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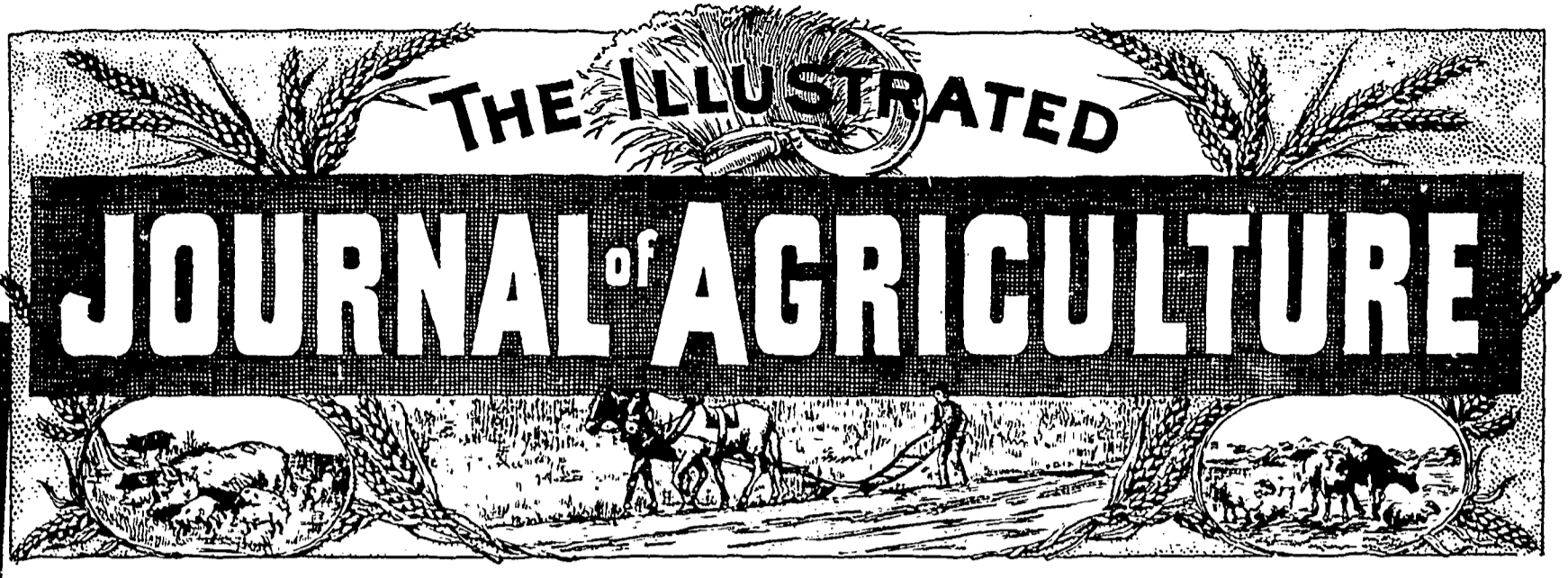
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ALL PRIZE WINNERS

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Send in your orders for young pigs at twenty dollars a pair not related.

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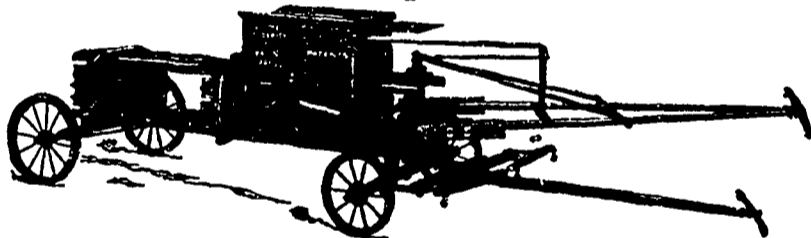
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45 Prizes and Diplomas for 1891 and 1892 in the Provinces of Quebec, Ontario and Manitoba.

Stables at Outremont,  
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Offices: 30 St. James St.,  
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### Season of 1892 : Number of services :

Napierville : 70.—Gaspé : 107.—Missisquoi : 79.—Vaudrouil : 37.—

Chicoutimi : 37.—Three-Rivers : 55.—Bellechasse : 59.—

Montreal : 104.—Ottawa : 106.—Nappan : 96—

Brandon : 39.—Indian Head : 63—

Agassiz : 27.

Percentage of colts born in 1892 from the Haras National Stallions 70.74 %  
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The only one on the market, which the horses can run without their work being broken.



“LA CANADIENNE”  
Perpetual Press (Patent and improved.)

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We guarantee our press to work at the rate of 10 to 13 tons of hay every day without the horses being tired.

We manufacture four sizes of presses:

14 x 18      16 x 18      16 x 20      16 x 22

We will send this press for trial to any responsible party. Write for our Catalogue and list of prices.



The thrashing machine represented in the above engraving is our vibrating machine. It has a run of 25 inches long with teeth in steel guaranteed so that they can bend without breaking as the norway.

The iron work that support the drills is all in wrought iron which is very advantageous and economical as any blacksmith can make it so that all long delays are avoided.

The sieve of our vibrating machine is longer and wider than all the other machines of the same kind manufactured in Canada. This new shape facilitates the cleaning of the grain and the sieve is less exposed to spread its contents outside. We give seven passes with this sieve.

The horse power runs on cast iron rails, all the shafts of the bridge are in steel and measure 1/2 of an inch which represents half a line of a larger size than those employed by the other manufacturers. All the shafts in the separator, the sieve and the horse power are in steel. We never use any iron shaft. Our machine is acknowledged to be the easiest to run and the one which lasts the longest.

We also manufacture a Canvas Separator with improved Railroad Horse Power; Railroad Upright Hay Press; Rod Upright Hay Press; Straw Cutter No. 2, 11, 13; Spring Harrows, 16 teeth; a Washing Machine patented May 1892.

We want active and responsible agents in all the localities where we have none yet. Any farmer shall find it an economy and be certain to have the most improved machine in applying to us. We allow a special discount for orders sent by mail.

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THE ILLUSTRATED Journal of Agriculture

Montreal, November 1, 1898.

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Notes by the Way.

FOOD AND MILK.—As far as we can see by the reports in the agricultural papers of the States, the practical American farmer is beginning to take the same views of the question. Can the fat in milk be increased by judicious feeding? as is taken by the practical English farmer, who, from long experience, has never had the slightest doubt about the matter.

A correspondent of "Hoard's Dairyman," who had been trying the effect of a very excellent fodder, oats and pease—a pity he did not add a few tares to the mixtures—which he ensiled, states that he fed 30 cows for 47 consecutive days on the silage, and found that their yield was 50 lbs. less milk, but the production of butter increased 13 lbs. He then fed sweet-corn on pasture, and the cows gained 30 lbs. on milk, but shrunk 15 lbs. on butter. The farmer very sensibly adds to this statement: I intend to try oats and pease again; wherein our Sorrel friends will heartily agree with him. In 1886, Senator Guévromont, sowed 5 arpents of our favorite mixture: 2 bushels of oats, 1 bushel of pease, and 1 bushel of tares, or vetches, and his son M. Pierre Guévromont told me he had never had such a flow of rich milk from his herd of 24 cows in his experience.

The mixed grain and pulse should be drilled in pretty deeply; or sown on the well-harrowed surface and dragged in with the scarifier, spring-tooth-harrow, or deposited with the now almost universal sowing machine, the teeth of which should be allowed full freedom, so that the seed may be buried at least 2½ inches deep. In all cases, harrow well before sowing, as well as after. A small dose of rapeseed, say, 3 lbs. to the acre, after the whole is finished, will bring a "bottom" to the fodder that the sheep will be glad of after the crop is mown.

And on this subject, of FAT IN MILK, we are glad to see people—practical people—speaking out. Says another contributor to an exchange:

"These alleged dairy experts who are taking such pains to impress upon their hearers that food has nothing to do with the quality of milk, are inculcating an erroneous doctrine that will work serious mischief if acted upon. Said a milkman to the writer recently:—'Within a day or so after I begin to feed my cows certain watery foods, my customers begin to complain about the quality of the milk, and some have actually charged me with watering it.' No greater nonsense was ever talked than that food does not influence the quality of milk."

Which strongly reminds us of what a London dairyman once said to us, some 45 years ago: Lord bless you, Sir; we don't want no pump, as the papers say we do. Give me plenty of mangels and brewers' grains, and I don't need to put no water into my milk

FERMENTS.—The teachers of scientific dairying lay great stress upon the injury done to cheese by the introduction into the milk of a number of ferments that are not the ordinary lactic ferment. Men, we know, do not always wash their hands before milking, and, not infrequently, dip their fingers into the milk, thus introducing extraneous matters into the final product, the effects of which not

all the skill of the cheese-maker can subsequently invalidate.

Our Gloucestershire farmers always milk their cows in the pastures, when cheese making is going on, so one great cause of injury is obviated, namely the foulness of the atmosphere of the cow-house; and, the men always take water with them to wash their hands before milking; these two points are in favour of the cheese made in the Vale of Berkeley keeping so well, at it does.

THE DISC-CHURN.—Rapidly of bringing butter has up to the present been generally looked upon as anything but favourable to the production of a good sample. Forty five or fifty minutes is about the time preferred for churning. But the new disc churn appears to have altogether upset the old ideas on this subject. At the opening of the dairy-classes at Gargrave, Yorkshire, England, Miss Philips, the instructress of the Yorkshire College, from 4 quarts of cream produced 4½ lbs. of butter in 10½ minutes. The butter was considered, by competent judges, to be of the very best quality, both as to flavour and texture; as regards proportion of butter to cream, that is rather difficult to decide upon, no account being given in the report we have seen as to the thickness or thinness of the cream; but our old computation in England used to be that 25 lbs. of milk ought to give 1 quart of cream, which ought to produce 1 lb. of butter. So the new churn cannot but be a very useful invention.

LESSONS FROM THE FAIR.—Without harping too long on the lesson to be derived from the poor yield of the shorthorn cows selected for competition at Chicago, there is one most important lesson to be gleaned from the contest: Don't keep inferior milkers. The cows were, we may safely assume, all carefully selected ones, and yet the best cow gave nearly seven times as much return as the worst cow!

THE PRICE OF PORK.—Few things strike a foreigner's mind on this continent more than the way in which farmers persist in changing their course of cropping and the rearing of different classes of cattle as the market may be more or less favourable to any particular product. Monsieur M. Dombasle's advice, "keep your eye always on the market," is a very sensible counsel, but we do not take it he intends thereby to recommend farmers to dodge about and change the crops grown or the stock bred every four or five years. Systems, in farming as well as in philosophy, should not be given up in a hurry when once established. And, yet, what do we too often see? To day, wool is high; every one immediately rushes into sheep-breeding. To-morrow, there is a sudden rise in the price of pork at Chicago; every one rushes into pig-breeding. Why not follow the old custom prevalent in the mother-country of producing a certain number of acres every year of each of the crops best suited to the soil and climate we work upon and in, and rear and feed so many of each kind of stock as we usually find our farm capable of supporting: In this way, we should always have something to sell that is really in demand, for as Dr Hoskins very sensibly remarks, in the Vermont Watchman:

When hogs are high in the Chicago market, everybody raises hogs until

there are more hogs in the country than the pork eaters of the world want and prices decline; then production wanes for a time and prices advance. Those who go with the tide without studying conditions are usually overstocked when prices are down and have nothing to sell when prices are up.

DEEP OR SHALLOW?—Many writers in the agricultural papers in the States seem to be in favour of shallow horse-hoeing for corn. In the earlier stages of the growth of this plant, before the rootlets attain much length, our opinion is that the deeper the horse-hoe goes the better; and it is pretty clear that when the plant has sent out its roots into the intervals between the rows, it would injudicious to disturb their hold on the soil, not that the yield of the crop would be thereby diminished, for if a root is cut in two, nature will soon supply its place by one or more successors; but because, in this climate, the first thing to be considered is early maturity, and this would be delayed by the process of its sending forth new roots to supply the defect of those cut off by the hoe.

Therefore, we say: horse-hoe deeply at first, as the best means of mixing the soil and presenting fresh particles of it to the air; but horse-hoe lightly towards the end of the cultivating season, to allow the plant to ripen before there is any danger of frost.

EARTHING UP.—People fancy earthing up corn prevents it from being laid. Herein, we differ entirely from those who hold that opinion. The finest crop of corn we saw this year—at St. Anne de Bellevue—was most carefully earthed up; but, after the grain was fully formed, a storm of wind and rain laid the whole field flat on its back.

Now, we contend that the earthing up any plant has a tendency to confine its roots to a narrower range than they ought to have; and that the resistant power they would otherwise possess of defeating the purposes of any storm, is thereby lessened. Instead of the fibres finding 3 feet of range, they are shut up in, at most, about 15 inches, and that narrow space, if dung has been applied, as it usually is, in the drills, is the loosest part of the whole, and therefore the least fitted to afford firm foothold.

Wherefore, we do not advise farmers to earth-up corn.

AND POTATOES, TOO, why earth them up? To keep the air and sun from turning them green, we should say, but certainly not for the purpose of increasing the yield. Many years ago, an experiment was tried, in Scotland to settle the question whether earthing up this crop did or did not increase it. Three plots of an acre each were taken, as nearly as possible of the same quality, and treated to the same cultivation up to the time of finishing the horse- and hand-hoeing. The plot No. 1 was earthed up as usual, that is, very high; No. 2 was earthed up slightly, with a flat, not a peaked top; No. 3 was not earthed up at all. The three plots, at harvest time stood as follows:

Not earthed up.....the best yield; Moderately earthed up...the next best; Earthed up as usual....the worst of all.

I have not the figures by me, but they are to be found in Stephen's



"Book of the Farm", a publication every educated farmer ought to have on his table. So highly is it esteemed by those who know it, that the Commissioner of Agriculture told me, last spring, that he had his copy interleaved, and had filled the leaves with annotations.

Wherefore we say: do not earth up your potatoes more than sufficiently to prevent their tubers from being greened:

**KEEP SHEEP**—Last year, we heard that a Mr. Bennett, of Massachusetts, had bought six or seven abandoned farms in the State of Vermont, and proposed to stock them with Hampshire-down sheep. The farms, we understood, were all in one block, and the system to be pursued was to treat the sheep just as they are treated on the best English sheep-farms on the chalk-hills of the southern counties. If Mr Bennett carries out his plan prudently; that is, if he secures a trustworthy shepherd, lambs down his ewes early, and clears off his wether and surplus owe-lambs by the end of October, there is nothing to prevent him from succeeding. The land will soon change its character, under such treatment. Horse-dung is good, so is the dung of well-fed beasts and swine, but give us sheep's dung combined with the consolidating pressure of the sheep's foot. We append a statement of the manurial contents of the dung, solid and liquid, of sheep and cattle respectively, which must be taken for what it is worth, as there is no specification given of the food each class of animal received:

**SHEEP-MANURE—10 TONS.**

|                      |          |
|----------------------|----------|
| Nitrogen .....       | 250 lbs. |
| Phosphoric acid..... | 31 "     |
| Potash .....         | 241 "    |

**CATTLE-MANURE—10 TONS.**

|                      |         |
|----------------------|---------|
| Nitrogen .....       | 87 lbs. |
| Phosphoric acid..... | 17 "    |
| Potash .....         | 51 "    |

We trust Mr. Bennett will keep his flock in the hurdles (fold, and not let them ram about, dropping their valuable manure under the trees and along the fence-sides. If he is to make a success of his enterprise, crops must be grown on purpose for the sheep, and we should expect to see, were we to visit him, at least 100 acres in rape next summer

**THE EXHIBITION**—A correspondent, one of the judges, too, sends us the following communication. We hope that next year, if the exhibition is held once more, there will be no room for such complaints:

"There is the same things to be said of the management of the Exhibition, as an ancient writer, (1) headed his chapter on snakes in Iceland. "There are no snakes in Iceland." There is no management about the Montreal Exhibition Co. at any rate, as far as the judging and classifying of live stock is concerned. Whenever I applied for information, I was promptly met by the individual applied to by a most energetic disclaimer of any sort of knowledge of the matter in question, and referred to another individual whom I was never able to find.

All the judging of live stock should be done on the first day, and the

(1) Bishop, P. Clapp, Jan. Ed.

awards given, so that the public can criticise the animals and the judging. It ought to be a very easy matter to have a large slate, in the office, with any information about the hour and place of judging of different classes of animals, so that any one in the office, by referring to this, could give the desired information to an enquirer.

Yours truly,  
O. F. B.

**SELLING HAY**—As a rule, calculations as to the value of the fertilising materials sold off a farm in the shape of crops and cattle are rather vague; but we met with a calculation the other day that seems to us worthy of attention.

Of all things sold off a farm, we know that butter robs the land least, but it will be news to many people that, of all the spoilers, *timothy-hay* is the greediest, though its depredations depend greatly upon the state in which it is cut; when mown in the earlier stage of its growth, timothy-hay deprives the land of far less of its fertility than when, as is too often seen in this neighbourhood and in the Townships, the grass has been allowed to nature a great part of its seed before cutting; in which case, we hesitate not to say, a crop of the hay injures the land—if sold off—for more than will at first sight be believed.

**VALUE OF THE FERTILITY SOLD IN \$160 WORTH.**

|                   |        |
|-------------------|--------|
| Eggs.....         | \$3.56 |
| Wheat.....        | 42.28  |
| Milk.....         | 14.08  |
| Cheese.....       | 11.04  |
| Live cattle.....  | 18.88  |
| Timothy hay ..... | 95.84  |

About 1,000 dozen of eggs would be worth \$160.00, and it would take, say, 13 tons of the best timothy-hay to fetch the same sum.

**CONTRIBUTIONS**.—Dr. Hoskins, of the Vermont Watchman, is somewhat in the same position in which we find ourselves. He complains of a lack of contributors! As for as we can see, by a weekly and attentive perusal of the paper of which he is agricultural editor, Dr Hoskins has about as many contributors as this periodical enjoys, rather fewer, perhaps, but we confess we cannot take the deprivation so pleasantly as he does in the subjoined paragraph:

Our older readers will admit that we have "talked shop" very little in this department of the paper during the twenty years we have been "rattling about" in this editorial chair; and so we hope we may be excused if lately we have referred, perhaps too freely, to personal doings. But we are often assured by our superiors that this is "just what the people like." If this is a mistake, please tell us, and we will promptly "dry up." And, by the way, the very best way to choke off a garrulous editor is to send him lots of your own written experiences. An editor is just as lazy as the next man, and welcomes the wide-awake, and even the critical contributor, with open arms.

**SOLIDS IN MILK**—It is curious to see how little the "solid matters, not fat", vary in milk. The difference between samples of milk, from cows of all breeds in all stages of milking, practically resolves itself into varia-

tions in the proportion of fat contained; everything else varying within very narrow limits.

For instance; take the milking trials of the British Dairy-farmers' Association, and look at the milk-analysis of two cows, a Shorthorn and a Jersey, at opposite extremes:

**SHORTHORN'S MILK.**

|                   |      |
|-------------------|------|
| Fat.....          | 2.1  |
| Other solids..... | 9.5  |
| Total .....       | 11.6 |

**JERSEY'S MILK.**

|                   |       |
|-------------------|-------|
| Fat.....          | 9.49  |
| Other solids.. .. | 9.79  |
| Total.....        | 19.28 |

That is, while the fat varied from 2.1 up to 9.49, the "other solids" only varied from 9.5 up to 9.79; or, in other words, the fat varied about 25 times more than the "other solids."

Again, take the milk of the cows tested at the Chicago show. The two months average was.

**SHORTHORNS' MILK.**

|                    |       |
|--------------------|-------|
| Fat.....           | 3.68  |
| Other solids ..... | 8.95  |
| Total.....         | 12.63 |

**JERSEYS' MILK.**

|                   |       |
|-------------------|-------|
| Fat.....          | 4.79  |
| Other solids..... | 9.25  |
| Total.....        | 13.99 |

The difference in the fat is 1.11, and in "other solids" 0.25—i. e., the fat varied four and a-half times as much as the "other solids", and, as a natural result, the *casein*, which constitutes rather less, as a rule, than half the "other solids," must have been almost constant.

Whence, it appears fair to draw the conclusion that the amount of cheese yielded by a given quantity of milk, varies according to the fat contained in the milk—always presuming the maker understands his business enough to keep the fat out of the whey-tub.

**SKIM-MILK AND LINSEED FOR CALVES.**

The Experiment-Station in the United States have at last found out a fact that the readers of this periodical were aware of as long ago as September, 1879; namely, that linseed, uncrushed, given to any animal, is more than half wasted. Mr. Stewart, we are surprised to see, still advises giving calves "linseed, boiled 20 minutes, mixed with skim-milk," but the Iowa Experiment Station managers are wiser:

Following is a summary of results in calf feeding at Iowa Agricultural Experiment Station:—1. A ration of skim milk and ground flaxseed compares favorably with a new milk ration for young calves. 2. The larger gain came from the whole milk, but a part of it was due to the individuality of the calves, and good results and a thrifty growth were made on skim milk and ground flaxseed. 3. The skim milk calves were interrupted less in their growth by weaning than the whole milk calves. 4. A saving in value of butter fat alone of \$1.11 a month on each calf was effected by substituting the ground flaxseed. 5. The cost of producing a pound of gain (estimating new milk at

87½c. per 100 lbs., grain 1c. per lb., hay \$5 a ton, and flaxseed meal 3½c. per lb.) was 7.6 c. for the fresh milk ration and 5c. for the skim milk ration."

We fattened calves for the London market, some 45 years ago, on this ration, and sold them well, too.

**FERTILISERS**—In using commercial fertilisers, which we hope and trust we are beginning to do on a more extensive scale than heretofore, it must not be forgotten that, in such a climate as ours, the soil is more dependent upon the mechanical condition of its particles for retention of moisture than in those climates in which the rainfall is more equally distributed throughout the season of plant-growth. Use commercial fertiliser abundantly, by all means, but do not forget that the value of the chemical ingredients of farmyard manure is vastly enhanced by the mechanical effect of such a bulky addition of organic matter on the soil. It is to the heavy dressing of dung that the forwardness of the crops of vegetables in our market gardens is due; for the land is made by them freer; more easily traversed by the plant-roots, and the colour of the soil being considerably darkened, it becomes more capable of retaining the ray-heat of the sun. So, use as freely as you please every kind of artificial manure you can buy at a fair price, but do not neglect your farmyard dung.

**PRACTICE**.—Really, practical acquaintance with all matters connected with agriculture is being recognised as possessing some value at last! Not four years ago, the pseudo-scientist was howling at us practical men for trying to promote the cultivation of the swede, mangel and other roots: What earthly good can there be in growing things that contain 99 1/10 of water, they cried! It was in vain that we called attention to the fact that 9/10 of the grand bullocks that came from Aberdeenshire to the London market were fattened on turnips, swedes, and straw; the analysis of the turnip or swede showed such or such to be the contents in nitrogen, &c., and "who are you that you should kick against such pricks as these?"

Now, this is all altered, common sense and practical knowledge are once more assuming their proper position, and even one of the leading authorities of the States has the courage and honesty to say:

These conclusions correspond with the experience of every careful and observing farmer and furnish a scientific reason for the many perplexing exceptions which seem to disprove every rule. They also furnish a hint to feeders and a possible solution of some of the observed anomalies which rise up every now and then to dishearten the careful student of the relations and effects and value of feeding stuffs. A food, turnips for instance, or silage, may have a feeding value, in its effects upon other foods, or upon the digestive organs of the animal, not measured by the amount of nutrients contained, just as the beneficial effect of a manure or other fertiliser is not limited by the quantity of plant food contained in it.

HOARD.

**TURNIPS**—Talking of turnips, our brother-editor, Ex Governor Hoard, speaks very highly of these roots as a food for milch cows, but he falls into

an error when he says: "If fed just before milking, they are liable to give a taint to the milk and butter." It should be: if fed a few hours before milking they are, &c. It is quite immaterial whether the roots are given just before or just after milking, the thing to be avoided is the feeding cows on turnips at periods removed from the milkings. If any ill effects from this root are experienced, the subjection of the milk to a heat of, say, 160° F. will prove efficient. Butter made from milk after the Devonshire fashion never has any bad flavour however many turnips the cows may have eaten.

**THE U. S. WHEAT-CROP.**—There is no doubt now that the yield of the wheat-crop in most of the States of the Union will be a good deal below the average, though that is low enough. There is fair reason to conclude that in most of the older States west of the Alleghenies, the constant growth of wheat without manure and with hardly any cultivation, has, as might be expected, ended in reduced yields and an increased tendency to disease. Some of the Eastern States give larger crops of wheat to the acre than the Western States, for the former lands are farmed, and they have opportunities of obtaining manure from the stables of the numerous small factory-towns which the Western farms have not. One of the agricultural papers of the States holds that, "if the price of wheat were to advance permanently to one dollar a bushel, the present total annual production would be increased by more than one-half." Upon what grounds this very bold statement is made we are not told. At all events, we should say, instead of "would be," *might be*. For it is absurd to suppose that the rich maiden soils of the *Great West*, which at present do not produce as much as one of Sir John Lawes' experiment-fields, which has been annually sown to wheat for 50 years without manure of any kind, cannot be made by judicious management to yield 15 or 16 bushels an acre! These Western lands cannot yet be worn-out: what is needed is not that Utopian dollar a bushel, but better farming.

**CHAIN-HARROWS.**—In our description of "Cleaning stubbles in autumn," we omitted to say that one of the best implements for the trituration of the clods, and thereby setting free the roots of couch-grass, is the *chain-harrow*. Its work is beautiful as a pulveriser, and it rolls up the couch into neat little rows that the horse-rake subsequently draws to the headlands for burning.

A **SHORTHORN MAN** says he is not at all ashamed of the Shorthorn dairy test at Chicago. The Jerseys number 40,000 registered animals, hundreds of which have been carefully prepared for records. The Shorthorn has never, even in England, had a special training and breeding as a dairy cow, and in America such a thing as breeding carefully with an eye to milk production has hardly ever been thought of. Nobody is told of the hosts of Jerseys that are only poor milkers and are good for nothing else, while a Shorthorn that fails in milk can readily be made into good beef. In spite of the boast of superior flavor always made by the Jersey men, they run a neck and neck race for butter, while the Shorthorn cheese scored higher,

both in flavor and color, than either the Jersey or Guernsey, and, in the grand sweepstakes, three Shorthorns finished ahead of the best Guernsey, a breed that has been trained for generations for the dairy especially, but which fall behind the Shorthorns 3.3 in the quality of product, while the Jerseys beat them by but a small shaving, the score standing 90.6 for Jerseys and 90.0 for the Shorthorns.

**WASHING DAIRY UTENSILS.**—We were surprised to see, the other day, in an article in an exchange, the writer advising milk-cans to be washed out with boiling-water. We thought every dairy-man, or woman, know that nothing sets the albumen in milk so thoroughly as boiling-water. All dairy-utensils should, after being emptied, be immediately rinsed out with cold water, and then steamed, or washed with boiling-water if there is no means of steaming: the heat will dry the can at once. Now we come to think of it, we remember recommending the dairy-woman at Mr. Whitfield's farm at Rougemont to follow this plan, but she did not take our advice as coming from one who know anything about it.

**WASHING BUTTER.**—At the Chicago Fair, the Danish and Holstein dairymaids hardly washed the butter at all. Formerly they worked the butter by hand but now the machine is invariably used. Steam your tubs the day before filling. A handful of quicklime put into the water, if you have no steam pipe, will help to take away the wood-taste.

**FEEDING "BABY BEEF."**—The manager of the Central Experiment-farm has been trying experiments on the feeding of calf-steers. Four steers, divided into two lots were put up and fed on rations 2 and 3:

| RATION No. 2.      | lbs. | RATION No. 3.      | lbs. |
|--------------------|------|--------------------|------|
|                    |      | Corn Silage .....  | 50   |
| Hay (cut).....     | 20   |                    |      |
| Roots.....         | 40   |                    |      |
| Straw (cut).....   | 5    | Straw (cut).....   | 5    |
| Oil-cake .....     | 1    | Oil-cake .....     | 1    |
| Cotton-seed Meal   | 1    | Cotton-seed Meal   | 1    |
| Pease (ground).... | 2    | Pease (ground).... | 2    |
| Barley (ground)... | 2    | Barley (ground)... | 2    |
|                    | 71   |                    | 61   |

The preparatory ration lasted from Oct. 25th to Dec. 1st, and was thus composed:

|                  |         |
|------------------|---------|
| Corn silage..... | 25 lbs. |
| Roots .....      | 50 "    |
| Straw chaff..... | 15 "    |
| Pease-meal.....  | 3 "     |
| Barley-meal..... | 3 "     |
|                  | 96 lbs. |

Each lot contained one steer by a Shorthorn bull out of a grade Shorthorn cow, and one steer out of a French Canadian cow, by an unknown sire.

The cost of food consumed, per 100 lbs. of increase in weight, was lowest in the case of a calf-steer of French-Canadian breed.

One curious result arrived at is, that 2 yr.-old and yearling steers made live-weight increase at nearly the same cost for food viz., \$7.45 and \$7.23 per 100 lbs., but that to put an additional 100 lbs. of live-weight on the 3-yr.-olds cost \$13.77: nearly twice as much!

TABLE XIII.

| STEERS.                 | Increase in Weight. | Increase in weight per day per head. | Feed consumed per day per head. | Meat in feed per day per head. | Cost per head per day. | Cost per 100 lbs. of increase in weight. |
|-------------------------|---------------------|--------------------------------------|---------------------------------|--------------------------------|------------------------|--|
|                         | Lbs.                | Lbs.                                 | l.bs.                           | l.bs.                          | Cents.                 | Dollars.                                 |
| 3-year-old, No. 189.... | 102                 | 1.02                                 | 65.96                           | 6.48                           | 14.05                  | 13.77                                    |
| do No. 188....          | 155                 |                                      |                                 |                                |                        |  |
| 2-year-old, No. 183.... | 260                 | 1.94                                 | 67.92                           | 6.68                           | 14.47                  | 7.45                                     |
| do No. 182....          | 229                 |                                      |                                 |                                |                        |  |
| 1-year-old, No. 178.... | 173                 | 1.33                                 | 45.25                           | 4.45                           | 9.64                   | 7.23                                     |
| do No. 177....          | 163                 |                                      |                                 |                                |                        |  |
| Calf steer. No. 172.... | 212                 | 1.53                                 | 35.25                           | 3.46                           | 7.51                   | 4.89                                     |
| do No 171....           | 175                 |                                      |                                 |                                |                        |  |

**HEREFORDS AS MILKERS.**—How it may be in the States we do not know, but in England Hereford cows as a rule are very poor milkers, and not without a cause. For the last hundred years, at least ever since they came into vogue, they have been allowed to suckle their calves, and as no cow will take the trouble to provide more milk for her offspring than it cares to absorb, Herefords, like Shorthorns, Kyloes, Polled, Angus, &c., have been trained into bad milkers. If calves are allowed to suck their dams—a bad plan in our opinion—the cow should, from the very first, be milked regularly twice a day, so that no check be placed upon her natural tendency to give a more or less copious flow of milk. In the subjoined paragraph, Mr. Miller ought to have said, that Herefords "might have had," instead of that they actually "have a record, &c." His change of method, good in itself, can hardly be expected to bear fruit for the first or second generation; but, persevered in, there is no reason why his herd should not, with time and patience, become as celebrated as milk-cows as they are now for butcher's beasts.

"T. L. Miller, the well known American breeder of Herefords, announces a change of method in his herd for the future. The cows are to be hand milked, instead of suckled by the calves. In concluding a recent letter Mr. Miller claims that "the Herefords have a record for milk and for butter that will average with other breeds."

**Farm-Operations--November**

As we generally have, in this part of the province at least, some days or even weeks of open weather this month, every opportunity should be utilised to complete the ploughing of the stubbles, leys, &c., in preparation for spring-work; during which work the horses will require as full feeding as at any time of the year; for, though the

days are shorter, the weather is generally cold and wet; both of which conditions are inimical to the well doing of the teams. As long as the horses are on *hard* food, a cold bran-mash, on a Saturday night, will help to keep them in health. We say "on a Saturday night," because the mash tends so to open the pores of the skin, that after it has been given the animal ought to remain in the stable all the next day.

**Cattle.**—All the cattle should now be housed. A little exercise in fine weather will do even the milkers no harm, but the moment they begin to hang about the cowhouse door they should be let in.

Will any of our readers try our favorite milk mixture?

|               |            |
|---------------|------------|
| Corn.....     | 2 bushels. |
| Pease .....   | 2 "        |
| Linseed ..... | 1 "        |
|               | 5 "        |

To be ground up together and mixed with plenty of damped straw-chaff: five pounds will be a fair allowance for a cow, of ordinary yield of milk, in addition to her ration of roots or silage.

The above will make 56 days' rations for one cow, costing about 8 cents a day. The farmer must be the judge as to whether any individual cow will pay for the exhibition of a larger dose of the mixture. The linseed will have the effect of correcting the tendency of the pease to produce constipation, and its value will soon be apparent in the brilliant lustre of the cows' coats. For fattening beasts, another half bushel of linseed may be added to the mixture with 1½ bushel additional of pease, so that the compound would stand thus:

|              |            |
|--------------|------------|
| Linseed..... | 1 50 bush. |
| Pease.....   | 2.50 "     |
| Corn .....   | 2.00 "     |
|              | 7 00       |

**The flock.**—Plenty of fresh air, with perfect protection against wet, whether from rain or thawed snow, and a fair proportion of nitrogenous food in the form of clover-hay, pease-straw, &c., will be the best mode of treatment for your in-lambd ewes. Sheep can stand any amount of cold, but a wet jacket does not suit them here any more than in does in England. If your ram serves many ewes do not grudge him a few pease, with clover-hay, to restore his forces after his arduous though pleasant task is con-

summed. A ram we once hired from the celebrated Jonas Webb, of Buba-ham, Cambridgeshire, England, served 110 ewes, and was neither sick nor sorry afterwards!

Remember that well-saved pease-straw is far better for m-lambod ewes than the very best timothy hay.

**Swine.**—Keep all your pigs warm, but especially the late litters. No sow ought to pig after the 20th of September, for no animal on the farm is so susceptible of cold as a young pig. Far better sell late dropped ones as sucking-pigs, at a month old, than try to carry them through the winter. Porklings littered early in September, should be fit for the Montreal west-end butchers by New-year's Day, and, if fairly fat, but not too fat, ought to bring good prices. Don't let your well-bred sows get too fat, a fat sow rarely brings a strong litter of pigs. Curious, is it not, that the sow is the only female on the farm that keeps her reckoning—16 weeks—to the day, nay almost to the hour? A mare is generally pretty close to it, but a sow is accuracy itself.

**Calve, England, Friday.**—Present prices for prime pigs in lots of not less than 10, on rail within 100 miles of Calve:—

| Prime store.             | Thickness of fat in any part of the back | Price per sc |
|--------------------------|--|--------------|
| 6sc. 10lb. to 6sc. 10lb. | 2 in. and under                          | 9s. 6d.      |
| Under 10 sc. 10 lb.      | Not exceed 2 1/2 in.                     | 9s. 6d.      |
| Under 11 sc. 10 lb.      | Not exceed 2 3/4 in.                     | 8s. 2d.      |
| Under 12 sc.             | Not exceed 3 in.                         | 7s. 3d.      |

Any pigs outside these limits at their value. Sow-, 6s. 6d. per sc. Half truck, 12 pigs; whole truck 25.—Chas. and Thos. Harris and Co., Limited. They are particular in En-gland.—Ed.

### The Dairy.

#### THE BATTLE OF THE BREEDS

The publication in the GAZETTE of the summary and results of the cheese-making trials at the Chicago Exhibi-tion will come as a surprise to many, though some, who like myself, have been watching the reports of this and the butter-making trials from week to week will have been gradually pre-pared from the same. It amounts to this, that three breeds of cows—Jer-sey, Guernsey, and Shorthorn—have been during the month of May sub-jected to the most searching and thorough test yet carried out any-where as regards their cheese-making powers, and the Jersey has come out top in every count, with the Guernsey second, and the Shorthorn last.

It is about the first time we have been brought face to face with the fact that Jerseys and Guernsey are cheese-making cows, at least, on this side of the Atlantic, and the matter wants a little study, and a little inquiry into the system of the trials, and the various points attended to. Only these three breeds were tried, for, though several others were originally entered—such as the Ayrshires and the red Polls—they were withdrawn for various reasons. This is a great pity, for though the result might not have been different, yet it would be of the utmost importance to know the relative value of all the recognised dairy breeds.

At the trial there were twenty-five selected animals of each kind, seventy-five in all, and the trial was conducted for fifteen days, during ten of which, cheese were made. The points noted in the trial were.—pounds of milk yielded, cheese made, whey made, live weight gain, value of

the cheese, value of the whey, value of the live weight, and cost of food. The value of the cheese was fixed ac-cording to the scale of points given in the GAZETTE. The point which at first puzzled me was how they managed to make the rich milk of Jerseys and Guernseys into cheese at all (Cheddar, I presume, though the variety is not mentioned), for I remember writing some two years ago, to point out, that very rich milk was not suited for cheese-making, owing to the difficulty afterwards found in the ripening of the cheese. Some one replied that he found no trouble in doing it, but re-fused to publish a description of his system. I have, therefore, looked, to see what percentage of fat there is in the milk of the cows, and I find that in the butter-making trials the following are the averages for June and July in the latest copies of Hoard's Dairy man" to hand.—Jerseys 4.79, Guern-seys, 4.57, Shorthorn 3.68. Now, while these are fair qualities of milk being higher as regards the Jerseys, and lower as regards the Guernseys and Shorthorns, than the average of the B.D.F.A. milking trials, yet they are not excessively rich when we com-pare them with the yield of many in-dividual cows which with us have reached 9 per cent., and even 10 per-cent, at the late trials at Norwich. It is therefore easily seen that milk of the quality yielded at the Chicago trials would offer no exceptional diffi-culties in the making of cheese.

It may be mentioned in passing that the Guernseys have yielded a higher average of butter fat than the Jerseys at our B.D.F.A. Show during the first ten years of the trials.

The result is certainly a feather in the cap of the Jerseys men, and will help to "loom" the breed more than ever, and will tend to revolutionise some of our ideas on this side of the water. In the light of these results "Cousin" Hoard thus criticises some of our British notions:—

"It is interesting to read in British exchanges the discussions going on in various dairy organisations, and to note how men put forward as esta-blished facts, notions that have passed current for years, but which have no foundation in fact. For instance, at a meeting of the Central Chamber of Agriculture there was a discussion on preventing the sale of skim milk as a whole milk, and the necessity of some legal standard of fat was talked upon and a Mr Rigby said:

"All who have handled milk were well aware that there was immense difference in it. The milk of Leices-tershire contained more curds than that of Derbyshire. The milk of Channel Island cows produced more butter than that of Ayrshires, but the latter was best for cheesemaking."

"Looking at the statement in the result of the World's Fair contest, just decided, it would be pertinent to in-quire wherein Ayrshire milk is better than Jersey milk for cheesemaking."

"It is true that milk low in fat con-tent, whether it be of one breed or another, may be better put at cheese-making sometimes than butter. This we will not deny, but that does not prove that it is better than good rich Jersey milk for the cheese vat. The economic question—whether milk had better be made into cheese or butter is one which can only be answered by the market rate for each and the eco-nomy of manufacture."

The last sentence pretty well sums up the whole matter. The Chicago trials are the fullest and most search-ing which have ever been carried out,

(1) In England.

but it is manifest there are "a" great many things the ordinary dairy farmer has to consider besides those noted at these trials, and which cannot possi-bly be reckoned for in any trial short of actual ordinary farming. There are such things to be considered as the cost of the animals to begin with, their value when done with as milch-cows, their hardiness and ability to thrive on inferior pastures, their death rate, and so on. Then again there is the experience of each individual farmer with some particular breed, which counts for a great deal in his success therewith, and which would make it a very foolish thing for him to give up the animals he knows for ones which he does not know, no matter how much the latter may be intrinsic-ally superior.

Our American friends have long ago pointed out that there is no such thing as a cheese cow, and that it is impos-sible to develop animals with a large proportion of casein in the milk, because this ingredient is nearly constant in all samples, but that in developing the butter fat which could be incorpo-rated in the cheese, the total yield might be greatly increased. The Chi-cago results bear this out, for the Jer-sey, which was unquestioned as a buttermaker, is now shown to be pro-eminent as a cheesemaker. I should greatly like to know if the system of cheesemaking pursued was the same as regards all the three breeds—that is, in such matters as quantity of rennet, temperature, acidity, and so on. Mr Rigby is quoted above as saying that Ayrshire milk was the most suitable for cheesemaking, and I have hitherto believed this also, not because of anything special about the chemical composition, but because the butter globules are small, and thus do not readily rise to the top as cream, or become expressed in the whey, but are retained in the curd without much trouble. On the other hand, Jersey milk with its large globules and large percentage of fat would give a consid-erable amount of trouble. I have known of even Ayrshire milk requiring to be skimmed before the cheese made would ripen properly in the old days anterior to the introduction of the Canadian system, and I therefore hope that some of the American authorities will give us some details regarding the actual making and ripening of the cheese of the different breeds. A great and exhaustive trial like this-wants to have every little detail dis-cussed and explained.

PRIMROSE McCONNELL, B. Sc.

#### THE ADVANTAGES OF DAIRYING.

BY MRS. E. M. JONES.

I have been asked to prepare a pa-per on dairy matters, to be read be-fore this, the first Farmers' Congres of the province of Quebec. I can hardly tell which feeling predominates in my mind; intense pleasure, at the honor done me; or a deep sense of the importance of this occasion. I need not enlarge upon my own diffidence—such remarks are an old story, but I will tell you why I respond so cheer-fully to the call. When I was a child, I often went, with my companions, to gather wild strawberries; but some-times they were scarce and the search was tiresome. If a passing farmer said, "Children, I hear there are good straw-berries in such a field, over yonder," we hardly trusted him, and did not always go. But, if one of our number,

who was actually picking berries, call-ed out, "Come on, come here, this is a splendid place" we just tumbled over one another in our anxiety to get there, and all shared in the good luck.

Now, I have found "a good place" in dairying, a great place and I want you all to come on, just as fast as you can, and share in my luck. My whole life has been spent in dairying, and after struggling through untold diffi-culties, and proving each step as I went, by dear bought experience, I have at last attained a brilliant suc-cess, and I want others, to share it. I look at it in this way.

The average cow of the country, makes 150 lbs. butter a year, which sells at an average price of 20 cts. In deed, I doubt if they do as well as this:

My cows produce from 250 lbs., all the way to 500 lbs. of butter a year, and sometimes, far more. All my butter sells at 35 cts. a lb. all the year round, at my own place. I have no express or freight charges to pay, and I do not even have to print it.

My dairy has become famous all through the States and through Canada, and I have now lying on my desk letters from Dairy Associations in Michigan, in Wisconsin, in Indiana, in Connecticut, Vermont, New York State, and the grand old province of Quebec, all urging me to come to their Dairy Conventions, and lecture on dairy-cows and butter-making. All these societies offer to pay my ex-penses, and most of them, offer a handsome sum in addition. While deeply sensible of the honor these gentlemen do me, and proud to tell you of it, I yet ask you to believe that I mention it in no spirit of boasting—far from it indeed. I mention it only to cheer on others, so they too may succeed, and make money. Do you realise what it means? Let us con-sider it. If we could actually double dairy products of our country, and also, get a higher price than we now do; and if, to do this, we need not keep more, but fewer cattle at less cost for feed, for attendance, and for barn room, would it not alter the whole as-pect of dairy matters in Canada?

Just think of it—of all that it means to us? Why, England pays annually thousand and thousands of dollars, to Irish and Danish farmers, every cent of which ought to go into the pockets of the farmers of Canada. Let us change all this, and bring this trade to our own Dominion. We must increase our products and increase our profits too. And one great way of making more profit is, to follow the teaching of all great Dairy Schools and Colleges. They continually tell us to "Lessen the cost of production." How is this to be done? By starving our cows? Far from it. But by keeping a better class of cows, feeding and caring for them better, and using more skill and care in making our butter. We thus increase our output, and, at the same time, we lessen the cost of production. Do not think I advocate too high feed-ing, for that is almost as great an error as starving your cattle. Feed generously, and of suitable material, but find out each cow's capacity and feed her up to the highest point at which she pays for the feed, and not one bit beyond it.

In my herd, the usual grain ration for each animal in full milk, varies from 7 to 10 lbs. per cow, each day. This is composed of ground oats, ground peas, wheat-bran, and, occa-sionally, a very little oil meal. The ration is divided into two feeds and given night and morning, upon the silage. Should the silo be empty, the



grain is always fed upon hay that has been cut and moistened.

The quantity of silage fed is 30 to 40 lbs. a day. At noon, my cattle get a very small feed of cut carrots or mangels, and any further supply of food required consists of bright, early cured, long hay, put in their mangers. They get all the salt they need. All the water they want twice a day, and each cow is well curried and brushed over every day. Whenever weather permits, they are turned out for a short time, about noon, but are never left out till cold and tired. The barns are thoroughly cleaned out, twice a day. With this feed and care, I have two years old heifers, making from 12 to 14 lbs. of butter a week, and mature cows, making from 16 to 19 lbs. a week. To a very uncommon cow, I feed a larger ration. My famous old "Massena" is none eating more than the quantity I have just mentioned; but what is her yield? Being in her sixteenth year, when I tested her, she gave in eleven months and nine days 8,290½ lbs. of milk, which churned 654 lbs., three fourths oz. of magnificent butter, and then dropped a fine heifer calf. With her previous owner when she was younger she is credited with 900 lbs. of butter in a year, and her record is accepted by everyone.

Some people say, that this large butter yield wears a cow out. Well it has not worn "Massena" out, for she is hale and hearty and as bright as a dollar, and due to calf again next April, when 17 years old.

Some cows will respond far more readily than others. In my little book lately printed, "Dairying for profit," I have given a year's feeding of a cow I once owned. The ration was very large, but then she was an exceptional cow, and her yield was very large, so that she gave me an actual cash profit for butter alone of \$49.70 in the year, over and above her keep. As you will see by reference to my book, I made no charge against her, for actual attendance, or barroom. But, on the other hand, I gave her no credit for the quantity of skim milk and butter milk for the large pile of manure, and for the fine heifer calf she gave me. So you will see, that the profit I mention, is, if anything, under estimated.

I have been told that this was an exceptional animal, and that few cows would respond to feeding, as she did. Precisely; that just hits the nail on the head. Now what we want to do, is, to GET RID OF, those poor cows that will not respond to feeding. Eat them, bury them, but do GET RID OF THEM, for they are mortgaging your farm, making slaves of your wives and families and sinking you deeper into debt every year they exist. Then fill the country with cows that will respond to good feeding, that will pull you out of debt, and leave you a good balance in the bank. I do not extol one breed above another, for circumstances alter cases, and it is folly to disparage one noble breed of cattle, just because you happen to prefer another. It is like the man who said there were only two sorts of dogs in the world, the dog that he kept himself, and the mongrels that everyone else kept. Nonsense! We have many grand dairy-breeds to choose from; so I say to you most earnestly, choose the breed that suits you best, then get the very best individuals of that breed, and give them the best of food and you will never regret it.

Let me say that anyone who tries can do far better than I have done, because few have such difficulties to contend against. The man of great wealth has the sinews of war, with which to carry on his enterprise and

we all know what plenty of capital means, in business. If united with brains, and perseverance it means assured success.

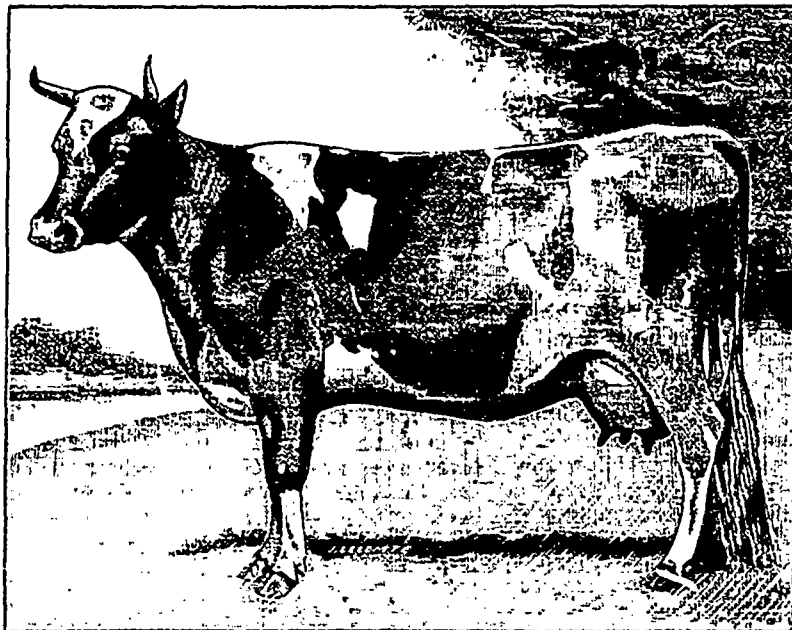
The plain farmer, on the other hand, may not have the capital, but he generally has a good farm out in the country, where land is of less value and taxes are over, and has comparatively little outlay for labor, because he himself, and all his family, work as few hiredlings can do. But I live just on the edge of town, where the rent of land is enormous and yet the land itself is rocky and poor, and I have to hire all my labor. On the one hand, I have not the advantage of getting the work done like the farmer, by the family; and, on the other hand, starting with very limited means, I had not the advantage of the capital possessed by my wealthier friends. In fact, to use a homely saying, I have been all the time "between the devil and the deep sea." Yet I have proved that a Canadian Dairy may be made a great business, even under adverse circumstances, and with the very plainest surroundings. You can all do as well, and most of you can do better. It makes me heart-sick to hear those of my own sex wishing they could earn some money, to see them peddling books and corsets; working in factories, or writing trashy novels, for only enough to keep soul and body together,

country one of the grandest and most profitable breeds on the face of the earth.

My friend Mr. Tylee once took me to see Mr. Dionne's herd, at Ste Thérèse, and I was surprised and delighted with it; while the sample of butter given me rivalled that of my beloved Jerseys. In those cattle, you have almost boundless possibilities, and I predict a great dairy future for the province of Quebec.

You have three more great causes of thankfulness, though a very brief mention of them must suffice. I mean the large number of well equipped butter and cheese factories, the presence of the travelling dairy among you, and the excellent schemes now on foot, for establishing winter dairying as the rule and not the exception.

One can hardly overestimate the immense advantages of the co-operative system in making both cheese and butter. Fifty years ago, we all made butter and cheese at home for the same reason we travelled in a stage-coach, because we had to do so—there was no other way. But the march of progress has brought us many good things, many labor saving things, and I do assure you that one of the greatest of these, is co-operative dairying. Why is not every man a blacksmith, to shoe his own horses, or a manufacturer, to make his own



FIRST-PRIZE MATURE GUERNSEY COW, NEW-YORK STATE FAIR, 1892.

and all the time they have, close at hand, a business more noble, more profitable and far more independent. One that will elevate themselves and the whole community, and enable them to confer a lasting benefit upon the country in which they live and die.

In answer to hundreds of requests, I have printed my book, "Dairying for profit," which tells how I keep my cattle, and make my butter. And proud and happy I am to tell you, that the Hon. John Dryden has ordered 5000 copies for free distribution among the farmers of Ontario, and I only hope he will like it well enough to order 100,000 more. Also that Hon. Mr. Angers will do the same. Still more gratified I am that the Quebec Government have also ordered a number of copies. It may not be a matter of surprise that my work should be recognised in my own province, where I have lived and labored, but this liberal minded treatment on the part of my Eastern friends, is peculiarly gratifying to me. Let me thank you, from my heart, and let me, at the same time congratulate you on having in the French Canadian cattle of your

binding and reaping machines? Just because those things can be done better, quicker, and consequently, cheaper, by those who make it their life long business, and whom constant practice makes perfect, while the farmer, on the other hand, can use the time to better advantage. The factories can give you the benefit of such skill, such uniformity, and such market facilities as can only be found occasionally, in private dairies. Also, let me mention another point, that often escapes observation: after a long life of study I have come to the conclusion that the oftener one churns the better. Collect a cow's cream for a week before churning it, and, in spite of all your care, some will be too ripe, some not ripe enough, and so on. Whereas, I am convinced you get a better result if you churn that cow's cream three times a week; a still better result if you churn it every day; and the best result of all, if you could churn every milking by itself. We all know this to be practical impossible, in private houses, but here is where the factory steps in, and carries out this idea to perfection. There is, however, one lion in the path of the facto-

ries, one mill stone round their necks which cripples their usefulness, and which even, in an indirect way, is ruinous to the best stock interests of the country. We are now fighting this difficulty, and will soon win the battle. I am speaking of the WANT OF DISCRIMINATION in receiving the products from the patrons. Hundreds of times, I have heard farmers say, "there ain't no use keeping good butter cows, for their milk brings no more in the factory." So far, this has been generally true, but we are now awaking to the fact that it has been the crying evil of the system that it has depreciated the market value of rich milk—in fact that it has been, virtually, offering a premium for quantity, at the expense of quality.

But, we are by degrees, gaining our object, and, soon, every man will be paid according to the yield of his milk in butter or cheese, and, still better, all milk not up to a certain standard, will be rejected entirely. Of the travelling dairy it is impossible to speak too highly. We all know the value of illustrating what we say. It is a great point, to see exactly how a thing is really done—it is just the whole difference between only hearing about it and actually seeing it with your own eyes.

Lastly, the idea of winter-dairying, is one of vast extent, and of the highest importance. It is destined to work a revolution in farm life. If you wish to average a larger quantity, a better price, and a higher profit, also, better cows, and more and better manure make the bulk of your butter in winter. You will also secure a more even distribution of your labor, so that it won't be all a feast or a famine. Sometimes, for half the winter, the teams are comparatively idle, and the men have time to sit round the stove at the village shop. Now I like their having a little leisure and sitting around the stove, and exchanging ideas. But do not carry it too far. You can milk the cows and take the milk to the factory in winter, and still have time for reading, recreation, and social intercourse. The cows that calves in September will yield well all the winter—when grass comes, it will send her along again, for a while, and when she does fail, it will be in July and August, just when you are heated and tired with haying and harvest, and do not want to be bothered with her: just when the cow is tired and hot, and worried with flies, and only wants to stand in the shade and switch her tail, and just when butter brings the lowest price in the whole year. I hold that the same cow is worth ten dollars more a year if she calves in September than if she calves in April. I earnestly hope you will still further study my book, because it is worth while to have labored for nearly half a century, if, at the last, my life long work be thus approved by the government of my own country; and because, when lectures are over, and the travelling dairy has moved on, my book goes right into the farmers' houses and stays there, to be a continual reminder of what they have been taught. Taught, through the noble efforts of those whose one aim in life has been to raise the standing, and better the position of the agricultural community; men who are indeed philanthropists in the truest and broadest sense of the word, men whose names should be handed down to posterity in letters of gold. If I can supplement their efforts, by my little book, I shall be a proud and happy woman. It has at least, one merit—it is my actual life-experience, so that many a poor soul, on reading



it takes heart of grace and says, she has actually done all this, with her own hands, and if she has done it, we can do it too.

Mrs. ELIZA M. JONES.

### TOO MUCH WATER.

Experiment at the Iowa station show that any unnatural increase of water in a ration causes a waste of food energy and that there is nothing gained by mixing the wash water from the churn with the buttermilk. The wash water should be given separately and only to quench thirst. Watering the milk to make it "go round all the calves," or give all the pigs a sip, or throwing wash water into the rich slops of the swill barrel, or adding too much water to soaked or cooked feed, or allowing animals to become intensely thirsty and then to drink large quantity at a single draught, results in the consumption of food energy and consequently a lower rate of gain. The extra water must be warmed, it must be oxidized into urea, which consumes protein, or evaporated at the surface of the skin, or exhaled from the lungs. All these processes consume protein and absorb animal heat. Hence any feeder who forces his animals to take undue quantities of water with their feed, does so at a loss.

**FAT AND FOOD** - Can the per cent. of fat in milk be increased by good feeding? Nearly all the most carefully conducted experiments have shown that the proportion of fat cannot be increased by feed. Prof Cook, of Vermont, disputes these statements, and now the Colorado Station sides with him. Doubtless much will depend whether the cow is up to her normal standard of fat production, and also how she has been fed and cared for previous to the test. But the average farmer can well afford to let the experimental stations settle this interesting problem, for he knows all that is absolutely necessary for him to improve his herds, which is that some cows will give twice as much butterfat as others on the same feed, and also that plenty of good feed always gives a paying increase in the amount of butter produced. Therefore, weed out your poor cows and feed the remainder well, if you would succeed in dairying.

(Farmer's Advocate)

### DUNHAM.

At the Dunham Farmers' Club on Wednesday last the following prizes were awarded for the best average daily per cow during the months of August and September, Hillside factory: 1st, E. Harvey; 2nd, L. Longely; 3rd, P. H. Clark; 4th, L. J. Blake. Dunham factory: 1st, F. H. Gilbert; 2nd, D. K. Gilbert; 3rd, S. G. McElroy; 4th, W. E. O'Brien. The Experimental report was not complete and laid over for first Wednesday in November. Mrs. E. M. Jones, of Brockville, Ont., furnished a "copyright" address which she had previously delivered before a Farmers' Congress, which was greatly appreciated. A vote of thanks was moved by Mr. C. P. Taber, seconded by Mr. Jas. S. Baker, was unanimously adopted, and the secretary was ordered to forward same to Mrs. Jones. Mr. S. P. Cameron called the attention of the club to the necessity of having a black-

board for billing any animal or article for sale. The president informed the club that he would give a blackboard, and the secretary would copy shortly a book for entries.

W. E. O'BRIEN, Pres.

## The Horse.

### THE CANADIAN PONY.

THEN. NOW. TO-MORROW.

These few lines are respectfully dedicated to those who have at heart the regeneration of the horse bred in this province. We do not aim at imposing our ideas on those who have made a special study of the pony of former days, and who now pose as champions of that breed. We simply desire to submit to them our reflections, to tell them aloud what is whispered every where, persuaded, as we are, that they are too well informed to take our frankness in a disparaging sense, and sure, as we are, that if they will thoroughly investigate the question, they will share our views.

#### YESTERDAY.

Long ago, it was the horse of the province of Normandy, that the *Saint Jean-Baptiste* landed at Quebec; July 12th, 1685. "The two stallions and twelve mares were accepted and shipped in Normandy, on the same vessel, the *St-Jean-Baptiste*." (Correspondance générale de ce qui a été fait pour le Canada.) Whether they were Percheron, Augeron, or Morberaught Cotentin, i. e., one of the three breeds then existing in Normandy, makes but little difference, it was above all a Canadian, that faithful "Caribou de France," which, like its master, could work and fight, at the rising of the day-star of New-France. Badly fed, and often worse lodged, he lost in size, in development, what he gained in endurance, hardiness and activity. By inhaling the Northern breezes, his lungs grew in size, by climbing and descending the declivities of the royal river, his feet became marvellously sure, and by ploughing as well as by making his way through the virgin forest, his limbs became insensible of fatigue. In short he underwent the change we now see, though the analogy is rather far-fetched, in the hundreds of wild horses along the banks of the Rio de la Plata, which have escaped from the first settlers of the prairies. There is no better "all purpose" horse for a country entirely new; only, they already show that curious difference in the make of the loin, which is too long in the horses in the States, but remains short in the Quebec pony.

For the last five years, we have been trying to get an exact description of the faithful servant of our ancestors, but we must confess that those we have obtained from divers quarters are not very clear, and only tally in three points: 1. The withers were low; 2. the hind quarters and counter wide; 3. mane and tail long: this last is not a surprising feature, considering what our winters are, it is rather a sign of degeneration than otherwise, and may be also remarked in the descendants of European horses in the ranches of Wyoming.

As to the head, no two accounts agree; we, ourselves, think it is to be found in the head of the Morgans.

This horse was, and is still, indispensable in an uncleared country, where the roads are hardly even trac-

ed out, and where heavy loads are out of the question. With only two persons in the sleigh, the pony will dart along the snow roads, and all the faster the colder it is. In fact, whether for farm work, which was rude enough, or for draught in carriages that were light enough, he was only required to possess pluck, wind, and hardiness, and these qualities he possessed in the highest degree, did the good honest little Canadian pony of our forefathers! This pony it was that, in Quebec, in 1734, used to be sold for from 100 to 150 francs.

#### NOW.

Nowadays, this horse is no longer to be found in the province. He will always live in our hearts, and time will only intensify the poetic vision we all indulge of him, and justly indulge, but he can never be reanimated, for the first elements of his resurrection are wanting. We have been shown "pure" mares of the race, "but," said the same breeders, "there are no more Canadian stallions to be found"! How, on earth, can this be? There are mares and yet no stallions! The purity of the race, then, in these brood-mares is reduced to this: they are of mixed blood, in which a great number of the traits of the primitive stock predominate.

This is our positive conviction.

But, if it could be done, would it be wise to resuscitate the race? That is the point. Why has it disappeared so completely? Its champions affirm that the Americans have bought them all. have bought mares and stallions by the thousand, so highly did they prize them, and the result is their entire disappearance from the province. Such reasoning as this, we confess, surprises us. Is there a country in the world where demand does not stimulate production instead of exhausting it. Had the Bostonese come in such numbers to buy our horses, would not our farmers, quite as sharp as the Yankees, set to work to breed ten, twenty, a hundred times as many of an article so much in demand? That such an article might have deteriorated, in the hurry of breeding, as has happened to the Percheron, we grant. But that it could have vanished altogether! Absurd.

Fifteen years ago, American dollars began to inundate Normandy: the best stallions and mares were exported in such numbers that many farmers began to cry out. "Take care! The breed is going to vanish!" and great were their lamentations at seeing the Norman lads (*gars*) deaf to their complaints. (1)

And what was the outcome? The Yankee's money has remained in the cash-boxes of the men of le Perche. the horses were sent abroad, but were replaced by a progeny so stimulated by the demand, that the breed is more flourishing and more numerous than ever. These are facts: observe, that we are not discussing the question of the improvements or the deterioration of the race. Why should it not have been the same in our province, if the demand for the pony had been really so great as it is said to have been? The purchasers themselves would have been the first interested in pushing this sort of breeding.

Ah, no! If it has disappeared, it is not in consequence of a total emigration to the States: it is because it had not kept up with the times, through the force of circumstances, among a proud people, surrendered not conquered, and

(1) *Les gars* of Brittany were the royalist insurgents of 1793. Ed.

that disdained to ask from the foreign or fresh sources of more modern blood. It is because the Canada of Jacques Cartier has become the Canada of Confederation; because the roads are open and the carriages become heavier; because the furrow ploughed is deeper and the cultivation more careful; because, in a word, we now require from the horse power and endurance proportionate to his pluck. for such is the demand of modern civilization. Such power, such force the pony could not supply; his breeding was no longer profitable, he vanished because he had become useless, as, in France, the pony of Brittany and of the Ardennes has disappeared.

New wants make themselves felt every day, and the implements of the past cannot answer the purpose of the present. Must we, then despise them? By no means. They came at their appointed hour, they played their part, but to be of service to-day, they must undergo that evolution that, in all things, will never pause till the end of all things arrives. Progress, be it material, agricultural, or manufacturing, is an express train with a full head of steam on. if we do not jump on to it at once, how soon we shall be left behind!

"When working, keep your eyes always on the market," said Mathieu de Dombasles, and the same may be said to those try to bring us back to the past, and to resuscitate a vanished race. Is it of the evolution that shall preserve the best qualities of the past that you speak? Very good. But to restore it to what it was, even in its best days! For what purpose? For whose use? If so we must also restore, as with the wand of a fairy, Canada as it was a century ago. And we would call attention, without too much satire, to the fact that, generally speaking, the firmest champions of the horses of former days, do not seek them for their own use, while we possess a pair, or what we take to be a pair, which give us the greatest satisfaction, though two of them would be wanted in a modern waggon, rather heavily laden, if we wished to spare their limbs from the blonishes that *their pluck, so much greater than their power, would quickly acquire*. the cost of keep, thus, would be doubled, at least when at work. (1)

In short, we assent that the old breed, restored to just what it was, if possible, would not be saleable, consequently it would not enrich the province, and "it would die of consumption under the burden of its uselessness," like its progenitors, according to a well-known saying.

As to the counties where the snow-fall is heavy, or the bush still uncleared, these ponies are without doubt more useful, but they are unsaleable beyond the limits of those counties; while the same animal with a dash of racing or Norman blood in his veins, will do the same work and sell well abroad.

This question of breeding the Canadian horse is all the more delicate, because many people attach, always erroneously — for the modern horse would be as Canadian as the ancient one —, more or less idea of nationality to the point, and the accuracy of reasoning runs a great risk of being wrecked. So, the Canadian horse has practically vanished from the province. By what is it to be replaced?

Before embarking on a conscientious study of the present state of things, let us bear in mind that we are a large family of about 30,000 children of the Journals of Agricultural; and that it is better for us to conceal nothing from

(1) Hardly. a pair of Canadian ponies would not eat twice as much as a Clyde. Ed.

ourselves, to look everything full in the face, without resting satisfied with phrases, etc., in order to take measures to restore our breed of horses.

In the district of Beauharnois, including Châteauguay, Huntingdon, Beauharnois, the Canadian pony-mares, that used to fetch from \$25 to \$40, when crossed with pure Clydesdales have produced horses of so remarkable a stamp that they have become the sole uniform centre of the horses bred in the province. (Observe, please, that our positive assertion as to the origin of these brood-mares rests on three years of attentive observation, and on questions put to all the principal breeders of the district.) Horses sell there for from \$100 to \$250, even in these critical times, and certainly constitute the chief source of the horses exported from the country. We shall often quote this district, which replies triumphantly to more than one objection by its 30 years of continuous crossings of the Big Clyde with the small Canadian mares, and by its perseverance in rearing the same crosses, in spite of the snow-covered roads of winter, &c. &c. The Clyde-Canadian sells and sells well, and brings into Quebec twelve thousands of pounds sterling which is still better.

In the Eastern Townships, many thoroughbreds, many trotters, have left a durable impression; the average is pretty good, though hardly large enough: and so with the horses of St-Hyacinthe. Lastly, the Percheron is giving, as it has given, good results round Montreal and in most of the counties that have profited by the services of the Haras National: its complete success, its assimilation with the native stock, only wants an effort as continuous as that in Beauharnois.

But, to sum up, two-thirds of our counties, on examination, present a deplorable chaos. We, by no means say that no good horses at all are to be found in them: our pastures, our climate, everything is favourable to breeding such, and those colts that are bred there, sometimes in contravention of all known rules, are at any rate saleable. But these sales,—5,397 in 1891, value \$589,921—, does not enrich their owners; they have no pure-bred ancestors. Their sire was here a St-Laurent, there a Café, here a third animal, each, doubtless, a horse of remarkable quality and reproductive power, since he had earned a local reputation, but nevertheless of a breeding that could not be traced; they were all "accidents," from which no fixity of type, no ineffaceable character could be hoped for: chaos, in a few years—that is all that could be expected.

And if two-thirds of our counties are absolutely without a single stallion of any pure-breed whatever, must we not acknowledge that it is our fault the fault of us farmers, who have no confidence in pedigrees or in fixed breeds; of us breeders, who do not care about the descent of the stallion or his blood, which we call *sovereignty*. For what we want is a fine-looking beast with lots, oh yes, lots of mane and tail!

What sort of breeding have you been practising up to the present?

First we used a Clyde, and not being pleased with it, we tried a St-Laurent, and then a Percheron: now, a trotter is wanted, with the type of a good foal-getter...

My good friend, if you were the son of a Chinese and a Canadian woman: if you married a negress, and your son brought home a beloved Lap-woman, your grand-children would be as hard to classify in the human species, as deplorable specimens, as are

your Clyde-St-Laurent-Percheron-Hambletonian-colts in the horse-species. Indefinable, unnamable, that is what they are: is it not so?

A pure-bred stallion of any sort, in any of these counties would be better than what are there now. One of those English elephants, that are called "Black-horse," 17 to 18 hands high, would be far preferable to those stallions without breeding, in the Saguenay mountains, *provided he be pure-bred.* (1)

We think we hear the exclamations: this assertion will excite; but, if necessary, we are prepared to support it against all comers; do not make out that we say that this is the type best suited to these mountains: by no means! but we maintain that he would do more good than those no-bred stallions, because, once more, he at least would belong to a fixed breed. Where do the horses of these districts find a market? Very few beyond their own counties: owing to local circumstances, they answer local purposes, and the farmer, too often, does not perceive that the dollar that travels about from parish to parish does not enrich the country.

"You forget our winter-roads," says some one; "it is only the Saguenay ponies that can travel them."

Do you only breed to supply the local demand? Are not horses wanted as much, and more, for export: for Montreal, Toronto, New-York, London, Paris? Why not? On the morrow of the declaration of war that we have been expecting to hear of for the last twenty-three years, will not France be asking for thousands of troop-horses from America? Shall we then have them for sale? After the financial bother of the last few years, European cheques would be very welcome to our farmers! But without going so far as this, does not the Ontario farmer breed a style of horse that is useless to him—the hunter,—but that any one who rides to hounds willingly pays \$200 to \$300 for?

And admitting that the Canadian pony with a dash of thoroughbred or Norman blood (the Clyde and Percheron classes have already proved their value) is not so good as his ancestors were for local use, which position we dispute, would he not be worth a hundred times as much for sale-purposes?—"In the counties below Quebec, big stallions can't be successfully used with Canadian pony-mares."

"Really! Doubtless, you will hurl a thousand-and-one documents at our heads: we know all about that. What a lot has been, and will be, written about "the horse"? Has it not been said—and by a master, if you please, that "the Percheron can be bred anywhere; given lots of bran and a confined place," a made-up (*factice*) breed, with no impressive power as a stallion! And yet you may gallop over miles and miles of Wyoming ranches and point out with certainty every half-bred Percheron on the prairie, so strong, so emphatic, so undeniable is the imprint of the breed. Did not a celebrated school once teach *ex cathedra* that monorchytes would only beget monorchytes? (2) And so, here, many of our best breeders, starting from the undisputed principle, though hardly a practicable one when the whole of a country is concerned, that to increase

(1) The old English cart-horse was always called the "Black-horse"—see *Dewick's Animals*. They were principally bred in the fens of Lin. Inshire, Huntingdonshire, &c., and were small, but, about the year 1600, stallions from the marshes of Walcheren became the progenitors of the "gigantic quadrupeds which all foreigners now class among the chief wonders of London."—Ed.

(2) A horse or other animal with only one testicle.—Ed.

the size of a breed it is best to select large brood-mares and put them to a medium-size horse, shout out: "A Percheron, a Clyde, for our pony-mares? You are joking; the result would be frightful? We wouldn't do it for anything!"

Indeed! Well, let us leave aside parchments, savants, writings, lectures, and theories, and go at once to the great book of nature. Will you tell us what has happened in Beauharnois? Is it not the creation of a remarkable type of horse by crossing pony-mares with big Clydes? Would not the rest of the counties appreciate the guineas that are now being received there from England?

What do we do see every day in the horse-ranches of the West, where the horse to be bred must be one that will sell? We see little broncho mares of 800 lbs put to Percherons. We see the companies enriched by large and frequent dividends: is it not clear, then, that this style of breeding must answer well and quickly?

Only we must attend to the leading qualities of the mare we are putting to the stallion, whatever be her size.

"The experience of years," says Abd-el-Kader," has proved that the stallion invariably imports the essential parts of the organisation of the foal, such as the bones, tendons, muscles, nerves and veins. This theory, confirmed by experience, is a full reply to the practice of many farmers who refuse to use large and finely formed stallions on small mares for fear of difficulties ensuing in parturition. (Frère Eugène Marie, on breeding, June 1st, 1893, Beauvais.)

Pray forgive one sole quotation in support of our assertions. We trust our critics will imitate our economy therein.

But, still, this style of breeding has been already tried and failed.

—How long?

—Five or six years.

—Five or six years! and that for the purpose of gaining what at Beauharnois it took twenty years to gain? You have thrown up your cards, poor breeder, just when the game was won; just at the moment when the harmony between two different races was about to operate quickly in the mysterious matrix of the second and third generation.

Tell us, then, what sort of a horse you propose to breed in future.

#### THE FUTURE.

For the future, it is still the Canadian horse that we require, but in a form that shall satisfy the demands of the civilisation of the times. It will be a carriage-horse, strong and hardy, showy and plucky, swift and powerful, sprung from the crossing of native mares with Norman and thoroughbred sires. Stations of a Provincial Haras in the North, in Gaspé, the Saguenay, like that in the neighborhood of St-Hyacinthe, would direct, every year, without violent shocks, the crosses that alone can produce the *race of the soil*. The Beauharnois district would receive the best English shire-horses and Clydesdales. The counties bordering on the States would rather be devoted to thoroughbreds. The districts near the great towns, where are the best meadows, where lime is more abundant in the soil, would still use the Percheron and the coach-horse. Strong teams are needed for town-work, and it is sad to see Montreal drawing its supplies of these from Ontario. Still heavier horses are required for improved farming, deep ploughing, for the heavier loads that improved roads bring in their train.

On the other hand, how many wealthy men pass their summer along the banks of the glorious St. Lawrence! And what chances are lost of attracting the eyes of these rich visitors with a fine pair of phaeton horses—Percheron—Canadian—for instance. Kamouraska, only to cite one county among so many, seems to be hesitating about adopting the line we trace for her, and wishes to keep on breeding horses of no special stamp—and with no chance of sale. Still, she would need no middleman, if she gave her mind to it, for potential buyers visit her annually.

The absence of great families with hereditary fortunes, like those of the Russian and English nobles, necessitate in this country the intervention, both direct and indirect, of government in horse-breeding.

*Direct*, by establishing fixed stations where stallions of the same or of the improving breed should be sent to continue the already commenced work.

*Indirect*, by premiums to the owners of the best stallions and brood-mares of the country, provided both fulfil certain conditions.

This interposition of the State, in the breeding of horses, is held by all reflective minds, after serious consideration. We spoke about it at length at the 'Armors' Congress, and need not now go over the same ground.

In short, the annual returns of horses sold in the province are very much less than the returns of cattle sold: cattle sold in 1891, 110,818; in value \$8,561,658.

The terrible crisis we have passed through during the last few years will soon have got rid of many of the inferior horses—absolutely *retrogrades*. If we unite, all of us; if we forget our favourites, be they Arabs, Orloffs, thoroughbreds (1) trotters, or the old Canadian; if we agree to advise farmers to breed that stamp of horse "that sells the quickest for the highest price," we are convinced that we shall, thanks to our climate, produce the best horses in the whole of America.

Let every one, then, do his share of this work.

R. AUZIAS-TURENNE,

Dir. of the Haras National.

(From the French.)

Flour de Lys, July 8th, 1893.

#### OUR MOST NOBLE QUADRUPED

A horse! a horse! my kingdom for a horse! So cried Royal Richard in his extremity, but had His Majesty been on Stunstead-Plain instead of Bosworth field he would not have had long to wait before securing one—aye, and one fleet enough, too, to carry him swiftly from before the face of his enemies.

The Eastern Townships have long been famous for their horses, and it would appear that no man of mature years and the means to possess one is without him.

Before horses had depreciated in value, breeding was a profitable occupation, but now, alas, this is sadly changed, partly by tariff enactments and partly because the breeders have turned their attention more to the breeding of fast trotters, which is a fatal mistake. For, after all, what is a trotting horse worth as to his real value for useful purposes? What matter is it from a utilitarian point of view whether a horse can trot in three mi-

(1) By "thoroughbred," we mean horses that can trace their pedigree to the Darley Arabian, the Eyerly Turk or some other Eastern blood, through the *English Stud-book*.—Ed.

minutes or four? As to the profit of the animals, strictly speaking there is none, taken in the aggregate. It is true enormous sums have been paid for trotting horses, but the very few only have reaped the benefit.

When we hear of horses being of a very high value we may look upon it as being partly fictitious.

It takes a small fortune in the first place to demonstrate what actual pace a fast trotter is capable of, and the number which excel is so small in proportion that it costs all the good they are worth to keep those which can never make a record.

So far from trotting horses being profitable, many a young man has wasted his patrimony on them.

It is true that horse racing has been practised from time immemorial, and he must be cold indeed who cannot feel a thrill of excitement when witnessing a race or meeting so in riding or driving a racer.

If all were fair and above board, trotting would be tolerable, but it is too well known that the best horse does not always win, and the gamblers, to suit their nefarious purposes, make a fair of it.

The noble horse is thus made a tool of for a vitiating sport.

If the evil ended here it would not be so bad, but men who can afford to indulge their taste in this direction set an example to those who cannot, and many farmers spend their time and their money in the attempt to follow it, with disastrous results, and are training and attending to their favorite trotters when they ought to be engaged in improving their farms or studying the best means of doing so.

For these reasons alone, a farmer had much better leave trotting horses to the rich who can afford the expensive luxury. To keep them with any degree of success a man must well understand all the ins and outs of pedigree and the dodges of the turf, be always correct in his judgment, with cool determination, and have a pocket full of spare cash.

But all this is not written to discourage the breeding of horses, which may yet be made a profitable enterprise if practised with judgment and common sense. We want to begin right, first of all to study which class of horses is most likely to be in demand and turn our attention intelligently and systematically to the breeding of such. Although Mr Hackett's bill for the taxing of stallions received but little support at the last session, it was without doubt a most important and useful one.

There are some cases in which men need protection from their own acts of folly, and this is one. If such a tax had been imposed, it would not have answered anyone's purpose to keep a mediocre animal and this promiscuous breeding would have been checked, an evil which both in cattle and horses, has been sapping the best interests of the farming community.

Further, to assist in this necessary horse breeding reform, it has been suggested that a well qualified horse inspector should be appointed for every district in the province. That no man should be allowed to keep a stallion for service who did not register his name with the Department of Agriculture, and that it should be the duty of the said inspector to examine and report upon every horse so kept, as to his qualification to get colts, which would improve the standard of excellence.

And now the question arises what are the classes of horses likely to be the most profitable. Some malcontents will say "Oh, the horse trade

is played out. Railways and electric cars have superseded them to such an extent that the demand will be limited." Judging from the experience of the past, there is nothing to fear in this respect.

When the railways first started in England, breeders thought their calling and occupation gone, and suspended their operations, but they soon found that with increased travel, and quick and cheap transportation of merchandise, more horses were required to haul passengers and freight to the station than in the old, slow days of coaching and stage waggons, and consequently horses went up to a much higher price than before, and so it will be now if we only raise the kind of horses to suit the changed condition of affairs.

Mr John M. True of Wisconsin, thus writes: "I see nothing in the character of the horse market that seems suggestive of radical change in the future. Good roadsters and coach horses, weighing 1200 pounds and upwards, will be among the best paying live stock for the next ten years, and intelligent wide-awake horse farmers can raise them.

Again we shall always want lots of good draft horses. The draught horse is the produce of good breeding and feeding. \* \* \*

and the income will represent as much clear profit as for any other line of good farm work."

What is true in Wisconsin is also true in the Province of Quebec.

There is no danger of over production for many a year to come of horses of superior quality, but the scrub is the fellow who will not pay. We want to rise above competition in all we produce, that is the straight and narrow path which leads to success.

What is called the general purpose horse is a difficult animal to secure. A draft horse to be of the service he should by reason of his strength, never can be a fast roadster, while on the other hand the horse which is swift enough to carry us over the country is not powerful enough for heavy draft, therefore we should have a distinct purpose in view, either to raise one or the other.

Selection may aid us in this respect. There will be various types of small breeds, and if we select the lightest of the heavy draught horses and the heaviest of the roadsters and mate them, we shall probably succeed in obtaining horses which will do the work of a farm and make useful drivers on the road. What we want is to know how our grade horses are bred, that the dam is as near perfection as possible, and the sire pure bred, and by no means to depend upon indiscriminate practices so injurious to good results. Failure is next to impossible when business tact, judgment and energy are brought to bear on the subject, and inferiority avoided in the article produced.

GEORGE MOORE.

#### WHAT FARMERS SHOULD RAISE

What I advocate is the breeding of high-priced heavy horses, which require but few good traits to make them available to the purchaser and are readily sold. Such animals are always in demand.

The Percheron or Percheton grade colt seldom gets into trouble, or is the subject of accident because of a mild temperament, and although having sufficiency of life to carry good style and awaken admiration he has always,

even when young, been sensible, not difficult to fence and of the most docile disposition. Before he is two years old, he may readily be worked into light and short jobs and from two years old onward, will earn his keep with ease. What he lacks in strength for draft while young, is made up in weight, and the breaking of such animals requires little or no time.

The colt is of course green on beginning, but patient education will place him, without whipping, where he will always be a useful horse. Exactly the reverse of the fast horse, the heavy horse is 99 times out of 100 a success for the markets. Granting that soundness, disposition, weight and style are considered in breeding, a very large per cent of the animals are salable at high prices and the demand for them in our cities seems to be practically unlimited, for it is constantly increasing. If you have money and want more of it in a few years, start at once and make your hilly farm turn out some iron-fibre horse-flesh for draft purposes.—[A Hill Farmer.

Farm and Home.

WORMS IN HORSES.—P. R. L., Bell-nap County, N. H.: There are several varieties of worms that often trouble horses, the worst being the bot, which inhabits the stomach, and which cannot be removed by any medicine that we know of without danger of killing the horse, but they can be prevented from doing much injury by keeping the animal well fed, and give twice a week a dose of three drams each of gentian root and pulverised sulphate of iron as a tonic, and to keep the appetite good. In a year from the time the eggs are taken into the stomach, the full grown worm passes off through the natural channels, and therefore may be looked for in the early summer. When the eggs of the bot fly are seen upon forelegs of the horse they should be scraped or washed off as the horse takes them in by biting them off. The worms sometimes seen under the tail of the horse, or passing off in the manure, can usually be dislodged by an injection of linseed oil or of tobacco smoke, and it is well to use the tonic and good feed recommended above, or this has been done. Be sure that the oil is pure. The other varieties, which lodge farther up in the intestine, or in the blood vessels, should only be treated under direction of a good veterinarian, but when suspected, use the tonic of powdered sulphate of iron and gentian root, which will prove good whenever the horse gets run down without apparent cause.

The Boston Cultivator.

HACKNEYS.—At the recent horse show in this city, almost none but the strictly fancy breeds were shown, the Hackneys forming the only considerable exception. In commenting upon this fact, one of the daily papers made the assertion that in 20 years the only use we would have for horses, particularly in the cities, would be for fancy drivers, saddle horses, etc. In short, that in a score of years we should use horses only as playthings, that the work now done by them would all be done by electricity. We are inclined to think that this is rather an extreme view, that it will be considerably longer than this before the work horse can be entirely dispensed with. Yet, the tendency is in that direction. The general purpose is a nonentity, so far as being a profitable animal to breed is concerned. The horses that bring the highest prices are those that are adapted to some special purpose.

This state of things is likely not only to continue, but to be intensified, and is worth the careful thought of breeders. The happy-go-lucky style of breeding in vogue in the past is no longer profitable. Have an object in breeding; aim at the mark with the determination of hitting it.

R. N. Yorker.

THE THOROUGHBRED WEIGHT-CARRIER.—Is a comparatively scarce animal, and no ordinary breeder can count on breeding him. He is a giant of his race, and is the ideal hunter when built the right way, and commanding the top price of the market.

The surest way to breed a weight-carrier—a horse up to 15 or 16 stone that has courage, quality, fair pace and bottom—is to breed from a good class of Cleveland mare, selecting one which is shorter coupled than the show-ring type. There is a great deal of quality in the Clevelands—they are fast and free in action, enduring in work; and the Cleveland is a pleasant and easy hack. I have seen Clevelands ridden to hounds and have hacked an undersized Cleveland mare, no one suspecting her origin and pedigree, which was a long Cleveland one. A Cleveland mare to a thoroughbred produces a very fine type of weight-carrying hunter, and I know men among the hardest riders who say that the hunters they have bred in this way were the boldest, best and most enduring they have ever ridden. Mr. Thos. Parrington, of Yorkshire fame, considers that the very finest hunters that can be bred are the first, or better still, the second cross off a Cleveland mare. Such a brood mare may, of course, miss throwing horses of the best hunter type, but if she does she throws a splendid bay carriage horse, and these lines seem to be as safe to follow as any.

Cultivator.

ALFRED E. PEASE.

#### THE ENGLISH HACKNEY.

Dr. W. Seward Webb of Shelburns Farm has shown his interest in the farmers of Vermont, and his desire that they should better their breeds of horses, by giving them the free use of several valuable stock horses. His fine imported English Hackney stallion, Rocket 3d has been, through the good offices of Col. Kimball, at the service of the farmers of Randolph during the last and the present season. Last year all the expenses were paid by Col. Kimball. This year a nominal charge of three dollars is made to defray the expenses. It is the belief of Dr. Webb and Col. Kimball, which is already shared by the farmer to a large degree, that breeding this stallion to the fine Morgan mare for which this section of Vermont is famous will produce a most desirable class of carriage and saddle horses. In color Rocket 3d is a beautiful jet black. He is a little less than fifteen hands high, and weighs 1,000 pounds. He has a muscular conformation peculiar to the breed, and his erect head, arched neck, lofty carriage and action, all convey an idea of power, courage and durability. He has taken prize at four of the great horse shows in New York and Philadelphia. It is only within the last ten years that the Hackney, as a distinct breed, has been known in America. The first brought to Vermont were by Dr Webb in 1888.

During the years 1888, 1889 and 1880, one hundred eight-one Hackney



stallions were sold in England for exportation to the United States, the most of which went west of the Ohio river. The Hackney is not a rival of the trotter, but it is a great mistake to suppose that he has no pace. A thoroughbred Hackney will easily cover twelve or fourteen miles an hour, carrying a heavy man on his back, or hitched to a load that would "tucker" most trotters. The breeders of horses in Vermont have of late years devoted themselves to the trotter, and while some have bred heavy draught horses, until recently no attempt has been made to raise the Hackneys, a breed that always commands the highest price in market. The town of Randolph and the state at large are to be congratulated that men like Dr. Webb and Colonel Kimball, who have a desire to use their wealth in furthering the best interest of the farmers and horse breeders, are found within their borders.

Watchman.

celebrated prize winners having been got by him. Among these we may mention Astonishment 888, Bay Leaf 1707, Copenhagen 1461, Daneport 3535, Ganymede 2076, General Gordon 2084, General Havolock 3623 Lady Keyingham 2925, Lord Melton 3109, Matchless of Londesbro' 1517, Princess Dagmar 4590, Saxon 2674, and The Masher 13.

Our illustration is sketched from a photograph taken on the occasion of the Elsenham sale.

### The Grazier and Breeder.

#### PASTURING ANIMALS

There is no other part of farm management that is so often made unprofitable by neglect as pasturing, and there is no other that may be made more profitable by its skilful culture.

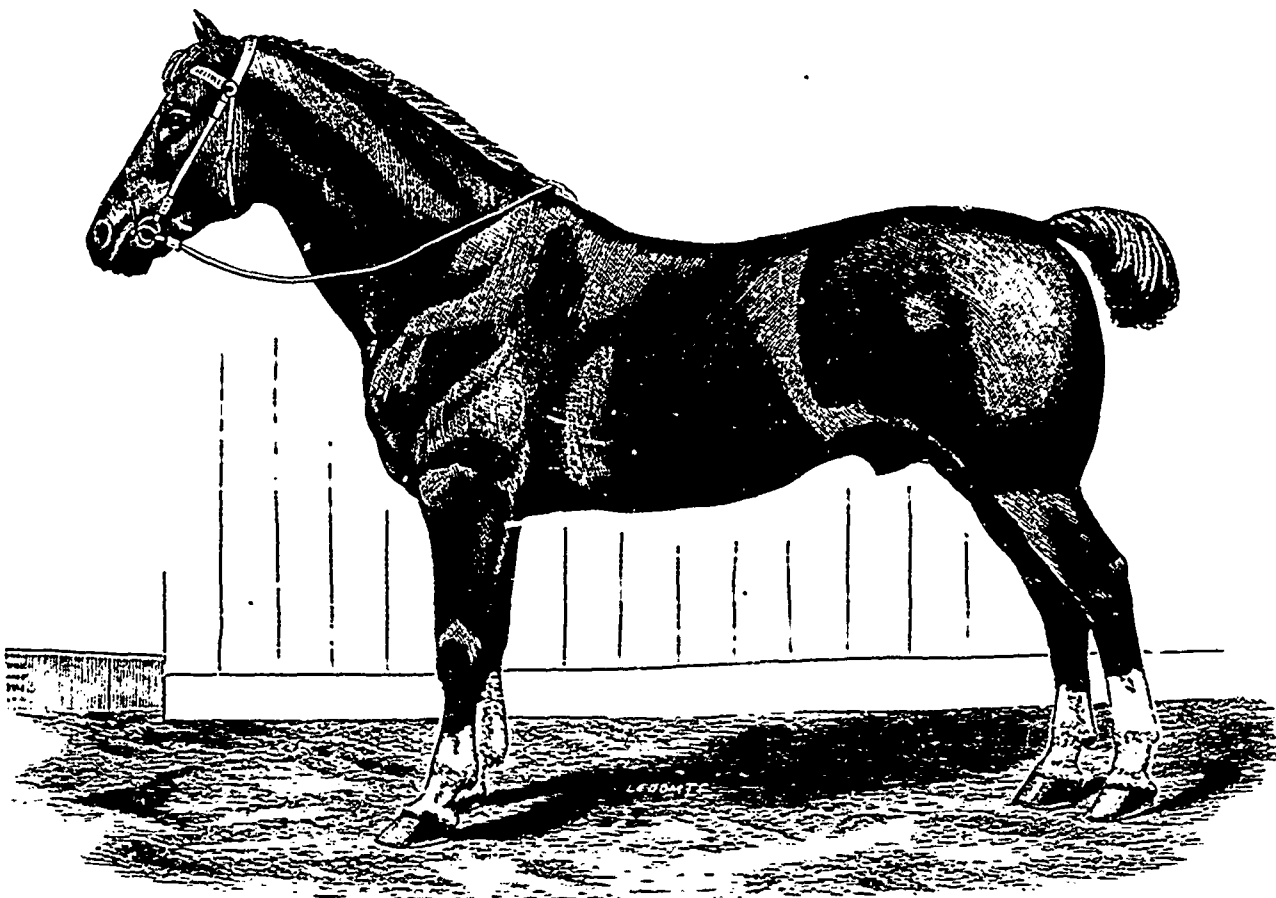
tentive of its water as to greatly overcome the tendency to evaporation by the excessive heats of the summer. Thus we find such localities as that known as the blue-grass region of Kentucky, in which the soil is so well suited to the growth of grass, and so retentive of the needed moisture, as to produce the finest pasture and maintain it in the best condition for a century. There are found fields that have never been broken by the plough, in which the native grass at first took complete possession, and has kept it and promises to keep it in perennial verdure. This, however, is one of the rare instances on this continent of such favorable conditions of soil and climate, for elsewhere the greatest skill hardly prevails against the natural obstacles to the maintenance of permanent pasturage.

But it is not at all difficult to make a profitable pasture for a short term of years by a due preparation of the soil, and after care. This preparation con-

jury by neglect, is to encourage the loss of the grass and the substitution of weeds for it. And in addition, it must be so used as to give all needed opportunities for the grass to make a sufficient growth before it is eaten down at the beginning of the feeding season. This is an important consideration at this time. (1)

Ploughing for pasture should be done in the most thorough manner. The land must be all broken up and made fine and mellow. If any hard spots are left, these will soon be bare of grass, and weeds will take its place. It should also be made evenly fertile, for this same reason. And the seed must be evenly sown, and in liberal quantity, for this same perfect covering of the surface with a thick and strong growth of grass. If the seed is timothy and clover, which will make a five or six years' pasture, if the perennial clover is used, not less than twenty pounds of each to the acre will be needed. And if mixed grasses are used, the quantity of seed must be 40 or 50 pounds per acre. A good selection for this seeding is ten pounds of timothy and six pounds of perennial rye-grass, yellow oat, meadow fescue, foxtail, tall fescue, and red-top grasses. These will afford a continuous succession of pasture through the season.

But it is one thing to make a pasture and quite another to keep it as it should be. The use of a thing is very often of greater importance than the mere making of it, as regards its value; and this is especially true of a pasture, which is so easily ruined by bad management; and this is a timely consideration now when the pastures are about to be occupied. The growth of the herbage is yet weak and in its first stage, when it needs time to gain strength for its full luxuriance. If it is fed down now, the weak roots cannot recover from the shock and will perish, and this is the most frequent cause of the disappearance of the grass, which occasions surprise to the farmer who cannot understand why this should be so. It is like the cutting of weeds or bush, by which the leaves being prevented from growing, the plant cannot be nourished and quickly dies, for the leaves, and not the roots, are the principal sources of the nutriment of all plants, which derive twenty times as much of their substance from the atmosphere as from the soil. It is in vain to feed the roots by the most liberal manuring or fertilising, if the supply of atmospheric food is cut off by depriving the plants of their leaves. And yet this most obvious principle of plant growth is rarely ever thought of in regard to pastures. This early feeding of the herbage too is often followed by too heavily stocking the land, and the continued damage is still more destructive. The final ruin then comes more quickly, for the starving of the grass is continuous. This is the common fate of the pasture, and farmers cannot understand why this should happen, when by a little thought of the very nature of plant growth it should be as clear as anything can be. Another error or neglect is the gathering of the droppings of the cattle on the grass. This is so much permitted that some good pastures are largely spoiled by the covering of the grass to the extent of one fourth or more of the surface, counting the actual spaces covered, and the borders of each that are fouled by the spread of the manure by the rains. The rank growth that rises around these spots that disfigure the fields, is not eaten,



THE CELEBRATED HACKNEY SIRE, DANEGELT 174.

RECENTLY PURCHASED BY MR. WALTER GILBEY, FOR 5,000 GUINEAS.

#### THE CELEBRATED HACKNEY SIRE, DANEGELT 174

With the exception of his sire, Denmark 177, Danegelt probably ranks as the most successful Hackney sire of modern times, and the fact that he has been recently purchased by Mr. Walter Gilbey for the phenomenal sum of 5,000 guineas, in order to prevent his going to the United States, has led us to give his portrait in the present number of the Illustrated Journal of Agriculture. He is a grand example of the cross between the Yorkshire and Norfolk strains of blood which has been so strongly advocated by Mr. Burdett Coutts. Danegelt is a fine-colored chestnut, foaled in 1879, by Denmark (Bourdais 177) out of Young Nellie 257. During the years 1883 to 1886 he was frequently exhibited, but at the larger shows only took as a rule third or fourth prizes. It is as a sire that he has become famous, many

of his methods of gathering and using the product of the soil, and the animals do better on this natural feeding than on any artificial substitute for it. But unless the pasture is in the best possible condition, the profit of it is greatly reduced or wholly lost, and the use of the land becomes wasteful.

Pastures may be permanent or temporary. The permanent pasture is, however, not so well suited to our climate as in countries where the summer is cooler and the rainfall is greater. In the summer, for nothing more conduces to the growth of grass as moisture and coolness. The best soil cannot produce grass without requisite supply of moisture, and if this be provided either naturally or artificially by irrigation, the heat of the climate becomes a secondary consideration. But it is also true that the condition of the land may have much to do with this supply of indispensable moisture, for it may be made so much more re-

sultant of thorough ploughing, fertilising, and proper selection of the varieties of grass. Draining is indispensable if the soil is not naturally drained, for in such cases the land may very easily be too dry for the growth of grass at one time, and at another time may be too wet and sodden; and drainage often tends to render the soil moist by conserving the water and preventing too rapid evaporation. Moreover, a wet pasture is always injured most seriously by the trampling of animals, and the poaching of the ground.

When by the skill of the farmer the pasture has been made, its preservation is not to be neglected. It will not do to leave it to its chances. It must be fed quite as much as the animals that feed upon it. It must be repaired continually by fresh seed (1) and fertilisers, as time and season make inroads upon it. To leave any pasture without due care to avoid certain in-

(1) We never succeeded by sowing fresh seed on an old pasture. Ed.

(1) Good.

Ed.



and rotting down by luxuriance enlarge the surfaces of the injured places. This is to be prevented by scattering these accumulated obstructions at short intervals, or which is better, collecting them and carrying them off the field. (1)

Any pasture may be trebled in its usefulness and value by dividing it into two parts, using one while the other part is left to recover its growth. (2) As the constant dropping of water will hollow a rock, while if the whole quantity falling in ten years should be poured on it at once it would show no trace of wearing, so the pasture constantly eaten down is worn away, when by feeding it to an equivalent extent at intervals it will suffer no injury, and furnish feed for twice the number of stock. It is this continuous gnawing at the short, weak herbage, giving no opportunity for recovery, that ruins pastures so quickly. (3) Thus twenty acres of good pasture may be made to feed twenty head by this alternate method of use and rest, when ten head, or even five, will keep it bare, and themselves as poor as the herbage is. And the effect of this resting will be even more apparent if, when the animals are turned off one section, the grass be stimulated by a dressing of 100 lbs. of nitrate of soda, and the same of gypsum. Then by such liberal management, with the precautionary care suggested, the liberal soul will be made fat, along with his well-fed stock.

HENRY STEWART.

Macon County, N. C., April 15.  
(Cultivator.)

## The Farm.

### CLOVER ENSILAGE

BY WM. BUTLER, DEREHAM CENTRE, ONT.

In reply to your request for a report from any one who had filled a small silo with clover, I will relate my experience. Making ensilage of clover has been long practised in Europe. We naturally wonder why it has not become more common in America, but after giving it a moment's thought we would conclude that: 1st. The shortness of our season has something to do with it. 2nd. Not enough clover grown. The silos are too large. 4th. Hands and machinery are too scarce. The size of the silo has a great deal to do with it, because after it is once opened it should be fed immediately as it so soon rots and dries out on the top after the air gets to it. The size of the silo which I filled was 10x12 and 20 high, which will hold about 54 tons of corn or 36 tons of clover ensilage. The silo is built of wood, which I do not recommend for this purpose. I think stone or brick would be preferable. A silo this size will answer the purpose very well for about thirty five head of stock. Care should be taken not to have too much outside surface in proportion to the amount it holds. A round or square silo would be the best shape. The more there is exposed to the air the more will be the waste.

The hands and machinery required will not be large. The nearer the field to the barn the less will be needed. Six men are all that will be required.

(1) Very good indeed, but we prefer scattering to collecting. Eo.  
(2) Three parts, please. Eo.  
(3) Excellent. Eo.

One mower, two waggons and racks, an engine, horse or tread-power to run a cutter with carrier, are sufficient.

The time required to fill a silo of the size mentioned with the number of hands stated will be about two days. The silo may be filled without interfering with the securing of the other hay, indeed, the time spent in filling, this year was never missed. After a shower, or in the morning when the other hay is drying, is a good time, although, after once commencing to fill, the sooner it is done the better.

### YIELD OF CROP.

A heavy crop of clover will yield as much per acre as from  $\frac{1}{2}$  to  $\frac{3}{4}$  of an acre of corn. Four acres filled a silo of 2,400 square (cubic?) feet, this being a little above an average crop. The kind used was the common red clover, *Trifolium Pratense*, but if clover was grown especially for the silo I would recommend lucerne, being better for producing milk and muscle. Alsike is good, but will only produce one crop and no aftermath. Lucerne is a more sure crop, and will produce more in bulk and two or three cuttings in one season. Dry weather will not affect lucerne as much as it does other clover, on account of it being a deeper feeder. The principal objection raised against lucerne by the farmers is the amount of care which has to be exercised in harvesting it, on account of it getting woody so quickly. This would be obviated in utilising it for the silo. I have no doubt if rye or other green fodder were mixed and cut at the same time it would give good satisfaction. This would be better done if the clover had got a little old.

### FILLING.

Filling should commence when the clover is green, especially if the silo is made of wood. The greener the clover the better it will pack and the less waste there will be from rotting. Drying or wilting does not improve the quality of the ensilage; the fresher it is when fed the more it will be relished by the stock. Tramping in the silo should be thorough—better still if done with a horse, which should be used most round the outside. About three feet in the silo that we filled this year didn't get tramped. When we came to feed it out the ensilage was good almost to the wall where it was tramped, but where it wasn't tramped it had decayed in about nine inches to one foot. A good covering can be made of the rakings. We commenced filling this year on the third of July and finished on the eleventh.

### FEEDING.

Feeding may commence in a couple of weeks after being filled. It is better to let it settle down perfectly before opening, to prevent the air working in it so quickly after opening. If pastures remain good, it would be better to delay opening a little longer. Commencing feeding on the 30th of July, we have fed about one-third of the amount up to August 24th. The amount of stock fed on this was 5 horses, fed all they would eat, and 30 cows, twice a day. The horses don't care for dry hay now, and I think it preferable to hay; at least they are doing better on the clover than when fed hay. Clover ensilage is principally used for feeding horses in England. I cannot say how pigs will thrive on ensilage, but I think wheat at 55 cts. per bushel will be cheaper and give better returns. I would re-

commend bran or wheat chop rather than pea chop to be fed with the clover.

### COST.

The cost of filling was about \$20. Being hard to figure on the profits, I will leave that with the reader to judge for himself. Had it not been for the fly pest coming on about the same time as the pastures failed, I think my cows would have held their own in milk.

### MAKING CLOVER HAY.

A large number of the farmers of the Northern and many in the Western States are now engaged in the cutting of their heavy clover crop, and in manufacturing it into hay. Many are successful in thus making the most valuable of all kinds of fodder, while others, by not selecting the most favorable times of weather, largely fail, meet with heavy loss, and obtain a black, half-rotted article, of little or no value for cattle fodder. In this condition its only and real value is as a compound part of manure. The valuable treatise on this subject by Henry Wallace presents some hints which may aid in securing clover hay in the best condition, the substance of which we repeat, and which is in accordance with the practice of a large number of good farmers: The mowing is done late in the evening, and always after four o'clock. The time of the man, mower and team, is worth a great deal more after sun down than in the heat of the day. Clover is not damaged in the least by being cut when the dew is on, and the heat of the sun from four to six is seldom sufficient to render clover cut during these hours liable to damage even if wet again with dew or rain during the night. The first work in the early morning should be to start the tedder. This shakes off dew or rain, and leaves the mass in the best possible shape for the circulation of the air and the action of the sun. The amount of dryness necessary for storing cannot be accurately described. Mr. Wallace further states, from other authorities, that the amount evaporated in the process of curing is 58 per cent; and that 100 pounds of green clover cut at the proper season and cured in its best estate, will make 41 pounds of hay ready for the mow. Twenty days after storing it will weigh 37 pounds. It is obvious however, that these amounts will vary greatly, sometimes by reducing the weight and at others by augmenting it, according to the nature of the weather, whether moist or dry.

The preceding directions are based on the possession of complete machinery. There are many small farmers who do not own a tedder to enable them to get the dried clover quickly out of the way of threatening weather (1). They can secure themselves from loss by storms by cutting small portions of the crop at a time. We give a single illustration. A small farmer was in the practice of mowing but two acres on each day. He nearly always secured the crop when dry, the small amount allowing him to pass between showers. A neighbor, who was a larger and more extensive farmer, mowed a handsome forty-acre clover field at one operation. The weather at the time appeared favorable, but as we passed another day we saw the whole crop blackened by the storm, which had come of a previous night. Had he divided the field into portions, he need not have lost more than one of these portions. Cultivator.

(1) So much the better. The tedder is quite out of place in a clover-field. Eo.

## Swine.

### TRADE IN HOGS.

It is pleasing to notice the rapid increase that is taking place in the number of live hogs that are prepared for shipment in southern Manitoba. In a country like Manitoba where food for hogs can be provided so plentifully and so easily the industry is sure to grow to important proportions as soon as this business becomes better understood and is engaged in more systematically than is the case now, when farmers only now and then prepare a few fat hogs, and these are generally provided to eat up the refuse from the granaries. In the future, when proper pens are prepared and when large quantities of coarse grains and potatoes are raised purposely to be used in the feeding of hogs, the increase in the number of animals prepared for market may be enormous and the supply continuous.

Canadian bacon is in good demand in the English market and in 1891 Great Britain took \$1,520,000 worth from Canada. The price was the highest paid, except for Danish and Irish meats. English dealers, however, complain that while the bacon is generally good, the lean is sometimes hard and dry, owing to the animals having been fed entirely upon grain, and farmers are strongly recommended to feed to their hogs a greater quantity of potatoes in order that fat and lean meat may be better mixed. This is the report of Gilchrist & Co., of Liverpool, and the statement is of the greatest importance to the farmers of Manitoba, who have not generally understood the value of potatoes when used in the preparation of meat. As there is scarcely a limit to the quantity of potatoes that can be raised, every season in the loose, dark soil of the prairies, there is an unusually good opportunity for the farmers of this province to meet the requirements of the English market by furnishing a large supply of fine bacon at a good and a sure profit to the producers.

There are some men in the Pilot Mound district who came originally from the Ottawa country and who will remember that before railways penetrated the white pine region, lumbermen had to depend for supplies of meat on that produced by farmers who lived nearest to the places where lumbering operations were carried on. As land was often poor and stony, little grain could be raised for feeding purposes and a large proportion of the pork then produced and disposed of at the lumbering settlements was fed on potatoes with a small quantity of peas or corn meal added, and notwithstanding the disadvantages of inferior oil, money was made, for prices were generally high.

The natural food of the hog is roots, as anyone can discover who examines the nose of the animal, and there can be no mistake in supplying the food that nature intended should be eaten. A much greater quantity of food for swine can be raised on a few acres of land that have been planted with potatoes than can be grown on many acres sown with grain. Nearly all the work in the potato field can be performed with machinery and the land will be left in excellent condition for other crops, and vile weeds that are now overrunning much used grain fields would have no home in the well kept potato ground.

In former years, farmers generally dressed the hogs which they raised

and the work was often so poorly performed that the value was reduced. The establishment of packing houses, where hogs are received alive and where there is every appliance for preparing the meat properly, is a vast improvement on the old system, but in order to foster the trade there should be a continued supply of well fed hogs furnished by farmers the year round.—*Pilot Mound Sentinel.*

#### TROUBLE WITH BREEDING SOWS.

Complaints are being made by those who have recently gone into swine-breeding of sows dying in or immediately after parturition. Whatever may be the individual circumstances THE FARMER has no hesitation in pointing out the general principles by which such failures can be accounted for. Form is a point to be attended to in selecting the breeders. A short, fat, chunky sow is not good form for a breeder. But with sows of good breeding shape the management may be such as to predispose to such difficulties. Either the sow has been bred when too young, or she has been reared under improper conditions. Scores of farmers rarely or never allow their sows outside a close pen. This, no matter for what reason it is done, is a great mistake. Breeding animals should have some form of pasture in summer and next to nothing else but green food. Fence in an acre lot, manure it freely, and sow in barley turnips or anything that will make succulent feed. Meadow fescue as a permanent pasture, is very good, being more succulent than other grasses. In winter, some equivalent to this sort of feed must also be provided and pretty free range given to breeders. Potatoes, turnips, cabbages, silage, green cut barley, hay, anything to keep the internal organs cool, should be given to breeders as a part of their every day diet. Chop is too concentrated and heating Bran is rather better, but roots are much preferable, and ought to be grown for this special purpose. The feed that is all right for fattening pigs is a good way wrong for breeders. Cool diet and free exercise is the best preventive for the troubles referred to. Try them anyway.

#### CHUFAS.

BY B. S. WRIGHT.

I read in *The Cultivator* last year that some person had planted chufas to fatten pork hogs upon, and was very successful. This induced me to try them, and my son purchased one-half bushel of chufas, paying \$2.00 for them. In April they were put into a tub of hot water and covered with a sack and let stand for 36 hours or longer, and then planted in a rooster furrow and covered with small rooters on double footed stock. Almost a perfect stand was had in ten days. Some time after this they were "barred off" with turnip plow; afterward hoed out what grass and weeds were to be seen. About two weeks later two furrows were put to each middle, and no more work was given them. (1)

#### A LETTER FROM THEO. LEWIS,

The Veteran Hog Breeder and Feeder.

FR. HOARD'S DAIRYMAN:—On my return from the Red River Valley Farm Institute I found the several

(1) What are a chufa a rooster a double-footed stock?

issues of the DAIRYMAN for the past six weeks on my table. I always read the DAIRYMAN with great interest, although I am not, strictly speaking, a dairy farmer, being engaged in one of the adjuncts of dairy farming. But, nevertheless, I watch the advanced steps in dairying that now eclipses all other branches of farming. In the issue of June 14th we found the article: "Sweet Skim Milk versus Sour Skim Milk for Pigs," and we carefully perused what was said. This, not with the disposition so much of criticism, as to learn where we had made mistakes, if any were made. We have come to believe that continued feeding of sour food, be it milk or any other fermented food, lessens in time the digestive power of the pig or hog. We are convinced of this fact, as we served an apprenticeship in hog feeding in a distillery. Last year, when we criticised Prof. Cooke's experiment, we were honest in our conviction that he had put in the corn meal fresh, and thus neutralised the effects of the acid, although it was not so stated.

In his latest experiment he presents this same course of feeding, and the difference between sour and sweet milk fed pigs was but slight. Yet the sweet milk pigs made a slight gain over the others. But what would the result have been had the meal been added 6 to 12 hours before feeding as is the general rule on farms, and the entire mass been soured? We admitted last year, and do yet, that when we finish off the hog, we need that trace of acidity in the food so as to keep the animal's digestion as perfect as possible. We should not forget that when we feed corn we are furnishing a large amount of sugar. The stomach and all the tendencies that spring out of it, are different with the young pig than with the full grown hog. In the first the demand is almost solely for growth; in the latter for fat and bodily support.

There is no time in the life of a hog when it makes greater growth than when it is sucking the dam, and from that to three months of age the pigs will thrive and do best on sweet milk. They will also be exempt from the severe attack of scours that sour food often brings. If the Professor is right why need we advise all creameries to keep the skim milk vats sweet and clean? We do this to prevent the souring of the skim milk before it is fed. Evidently the agricultural press have lost all their efforts in this direction. Professor Cooke further says that no judicious farmer would mix meal and milk together. To this we will only say that we have always got better results from meal soaked six hours, than from fresh meal mixed. (1) Dane Co., Wis. THEO. LEWIS.

#### Poultry-Yard.

THE CARE AND MANAGEMENT OF POULTRY.—GOOD CHICKEN-PRODUCING BREEDS.—PLYMOUTH ROCK COCKERELS FOR THE MARKET.—THE DORKING AS A TABLE FOWL.—SOMETHING ABOUT FATTENING CHICKENS AND THE OLD HEN.

(By A. G. Gilbert, Manager Poultry Department Experimental Farm, Ottawa.)

Our last chapter was devoted to the proper care and treatment of the

(1) A good deal may be said on both sides of this question. We used to fat from 100 to 120 pigs for The London West End Trade, and always found them do equally well on both sweet and sour food.—Ed.

young chicks from time of hatching. We continue the subject, for it is one of great importance to the farmers of the country and one that is, unfortunately for their interests, little understood. It may be said by the farmer, "What is the use of pushing our chicks to large size, when we shall receive just as much for a small pair as for larger ones?" But while this is true to a certain extent it is not so when applied to the superior article. Some time ago, at the large turkey fair annually held at Smiths Falls, one of the Boston purchasers told the farmers that he would willingly give 15 cents per pound for large birds and superior flesh rather than the 10 cents per pound for the smaller birds usually offered for sale. The result was that some of the farmers carried out the suggestion and to-day a superior class of birds is bought to the fair and receives the highest price for shipment, while the small birds are left for home consumption or sold at 5 cents per pound. It is safe to say that a superior article will find a tip-top price. It may require a little more exertion on the part of the farmer to produce chickens weighing four pounds each in four months, but the better price he will receive will more than compensate for the trouble taken. It is safe to say that a farmer on the market with goodly proportioned chickens with superior flesh development, will receive more per pair than his neighbour beside him with a mass of bones and feathers politely called a pair of chickens. And this brings us to the consideration of the breeds that make the best chicken development, for after all there is a great difference in thoroughbreds and culls.

#### GOOD CHICKEN-PRODUCING BREEDS.

It is at once apparent that if a pair of Plymouth Rock chicks will make eight pounds in four months, that is weigh four pounds each in that time, as against a pair of culls, such as the farmers mostly have, weighing perhaps less than half the weight named, that it would be better for the farmer as well as the purchaser that the Plymouth Rock chicks should be brought to market. How many of our farmers have Plymouth Rock fowls, and how many of them bring to market chickens weighing four pounds each in four months? If the great majority of the farmers of the province of Quebec had Plymouth Rocks and treated their chickens as they should, chickens weighing eight pounds per pair, and even more, would be the rule on the Montreal and other city markets, and not the exception.

The writer, while a resident on the Richmond Road, near the city of Ottawa, some years ago, had every fall some 20 or 25 Plymouth Rock cockerels weighing 5 to 6 pounds each. The chicks were hatched in early May and made development of one pound per month (sometimes more) after the first six weeks, so that by the beginning of November he had from 120 to 160 lbs. of the choicest chicken flesh, while his neighbours had a lot of bony culls of not half the weight. The Plymouth Rock cockerels had great thighs and legs, fair breast-meat development, and were full bodied. The flesh was juicy, sweet and tender and the roast chicken, or chickens, fit for the table of an epicure. This is no exaggeration and was the result of no care that a farmer's wife could not have bestowed, nor any food that is not always to be found in plenty on a farm. The chickens were simply fed regularly, were cared for at night (so that the rats, weasels or skunks did

not have choice living) and a good run. And what one man can do with little or no trouble, another surely can with slight effort.

I should add that the birds were properly trussed and presented as a result a far more tempting appearance on the table. In the May number of the *Journal*, page 90, an illustration of a fowl properly trussed will be found.

#### THE DORKING AS A TABLE-FOWL.

While I was at the very fine poultry show of the Industrial Fair held in Toronto lately, I was giving close attention to the large display of Silver Grey and Coloured Dorkings and while doing so I was accosted by Mr. Haycock of Messrs. Haycock & Kent, the well known poultry breeders, of Kingston, Ont. Mr. Haycock is a shrewd poultry expert and a genial friend besides. The following conversation ensued.

MR. HAYCOCK.—Are you admiring the Dorkings?

THE WRITER.—I am, and I am giving particular attention to their large fleshy bodies. How would a cross with the Plymouth Rock do for a table fowl?

MR. HAYCOCK.—Why cross with the Rock? As a fowl producing a superior quality of meat and plenty of it the farmers have to come to the Dorking as one of the best breeds to fill the bill.

THE WRITER.—I mentioned the cross because there is an impression abroad that the Dorkings are a little tender as a bird for our farmers.

MR. HAYCOCK.—Well, we are at Kingston in a representative part of Canada, as far as climate is concerned, and we have no trouble in breeding or rearing the Silver Grey Dorking. Look at that cock bird and feel his weight. (Here Mr. H. took the large solid bird out of his coop.) Is there any bird in the show with more flesh?

THE WRITER.—We are trying the Coloured Dorking at the Experimental Farm and I have been impressed with their large fleshy bodies. I have some Dorking chickens and I am closely watching their progress as compared with Plymouth Rock.

MR. HAYCOCK.—I tell you the Dorking will do as well with our farmers as any other breed if they are only looked after; and any fowl requires care.

THE WRITER.—Have you any objections to the cross?

MR. HAYCOCK.—No, but why cross when you have a table-fowl superior to the Rock?

The conversation may not be much in itself, but Mr. Haycock's experience is worth repeating. However, the cross is entitled to consideration if for no other reason than the improvement that would probably result in quality of flesh. The Dorking is certainly superior to any of the standard breeds as a table-fowl and the females are fair layers. Altogether they are well worthy the attention of our farmers and until I can speak more authoritatively from experience as to their hardness they are certainly valuable to cross with the Plymouth Rock, although in so doing I would certainly raise the Dorking male when a market fowl is wanted and vice versa for eggs.

#### THE PLYMOUTH ROCK.

But as the Plymouth Rock is better known and easier to procure because in more general use, it might be better for our farmers to make a beginning with them. Should a farmer

have a flock of large hens, under two years of age, he might begin by placing a vigorous Plymouth Rock or Dorking cockerel with them. In some cases both breeds might be kept. The foregoing remarks apply more particularly to the Plymouth Rock as a fowl for market, as egg producers the females under two years of age have been found excellent, making a creditable showing against an equal number of White Leghorns and Wyandottes, three winters ago. Taken altogether, they are the best all round fowl the farmer can breed at present, and while saying so we do not wish to say anything against the strong claims put forth for the Dorking. Our object is to impress upon the farmers the necessity of breeding better stock for the market; to beg him to remember that it is no more trouble to feed a pair of chicks that will make eight pounds than a pair of culls that will weigh only half the figures named.

**SOMETHING ABOUT FATTENING CHICKENS AND OLD HENS.**

The proper care and food for the young chicks have been both remarked on at length in the article of last month. It may be necessary, in order to get the young cockerels into prime condition for market, to confine them for a few days previous to killing them or taking them to market, feeding liberally meanwhile of such food as will put on flesh quickly. Previous to killing, the fowl should not be fed for twelve or twenty four hours, the object being to prevent quick decomposition of the contents of the crop. A good fattening ration can be made of shorts, cornmeal or ground barley with the table-scrap, bits of meal, &c., &c., mixed up with any spare milk, or, when milk is scarce, hot water. Clean water should be before them all the time. The writer has never had any trouble in getting all the flesh he wanted on the cockerels for table use by simply feeding generously and keeping them closed up for some days. In the case of the Plymouth Rock hens over two years of age the difficulty was to keep them from getting too fat. In certain quarters there is a prejudice against old hens for table use on the ground that they are so tough. When a hen is four or five years of age she is very likely to be tough eating, but take a Plymouth Rock hen of two or three years of age and let it boil gently for several hours, then roast, and if it is properly cooked and well stuffed it will make good tender eating. A poultry breeder of some note once remarked to the writer: "Some people are under the impression that an old hen is not good eating, but I prefer a properly stuffed, well cooked hen to chicken, for it has a more pronounced taste." I remarked that at home we always found an old Plymouth Rock hen good eating but that it was hard to combat the prejudice against the old hen. "That" said my friend "is the result of not knowing how to cook them." And he was right. (Ed.) However, there are many old hens bought for and eaten as chickens every day and no one is the wiser. Should the hen not be properly dressed and cooked, it is put down as an "old chick" or an "antiquated rooster." But the farmer need not exercise himself about the fate of his old hens, he will find a ready market for well fed, plump chickens, and a superior class of customers willing to pay a good price for a superior article. We shall have something to say again as to market prices.

Ottawa, 11th Oct. 1893.

**POULTRY.**

ATTENTION has often been called to the neglect of poultry by English farmers. Why, it is often asked, should we pay more than £4,000,000 a year to foreign producers of eggs and poultry when our own farmers might easily supply the whole of the demand? We are told in reply that poultry-keeping does not pay. This is probably the case when there is very little knowledge of the principles which should guide the poultry farmer, and but little care is taken with the practical details of the work. On many farms the breed of fowls has been allowed to deteriorate by perpetual in-breeding. The birds are kept when they are beyond the age of profitable production. The winter production of eggs, and the rearing of early spring chickens, so that the highest prices may be realised in each case, are not made the subject of careful study. Rats are often allowed to derive the chief benefit from the poultry flock.

Scientific information on the subject of poultry is as yet but scanty. The German investigators, from whom we generally obtain our most abundant supplies of knowledge, have not occupied themselves with the subject; our accurate information comes at present chiefly from France and Belgium. An excellent beginning has, however, been made in Canada. The Experimental Farm at Ottawa, under the Minister of Agriculture, has had for several years an efficient poultry department, the object of which is to ascertain the best breeds and methods of work, to spread information among the Canadian farmers, and supply them with settings of eggs of the superior breeds. When will an English department of agriculture undertake such useful work? We shall have further to notice, by and by, a few investigations on poultry, carried out at two of the American experiment stations.

A laying hen is, in proportion to its weight, one of the largest producers of saleable products on the farm, exceeding in this respect even the cow. M. G. Gillekens has compiled a table showing the number and weight of eggs produced annually by a hen of each of the best breeds employed in Belgium. The two breeds giving the largest number of eggs are the Campino and Hamburg; these produce respectively 225 and 200 per hen, per annum, corresponding to 6.45 and 6.40 times the live weight of the hen. The Leghorn and Spanish come next with 190 and 155 eggs, but these are of larger size than those just mentioned; they amount to 5.51 and 4.22 times the hen's weight. The smallest egg-producers in proportion to their weight are the Dorking and Langshan breeds, these produce annually 120 eggs, the weights of which are in the proportion of 2.64 and 2.24 to the live weight of the hen. It thus appears that the best egg-producing breeds will furnish at least five or six times their own weight of eggs in the course of a year, the year chosen being, of course, the one of greatest production—that is, the second year in a hen's life.

The average weight of a hen's egg is about 2 oz. Of this, 10—1 per cent. is shell, having a thin lining membrane. About 95 per cent. of the shell is carbonate of lime. The white and yolk, which form the contents, have a very different composition, as will be seen from the following figures:—

|                                    | White. | Yolk. |
|------------------------------------|--------|-------|
| Water.....                         | 85.4   | 50.6  |
| Nitrogenous Substance...           | 12.9   | 16.1  |
| Fat.....                           | 0.3    | 31.4  |
| Other non-nitrogenous Matters..... | 0.8    | 0.5   |
| Ash.....                           | 0.6    | 1.4   |
|                                    | 100.0  | 100.0 |

The yolk is thus much drier than the white, and is especially characterised by containing a very large amount of fatty matter.

The total amount of ash constituents in the contents of an egg is but small, but they are of vital importance, as from them all the inorganic material required to construct the body of the chick must be supplied. The ash of the white and yolk are quite different in composition: 100 parts of each contain as follows:—

|                      | White. | Yolk. |
|----------------------|--------|-------|
| Potash.....          | 31.4   | 9.3   |
| Soda.....            | 31.6   | 5.9   |
| Lime.....            | 2.8    | 13.5  |
| Magnesia.....        | 2.8    | 2.1   |
| Oxide of Iron.....   | .6     | 1.7   |
| Phosphoric Acid..... | 4.4    | 65.5  |
| Sulphuric Acid.....  | 2.1    |       |
| Silica.....          | 1.1    | .9    |
| Chlorine.....        | 28.8   | 1.9   |

The white is thus rich in the alkalis, potash and soda, a part of the latter being apparently present as common salt. The yolk is extraordinarily rich in phosphoric acid; it contains also much more lime than the white. It is, in fact, the part of the egg which contributes most to the formation of bone.

1,000 lb. of hen's eggs, shells included, contain, of the most important constituents, the following quantities:

| Nitrogen | Potash | Soda | Lime  | Magnesia | Phosphoric Acid |
|----------|--------|------|-------|----------|-----------------|
| lb.      | lb.    | lb.  | lb.   | lb.      | lb.             |
| 20.00    | 175    | 159  | 60.22 | 1.09     | 4.22            |

The largest ingredients in eggs are thus lime, nitrogen, and phosphoric acid: these are fundamental facts to be borne in mind when arranging the diet of a laying hen.

We have already stated that a laying hen is, in proportion to her weight, a larger producer of saleable animal products than the cow. A good cow may produce in a year six times her weight of milk, with a calf in addition. If we take the cow as weighing 1,000 lb., we have in the saleable products about 500 lb. of dry matter, containing 36.8 lb. of nitrogen. Hens of good laying breeds, weighing 1,000 lbs, will yield in the same time 6,000 lbs of eggs, the contents of which will include 1,404 lb. of dry matter, containing 120 lb. of nitrogen. It has been often pointed out that since cows' milk is much richer in nitrogen than the carcass of an animal, so the food supplied to cows in full milk should be of a specially nitrogenous character. (1) The argument has still greater weight in the case of the hen, as we have just seen that her produce, in the same time, from the same body weight, contains three and a-quarter times as much nitrogen as that of the cow. The albuminoid ratio of eggs is, indeed, as high as 1:1.82.

Under natural conditions, a fowl's diet is in summer time of a decidedly

(1) Wherefore, English farmers feed cows largely on horse-beans. Ed.

nitrogenous character, the food consisting largely of insects, worms, &c. The advantage of giving hens a good "run" is well known; this is partly due to the active exercise obtained, which is essential for a continuance of the egg-laying condition, but is also in part owing to the supply of insect food which the hens then obtain. Attempts to provide laying hens with artificial diets of a nitrogenous character have, however, led to some unexpected results, which we must describe in another paper.

R. WARINGTON.

**Correspondence.**

Sept. 20th, 1893.

SIR.

I have been often asked where seed of the black-walnut can be found for sowing this fall.

Will you have the kindness to announce in the next number of the Journal that Mr. Wm Evans, seedman, 89 McGill street, has made arrangements for having in stock a supply of the nuts; all those wishing to provide them should give notice some time in advance.

The nuts should be planted, as soon as received, about two inches deep.

Mr. Evans' charge will be a dollar and a-half a bushel; and as the bushel contains about 300 nuts, it will be seen that the cost will not be great.

Believe me to be, Sir,  
Yours, &c.,

H. G. JOLY DE LOTBINIÈRE.

(From the French).

We regret to say that the above did not reach us until the October number was in print. Ed.

Sept. 26th 1893.

I am not sufficiently acquainted with the nature of your own soil on the river bank near St-Thérèse to advise with advantage as to the trees and vines for shade best suited to your locality. However, in low soils, I am sure the soft maple and the different varieties of willows would do very well. Elms should also succeed. The Virginia creeper and, especially, the hardy wild grapes, to be found on the river edge in many localities, can be made very ornamental.

The trees I mention can be found in numbers in your own vicinity. Some intelligent man should also be secured near you, who would engage to select the right kind of trees for planting and contract to plant them for you and guarantee his work. Otherwise you would have to see to it yourself.

This is the short way to a fine and useful ornamental plantation. Should you require more than that viz: select trees not common in the vicinity, you had better write to Augusto Dupuis Esq., President of the County of Lislet Horticultural Society, who grows select trees and sends men to plant them. You may depend on Mr. Dupuis' work. His address, as above, will find him at *Village des Aulnaies* P.O. Q.

I send a copy of this letter (without your name) to A. R. Jenner East, Editor of the English version of the Journal of Agriculture. He may add some useful information to the above.

Time to plant: Spring, by all means, but as early as possible.

Yours very truly

ED. A. BARNARD.



With reference to Mr. Barnard's letter on the subject of shade-plantations, we have only to add that the wild-grape-vine is to be found in great abundance at Ste Anne d. Bellevue, where the *clematis* or *virgin's bower*, another quick-growing climber, perfectly hardy, and very ornamental, may be seen along many of the fences, particularly on Mr. Grier's farm at the West end of the village. Both these vines would be particularly suitable to the soil on the bank of the river near Ste-Therèse. Time to plant, as Mr. Barnard says, decidedly in Spring.

A. R. J. F.

Sherbrooke Oct. 4th 1893.

E. A. BARNARD, Esq.  
Quebec

DEAR SIR,

I should like to get your report on our hay and grain caps—now that the season for their use is over.—Next season I am going to have printed instructions—how to use our caps—pasted on each bunch of caps, as I am satisfied most farmers think they are only useful in case of rain. If a farmer wants to make "Gilt Edged" Hay, he should use the caps systematically. Cut his hay when the dew is off in the morning, cock it after dinner and allow it to remain in the cock until it goes through the heating sweating process, then take from cock into barn without any shaking out. (1) He will then have hay about as green as grass with all the weight and nutriment in it. I saw some clover cured this year—under our caps—and after being in the cock 8 days, 3 days of which it poured with rain—the clover blossoms were as fresh and colors as bright as when growing.

Yours truly,

J. A. SYMMES.

#### CAPS FOR HAY-COCKS.

A REVOLUTION IN AGRICULTURE—NO MORE DAMAGED CROPS.

My readers will doubtless be astonished at the heading of this article, and think, perhaps, it is rather exaggerated. Now, I have just completed a test of the *hay-caps*, equally suitable as covers for shocks of grain, of which the *Journal d'Agriculture* gave a short description, with illustrations, last April. Those who wished to judge of the utility of the new system had an opportunity of seeing it in operation during the hay-and grain-harvest, last summer, at the experiment-and demonstration-farm, at l'Ange-Gardien, that was established last year at the pressing instigation of the promoters of the Farmers' Syndicate of the Province of Quebec. If the cocks of hay and shocks of grain are well made, it is almost impossible for the heaviest fall of rain to injure them.

This, then, is a genuine revolution in the system of harvesting both hay and grain; for, it may be said with truth that, in the average of seasons one third of our crops is ruined by rain, and that more than one third of the time and work of our farms is wasted in turning and returning the crops to dry them after rain.

In my opinion, our farmers will reap as great advantages by the use of these "caps," as they have reaped by the use of the horse rake. With a good mower, a horse-rake, and these "caps," the crops can be got into the barn in as good condition and in much less time than now.

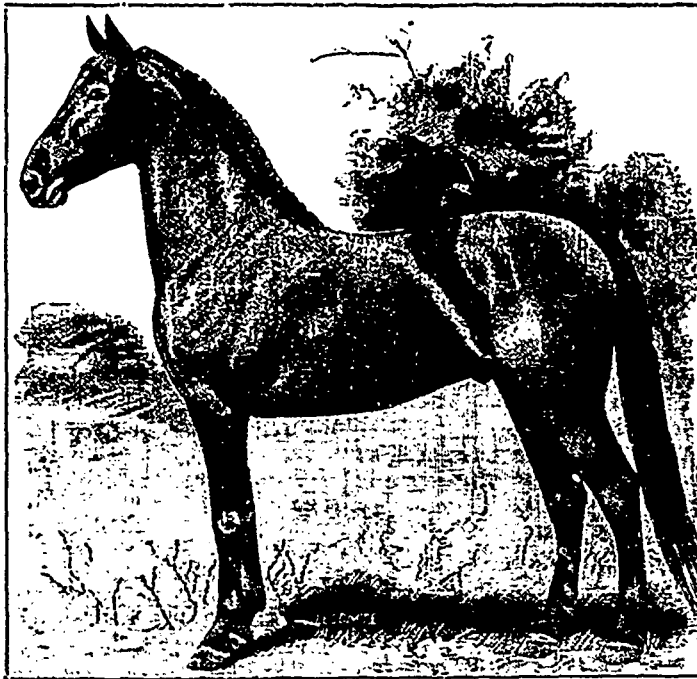
(1) Good.

Ed.

**HOW TO MAKE GOOD HAY.** Examine carefully the signs of the weather, and when it appears settled, begin to mow about 3.30 or 4 P. M. Clover must never be mown when the dew is on: it is then, much harder to cut, and very much more difficult to dry.

Mow then, in the afternoon, and keep on next morning, until you have as much cut as you can put into cock before the dew of evening begins to fall. If you have a tedder, or, in default of that, plenty of hands, turn the hay two or three times before raking it into wind-rows. The advantage of thus turning it is that it will be so far dried that the cocks need only be "broken-out" once; if the "caps" be used, hay thus made will sweat enough in the cock in the open air to be safe to barn. The raking should be done, at the latest, about 1 P. M., and the hay should be put in cock about 2. (1)

**HOW TO MAKE GOOD COCKS.** Take a forkful of hay from the top of the wind-row; and lay it on the naked ground near the wind-row; take another forkful, and a third, and place them one on another in such a way as to give a good foundation. If the hay is dry enough, you may put equal to



FIRST-PRIZE THREE YEAR FRENCH COACH STALLION, SYRACUSE SHOW, 1892.

three bundles of clover or ten of timothy in each cock, according to the more or less dryness of the hay. The cocks should never be more than five feet in diameter at the base. The cock so far made, the round part must be beaten in with fork and feet, so as to expose it to the weather as little as possible.

When this done, the hay-caps are to be placed on the top of the cocks, taking care to cover them as much as can be done without injury to the "caps."

The cock thus covered is thoroughly sheltered from the wind, and cannot be blown over; the heaviest rain will run down outside without penetrating to the interior. Never put the cocks in a hole or over a water-furrow; this is one of the reasons for making the cocks by the side of the wind-row. Thus, if it rain, the hay will not be standing in the water. Another reason is, that by taking small forkfuls, apart from the wind-rows, the hay is placed in layers one over the other, which, by mutual pressure, keep the rain from getting through the sides of the cock and thence into the interior.

My readers will pardon all these details which I should not have mentioned.

(1) All right for timothy-hay, but clover should never be turned out of the cock, but carried straight from the cock to the barn.

tioned had I not observed, during the 20 years the mower has been in use, how many farmers completely neglect cocking their hay, or, if rain threatens, put up *heaps* of hay instead of well-made *cocks*.

In another article, I shall treat of the use of the "caps" in the grain-harvest.  
Dir.

### The Flock.

#### KEROSENE EMULSION FOR SHEEP TICKS.

J. S. WOODWARD.

Six lively sheep ticks will make the existence of a lamb perfectly miserable, and a dozen will ruin all hope of profit in lamb feeding, however generous the ration. From careful observation I am sure that sheep ticks annually cause more loss to American flock owners than all other sheep parasites combined. As soon as the flock is shorn all the ticks go from sheep to lambs, and thereafter the poor things have a hard fight for existence. I was once offered a bunch of lambs very

pound of any good hard soap shaved up into slices. Stir well, and when the soap is all dissolved and the whole boils, add two gallons of common kerosene, immediately stir or agitate violently the mass until it mixes and looks a good deal like cream. It takes about five minutes of lively work to do it well. When thoroughly emulsified, add as much soft hot water as there is of emulsion, and thoroughly stir the whole together. It may now be kept any length of time ready for immediate use, and will readily mix with any quantity of cold water, soft or hard, although rain or other soft water is much the best. The emulsion mixes much more readily and with half the labor, and remains more permanent, when soft water is used. With hard water add more soap or a little washing soda.

To apply to the flock, take one gallon of the emulsion thoroughly stirred for each ton sheep, and add to it four gallons of soft water. If warmed it is better. Crowd the sheep into some corner or pen so as to bring them into a compact body, and having well mixed the emulsion, with an ordinary force pump or a common tin sprinkler spray or sprinkle the flock until thoroughly wet. In order to reach every part of every sheep, the flock should be occasionally stirred around, or made to change places, exposing all parts to the action of the emulsion. There need be no fear of using it too freely, as no harm will accrue to sheep or wool if twice the quantity or twice the strength be used. Nor will it injure their eyes if it happen to get into them, or harm the sheep if swallowed; in fact, it is an excellent vermifuge.

As will be seen, each gallon contains but two-sevenths of a gallon of kerosene, and as this treats ten or more sheep its cost is merely nominal, as in few places does kerosene in quantities cost as much as ten cents per gallon. It is equally destructive to lice on horses, cattle or hogs, and used at double the above strength is valuable to spray the henhouse. If sprayed or sprinkled over the hens at night while on the roosts, about once a month, there will never be a louse on the hens or in the house. With this remedy so cheap, so readily obtained, and so easily applied, the flock owner who lets his sheep or lambs be eaten up alive with ticks, and thus neglects to provide for his own, is worse than a heathen.

Am. Ag.

### General Matter.

#### EXPERIENCE WITH RATIONS.

The balanced rations appearing in the *COUNTRY GENTLEMAN* in recent years have certainly wrought immense results for the dairyman who wishes to get a product for the market, and at the same time a fertilizer for the farm. The formulas giving the proper proportions of albuminoids, carbohydrates and fats, have helped more than one dairy out of adversity into prosperity. And I believe in the main, that they are correct for milk and butter, and increasing fertility of the farm. But a few comments on the soiling ration, page 273, called forth by close personal observations for seven years, will not be out of place. My experience will not contradict but somewhat modify the formula in answer to C. M. S.

The first point I wish to notice in the ration is the 2 lb. of corn meal. A distinguished statesman once said that



the curse of Ireland was the potato crop. I can almost say the corn crop is the curse of American dairy-feeding. Five years ago I fed as my neighbors did, and had beefy cows, milking little, caked udders now and then, cows off of their feed, and other disorders originating, as the veterinarian said, from high feeding. I wrote to Prof. Stewart, and he suggested less corn meal. He spoke of bran, its cooling influence, always safe, whether the animal was a calf, cow, or horse, or the cow was fresh or dry. He also spoke of linseed meal and its great value for the dairy animal within 90 days of calving—and then said that he thought it was safe—but that the persistent tendency of farmers to feed corn meal was probably more the real cause of abortion than the linseed meal. I took the hint again and cut out more corn meal, until the last two years I have not fed a particle of corn meal to a cow except in very cold weather, to keep up animal heat when the thermometer was 8° and 10° below zero.

#### A POPULAR APPOINTMENT.

The appointment of Mrs. E. M. Jones, of Brockville, as one of the jurors on butter, at the world's fair, as announced in the *RECORDER* a few days ago, will be very popular. It is a fact that the chairman of the executive on awards limited the number of jurors that Canada was to have to a very small number, making the selection more difficult. No one with less than a continental reputation had a chance of being thus honored. That a Brockville lady has been chosen is quite an honor to her and to the town, and a tribute to that lady's acknowledged ability as an authority on dairying.

The World's Fair committee have made no mistake. Mrs. Jones is known far and near has a leader in dairying, and a book embodying her views on this important question, entitled "Dairying for Profit, or the Poor Man's Cow," has been placed on the market and been cordially received. It contains a mint of information on the subject of dairying. It embodies a series of letters written by this talented lady for the *Montreal Star*, to which she has added many useful hints and results of practical experience. Her herd of Jerseys has a world wide reputation, and in this book she points out how to be successful in obtaining the best results in the dairy, and no one knows better than she. The first page are devoted to "choosing a cow," and very minute particulars are given as to the "points" to be noticed in purchasing such an animal. Next comes a chapter on "feeding and caring for the cow." This is perhaps one of the most interesting chapters in the entire work, as it deals with the essentials necessary to the production of milk in paying quantities, which is the object aimed at by all dairymen. A formula of a daily ration is given, costing 33 cts (1) per head, but the writer says this can be varied somewhat according to circumstances. In addition to proper, regular and systematic feeding, cleanliness is given prominence, and a thorough use of comb and brush is commended. The cleansing of the udder

is not sufficient, but the entire animal should be kept perfectly clean. The writer says she has often thought that over each cow's stall should be written these lines:—

"A good man is merciful to his beast."

"Cleanliness is next to Godliness."

"It pays, it pays, it pays."

"Milking and skimming," "setting milk," and all the apparatus connected therewith are thoroughly discussed in this book, and the valuable hints are legion. How to churn, salt and prepare butter for the market receive considerable attention, and perhaps these three are as vital points in dairying as can be mentioned. Good cows, plenty of milk, proper care, etc. are all lost unless the churning is done properly, and the butter prepared for market in a tasty and saleable manner. A chapter is devoted to the care of dairy utensils, and is very interesting.

In concluding this valuable book, Mrs. Jones gives an outline of what book-keeping is necessary on every well regulated farm, and in this age it goes without saying that a farmer or any other man who fails to keep a record of his business, is behind the times.

Already over 100,000 copies of Mrs. Jones' book have been sold, and still demand continues, which attests the worth of the information it contains, and is also proof that the World's Fair Executive on Awards, could not have chosen a more competent juror on butter than Mrs. E. M. Jones, authoress of "Dairying for Profit, or the Poor Man's Cow."

(The Brockville Recorder)

ENGLAND VS. ENGLISH SPARROWS.—And now the poor, persecuted foreigner will catch it on his native heath. The *Mark Lane Express* says:

Several farmers' clubs have decided to pay head money for all sparrows killed. Sparrows have become very numerous of late years, owing to the almost total extinction of their natural enemies, such as birds of prey and weasels. However, there is little doubt that one of the chief reasons is that boys and others are under the impression that they will be punished if they take the eggs. The notice of the Society for the Prevention of Cruelty to Animals, which are posted in different parts of the country, have acted as a deterrent to the bird's-nestor, and the country is suffering from it. At some seasons of the year the sparrows do their greatest amount of good by feeding on the seeds of weeds, for which purpose they gather together in flocks on the stubbles, and during that time it is a mistake to destroy them. But as soon as wintry weather drives them to the stackyard they will begin their depredations, which, with variations according to the season, will continue until the next harvest is gathered in. Wholesale shooting during long spells of wintry weather is perhaps the most effectual way of thinning their numbers, and few country people require telling how to "lay a train" of chaff and grain, so that with but little skill hundreds may be shot within the space of a week. (1) Sparrows are almost as great a delicacy as larks—in fact a "lark pie" is often composed of sparrows without any one but the game-seller and the cook being the wiser. Larks which have fed for some time on cabbages and turnips taste so strongly of their food that the flavor is anything but pleasant, sparrows always feed on

(1) Yes, but our experience is that small birds soon learn the dodge.—B.

seeds and grain, and are always to be relied upon. They stew down, and form the basis of most delicious soup, and altogether form an article of food which should not be wasted—it has cost quite enough to grow it.

## The Garden.

### GARDEN OF THE FARM.

KITCHEN GARDEN.—Asparagus.—We prefer growing this in beds 5 ft. wide, and planting three rows of plants on each bed; these may be 18 in. apart in the rows. Where peat soil is available, it may be grown on the flat in rows 3 ft. apart; but very few gardens can command peat, so that I should by all means advise growing in beds. The bed system has many advantages to recommend it for small gardens. After the beds have been marked out, dig in a good heavy dressing of rotten manure, then dig some of the soil out of the paths, and place on the surface of the beds. Before planting, place on the surface of the beds 3 in. or 4 in. of light rich soil, which may consist of rotten dung, road scrapings, and leaf mould. The right time to plant is an important point to decide; some recommend planting just before the plants begin to grow, that is just when the roots begin to move. I may say that I have tried all ways of planting, but by far the most successful has been after the tops have grown from 6 in. to 8 in.; as a matter of course, this late planting should, if possible, be carried out during dull, damp days. If done during dry, bright days, the plants must be shaded and watered. (1) After the planting is finished, a mulching of half rotten dung should be placed all over the beds; this will save much watering, and will keep the plants in a healthy condition.

### EARLY BLOOMING HARDY PERENNIALS.

It is pleasing to see this lovely class of plants becoming so popular. They give us more satisfaction than bedding plants, which have to be planted afresh every year, I refer more particularly to colous, alternanthera and the like. The hardy perennials on the other hand when once planted need very little attention afterward. Most of them will succeed splendidly in any ordinary soil; where it is at all heavy, however, a quantity of leaf-mould from the woods may be worked in, and if the soil is of a sandy nature add a quantity of well decayed manure to it. An inch or so of decayed leaf-mould spread over the border in summer is of great service to the plants; it prevents the hot sun from drying up the roots and baking the soil, especially after being watered. This is a vital point; in fact it will be found a good method of treating all kinds of low growing plants, because in their native places they generally grow thickly together, so that the soil is hidden from the sun.

Most of the species are easily grown and quite inexpensive. A small piece of each kind is all that is necessary to make a beginning if there is not much space to be filled up, as they, in most instances, spread quickly. Do not judge the merits of the plants by their first year's performances, although the

(1) Press down the roots very tightly, and no watering will be needed. Ed.

first season they ought to do well; the second year's growth will better show their characters.

Among the earliest to bloom are the hellebores, or Christmas roses, of which there is a number of species and varieties; the best and most showy of them is known as *Helleborus niger*. It grows best in a damp, rich soil. The winter anemone is a dwarf showy, yellow blooming plant, which increases fast in good open soil. The hepaticas or liverworts are ready to open their flower buds long before the snow has disappeared; it only requires a day or two of sunshine to bring out their flowers. There are six or eight varieties of this plant, and all are pretty and well worth growing. The native columbine (*Aquilegia Canadensis*) is easily reared from seed, and should not be omitted. A small piece of the blood root (*Sanguinaria*) planted here and there will soon make itself at home; nothing is more pleasing than a patch of this white flower in full bloom. The white arabis is a pretty and early bloomer; its roots like a moist, cool spot. You can have such a place right in the border. Get three pretty large flat stones and sink them edge down, till they are level with the surface of the ground, in the shape of a triangle, and plant the arabis in the enclosure. The soil round these stones is, during hot weather, several degrees cooler than if no stones were there. A good many of the low growing plants are benefited by being treated in this way; the roots seem to delight in rambling down alongside of the stones. The bleeding heart (*Dicentra spectabilis*) is one of the very best early bloomers, it needs rich, well drained soil. The bird's-foot violets grow and bloom beautifully from year to year in a heavy soil if left undisturbed.

G. W. OLIVER.

Botanic Garden,  
Washington, D. C.

### HARDY CARNATIONS.

After taking great pleasure in the carnation as grown by "florists," with all its delicate coloring, I was led by various reasons to the conclusion that a new departure was necessary with the carnation as a garden-flower. This may take place without detriment to the "florist's" way of enjoying it. Our flower-gardens have to a great extent been bare of beautiful flowers. Flowers! Acres of mean little sub-tropical weeds that happen to possess a colored leaf—coleus, alternanthera and porilla—occupy much of the ground which ought to be true flower-gardens, but which is set out in tile patterns, and with plants without fragrance, beauty of form, or any charms of association. (1)

My view is that the flowers of our own latitudes, when they are beautiful, are entitled to the first place in our gardens. Among these, after the rose, should come the carnation, in all its beauty where the soil and climate are fitted for it.

It is not enough that the laced, flaked, and other beautiful groups of the varieties of *Dianthus Caryophyllus* should be grown in frames, we should show the flower in all its force of color in our flower-gardens. Many people who may not have the skill, or the means necessary for the growth of the finest florists' flowers, would yet find the brilliant "self" carnations delightful in their gardens in summer

(1) We are thoroughly in accord with the writer. Ed.

and autumn, and even in winter, for the carnation, where it does well, has a fine color value of foliage in winter, which makes it most useful to all who care for good color in their gardens.

What carnations are the best for the open air? The kinds of carnations popular up to the present day are well known by what is seen at the Canadian shows, and in the florists' periodical, like the *Floral Magazine*, *Harrison's Cabinet*, and, indeed, all similar periodicals up to our own day, when I began to insist that all flowers should be drawn as they are. The artist should never be influenced by any "rules" or "ideals" whatever, but be allowed to draw what he sees. This all conscientious artists expect, and it is the barest justice. If we succeed in raising what we consider perfect flowers, let the artist see them as they are, and draw them as he sees them. Otherwise we have the confusion of drawing impossible hybrids between what he sees and what he is told is perfection in a flower. It was the want of this artistic honesty, so to say, which has left us so worthless a record in illustrated journals of the past, where the artist was always told to keep the florist's "ideal" as to what the flower should be. Hence the number of plates of flowers of many kinds, all drawn with the compass and quite worthless as a record!

(Gardening.)

EVER-BLOOMING ROSES.

The class of ever-blooming roses is what the masses should depend on for summer roses, writes Eben E. Rexford in a valuable article on "The Favorite of the Flowers" in the *May Ladies' Home Journal*. They are mostly teas, Bourbons and Noisettes. They begin to bloom shortly after planting, and continue to flower until the coming of cold weather. If the branches are cut back, from time to time, and a good soil be given them, they bloom very profusely. While not as large as the hybrid perpetuals they are quite as rich in color, and as sweet, and much more free in flowering qualities. They are so easily grown that they should be selected by those who love roses, but do not feel equal to the task of attempting to grow the other varieties. If you give them a good soil, and keep the old flowers cut off, you need not fear of failure with them. No other flower repays you so richly, because no other flower is so beautiful. With a bed of five or six feet square you can have all the flowers you want throughout the season, for vases in the house, for personal adornment, and to give to your friends, without, at any time, robbing the bushes who lay of flowers.

FACTS CONCERNING APPLE SPOT.

The main points to be remembered in connection with this malady are that it is caused by a minute parasitic fungus, a low form of plant life, which by living on the leaves and fruit of the apple, prevents assimilation in the former and the development of the latter. It is not so generally known that the same fungus attacks both the leaves and the fruit. A few facts to be remembered in connection with successful treatment are: 1. That it is perpetuated by spores, which take the place of seeds. 2. That these spores, formed in the autumn, live over winter upon the old leaves, fruit and

young branches. 3. That these germinate in the spring as soon as conditions are favourable, which is usually about the time the young foliage is developing. The efficacy of the copper-salt remedies have now come to be generally recognised, and the fruit grower who does not use these remedies is neglecting a simple precaution in direct opposition to his best interests. Ammoniacal copper carbonate and dilute Bord aux mixture (half strength) are now the leading fungicides for apple and pear scab and grape mildew.

JOHN CRAIG,

Horticulturist, Experimental Farm, Ottawa.

THE BEE-MASTER.

Advice to beginners in Apiculture.

In order to make a good start, and to succeed with your bees from the very beginning, I advise those who intend to keep bees to follow the subjoined directions:

1. Go and see the best hives and the most successful bee-masters you can hear of; adopt their opinions and their method of treating their bees. 2. Buy, or borrow, some one or more of the best treatises on apiculture. First, I can recommend "The A. B. C. of Bee-keeping" by A. J. Koot, if you wish to be successful from the commencement. 3. Subscribe to one or two of the best Bee-keeper's periodicals, such as "The American Journal of Apiculture," and "Gleanings in the management of Bees." 4. Get a good fumigator—Clark's or Bingham's—and a good veil of silk-net, &c., to guard against the stings of the bees. 5. Go to some trustworthy bee-master's, in the month of May, but take care that he has no rotten brood in his hives. Buy a hive of bees, *black* or *Italian*, which ever you can get. If of the black kind, try them first, and if, after a fair trial, they do not please you, kill the queen, and introduce some good Italians. If the wings of the queen be not cut already, get the man from you whom buy the hive to cut them for you. 7. Now, settle your plans and the way you mean to treat the bees, and adhere firmly to them, doing the work promptly and at the right time. 8. Do not allow more than one swarming—in other words, do not try to do more than double your stock every year. 9. When your bees swarm, if the wings of the queen-bee are cut, transfer the old hive to a fresh site, and in its place put an empty hive. Look out for the queen on the ground before the entrance to the hives (keep the grass land bare of grass in that spot for that purpose) through which the swarm gets out; catch her and put her in a cage, and when the bees find that their queen is lost, they will return to the place where the old hive used to stand, and walk into the new one. When plenty of them have got in, let the queen go in among them. 10. Use the simplest and most perfect improvements, and the strongest made hives, with the least complicated mechanism about them. I should advise you to begin with a dove tailed hive, or some simply constructed one. 11. Employ invariably whole leaves of foundation-comb for the brood frames, and only *despartances* in the surplus boxes. This will greatly assist in preventing false drone cells in the brood-chamber. Observe that every square foot of workmen comb is equal to a dollar

saved. 12. Cut the wings of your young queens after coition, or leave them uncut until next spring; then, cut off one wing, which will show that your queen is a yearling, and the following spring, cut off the other wing. This will show that she is a 2 year-old. Later in the season, replace her by a young queen: the laying of eggs will be the better for the change.

From the *American Bee-Keeper*.  
(From the French.)

J. B. ST-MARO.

Mandres.

EXPERIMENTS ON SWEDE.

The bulbs were weighed after the roots and tops had been removed.

| No. of Plot. | Manure per acre.         | Cost per acre. |    |    | Weight of Swedes per acre. |      |      |
|--------------|--------------------------|----------------|----|----|----------------------------|------|------|
|              |                          | £              | s. | d. | Tons                       | cwt. | lbs. |
| I.           | No manure.....           |                |    |    | 13                         | 19   | 14   |
| II.          | 5 cwt. Superphosphate.   | 1              | 4  | 9  | 24                         | 13   | 21   |
|              | 1 cwt. Nitrate of Soda.. |                |    |    |                            |      |      |
| III.         | 5 cwt. Superphosphate    | 0              | 14 | 0  | 23                         | 0    | 42   |
| IV.          | 5 cwt. Superphosphate.   |                |    |    |                            |      |      |
|              | 5 cwt. Kainit.....       | 9              | 0  | 0  | 25                         | 1    | 7    |
|              | 1 cwt. Nitrate of Soda.. |                |    |    |                            |      |      |
|              | 1 cwt. Phospho Guano.    | 2              | 4  | 0  | 26                         | 11   | 7    |
| V.           | 2 cwt. Kainit.....       |                |    |    |                            |      |      |
|              | 1 cwt. Phospho Guano..   | 1              | 19 | 0  | 36                         | 12   | 49   |
| VI.          | 2 cwt. Superphosphate.   |                |    |    |                            |      |      |
|              | 1 cwt. Basic Slag.....   | 1              | 3  | 9  | 28                         | 17   | 14   |
| VII.         | 1 cwt. Nitrate of Soda.. |                |    |    |                            |      |      |
|              | 1 cwt. Basic Slag.....   | 1              | 4  | 0  | 27                         | 4    | 105  |
| VIII.        | 1 cwt. Nitrate of Soda.. |                |    |    |                            |      |      |
|              | 5 cwt. Superphosphate.   | 1              | 6  | 9  | 26                         | 16   | 91   |
| IX.          | 1 cwt. Nitrate of Soda.. |                |    |    |                            |      |      |
|              | 2 cwt. Salt.....         | 1              | 8  | 9  | 25                         | 11   | 42   |
| X.           | 5 cwt. Superphosphate.   |                |    |    |                            |      |      |
|              | 1 cwt. Nitrate of Soda.. | 1              | 8  | 9  | 25                         | 11   | 42   |
| XI.          | 1 cwt. Gypsum.....       |                |    |    |                            |      |      |
|              | No Manure.....           |                |    |    | 14                         | 0    | 7    |

No farmyard manure was used in this experiment or in that of the previous year, on swedes.

MR. BINNS asked his soil what it needed to grow a good crop of straw berries. "Nitrogen!" was the answer every time. See what he got by giving the soil what it needed? You never heard of soil so ugly that it would not answer a civil question about fertilizers! I will go into details too and tell whether clover or nitrate is the cheaper form of nitrogen. It may prove, even in far off Washington, that the latter is the cheaper.

PLOTS. HENRY STEWART comments on the fact that some of the experiments station teachers declare that culture by plots cannot be depended upon for accurate results, and that experiments made on such plots are not of general value. This comes as a most unsatisfactory comment on the 50 years of experimenting that has been going on at the Rothamsted Station in England, where Sir J. B. Lawes and his assistants have accumulated such an enormous mass of invaluable information that has been accepted everywhere as standard law for farmers in every civilized country. In fact, there is little other information of the kind available.

We regard all such declarations by

the station people as mere evidence of "youngness". Experience will teach them better."

New-Yorker.

BONES

THE R. N.-Y. has often advocated the burning of bones as a cheap and easy way of reducing them to a proper condition for use as a fertiliser. There are cases where burning is advisable chiefly because this is about the only way some farmers can get them into a fine meal or powder. As between a whole bone and bone ash, the latter is preferable, but if the whole bone could be crushed or ground into a fine meal without burning it would be worth far more for fertilising. It is a fact that bone ash is very slowly soluble as compared with a superphosphate or fine raw bone. Take two

similar bones—burn one to ashes and grind the other to a fine meal, and then apply heat in the form of steam. The steamed bones will be twice as valuable as the bones ash for immediate use. At the same time there are cases where bone burning is economical because of the great cost of crushing bones with ordinary tools.

"FACTS FOR CAROLINA FARMERS."

The *Charleston News and Courier* in a quiet but ironical way pokes fun at the bulletin reports of the South Carolina Agricultural Experiment Station, a copy of which it received recently containing three articles on cotton seed meal. The *News and Courier* gives extracts as examples of the contents of the bulletins. These extracts deal to an extravagant degree in "big dictionary works," abstruse scientific terms and phraseology quite intelligible to a learned chemist, yet to those who are not analytical chemists, but simple plain farmers, they present the same difficulties, we imagine, which would confront them should they undertake to decipher the Chinese characters that adorn our teachers. Here is a simple: "Luteocobaltic chloride gave a precipitate of the peculiar color of that produced with this reagent by pyrophosphates of the alkalis, although

it did not glisten or makes its appearance in spangles. I have found, however, that this peculiarity of the precipitate is destroyed by the presence of mere traces of metaphosphate."

The *News and Courier* comments on this as follows:

"It is a great pity of course, that the precipitate of luteocobaltic chloride does not glisten or appear in spangles, but a little ground mica will supply this feature and give the oat-field a holiday appearance when the grain is sown broadcast. For ourselves we prefer the molybdic solution, after the removal of ortho- and pyrophosphoric acid, for red oats, but we would not insist it is better than pyrophosphoric acid, if the latter is carefully treated with luteocobaltic chloride that has self been dialysed in potassium nitrate."

MIXED FERTILISERS

ANS.—1. W. S. Powell & Co., Baltimore, Md., sell chemicals. 2. This mixture would make a complete fertiliser for corn or any other crop. It might not do so well, however, as one in which there were different forms of nitrogen and soluble phosphoric acid. The average composition of the chemicals named is: Nitrate of soda 16 per cent nitrogen; ground bone, 20 per cent phosphoric acid; muriate of potash, 50 per cent potash. A standard fertiliser for corn should contain about 75 pounds of nitrogen, 200 of phosphoric acid and 130 of potash to the ton. A mixture of 300 pounds of nitrate of soda, 1,000 of ground bone, and 300 of potash, or 1,600 pounds in all, will give more nitrogen and potash than is found in the ton of prepared fertiliser, and the same amount of phosphoric acid. The difference is that none of the phosphoric acid in the bone is soluble in water, while 130 pounds of that in the special fertiliser are available because a superphosphate was used. The cost of the above mixture at present retail prices would be not far from \$35. Here are two "home mixtures" made by Connecticut farmers for special use on the corn crop:

| No. 1.                    | Pounds. |
|---------------------------|---------|
| Bone.....                 | 500     |
| Muriate of potash.....    | 200     |
| Dissolved bone black..... | 600     |
| Tankage.....              | 500     |
| Nitrate of soda.....      | 200     |
|                           | 2,000   |
| No. 2.                    | Pounds. |
| Castor pomace.....        | 800     |
| Tankage.....              | 900     |
| Muriate of potash.....    | 200     |
| Dissolved bone.....       | 100     |
| Nitrate of soda.....      | 100     |
| Plaster.....              | 100     |
|                           | 2,200   |

Careful analyses showed the following composition for these mixtures in pounds per ton:

|            | Nitrogen. | Potash. | Phosphoric acid. |
|------------|-----------|---------|------------------|
| No. 1..... | 85        | 108     | 290              |
| No. 2..... | 108       | 110     | 150              |

No. 1 cost \$35.06 per ton delivered. The cost of No. 2 was not estimated. These mixtures were made with special reference to what those particular soils were thought to need. The soils had first been tested with chemicals in combination and alone until it became evident that the soil of No 2 needed

more nitrogen and less phosphoric acid than that of No. 1, and the mixtures were made up on that basis. The great objects of home mixing are to avoid buying unnecessary quantities of nitrogen, potash or phosphoric acid, and to know that the forms in which these substances are supplied are suitable. Better try high-grade manufactured goods than to "home mix" at random without having first tested the soil for an idea of what it really needs. Raw ground bone is seldom used in the home mixtures, dissolved bone black or some other form of superphosphate gives a better result.

R. N. Yorker.

COTTON-SEED MEAL FOR POTATO FERTILISER.

C. U. V. B. Beaufert, S. C.—What is the cheapest fertiliser for Irish potatoes? Will not Peter Cooper's bone, sulphate of potash, and cotton-seed or cotton-seed meal be the cheapest forms? Delivered here cotton seed meal costs \$24 per ton; Peter Cooper's bone, \$26, and cotton seed, \$10. About sulphate of potash I have no information; what is its price, and the address of a firm from which I can purchase?

ANS.—The value of the cotton-seed meal will depend upon its analysis. For instance: take these two samples analysed at the Connecticut station,

|          | Cost. | Nitrogen. | P. acid. | Potash |
|----------|-------|-----------|----------|--------|
| No. 1... | 24.50 | 4.23      | 1.83     | 1.49   |
| No. 2... | 27.00 | 7.56      | 3.26     | 2.00   |

No 1 was not thoroughly "decorticated;" so that more or less hulls were ground with the seed. Allowing the ordinary prices for potash and phosphoric acid, a pound of nitrogen in No. 1 cost 24 cents. Figuring the same way, a pound of it in No. 2 cost only 13.4 cents, though the price per ton was \$2.50 more than that of the other. This is a good illustration of the necessity of buying fertilising substances on an analysis. It also shows the impossibility of giving an accurate statement as to the composition of a mixture containing cotton seed meal. We have had no experience with whole cotton seed as a fertiliser for potatoes, but should suppose it contains too much fat and oil for that crop. Taking the average composition of cotton-seed meal, bone and sulphate of potash, 1,200 pounds of the meal, 600 of bone and 300 of sulphate of potash will give an analysis much like that of a high-grade potato fertiliser, except that the mixture contains an excess of phosphoric acid. A better combination could be made up by using some nitrate of soda and superphosphate.

R. N. Yorker.

The Household.

HOME-MADE RELISHES FOR BREAKFAST OR LUNCHEON

UNDER this heading an almost endless variety of little delicacies, of a light, appetising nature, may very properly be included, but amongst the number there are a few items to which I should like to call special attention, namely, potted meats and fish of various kinds, and savoury pastes. These little dainties are so extremely

simple in their preparation that the trouble involved is really not worth mentioning, and they are decidedly economical too, as they provide an excellent opportunity for the using up of odds and ends which, otherwise, would in all probability be just wasted; besides which, they form a most popular and highly-esteemed relish, especially welcome during the present season, when one seems to need some such tempting little tit-bit in order to coax and stimulate one's appetite. I have great pleasure, therefore, in giving below some good and reliable recipes for the making of these little savouries, which I hope may prove useful and satisfactory to my readers.

POTTED BEEF AND HAM.—Take, say, half-a-pound of cold roast beef, carefully freed from all skin and gristle, and 6 oz. of lean cooked ham, and after mincing these together very finely, put them into a mortar with 2 oz. of stewed mushrooms, 4 oz. of pure fresh butter, and a good high seasoning of salt, cayenne, made mustard, and mixed herb powder, and pound the whole to a perfectly smooth paste; moisten this with a well-beaten fresh egg and a small teaspoonful of rich brown stock, and mix thoroughly; then press the mixture into small neat jars, cover the tops with buttered paper, and poach gently for half an hour in boiling water, taking care, of course, that the latter does not quite reach to the height of the jars. When sufficiently done take them up, pour over the surface a little clarified butter or melted mutton fat, and set them in a cool dry place until required; then serve as fancy dictates—as a savoury to be spread upon bread-and butter, or in the form of sandwiches, dainty croûtons, &c.

POTTED CHICKEN AND TONGUE.—Take equal weights of cold cooked chicken either roast or boiled, and cooked ox tongue, and first mince finely, then pound separately, until each meat forms a nice smooth paste; supposing there is ½ lb. each of chicken and of tongue, add to each 3 oz. of good fresh butter, and a pleasant and sufficient seasoning of salt, pepper, made mustard, and powdered mace. Then mix thoroughly, and press the meat firmly into small, very liberally-buttered jars, arranging it in alternate layers of red and white, so as to give a pretty effect when the paste is cut into. If intended for serving next day, there is no necessity to cover the tops of the jars over with fat of any kind, but just set them in a cool place overnight; then, when required turn out on to a dainty little dish-paper; garnish tastefully with sprigs of parsley and slices of fresh lemon and serve.

POTTED LOBSTER.—Choose a medium-sized hen lobster, that has been just freshly boiled, and carefully pick out every scrap of the meat. Put this into a mortar, or a strong basin, with the coral, a teaspoonful of anchovy essence, a seasoning of salt, cayenne, and nutmeg, and 4 oz. of fresh butter, and pound the whole until thoroughly blended and quite smooth; then press into small jars, cover the top, or not, according to discretion, with cool clarified butter. Or, if preferred, pound only the white part of the meat, and cut the red portion into small neat dice, then mix lightly together, place in jars or pots, as already directed, and serve, whenever required, as tastefully as possible.

POTTED BLOATERS.—Procure half-a-dozen freshly-cured prime Yarmouth bloaters and immerse them in boiling

water, then carefully remove the skins and as many of the bones as possible, and put the fish into a stowpan with 4 oz. of butter, a seasoning of mace and cayenne; and a teaspoonful of anchovy essence, and stir all together over a moderate fire for about ten minutes; then rub the preparation through a sieve, press it into small jars, cover the tops with cool clarified butter, and store for use.

SHRIMP PASTE.—Take the requisite quantity of fine, freshly boiled shrimps, and after shelling them carefully put them into a mortar with one-third their weight in fresh butter, a pleasant seasoning of salt, white pepper and mace, and a few drops of cochineal or carmine, and pound the whole very smoothly then finish off as already directed.

NOTE.—Prawns and crayfish may be treated in exactly the same manner, and will be found most delightful, while sardines, anchovies, and the remains of almost any kind of cooked fish can be utilised in a similar fashion, only omitting the colouring.

EGG PASTE.—Boil six fresh eggs for ten minutes, then remove the shells, take out the yolks, and put them in a basin with 4 oz. of fresh butter, a good seasoning of salt, pepper and mustard, and chop the egg whites into very tiny dice; pound the yolks, &c. to a fine smooth paste, then add the chopped whites, and mix together lightly, when the paste is ready for potting. If ½ oz. of prime cooked ham is finely chopped and pounded with the egg yolks, the preparation will be all the more delicious, only it should then be called "Egg and Ham Paste."

CHEESE PASTE.—This is a truly delightful relish for luncheon, with gentlemen more especially, and if nicely prepared and closely covered it will keep for two or three weeks. Take three-quarters of a pound of rich cheese—no matter how dry or how small the pieces—and put it into a mortar with 6 oz. of pure fresh butter, a plentiful seasoning of mustard and cayenne, and pound briskly until the ingredients form a well-blended, smooth, creamy paste, then finish off and store in the usual way, and use as required. If only a small quantity of the paste is being made for immediate use, a tiny bit of boiled onion, very finely minced, may be added and will add considerably to the piquant flavour of the relish, but this ingredient must never be introduced when the paste is intended to be kept for any length of time. MARIÉ.

THE shrewd and practical editor of the *Maine Farmer* strikes a neglected chord, when he says to his readers that the live-stock literature of the last two decades has been mainly devoted to educating the public up to an appreciation of the fact that "blood will tell," and now, without receding a particle from what has been gained in that direction, it is high time that the other end of the line should be brought up, so that the general farmer and every-body else may understand how important a part the feeder's art has played in the creation of what is popularly termed "good blood," and how important a part it must continue to play in perpetuating good blood.



ALEXANDRE GUILMANT

During his recent stay in this city, on the occasion of the inauguration of the St. Peter's Cathedral electric organ, the famous organist, Mr. Alexandre Guilmant, made use in his rooms at the Windsor Hotel of the new "Pratto" piano and gave it the greatest praise. Such a testimony from the great artist is sufficient in itself to establish a reputation for these first class instruments manufactured by Mr. L. E. N. Pratto at his factory and warerooms, No. 1676 Notre Dame street.

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TO FRUIT GROWERS

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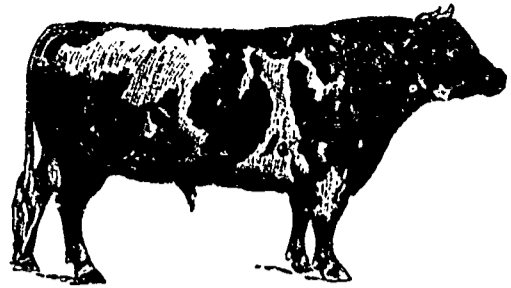
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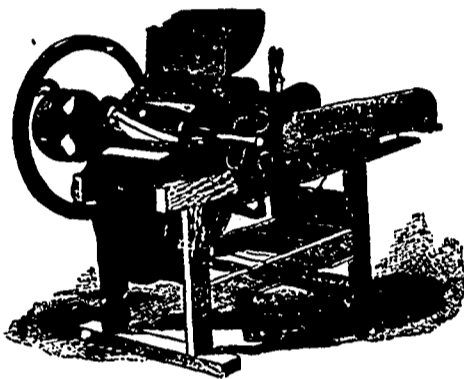
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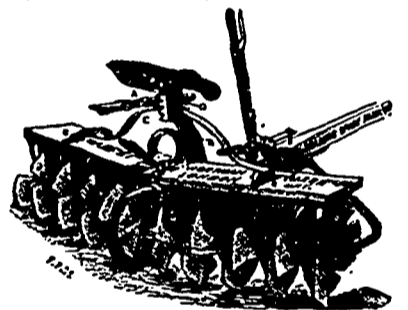
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