFE HISTORY.

The fly (Fig. 1, No 4), appears early or late in the spring according to the nature of the season. The female is rather more than the third of an inch in length, having an expanse of wings of over half an inch. The body of the female is of the colour of honey; the wings are shining. The male is smaller than the female; its body is much narrower and darker in colour.

The female lays a number of greenish white eggs, which can easily be seen without a glass. Larvæ come from eggs in about eight days. They are then only about one-tenth of an inch long, but grow to an inch in length. After feeding from sixteen to twenty days, the larvæ spin oval cocoons (Fig. 1, No. 3) of a brown colour, generally upon, or just underneath, the surface of the earth under the infested bushes. Occasionally the cocoons, from the first broods of larvæ, are found upon the stems or twigs of the bushes.

The saw-fly comes from these summer cocoons in about 20 days. The cocoons of the last broods are found deeper in the ground, and the saw-flies do not come from these until the spring. In some seasons there are three generations.

REMEDIES.

Hellebore is used with great advantage. The objection to it is that it is poisonous, but it is stated that many thousands of pounds have been used in America, and no case is on record where injury has resulted from its use.

Proportion to be used: one ounce to one pail of water, applied with a sprayer or garden-syringe.

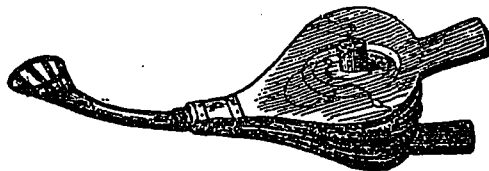
Syringing the bushes with a wash made of six lbs. of soft soap and the extract of six to eight lbs. of quassia chips, mixed with one hundred gallons

of water, has been found efficacious. A wash made of six lbs. of soft soap and four to six gallons of paraffin to one hundred of water has also proved beneficial. But it will be found necessary to syringe the bushes twice, or even more frequently, as larvæ are continuously hatched out from the eggs upon the leaves. In making the paraffin wash or "emulsion," the soap and oil should be mixed in a small quantity of boiling water, and thoroughly stirred or churned up together in order to incorporate them, and the mixture diluted in proper proportions.

Paris Green, syringed over the bushes at the rate of half an ounce of Paris Green to ten gallons of water, is extensively adopted against this insect. This would be even more dangerous than hellebore if it adhered to the fruit. London Purple has been used with benefit, put on in a fine spray at the rate of one pound to 200 gallons of water. It is as poisonous as Paris Green.

Strong lime, water has been found serviceable. This should be put on in a fine spray directed over every part of the bush for some time.

Fresh lime, freely dusted over infested bushes when wet with dew, or rain, has proved of considerable advantage. Lime, very finely powdered, may be applied with the soufflet with advantage, even when there is no moisture. Soot also is of much benefit if put on after dew or rain, or soot and lime mixed in the proportion of one part of soot to three of lime, but soot should not be used when the berries are of any size, as it is apt to adhere to them and spoil their colour and flavour. It is most important that the soot and lime should be reduced to the finest powder.



Soufflet for dusting bushes with powders.

The ground under and close around infested bushes should be dressed with quick-lime in the autumn, and dug deeply in order to destroy or bury the cocoons. Gas lime is also valuable for this purpose. To prevent the flies from coming up from the cocoons, gardeners sometimes stamp or beat down the earth in the early spring close round bushes that have been infested.

WOMEN AS GARDENERS.

To the Editor of the JOURNAL OF AGRICULTURE,

SIR,—I see by a paper that lately came into my hands that in England women are being trained as gardeners and that near London there is a Horticultural College where fifty-nine young women are being educated for the profession. It is stated that in England every body who possibly can has a garden; and fresh fruit, vegetables, flowers are looked upon as necessaries. Gardening is popular among all classes, and it is no wonder that the ladies have taken hold of it, not only as a means of amusement but one by which those who need it can earn a living.

It may be objected by some that gardening is not a suitable occupation for our sex, but my experience leads me to a different conclusion. It is true that there are some operations that a woman could scarcely perform, such as digging, or carting manure; but there are others which she can perform as well as, if not better than men, such as hoeing, weeding and singling the root-crops, watering, training, pruning, or gathering crop. This is all out door work, but when we came to the culture of plants under glass the woman-gardener is yet more at home, for she can do the work of sowing the seed or making cuttings, re-potting, re-arranging the plants in their places, picking off dead leaves, keeping the pots clean, arranging the plants in the conservatory or show-house, and will be likely to display more skill and taste in these particulars than a man.

Of course, to be proficient, a certain amount of training is required, and we lack here colleges similar to the one in England. But there seems to me to be no reason, why girls should not study under proficient gardeners in private places, or why there should not be a garden, for practical use, attached to every country school, and why agricultural and horticultural should not be a part of the teaching of both sexes. As a means of healthful recreation nothing can excel the culture of a garden, and an hour or two a day, spent over the sweet fresh soil is salutary and invigorating. I do not mean violent or tiresome exercise, and yet even fatigue, up to a certain point is wholesome. What a sweet and refreshing night's rest, one can enjoy after a good spell at gardening! and what a breakfast one can eat, and if we do feel

a little stiffness of the muscles, what matter? it is not disease, but the result of life restoring exercise.

I speak from experience on these points, for I had a garden attached to my school-house, and although I did some pretty hard work in it, I can scarcely express the satisfaction I had from it. First as regard my health; I never was so well as when the fatigue of teaching was overcome by the work in the open air, and during the summer. I grew stout and rosy. Then I was always supplied with nice fresh sweet vegetables, which are never so palatable or healthy as when just gathered and that very day, not having been exposed to the air or packed in crates and barrels in which they have heated and are spoiled; as to their absolute freshness at least. In addition to this I had some more than I could use and had no difficulty in finding a market for them in our neighbouring town, which, although supplied with coarse vegetables such as cabbages, turnips, and potatoes, is not usually over stocked with a variety of the choicer kinds, such as early pease, string-beans, beets, lettuce, cauliflower, asparagus, etc; while there is plenty of room for small fruits, such as currants, gooseberries, or garden strawberries.

It seems to me that there is plenty of encouragement for country girls to take up gardening as a profession, if they do not desire to spend their lives in the towns, or so many become school teachers, a profession which is overdone.

I suppose it will take some time to make gardening as popular as it is in the old world; but, if it could done, it certainly would result in good to the community, and if the few words I have ventured to address to you on the subject shall have a tendency to lead peoples thoughts in that direction, my object will have been attained.

Respectfully yours,

J. B. BOIVIN, *Teacher.*





Interior of fattening shed, Iville farm, Baynards, Surrey., owned by C. E. Brooke, Esq., past-master of the Poulter's Company, of London.

The Poultry-Yard.

(CONDUCTED BY S. J. ANDRES).

SPECIALLY FATTED POULTRY.

The fattening of chickens, as carried on in England, France, and Belgium, takes about three weeks, and is divided into two periods of time.

When first cooped up, the birds are fed in troughs for about ten days, and then fed by cramming for about ten days more. Usually, the birds are cooped out of doors, under hedgerows, during the first ten days, and are removed into sheds for the cramming process, the better to keep them quiet by excluding most of the light except at feeding times; there is however no hard and fast rule about this. In some localities, the entire fattening process is carried on out of doors, i. e., in coops under the hedgerows. At other places, the birds are put into sheds at the beginning, and an American writer thinks this is the better plan, particularly where the sheds are constructed especially for the purpose, as in the case of Mr.

Taylor, near Buxted, Sussex. These sheds are so designed as to give much or little ventilation as circumstances require, and the conditions would be more favorable than with the birds out of doors.

It is very evident from information I have gained that the business is usually begun in any shed or outbuilding which could be given up to it, and then as the business has grown more, sheds or outbuildings or possibly part of the barn, have been given up to it and in some instances buildings have been especially constructed for fattening sheds.

The best example of this is in the shed of Mr. C. E. Brooke, an illustration of which is given herewith. This shed of Mr. Brooke's is considerably more elaborate, it seems to me, than circumstances require, and the end might be attained at much less expense, and many would object to having the coops in tiers three deep. I should prefer to arrange the coops in rows so that all would be on a level. One would get the idea if they would consider rows of coops down the middle of Mr. Brooke's shed and aisles between them. This shed of Mr. Brooke's is well protected against rats and vermin. The floor is cemented throughout, and half-inch mesh wire netting lines the walls and encloses the entire apartment;

the wire netting is bedded into the cement floor all round the edges even if not carried under the cement floor which I do not think is necessary.

A still more elaborate system of cooping is the French fattening cage, built so as to revolve; thus bringing each bird in succession before the operator, who is suspended in an elevator which he moves up to the level of each tier of the revolving cage.

I also mention another method of cramming by a funnel. In this method the food is quite liquid, being about the consistency of cream; the funnel has a carefully turned nozzle which will not injure the bird's throat. The nozzle is passed down the throat until the orifice enters the crop, and the food is put into the funnel with a spoon until the crop is full; when the funnel is withdrawn, the bird is returned to his coop, another taken in hand, and the operation is repeated. Although somewhat slow, this method produces an excellent and exceedingly fine quality of flesh, and may be used by persons operating on a small scale. The cramming is best done by a machine which I think Professor Robertson has mentioned in his report before the Dominion Agricultural Committee. The machine is used in several countries. I think it is being introduced in Chicago. It is called "Hearson's Cramming Machine." The illustration shows it.



A man at the machine.

It is the best one now in use and is used on a large poultry farm near Chicago for fattening broilers. If memory serves me, Professor Robertson has stated that an effort was being made to have the machine manufactured in Canada. It

has been used for a long time in France as well as in England, and I can see no reason why it should not be profitably used here in Canada.

The illustration tells its own story. The machine can be moved from one coop to the other or along the coops like a barrow. The bird is taken out of the coop, held under the arm of the operator, with one hand the india-rubber nozzle is inserted into the mouth and passed down the throat until it enters the crop; a dexterous movement of the little finger of the left hand holding the bird's tongue down in its place so that the introduction of the nozzle shall not double it back. When the end of the nozzle reaches the crop, the pressure of the foot upon the treadle pumps into the crop the amount of food at the discretion of the operator, who with his hand in the crop judges how much to feed. Care should be taken that the pressure of the foot upon the treadle shall be lifted before the tube is withdrawn, otherwise some of the food may flow out into the throat as the tube is being withdrawn, and suffocate the bird. The tube is withdrawn, the bird lifted out, and the operation repeated. With a little experience the amount of food injected may be regulated exactly, and the operation is very speedy.

A novice is quite apt to think that the operation of cramming is cruel, but if he will reflect a moment he will see that cruelty would defeat the aim of the fattener, which is profit. It is for the poultry fattener's interest to produce a specially fattened bird which shall be in the best possible condition and fetch the top price; hence anything approaching cruel treatment would work against him. The nozzle of the cramming machine is made in india rubber, and is perfectly flexible and smooth.

S. J. ANDRES.

The Horse.

RE-MOUNTS FOR SOUTH AFRICA.

In our market report last week, we drew attention to the fact that re-mount officers from England had arrived in Toronto with the object of securing a number of horses for re-mounts in the South African war. Since then, we have learned that it is the intention of these gentlemen, if they can be secured within a reasonable area, and in a reasonable time, to purchase 1,000 cavalry horses

and 500 ponies. The cavalry horses require to be from 15 hands $1\frac{1}{2}$ inches to 15 hands $3\frac{1}{2}$ inches high, and the ponies from 14 hands 1 inch to 15 hands 1 inch high. Already some 25 horses have been secured in the city and agents have been sent out on a circuit 300 miles from Toronto to pick up suitable horses. When a sufficient number is secured they will be shipped direct from Montreal to South Africa, where they will be used in the present war.

As we pointed out last week, farmers would do well not to look for extra large prices for these horses. The quality required is not as good as that for permanent army mounts and consequently as high prices will not be paid. We are informed that with the exception of some of the best ones, suitable horses for this purpose can be procured in the United States at from \$75 to \$85 each. If this be correct it would be unwise for our farmers to hold for higher prices for the same class of horses. In the large American centres, such as Chicago, a buyer can secure a thousand horses in a week at little cost for travelling expenses, whereas in this country to secure that number a buyer would have to travel over a large extent of territory and spend several weeks' time. Canadians then are somewhat at a disadvantage in this regard, and if they desire to develop the trade in army horses must be willing to sacrifice a little on the price in order to make up for the cost of securing horses from over a large district.

We do not make this statement with a view to discouraging those interested in this matter, but because we wish to put before our readers the actual conditions governing this trade. When the success of the British army in South Africa depends so much upon the quickness with which re-mounts are supplied it will readily be seen that the purchase of horses for this purpose must be accomplished with as little delay as possible. There can be no doubt that Canada is quite capable of supplying a large number of horses suitable for this purpose, and the one great difficulty is to get them together in central places. Canada is greatly in need of a place similar to Chicago, where sellers can bring their horses and where buyers can go with the hope of getting their wants supplied in a reasonable time. This movement to supply horses for the British army may do more than anything else to bring this about. There is something in this central meeting place for buyers and sellers

worth considering by horse breeders and dealers generally.—*Farming.*

INTELLIGENCE OF THE HORSE.

A great deal has been said and written about the intelligence of animals, and almost all agree that dogs, monkeys and elephants are highly endowed; but some believe the horse is about the dumbest of all animals. The great reason for this is that educators have had the least patience with the horse, owing to the fact that an iron bit is used in his mouth, and he is by this means forced to do his master's will without understanding just what is desired of him. The difference in the manifestations of intelligence is due more to the educator than the animal to be educated. There is certainly one point decidedly in favor of the horse in this respect, and that is, that whatever he learns and understand he never forgets; and this cannot be truthfully said of all men. Horses, like people, have strong likes and dislikes, and one educator succeeds, another will fail. It is all in the horse and man thoroughly understanding, or not understanding, each other, and by mutual consent being friends or enemies.

That through the medium of the stomach is the surest road to the affections of the horse, there can be no question, when associated with otherwise kind treatment. Sugar being a little sweeter than the dam's milk, man may, by the use of this tempting morsel, divert the affections of the young colt from its dam to himself, and thereby make a lasting and faithful friend of the horse when matured. We know of no other one thing that has so much to do in gaining the attention and good will of the nervous wild horse as small quantities of sugar, fed from the hand of man, in the spirit of kindness and affection. By this treatment and education the valuable and trusty animal is made; and the reverse treatment makes him unreliable and dangerous.

The earlier we begin the education of our horses, the more valuable servants they make, and the more money they will bring in the market. The horse appreciates kind, intelligent treatment as well as man, and when the horse and his tutor fully understand each other, it is astonishing how rapidly the horse acquires his education.

Farming.

MOUNTED INFANTRY HORSES.

The *Calgary Herald's* standing campaign against Dr. McEachran has broken out again, says the *Malceod Gazette*, and for the last two weeks that journal has been raging violently. The campaign spread to the City Council and to the Board of Trade, both of which bodies have met and resolved and generally done all in their power to make Dr. McEachran feel the heavy hand of the City of Calgary. The gist of the complaints is that Dr. McEachran, in buying horses for Strathcona's horse, has not made proper selections. That is to say, he has not — of the course in the opinion of the *Herald*, the Board of Trade and the City Council of the City of Calgary — secured horses which are suitable for the work they have to perform, and individual instances are quoted to help to prove the charges, in which horses of a most venerable age have been accepted. We are not particularly exercised about the matter except for the fact that the *Herald's* remarks and the resolutions passed by the institutions referred to above, might lead non-residents to suppose that they voice the sentiments of Southern Alberta and consequently of the main body of ranchers. It may be well consequently to state that they do not voice the general opinion of this part of the country. The horses bought by Dr. McEachran in Southern Alberta are a good, clean, serviceable bunch, and we have no hesitation in prophesying that they will work all round the English cavalry horses. They may be, doubtless are, individual horses that will turn out to be worthless, but that is unavoidable. The best vet. living could not prevent such contingencies.

It is to be presumed that Dr. McEachran was perfectly well aware of the stamp of horse required, and it is also to be presumed that he bought the stamp of horse he wanted. They may not be the standard of English army cavalry horses, but Dr. McEachran, we are quite sure, whatever anybody else may have stated, never suggested that he wanted horses of that type. What he wanted was a number of the ordinary saddle horses, common to the ranching country; horses that may not be paragons of beauty, but which are as tough as they make them; and certainly in so far as this part of the country is concerned, he got what he wanted. And when Dr. J. G. Rutherford, the member for Macdonald, Man., states, as he did state in the House of

Commons, "that the prices offered by Dr. McEachran in the Northwest Territories are such as to make it quite possible, in fact probable, that he will not be able to secure what he wants," why that gentleman does not know what Dr. McEachran wants (which is extremely probable), or he is talking "through his hat." The horses taken are for the use of mounted infantry, a fact that seems to have been overlooked by the doctor's opponents.

They are not intended for a cavalry regiment, and we unhesitatingly maintain that the type of horse bought exactly fills the bill; and it is a fact that is worth taking note of, that in view of the probable large increase in the mounted infantry branch of the British army in the near future, it is not at all improbable that Dr. McEachran's choice of horses for the Strathcona's Horse, when it is seen what a hardy and useful animal has been supplied by this country, will lead to a large demand in the future for this very class of horse — a kind be it remarked, of which there are more in this country than of any other class.

The *Calgary Herald*, etc., etc., have worked up much indignation over one or two instances in which it is claimed fabulously venerable old plugs have been accepted by Dr. McEachran in Calgary. This may be so, but if it is, we cannot but think there were good and substantial reasons for their purchase. Dr. McEachran, wherever he has bought horses, has had the assistance of a second vet., sometimes two; and it is not a particularly difficult undertaking for a qualified veterinary surgeon to tell the age of a horse. As a matter of fact, it may interest the *Calgary Herald* to know that all horses bought for Dr. McEachran were not intended for saddle horses; a certain number were required for packing purposes.

One other point which may be noticed in connection with the underhand tricks claimed to have been played off on Dr. McEachran by certain Calgary horsemen to induce him to buy their horses is this: every person selling any horse to Dr. McEachran for the use of the Strathcona Horse, before receiving pay for the same, was required to sign a document in which it was guaranteed that the age, soundness and general description of the horse or horses sold was correct as per the description which had been furnished by the seller, and which was filled in on the back of the document, and it was expressly stipulated that in the event of such description, age, etc., turning out to be other than as furnished, the seller bound himself to take back the horse and refund the money.—*N.-W. Farmer.*