

Technical and Bibliographic Notes / Notes techniques et bibliographiques

Canadiana.org has attempted to obtain the best copy available for scanning. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of scanning are checked below.

Canadiana.org a numérisé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de numérisation sont indiqués ci-dessous.

- Coloured covers /
Couverture de couleur
- Covers damaged /
Couverture endommagée
- Covers restored and/or laminated /
Couverture restaurée et/ou pelliculée
- Cover title missing /
Le titre de couverture manque
- Coloured maps /
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black) /
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations /
Planches et/ou illustrations en couleur
- Bound with other material /
Relié avec d'autres documents
- Only edition available /
Seule édition disponible
- Tight binding may cause shadows or distortion
along interior margin / La reliure serrée peut
causer de l'ombre ou de la distorsion le long de la
marge intérieure.

- Additional comments /
Commentaires supplémentaires: **Continuous pagination.
Some pages missing.**

- Coloured pages / Pages de couleur
- Pages damaged / Pages endommagées
- Pages restored and/or laminated /
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- Pages detached / Pages détachées
- Showthrough / Transparence
- Quality of print varies /
Qualité inégale de l'impression

- Includes supplementary materials /
Comprend du matériel supplémentaire

- Blank leaves added during restorations may
appear within the text. Whenever possible, these
have been omitted from scanning / Il se peut que
certaines pages blanches ajoutées lors d'une
restauration apparaissent dans le texte, mais,
lorsque cela était possible, ces pages n'ont pas
été numérisées.

THE ILLUSTRATED
Journal of Agriculture

Montreal, April 1, 1896.

Table of Contents

NOTES BY THE WAY:

Fall-wheat..... 319
The "end of the cows"..... 319
Wheat in Britain..... 319
Poultry Manure..... 319
Feeding milch cows..... 319
Mrs. Jones' cows..... 319
Rape, etc..... 320
Club-root..... 320
Farm-work for April..... 320
Oat-crops..... 320
Bullocks' heads..... 320
Heifer-beef..... 320
Competition of Ag. Merit..... 320
Our trade with England..... 321
A letter from M. Taché..... 321
Notes by an Ag. lecturer..... 322

THE POULTRY-YARD - A. G. GILBERT.

Management, etc., of young chicks..... 322
Poultry-farms..... 322

THE HIVE:

Early spring care of bees..... 323
Moore on "Self-help"..... 323
Macfarlane on "Intensive farming"..... 324
Dickson on "Making butter in winter"..... 324
Buchanan on "Green-manure"..... 325
do on "Summer-fallowing"..... 325
do on "Feeding pigs on clover"..... 325

HOUSEHOLD MATTERS

Home dress making..... 325
Moths..... 325
Stewed liver and heart..... 325
Home pudling..... 325
Baraches..... 325
Uses of salt..... 326
Servants and mistress..... 326

FARMERS' SYNDICATES:

LONDON PRICES.

THE HORSES:

The Haras sale..... 326
Wintering colts..... 326

PRIZE ESSAY:

Sangster on carrot-growing..... 327
do on mangel-growing..... 327

THE DAIRY:

Butter, Margarin and cheese in '95..... 328
Shorthorns in 1895..... 328
Feeding roots..... 328
Government aid to the meat-trade..... 328
Canada live-stock export-trade..... 328

MISCELLANEOUS.

Sheep need water..... 329
What breed shall be used?..... 329
Treatment of in-calf cows..... 329
Milk and Brewer's grains..... 329
The dryer and moulder..... 329

THE FARM:

Hops (Concluded)..... 329
Harrowing to kill weeds..... 330
Snow-roads..... 330
Bad roads..... 330
Feeding value of potatoes..... 330

ORCHARD AND GARDEN:

Fruit-growers' Association..... 331
St. John's meeting..... 331

SWINE:

Feeding pigs..... 332
Export of bacon, etc..... 333

THE ROTHAMSTED EXPERIMENTS:

Nitrogenous and non-nit. food..... 333
Composition and increase of animals..... 333

Notes by the Way.

Fall-wheat.—Mr. David Crawford, whom every Montrealese knows, has bought a large farm—about 250 acres—at River-Beaudette. He did a bold thing last autumn, when he sowed 4 acres of wheat, which we hope will turn out well, but the thaw in the latter part of December, following the zero weather in the early part of that month, is against it. Another thing: the seed was put in broadcast, and therefore not deep enough, as it

could only be covered with simple harrowing. Fall wheat should be ploughed or drilled in from 3 to 4 inches deep.

We advised Mr. Crawford to harrow his wheat as soon as the land is dry enough in the spring; then, the grass-seeds should be sown and the roller passed over the piece, which will bury them quite deep enough.

The farmers in the Côteau district, Mr. Crawford tells me, are very anxious to improve. Unfortunately, there is no Agricultural Society or Farmer's Club there, but they have applied to the Ottawa Government for a lecturer, and it seems that M. J. C. Chappais is expected to pay them a visit before long.

As to cattle, Mr. Crawford proposes to introduce some thoroughbred Shorthorns, from Ontario, but, as it is a dairy-district, he had better be careful in his selection, for the milking strains of that breed are not common. He very sensibly says he wants a lot of cows that are good for something in the butcher's line of business after they have done their duty as providers of raw material for the dairy. Will no one ever get a small herd of the true Dairy-Shorthorn by way of a beginning?

"Hoard's Dairyman"—and the end of the cow—had, in one of its later issues, a paragraph that rather astonished us: "It does not pay a dairyman to consider the feeding of veal-calves or the fattening of old cows. He can put new milk and feeding stuffs to more profitable uses in the manufacture of butter and cheese."

What is to become of the bull-calves, then? And the old cows; are they to be knocked on the head and thrown into the nearest ditch? We take it Mr. Horsfall, the great London dairyman, knows his business quite well as the writer in *Hoard*, but then he does not keep Jerseys, but the sadly maligned Dairy Shorthorns, of which *Hoard* has so mean an opinion.

Mr. Horsfall buys *strippers*, or cows some six months after calving, and, by judicious feeding, so increases their yield of milk as to make a fair profit out of this alone, and also to increase the weight and value of the carcass in six or eight months, so as to sell them for 50% more than what they cost him. As the late E. W. Stewart said. A system that can produce milk profitably while fattening the cow, must have some merits worthy of adoption.

How to treat old cows.—This system must of course depend upon the condition of the cow being kept up while giving a large yield of milk. The rations given to Mr. Horsfall's cows are compounded of the following materials:

FOOD FOR SIX COWS (for 191 days).
Per day.

Meadow-hay.....	56 lbs.
Rape cake.....	30 "
Malt cummins.....	9 "
Bran.....	9 "
Bean-meal.....	9 "
Roots, etc.....	204 "
Oat straw.....	50 "
Bean-straw.....	12 "
379 lb.	

Equal to 63 1/2 lbs. per head per day. Pease meal and pease-straw may in this country take the place of beans.

Of these six *strippers* the following is the yield of milk during 191 days, and their respective gain in live weight:

No. of cow.	Total Yield.		Gain in weight.
	days.	lbs.	
1	203	5,202	84
2	189	7,749	140
3	217	8,354	168
4	175	6,725	28
5	175	5,833	56
6	189	6,652	28
Average of all.....	21	6,752	84

To say nothing of the value of the dung, which at the usual price of cow-house-dung in London was certainly worth \$14.00 a cow. Professor Way, who analysed the manure from these six cows, returned the following statement:

Nitrogen.....	414 lbs
Phosphoric acid.....	393 "
Potash.....	585 "

Which at a reasonable valuation should be worth \$87.38: as for valuing the nitrogen, etc., of dung at the same price as in commercial fertilisers, that is an absurdity that no one but a pure theorist would ever fall into.

Wheat in Britain.—Ninety-five % of all the wheat grown in Britain is produced in England. Even in Wales, one-third more wheat was grown than in Scotland, in which latter country, in 1895, there were only 33,641 acres of that cereal. Trust Scotland for knowing her own interest: oats pay better than wheat nowadays, though the average wheat-crop of Scotland is generally 35 bushels an acre to England's 30.

POULTRY-MANURE.

Comparison with guano—Poultry-food—Composition of guano—Value—Anderson's analysis of poultry-dung, &c., &c.

Guano is the dung and urine of sea-fowls feeding on fish alone. It is, except in the upper layers, of unknown age, and heat and pressure—by its own weight—have combined to condense and solidify it.

Poultry, on the other hand, feed on grain and seeds with a good deal of other vegetable matters, such as grass, cabbage, &c.; their droppings are recent and raw, and instead of containing only 7% to 8% of water, like guano, they rarely contain less than 50%. The two chief manurial constituents of both poultry-manure and guano are ammonia and phosphate of lime; potash is present in each, but in such very small quantities that it may be left out of our consideration.

The following shows the analysis of a good sample of Peruvian guano as it is found to day, and its value, at present prices, per ton of 2000 lbs.

Ammonia 12 % = 240 lbs., at 12 cts.....	\$28.80
Phosphate of lime (bone-earth) 30 % = 600 lbs. at 2 cts....	12.00
Potash 4 % = 80 lbs. at 4 cents.....	3.20

	\$44.00

Dr Uro's analysis of Peruvian guano in its best days, when it gave 14 % of nitrogen = 17 % of ammonia, stands thus:

Water.....	7.83
Organic matter containing ammoniacal salts.....	59.85
Chloride of sodium, sulph. of soda, phosph. of potash.....	12.24
Phosphates of lime and magnesia.....	15.15
Carbonate of lime.....	.97
Sand and other impurities.....	3.39

	99.43

Now, let us see what the composition of *hen's dung* is, according to Anderson, chemist to the Highland Society of Scotland:

Water.....	60.38
Organic matter and ammoniacal salts.....	19.22
Phosphates.....	4.47
Carbonate of lime.....	7.65
Alkaline salts.....	1.09
Sand and other impurities.....	6.69

	100.00

Ammonia.....	0.74
Phosphoric acid.....	2.05 (about)

So, in a ton of guano—quality as above—compared with an ton of hen's dung, there is only 1/4 as much water, but, in revenge, there is 16 times as much ammonia, and many times as much phosphate of lime.

The analysis of mixed horse, cattle- and pig-dung, by Voelcker, *perz*, chemist to the Royal Agricultural Society of England runs thus:

Water.....	66.17
Organic matter.....	28.24
Inorganic do.....	5.59

	100.00

Containing ammonia..	.78
Phosphate of lime..	12.23
Potash.....	12.14

All these samples were collected in a fresh state, and analysed after being dried at 212° F.

Well might Prof. Anderson conclude his report to the Highland and Agricultural Society of Scotland with these words. The three kinds of poultry-dung: hens', geese', and ducks', hardly, if at all, exceed farm yard manure in value.

Feeding milch-cows.—All the Montrealese milkmen whom we have met say that they feed their cows four and some of them five times a day.

Mrs Jones of Brockville, one of the most successful of dairy-women, feeds her Jerseys as follows:

In winter, the stalls are cleaned out at 5 A. M., the cows are brushed off, and each receives a feed of silage with the proper quantity of meal and bran mixed with it, according to the milk they are giving. They are then milked, each gets an armful of hay, and the hands go to breakfast.

Towards noon, they are watered, and on returning to the stable, each cow finds a feed of sliced roots in her box with a handful of meal or bran sprinkled over it.

At four P. M., they are all offered water in pails, and receive their second feed of silage and meal.

At five P. M., milking, begins, after which each cow receives a liberal feed of hay and fresh bedding, and is then left for the night.

At any rate this makes four feeds a day, at least.

Rape and other green-fodder.—*Lathyrus sylvestris*, the flat-poa and *Polygonum sachalinense*, sachaline, have proved to be failures at some of the U. S. stations where they were tried; but, according to the report of the Colorado station, rape yielded very heavily, the smallest product of any plot being 22 tons of fodder to the acre! Now supposing a *tev.* i. e., a 6 months' old lamb of any short wool breed, requiring 15 lbs. a day of rape, in addition to a little dry food in the form of clover hay, cake, or grain and pulse, an acre of such a plant should keep 100 togs for all but 30 days! We have never seen such a product in England; 15 tons to the acre being a very good crop; but only conceive the effect on the succeeding crops of 100 sheep passing the whole of their time for even 15 days on an acre of land! Of course, the flock must be folded carefully over the piece and not be allowed to tramp it down by being turned loose into the field. We still hold the opinion we expressed when, nearly 38 years ago, we arrived in the province; that the hinterlands of our long farms will never be properly cultivated until the rape plant is grown on them, and fed off by sheep in the later summer and fall.

Club-root or finger-and-toe, as this disease is sometimes called, we have heard of but never seen in this country. We fancy it generally proceeds from the too frequent repetition of the same crop on the same land. It never affects any other plants than the *cruciferae*—cabbage, turnips, rape, &c.,—and rejoices in the scientific name of *Plasmadiphora brassicae*, which, being interpreted, means "a variation in the shape of the *brassica* or cabbage tribe," and a very nasty variation it is. The cure for it seems to be a heavy dressing of lime or potash, at least so says Mr. G. Masson, of the Royal Society of England. As the germs of disease remain in the soil and retain their vitality for at least two years, it would be wise not only to omit sowing any turnips, &c., on the land affected for three or four years, but to eradicate thoroughly any weeds of the *cruciferae* order such as wild mustard, charlock, &c., for the disease profits by them as well as by the cultivated plants of the same order. It is probably caused by a fungus.

Vetches or tares.—We are very fond of tares as a fodder-plant, but it has the inconvenience of making the land so loose that the grain-crop succeeding almost invariably goes down. The same defect we have often noticed in England, and the only care we knew of there is to feed off a crop of rape after it with sheep.

FARM-WORK FOR APRIL.

Treatment of the animals of the farm —Preparation of the land.

If any one imagines that horses, kept idle in their stalls and fed upon straw during winter, will be fit to do real work when the stress of spring cultivation begins, he will find his mistake out before many days of ploughing and harrowing are finished.

Horses should be worked moderately in preparation for the spring-campaign, and their food should contain a fair proportion of oats and

sound hay; a few pease, say a double handful, twice a day will do them much good: a pity we grow so few horse-beans in the country.

Cows are busy calving, on those farms where fall-calving and winter-dairying have not been introduced. We repeat, for the tenth time at least, do not let the cow see her calf after it is born. The young one will do very well, covered up with soft straw, without food for, anyhow, 10 hours after birth, and it will not be half so much trouble to touch it to drink from a pail as it would be if it had once sucked its dam. After the second week, the calf will do pretty well on skim-milk with a little crushed linseed (flax-seed, previously steeped in plenty of boiling water, 90° F. to 96° F. is the best temperature for the mixture.

Ewes will, in the majority of cases, finish lambing by the middle of the month. Clover-hay, a few oats, and as much water as they will take, if there are no roots, will do for them. Castrate and tail the lambs at from ten to fifteen days from birth. We always select ewe lambs for our own table, for most of the male lambs—or rather, tegs—that reach Montreal in the fall are uncut, and the flavour of a ram-teg is anything but nice.

Young pigs should not be weaned till they are at least six weeks old. Why not spay the sow-pigs that are not wanted for breeding? Every time the young sow comes into season she loses flesh, and as this happens several times when the pig is from 6 to 8 months old, she is often arrested in her fattening, besides, many a man kills his sow-pig when she is in season, from carelessness or inattention, and that is much more likely to prevent the pork from taking the salt than any influence the moon can exert.

Poultry.—Well, probably Mr. Gilbert will have something to say about the spring treatment of poultry, so we leave the subject to him.

Preparation of the land.—A late spring is before us, we fear; the autumn lasted well up to Christmas and the old Canadian saying is pretty true: If you don't find winter at the month of the sack, you may reckon on finding it at the bottom; however, some fall-ploughed land in the western part of the province will surely be fit to work before April is over, and the sooner pease, wheat and oats are in the ground the better chance for a crop. Pease and wheat will stand a lot of freezing when the seed is well covered; say 3 to 4 inches deep for pease and 2 to 3 inches for wheat. Black Tartar oats, too, are hardy, but perhaps barley may need a little delay. At all events get grass- and clover-seed sown as early as possible, the great droughts in the States of last summer played the very mischief with all the late-sown seeds.

Do try a piece of lucerne. If only an acre. All it needs is: land not too heavy; a dry subsoil; and as much dung as you can spare. Do not be afraid of sowing it with spring grain, barley for choice.

Get your dung out down to the very last load, and put it up in well built-piles in or near the fields intended for potatoes and roots.

Use the grubber on fall-ploughed land, particularly on light soils, before sowing. And harrow harrow, harrow, both before and after the drill or seeder.

Oat-crops.—Mr. Wrightson, of the Salisbury, Eng., College of Agriculture, writing in the *Agricultural Gazette*, requests his readers to give him an account of the largest yields,

per imperial acre, of oats that have come to their knowledge. We ourselves never exceeded 14½ quarters = 116 bushels, and they were not very heavy. Mr. Clare Sewell Road, a well known Norfolk farmer, and ex M. P., mentions a field in that county, the 30 acres of which produced—after swedes fed off—450 quarters = 120 bushels an acre; but the oats—white-Tartar—grown by my dear old friend and farm tutor, Wm Rigden, of Hove, Sussex, on three acres of ground, turned out 525 bushels = 140 bushels to the acre; and this is the largest authentic crop we ever heard of, the 200 and 250 bushels grown (?) in the States being fairy-tales, probably.

Bullocks' heads.—A vast difference between the price of bullocks' heads at Quebec and in England! M. Dubord (v. p. 307, Journal for March) only pays six cents a piece for them, and gives them to his laying hens, in England they cost 83 cents (3s. 6d.) each, and the cheeks and palates are often to be seen on our best tables, the remainder of the head being converted into stock for soups. We were often shocked, when living at Sorel, at the sight of bullocks' heads kicking about in the butchers' yards as things of no value. Are there no poor in the country to whom such food would be a blessing?

Talking of bullocks, we see a statement in one of the U. S. papers that, in New York, steer-beef is the only beef fit to be eaten! And how about the beef of a maiden-heifer? In England, within easy reach of the London market, we could always sell our Welsh heifers for a cent a pound more than the best steers fetched at Smithfield, and the butchers of the neighbourhood were glad to get them, thereby saving all market expenses, and incurring no risk of loss in transit.

COMPETITION OF AGRICULTURAL MERIT FOR 1896.

NOTICE.

The Competition of Agricultural Merit will be held in 1896 in the counties of Bagot, Beauharnois, Bromé, Chambly, Châteauguay, Compton, Drummond, Huntingdon, Iberville, Laprairie, Missisquoi, Napierville, Richelieu, Richmond, Rouville, Shefford, Sherbrooke, Stanstead, St-Hyacinthe, St-Jean, Verchères et Yamaska.

In accordance with the regulations of the Council of Agriculture, all those desirous of entering into this competition must file their entry in the Department of Agriculture and Colonisation on blank forms that will be sent to them on demand by that Department.

During the last year or two, certain persons asked the judges to inspect their farms after the competition had been opened, under the pretext that they were not aware before that the competition was to be held in their district.

We are anxious that in future, there should be no misunderstanding on this point, so no entry will be received after the lapse of the delays fixed by the regulations of the Council.

The *Lauréats* who obtained the silver-medal and the diploma of The Highest Merit, in 1891, must not forget that, this year, they are entitled to compete anew for the right of winning the gold medal and the diploma of the Highest Exceptional

Merit. Those who, at the above epoch, only won sufficient marks to entitle them to the bronze-medal with the diploma of Great Merit or of Merit, may likewise compete again this year.

COMPETITION OF AGRICULTURAL MERIT 1895.

REPORT OF THE JUDGES.

(Continued.)

HOUSES.

As is evident by table of marks awarded, it may be said that all the competitors in the Competition are suitably housed; but we may say that many people in this province are ruining themselves by trying to out-do their neighbours in this respect. It would be far more useful to have a spacious, convenient barn well adapted to the needs of the farm, and so arranged as to economise labour, time, fodder, &c.

A population that, like ours, is still young and not abounding in funds, ought to avoid luxury, and expend the wealth Providence allots to it in useful things.

BUILDINGS.

Great improvement is to be found everywhere in the erection of buildings.

It were easy to show that it is especially those who have travelled that possess the most sensible ideas on this subject. We advise all those who intend to build to visit other places, for they will bring back thence many good ideas that, united to their own, will probably lead to the construction of a suitable building.

STABLES.

So useful is the horse, that it does not seem necessary to say that he should be treated carefully, kindly, &c. The young horse needs particular care and to ensure his proper form of growth, he should be kept in a loose-box; otherwise, he will turn constantly to the light, and his neck will become deformed, his fore-quarters, too, will be wrenched out of all balance. On the other hand, the stable should be properly lighted, else the horses will suffer from ophthalmia, and every one knows how troublesome and even dangerous a horse is whose sight is affected.

COW-HOUSES.

Nowadays, very comfortable, well arranged cow-houses are to be found in many places. As dairying can now be practised with profit in winter, the importance of conjoining in the construction of cowhouses all possible conditions of order, cleanliness and economy of labour is better appreciated.

The cowhouse ought, in the first place, to be erected on a dry or thoroughly drained spot; for numerous complaints often arise from the constant chilly damp of the floor; or again, from the ice that forms there from the drip of the eaves, from the roves, the urine and manure-leakings (1) that collect there.

Secondly, the light should be ample; the windows opening in such a way that no draughts fall directly on the cattle, especially not on the milking cows. The house should be warm enough to allow of constant and perfect ventilation. Good ventilators are,

(1) Roves is Scotch for the gutters under the eaves.—Eg.

doubtless, a matter of the first necessity. Two principal gases are developed in the cowhouse: one arising from the respiration of the cattle, the other from the manure. As these gases do not rise in great quantity higher than 3 or 4 feet from the floor, it will be proper for the ventilators to descend low enough to aerate, not only the upper part, but, more especially, the lower level of the house. Of course, one concludes from this that the house should not be open in winter, but that air-tubes, a little narrower than the openings of the ventilators, should be placed in the lower part of the cowhouse opposite to ventilator-pipes, and a good distance from them. These air-tubes might pass under the ground, so that the air may get warmed a little before it gets into the house. A ventilator that only goes just through the ceiling would only remove part of the carbonic acid and ammoniacal gas.

Cleanliness, too, contributes greatly to the purity of the air in the cowhouse. An essential point is that the floor of the house (*under the cows?*) be water-tight, very short, and only raised 7 or 8 inches above the passage. In this way, the dung and urine will not fall on the floor where the cows stand, and they will always have a clean, dry bed to lie on.

The walls, as well as the divisions of both stable and cowhouse should be tarred up to four feet from the ground; the rest of the lateral surfaces (?), as well as the ceiling should be washed with lime and salt. Tar and lime will keep vermin and insects at a distance, and the general appearance of tidiness they exhibit will tend to induce the farmer to take the best possible care of his cattle.

OUR TRADE WITH ENGLAND

Interview between Mr. Stark of Liverpool and the Hon. Louis Beaubien—Importance of the butter trade—Packing—Necessity of regularity in the despatch of butter—Inspection—The best season for Canadian butter-sales—Faults of our cheese—Improvement in our egg-sales—Packing eggs—Great improvement in our apple-trade—Canada bacon much better than U. S. bacon—Letter from M. J. de L. Taché.

On the 10th of last January, Mr. Walter Stark, of the firm of Marples, Jones, & Co., of Liverpool, happening to be at Quebec, had an interview with the Hon. Louis Beaubien a propos of our trade in butter, cheese, bacon, apples and eggs, with England. According to this merchant, the policy of the government in encouraging the export of butter has already produced, and will continue to produce, the best effects. Our English butter-trade would have been utterly ruined had we not adopted plans for despatching this article in a fresh state, regularly every week. If we continue this system, the export trade in butter will become greatly improved.

Butter.—For packing, Mr. Stark prefers boxes to tubs. He says that the wood we use gives some of the butter a bad taste, in spite of the parchment paper with which it is surrounded. In Denmark, where the boxes are made of beech-wood, this fault does not exist, while in our boxes, or tubs, of bass-wood or some other soft wood, it does. Cannot we get rid

of this fault by using beech or maple for our butter-packing? The St. Hyacinthe Dairy-school should try experiments on this point.

Mr. Stark strongly advises the despatch of fresh butter regularly every week. Otherwise, we run the risk of having this article refused on the English market.

Last fall, he received 100 tubs of butter that had been kept several months in refrigerators at Montreal. He distributed it among the grocers in England, and ten of them, having lost several customers on account of the inferior quality of this butter, have decided to buy no more Canada butter.

By this we see what great need there is of making butter of the best quality and sending it over in good condition. Mr. Stark says it ought to be despatched within a week of its churning, and even sooner if possible, and it should reach the English market within three weeks of its manufacture. He recommends us to have our butter examined by an inspector, and each package should after inspection, be stamped by that official. In Australia, all the export-butter is inspected.

We should attend more to the Liverpool market than to that of Bristol. In the latter place, butter sells for a shilling the cwt. less than at Liverpool.

In Mr. Stark's opinion, the date of the making of the butter should not be stamped on the package. He approves of the freezing of butter, which, he says, does not at all injure its quality, though fresh butter is of course better than frozen butter.

In June and July, the Irish and the Danes send a vast quantity of butter to England. At that season, it is rather difficult to sell our butter, but, in spite of that, Mr. Stark advises us to keep on sending some of our fresh butter regularly every week, to make it known and appreciated. In August, less Irish and Danish butter arrives, and people begin to ask for Canada butter; this demand increases in September, but the best months for its sale are October and November.

Mr. Stark strongly advises the government to give a premium of 1 cent a pound for one third of the make from June 1st to November 1st, always provided that butter be sent fresh.

The drought of last summer diminished the product of butter in Australia by 25%, and the make of cheese fell off in about the same proportion.

Mr. Stark's visit to Canada has for its object the favouring of the organisation of refrigerators on a line of steamers between Canada and England. He will promise the whole of the trade of his firm to the company that shall provide their boats with refrigerating apparatus. He wants two separate compartments, one of which, for cheese, should have a lower temperature than the one for butter. He also intends to have cold-chambers at Liverpool.

Mr. Stark thinks that the government stamp for premium-butter should be affixed by the inspector alone, as, last year, these stamps were put on boxes or tubs of inferior butter that had never been inspected.

Cheese.—Mr. Stark states that, for the last three years, our cheese has been greatly improved in quality, but that there are still faults in it that need correction. It varies too much in quality, colour, and packing.

He lays great stress on the uniformity of colour in the cheese of each factory; otherwise the sorting (*triage*)

takes too long. On account of this want of uniformity, he prefers *white* cheese. (1)

The Quebec boxes are inferior to those of Ontario; they are not strong enough and are generally too large for the cheese they hold; a fault not found in Ontario packages. The branding of the boxes of our province is done in an irregular and often clumsy manner. Sometimes, the boxes are disfigured by the lettering being too big: the factories ought to see to this.

Our cheese is richer than Ontario cheese, and by still more improving its manufacture, it will be before long in great demand. It is better than the Dutch cheese, and a good deal of that is sold in France, we might, perhaps supplant the Dutch in the market of that country.

In Mr. Stark's opinion, the exports of butter and cheese to England from the States will continue to fall off.

Eggs.—The trade in eggs between Canada and England increased greatly during last season. Eggs ought to be sent off very fresh, in refrigerator-compartments, with the cheese, but not be allowed to freeze. If this is seen to, Mr. Stark believes that this trade will improve greatly.

Eggs are packed in boxes holding 30 dozen; these boxes are divided by white card-board, which is better than black, as the latter colour imparts a bad flavour to the eggs. The best season for the export of eggs is from August 1st to the close of navigation.

Last year, the price varied from 6s. 6d. to 9s. 3d. per 120 or ten dozen. Each dozen ought to weigh at least a pound and a-half. Small eggs should never be sent.

At the above prices, the exporters should have received from 12 to 18 cents a dozen. The fresher the eggs the easier the sale.

Apples.—Canada apples are still greatly sought after in England, especially the *Canada Red*, and the *Baldwin*. The demand for these is practically unlimited.

Hay.—The trade in hay is always uncertain on account of its greater or less abundance, depending on the weather of each year.

Bacon.—Last year, the price of bacon was low, but Canada bacon is still considered superior to the States' bacon.

A LETTER FROM M. J. de L. TACHÉ.

Packing butter—Defects and remedies.

At the close of the above interview, the Department of Agriculture requested M. Taché to give his opinion as to the bad flavour that it appeared was given by the boxes or tubs to the Canada-butter sent to England.

M. Taché replied as follows:

St-Hyacinthe, Jan. 28th 1896.

Dear Sir,

The trouble complained of by Mr. Stark—a bad taste imbibed by the butter from the boxes—proceeds more from certain exterior conditions than from any defect in the quality of the wood.

White spruce (*épinette blanche*), the wood exclusively employed for boxes and tubs, in this province, is satisfactory enough when the packages are treated properly.

(1) All the fine English Cheddar used to be white. Is it so now?—Ed.

It is hardly necessary to say that the wood should be carefully selected. Good spruce is plentiful, but the makers should be told not to use too large a proportion of the sap-wood (*botanically, laburnum*) in the best class of packages. Also, when the boxes are to be sent not put together, great care must be taken about the drying of them, and they should be carefully protected against wet in transit; otherwise, they would be likely to get mildewed. Still, the best makers are generally pretty careful; and, beyond these accidental causes, the root of the trouble must be sought elsewhere.

I will first run over the causes, and then point out the remedies.

1. The butter that takes on a bad taste from the box or package, is, almost invariably, defective in its manufacture.

2. The temperature of the store-room, or of the cars or steamers in which it is forwarded, causes a deterioration of its qualities by contact with the wood of the package.

3. The perfect or imperfect preparation of the box or tub also has its effect.

If being granted that the tub or box is of the ordinary good quality of these packages, and of white-spruce, attention must be paid to the following points:

1. **THE MAKING.**—All the advice given as to the building and the management of creameries, as well as to the making itself, must be most carefully attended to; and as what you have said pertains especially to the export-trade during the hot season, it would be wise to use more ice than usual in the treatment of the cream, and during the making throughout.

2. **TEMPERATURE DURING THE TIME OF KEEPING AND TRANSIT.**—The bad flavours that the butter acquires are assisted by the action of the *bacteria* or by mould. The practical way of stopping the work of these destructive agents is to paralyse them by cold. The ice-house of the factory must be improved, and even then the butter should not be kept any longer than is unavoidable, so that it may reach the intensely cold ice houses as soon as possible. The belief that butter will keep under the conditions in which it used to be placed, and in which we still persist in placing it, is the mistake which has cost us so much in the past: hence arose the loss of our butter-trade. The sooner we are converted on this point, the more easily shall we regain our position. It is because the Australasian colonies provided ice-houses on land and on the steamers that they succeeded in establishing their butter-trade, for without those conditions, it would have been an impossibility. I know, from good authority, that part of the butter that Mr. Stark's firm received was sent to Quebec by the ordinary trains and not in ice-cars, and it travelled from Quebec to Liverpool in steamers that had no refrigerators; it is also said that, in one case, it was placed *by the side* of the refrigerators in one or two boats.

This fact alone is enough to explain the complaint that has been made.

3. **PREPARATION OF THE PACKAGES.**—The box is a more recent package than the tub, and our makers have perhaps not been so particular about its preparation as they ought to have been.

A box should be, if possible, soaked, like the tubs. It is a good plan to allow both tubs and boxes to soak for two or three days, in order to admit of the juices that are soluble in water dissolving; but, in my opinion, this preparation should conclude by a

thorough steaming. An excellent way to do this is to have a table across which pass the ends of pipes yoked to a principal tube connecting with the boiler. The tub or box to be steamed is to be turned upside down, with the mouth resting flat on the table, and the steam turned on for four or five minutes. As soon as the steam is shut off, the inside of the box or tub is to be quickly rubbed with a clear solution of salt and water; while the wood is still very hot, it is to be filled with cold brine; and three or four minutes afterwards, the wood will be found to have imbibed this fresh liquid, after having given up, through the effects of the steaming, the liquid that served to dissolve its juices.

Of late, anti-septic powders have been recommended; but their use in addition to the salt should be avoided; their use in the salt solution to rub into the tubs, or to moisten the outside of the parchment-paper, would be probably more useful. If the box is not staunch, it must be plunged into water, or brine and all there is to do in this latter case is to free the outside from the salt encrusted on it. This last method does not improve the appearance of the box.

Nowadays, parchment paper must be used in all packages, whether tubs or boxes; the stoutest and the best quality will be none too good. This parchment should be well moistened when fixed; this might be fairly done by using a sponge or a sprayer for the inside of the receptacle. Buyers prefer butter that is moist and does not adhere to the paper; this slight brining evidently serves to prevent the wood from reacting on the butter.

I believe that with the above remedies all the faults of which Mr. Stark complains will be completely abated.

Believe me, dear Monsieur Gigault,

Yours very faithfully,

J. de L. TACHÉ

(From the French.)

NOTES BY AN AGRICULTURAL LECTURER, ON THE COUNTY OF CHAMPLAIN.

(Continued.)

STE. ANNE DE LA PÉRADE.

This is a considerable parish, to the north of the river of the same name.

We were greatly pleased to hear, from the President of the Club, M. Rousseau, a most enterprising manufacturer, that, after all, his farm, when compared with his other business, returns him a net per centage on the capital invested higher than all his other works, though they involve an original outlay of several hundreds of thousand dollars.

Among other things, we laid great stress on the growing of roots and pulse, with a view to the improvement of the soil, and the economical production of milk and pork.

We observed that a well fitted-up creamery can be worked for perhaps the entire winter. This we earnestly advised to be done in a previous lecture.

ST. LUC DE VINCENNES.

A good parish, though small. A fair farmer's club. The cultivation of clover, roots, etc., is being resolutely prosecuted by some farmers here. Only, in general, the profits of the

summer are lost in the winter. Many go to the shanties; some to the United States, though no one has as yet made his fortune there, and several have lost their health in that country.

Nevertheless, confidence is everywhere reviving under the animating inspiration of progressive ideas, and many are doing well at dairying.

ST. JACQUES DES PILES.

As regards farming, this parish is only just beginning. Shanties, charcoal-making, etc., supplying the people with plenty of work. Still, some farmers, seeing that there is a large local market handy, have begun to improve their farms.

A cheeseery has been started, and the general farming will, we hope, be carried on in connection with dairying; for the more extensively dairying is practised, the more grain and hay there will be to sell to the lumberers in the neighbourhood.

MM. Ephrem Désilets and Ulderio Mailloux are the principal growers of green-fodder crops and roots. Several good implements have been introduced lately.

We earnestly pushed the organisation of a good Farmer's Club as a supervisor of the visible agricultural movement. There are several here who we are sure will never regret having taken advantage of present circumstances to improve their farming.

ST. TITE DE CHAMPLAIN.

Here is indeed one of those numerous parishes that during the last few years, have made great progress. Five years ago, said the Rev. M. Grenier, it was a rarity to find a tiny kitchen garden of 20 feet square! Now the growing of roots, is common enough. M. Onésime Cossette has his 2,000 bushels of carrots; others prefer swedes, the *chou moellier*, mangels, etc. All these crops are capital.

M. Cossette, says M. Grenier, fattens his pigs on boiled carrots, and M. Provost gives his hogs cabbage-soup. *The pork turned out by these two farmers does not cost a cent a pound.*

The curé, M. Grenier, has a fine field of hoed crops. See how example acts! When visiting such encouraging parishes as these, the lecturer is rejoiced to find a club of 200 members. The ladies of St. Tite, as in many other parishes, honored us with their presence. Dairying is very popular; it will be carried on during the greater part of the winter we hear.

ST SÉVERIN DE PROULXVILLE.

A new parish, full of promise.

Farming is not the only business here; the shanties are too near for that; still, many are profiting by this local market to improve their farms, and when the timber becomes scarce, or has disappeared altogether, the land will be improved enough to afford employment through the whole year.

The danger, if danger there be, is lest the shanty-work become a habit, for when the time of starting to the lumber-camp arrives, the men all flock thither. The cattle are left to the care of the children, too young to look after them properly, and the milk cows are in a poor state when spring arrives.

The Rev. M. Proulx, the curé, has delivered some practical lectures, assembling, for that purpose, the members of the club, in his root-field, where he grew more than 400 bushels of carrots, mangels, etc.

M. Charles Francœur harvested this year at least 300 bushels of roots.

As to dairying, M. Narcisse Trotter, with 4 cows and green-fodder, &c., took to the factory, this summer, 11,720 lbs. of milk.

ST-PROSPÈRE DE CHAMPLAIN.

One of the most prosperous parishes in the province. The farmers are educated and well-informed. It is noticeable how sensibly the most recent subjects under discussion are treated by the members of the club. Farming is certainly in an advanced state here. The answer to the question as to who were the best and most successful farmers in the parish was: *All of them!* We are well assured that, under the influence of good example, all try to do their best. Among others, we found that MM. Trudel and J. B. Massicotte had grown several thousand bushels of various roots, of excellent quality.

Dairying, too, will be continued in winter, and, probably, without interruption throughout the year.

A parish like St-Prospère, where clover and hoed-crops are regularly grown, cannot fail to achieve success. We congratulate its people sincerely.

SAINT-AUBRIE.

A manufacturing and agricultural parish. We strongly advised the erection of a winter creamery. With out this improvement, farming, here, will indubitably take a long stride... *backwards.* So, now, to work! Experience enough has been gained to show it pays; let us, then, place a good creamery in the hands of an orderly, progressive maker of butter.

Winter dairying pre-poses clover and root-crops, for, generally speaking, these are the only ones able to preserve and even increase the richness of the land. The hay-crop here has paid well, and as a noted farmer said to me; as it is much less work, people will not at once plunge into a business like dairying that needs constant work and attention all the 12 months of the year.

In a large parish like this, the club ought to have more names on its list.

As for markets for agricultural produce, this district has the great factories in the neighbourhood, Three-Rivers, the shanties on the St-Maurice, which get many of their supplies from Ontario, such as hay, pork, beans, &c., and lastly, the dairy industry which, like the sun, shines for all the world.

The following is the list of prizes, &c., awarded by the Farmer's Club:

VETCHES (tares) GREEN FODDER CROPS:

The Rev. Canon J. G. Prince, curé; M. d'Argie, Pierre Lefebvre.

MAIZE.

MM. Joseph Desilets, fils; André Aubry.

ROOT-CROPS.

MM. Maxime Dugas, A. Aubry, P. Lefebvre, E. Morin, Jos. Désilets, Jos. Désilets, fils, D. Carleton, E. Lanouette, A. Lavasseur, P. C. Naud, J. Meunier, J. Loranger, Elz. Beaudoin.

SILOES.

M. Prince, curé, and M. Aubry. All of whom we congratulate. The club had just received a good chaff-cutter, and the farmers were

invited to come and see it work the next day at, I believe, M. Lefebvre's farm.

The club has, besides this implement, 2 sowers (*drills?*) and 3 selected bulls.

Experiments in the use of lime, plaster, salt, and ashes have been made.

M. E. Blondin has some cows here several of which give from 80 to 82 pounds of milk a day. One of their heifer gives 60 pounds a day; 4 of them supplied 170 pounds of milk daily throughout the summer to the factory. M. Blondin sold two cows for \$140.00, and refused \$100.00 for another. He never fails to give his herd salt every day.

A M. Lemire has a cow that gives 70 lbs. of milk a day.

M. Aimé Lavasseur, the secretary of the club, has a herd of 15 very choice cows, that are comfortable in their rich pasture of permanent grass.

M. Prince, the curé, always takes great interest in every thing that tends to the advantage of his parishoners, especially in the club of which he is President.

ST-NARCISSE DE CHAMPLAIN.

The soil is highly productive and the farmers well up to their work. Dairying is in great favour, but there are, perhaps, too many cheeseeries.

Butter making might be carried on profitably in winter. Many men go to the lumber camps, though more from custom than anything else, as it does not pay now. (1)

The very numerous attendance (*at the lecture*) seemed to indicate that a club well organised would do well here. At the request of the chairman of the meeting, we showed how many advantages would result from the formation of a club, and expressed a hope of seeing this parish among the names of the 554 clubs now existing in the province.

ST-STANISLAS DE KOSIKA.

A large parish on the banks of that fine river the Batiacan. Agriculture is fairly advanced here, though most of the men neglect their farms in winter. Shanties, Shanties! Some make money at this work. There are some old men, pretty well off too, who cannot resist the temptation of going to the lumber-camps every autumn. Such is custom!

Nevertheless, plenty of red-clover, roots, green-fodder crops, *choux moellier*, &c., is grown here. Dairying is on a good footing, but only in summer. We, ourselves believe that winter dairying is now a necessity, and perhaps the best way of making people estimate agriculture at its real worth. For it is not unusual, under present circumstances, for not only the profits but also part of the grass returns of the summer to be spent in the winter. Large herds are kept, which cost a good deal to feed in winter, while no profit and sometimes no returns at all are derived from them.

The Rev. M. Caisse is greatly pleased at the sight of even the slightest improvement in farming among his people, and the Farmer's Club keeps the inhabitants fully informed as to agricultural progress.

ST-THÉOPHILE DU LAO À LA TORTUE.

This place has only had a resident curé for the last two years. Still, the greatest activity seems to reign among the settlers who are in the midst of

(1) But they get their wages, do they not?—Ed.

work of all kinds. The Great Northern Line, of the late Mgr. Labelle, is being built, clearing the bush, road making, &c., are all going on and employing the people. Some are observed to be profiting by all this press to improve their land, and sell their produce for good prices. There is a cheesery at work. The Rev. M. Boulay, formerly of Ste Ursule, will push agricultural improvement and, as soon as possible, establish a good and prosperous club. Courage and success we wish to our good friends at the Lake.

The Poultry-Yard.

M. Dubord's Model Poultry House—
Care and management of chicks—
The proper food and quantity to feed—
Intelligence and activity wanted—
Poultry development.

(A. G. GILBERT.)

In my last letter, having shown how to mate up the breeding pens, so as to obtain satisfactory results, in fertile eggs and improved stock, I promised to treat on the proper care and management of the young chicks. In order to secure rapid development. Before doing so allow me express the pleasure I had in studying the sectional views of M. Dubord's Model henhouse at Beauport, P. Q., given in your March issue. The arrangement is up to date in all particulars, a little too elaborate for a farmer perhaps, but should be imitated in interior fitting up. I can readily imagine how warm the interior of the house must be when I read of the 9 inches of sawdust, between inside and outside walls. And an excellent antiseptic will the sawdust be found. I presume M. Dubord has taken precaution to prevent rats making lodgment in it. A grand plan is that by which platforms and feeding troughs may be cleaned and the eggs collected, without going into the pens to disturb the laying stock. In ordinarily constructed henhouses, the importance of disturbing the layers as seldom as possible, is overlooked. I do not mean that the layers should not be kept in active exercise, as much as possible, but the attendant or caretaker, particularly if careless, is very apt to scare, or give the fowls a shock, every time he goes among them. And hens so frightened will not lay as well as when left in peace and quiet. And the arrangement of the nests is admirably calculated to prevent egg eating. I hope, in the near future, to have the great pleasure of a personal inspection of M. Dubord's skilful and usefully arranged building. He has embraced in it many points that I have been contending for years should be found in poultry houses of modern construction. Imagine my pleasure then in viewing M. Dubord's arrangements.

CARE AND MANAGEMENT OF CHICKS.

I have before remarked in your paper that the future fowl is either made or marred, by the treatment of the chicken in the first five weeks of its existence. In other words a chicken which has become "stunted" from being "stinted," in the period mentioned, will not make a good market bird, if a cockerel, nor an early layer, if a pullet. Whether hatched in incubator, or under hen the little chick requires to be gently pushed from its earliest days. On coming out of the shell the chick should be left under

the mother hen to become thoroughly "nest ripe." If the season is far enough advanced, as soon as the hen and brood are removed from the nest, they should be placed in small coops in the grass of the fields and in the warm sun. The mother hen on being removed from the nest should be taken aside and fed and watched, or she will gobble up the dainty morsels intended for the chicks. The coops should be so made that they can be securely fastened at night. It is poor policy to take the trouble of hatching out fine broods of chickens to make high living for skunks, weasels, rats or cats. If the chicks are early and cannot be put outside they must be kept on dry earth or sand and not on boards. If kept for any length of time on the latter they will "go off their legs" and die.

THE PROPER FOOD.

Once on the grass and in the sun, if the chicks do not seem hungry let them brood under the mother, or bask in the sun. There is no food better calculated to put the chicks on their feet than stale bread soaked in sweet or skimmed milk, squeezed dry and given in small quantities at first. For a first feed stale bread crumbs are good. The latter may be given alternately, the first day or two, with the bread soaked in milk. In a day or two granulated (oats?) should be given. Nothing is better, nothing more enjoyed at this time than rice boiled dry, and fed, either alone or mixed with the oatmeal or bread and milk. On no account should "sloppy" or sour food be given. The feed must be "crumbly". Feed frequently but lightly. If the chickens are healthy they will have good appetites and be always hungry. Feed no more than the chicks will eat up clean and leave no food to turn sour. In a week add crushed corn and after 14 days feed wheat, but sparingly at first. Many a chick is killed by being fed wheat, too soon. As the chicks get to be ten or fifteen days old, reduce the more expensive oat-meal and rice ration and make a mash of shorts, cornmeal, bran, bonemeal, the table waste, &c. Mix with boiling milk or water. Send the chicks to brood at night with their crops full. Feed early in the morning and watch how the youngsters grow. As they get older, give cut green bone, or any kind of bone or meal. Feed them well, give them good clean grass run and take away the mother hen at the end of a month, or five weeks, by which time she ought to be laying again and her offspring well feathered. By such treatment as the above you will have Plymouth Rock, Wyandotte, Dorking or Java cockerels in 4 months that will weigh 4 lbs each or 8 lbs per pair. The food need not be expensive but let it be clean, wholesome and flesh forming. If the chicks get clogged at the vent, the cause is probably sloppy food, or over-feeding. If the chickens go peeping about and do not feather quickly, look for lice on hen and chicks. No doubt somebody will say "Oh! what a lot of trouble!" Well, you cannot get satisfactory results in any department of farm life, without trouble. Go to the dairy and see the trouble before the choice butter is made. Go to the garden and see what trouble a crop of strawberries, currants or raspberries will necessitate, before bringing in money.

You will see the necessity of activity; of unceasing vigilance in vegetable garden, in hay and wheat fields, in roots and vines. There is no dodging the inevitable. Man, can only make his

bread by the sweat of his brow. And that sweat is represented in a thousand shapes and in as many phases of life.

POULTRY TRADE DEVELOPMENT.

The development of the poultry interests of the country in the past year has been most remarkable. A prime factor, has no doubt been the instruction given to farmers at different points in the shape of practical addresses, literature, &c. I will have something to say as to the different phases of this development.

Poultry farms. — Mr. Tegetmeier, the great practical authority in England on poultry, says that he has travelled far and wide, at home and abroad, and has never yet found a poultry-farm that survived the second year. Not but that there are plenty of small occupations in Britain where a large flock of poultry is kept, but he is speaking of a regular establishment in which nothing but fowls, ducks, &c., are reared and all the food bought for them.—Ed.

The Hive.

THE EARLY SPRING CARE OF BEES.

Bees should not be removed from the cellar too early. If they are quiet, with few dead bees on the cellar bottom, and little or no signs of dysentery, it is far better to leave them in until the 20th or 25th of April, in this latitude, than it is to remove them from their comfortable quarters. They begin breeding when put out of doors and pollen and water are required for this, and if set out too soon many of the worker bees are lost while seeking these, during the cool weather of early spring. The life of one bee at this season is of more value than several, later on, when the hive contains a larger number of them. The usual rule is to set the bees out when soft maples and willows are coming into bloom, and that is quite early enough.

However, should the bees be very uneasy in the cellar and spotting up their hives a good deal, it is a pretty sure sign they are troubled with dysentery, and for this there is no remedy but a good cleansing flight. Select the first warm, still day, and set them out on their summer stands, placing each colony just where it is to remain permanently when finally set out for good. After they have had a good fly they may be returned to the cellar again, towards evening, if it is too early for them to remain out of doors permanently. This will give them a chance to void their feces and they will remain quieter and in better condition in the cellar. In removing bees from the cellar, it is a good plan to have a lighted smoker convenient, and large strong colonies that show a disposition to fly while being carried out, will remain quite still if a couple of puffs of smoke are given them underneath, before taking from the cellar.

Where many colonies are to be set out, care must be used and not place them too close together, on first removing from the cellar, or during the excitement attending their first flight, too many of them may enter some hives and not enough others. At least 6 or 8 feet should intervene between the hives. If it is desired to set them closer, part may be set out one day and part next day. After the bees have had a good flight, the entrances

of the hives should be closed up to about $\frac{3}{4}$ x 3 inches for the stronger ones, and less for weaker ones, to keep out the cold winds and also to enable them the better to protect their hives against robber bees, which are very industrious during dearths of honey. It is well to have some regular plan of placing the hives if one has a considerable number. The writer has all his sitting directly on the ground, in rows running north and south, the hives themselves facing east and west. Two rows face each other, eight feet apart, and then two more. The backs of the hives are together with a three feet alley between, which gives a passage way free of flying bees.

As soon as possible after being set out, each colony should be examined to see if it has sufficient honey to last until fruit blossoms yield honey. A great deal of honey is required in spring to feed the large amount of brood then in the hive, and little is to be had in the fields before the very last of May. More colonies of bees are lost during the month of May from starvation, than from all other causes combined, and a little care at this season pays many times over. If the bees are in movable frame hives it is an easy matter to examine them by the aid of a smoker. Some colonies may be found with an overplus of honey and others may be lacking, in which case one or two combs may be exchanged between the two, thus equalizing them. The immense superiority of movable frame hives is shown here, for it is a difficult matter to examine the condition of bees in box hives, to say nothing of exchanging their combs, which it is impossible to do. If colonies are found lacking in stores and no honey at hand to supply them, they must be supplied with a syrup made of $\frac{1}{2}$ water and $\frac{3}{4}$ white sugar. This may be supplied to the bees in various ways. If the bottom of the hive is perfectly tight, the front end may be raised slightly and a half pound or so poured in at nightfall, or it may be given them by means of regular feeders, placed at the entrance, or on the top of the frames. An excellent and cheap way of feeding is to remove one or two of the empty combs at the side, of the hive, place them on their side and by means of a cup punched full of holes and held a foot or so above them, the syrup may be placed directly in the combs. The cups should be placed in a large pan while being filled, after which they may be raised to their natural position, the surplus syrup shaken off, and then hung in the hive. This is one of the best ways of feeding extant, as it places the feed right where it is needed. More honey is required to supply the needs of the bees immediately after being placed out of doors, and before they can gather enough to support themselves, than is needed during the time they are in the cellar. It is a good plan too, to place some old pieces of blanket or carpet over the tops of the frames in early spring to keep the hive as warm as possible. Good spring care of bees, means good strong colonies later on, with plenty swarms and honey.

F. W. JONES.

Bedford, P. Q.

SELF HELP.

A man said to me the other day "We farmers have to depend upon what God gives us" which is certainly true, but I tried, I hope successfully, to explain to him that that is not all, and told him he must bear in mind the old Proverb "God helps

him who helps himself." If we do not sow the seed, we cannot expect a crop. If we do not prepare the soil carefully, we cannot expect the crop to be abundant and profitable.

God has given us the power to acquire such knowledge as will enable us to do this intelligently, and the hands to perform the work. Let us apply this power faithfully and in combination with our own efforts we can truly say we are depending upon what God gives us.

The remark I quoted was called forth by the probable partial failure of the coming hay crop, in consequence of the thawing and freezing of the roots of the grass. Now forewarned is forearmed, and it is not for the farmer to sit down and say "Oh the failure is a dispensation of Providence, to which I can only submit, but to bestir himself and see if there is not some means by which its disastrous effects may be remedied. In any season it is well to plant some supplemental forage crops, but this year, when, in many districts, the hay crop must be light, it becomes imperative that we should do so. We have the time before us to do this—and various crops which we can grow to meet the coming scarcity of hay.—Why not increase the quantity of the root crops. All the esculent vegetables are good fodder for cattle, of various alimentary value, and are much neglected or overlooked by many farmers. It is true their culture involves extra labour and manure, but if extraordinary danger threatens, our duty is to make extra exertions to overcome it. The leguminous plants such as peas, tares or vetches, clover, etc., will give us excellent green forage to supplement the pastures and hay crop. Oats, barley or rye if cut when the grain is in the milk either fed green or dried possess a good nutritive value.

Ensilage corn will be found very useful in this respect. When the pastures begin to get short, if we have a patch of fodder corn at hand we can cut a bundle of it daily, spread it on to the pasture which has been eaten bare; and keep our cows in fine condition and a good flow of milk. And as the autumn advances, if we have done this, we shall avoid the temptation to turn our cattle on to the meadows to the injury of our next season's hay crop. One reason why this crop is destroyed by the frosts we have experienced this winter is that the grass which should have aided in protecting the roots and assisted in the fertilization of the soil was eaten off last fall as a necessity, because no crops had been planted to supplement the pastures.

I met with some men who have no thought for the future, and these are they who complain of climate-taint, failure of crops, etc., and seem to suffer all "the ills which flesh is heir to." In nine cases out of ten it is their own neglect which produces the difficulties under which they labour. An anecdote came under my notice which bears on the subject.

A young man of rather dilatory habits, which were well known to his neighbours, thinking a minister would be an easier life than a farmer's, applied to the Presbyterian conference for admission as a student for the ministry, saying to the leader that he had seen a vision: He saw a large ring of fire in the sky and in it the letters P. C.; he said he thought this meant Presbyterian Conference, and came right along to offer himself. The leader of the Conference, knowing his proclivities and probably his motive, said to him: "My dear young

friend, you are mistaken in your interpretation of your so called vision. The letters you saw meant—Plant Corn.—I wish that the coming spring every farmer who is depending entirely on the hay crop for his next winter's forage for his stock, could see the same vision, interpret it as did the Conference leader, and Plant Corn.

GEO. MOORE.

INTENSIVE CULTIVATION.

I believe it has been said by some one, that the man who makes two blades of grass grow where only one grew before is a benefactor to the human race; I do not wish to pose as such a one, but would like to give your readers an idea of what was produced on one acre last year. There were 80 barrels of apples, 300 lbs grapes, 1 ton of hay, 1 ton of corn stalks, 15 bush potatoes, 40 bush mangels, with gooseberries, black and red currants, raspberries, strawberries that, had they all been sold, would have brought more than sixty dollars (\$60). Then, there were carrots, beets, onions, celery, cucumbers, melons, lettuce and other vegetables, enough for a family of ten without exhausting the supply. To put it at a modest calculation the returns were considerably over \$300. How many acres in this province of ours can show such results? Many will say it is all very well, but how much did it cost to produce it? This is a very vital point, less than \$5 00 was expended on fertilizers and labor, besides work done by my own family. This same acre has been doing an average of last year's crop for the last ten years. The only means of keeping up the fertility is the manure from one cow for the whole year, and one pig during the summer season with the slop from the house, and manure of about 20 hens. I can assure you nothing is lost however, even to the coal ashes which are used to allow the hens to roll in and absorb the droppings. The cow is kept in the stable at night during the summer, and is bedded with cut straw; wood ashes, or a little land plaster, used as an absorbent, and each morning a fine barrowful of manure is got which is placed round an apple tree with that days chamber-lye; so that during the summer, with cleaning out the pig once a week, and used the same way as the cow manure, the apple trees have all been attended to. The winter manure of the cow is used for the vegetable and garden produce, sometimes a small compost heap is started with any long weeds or useless vines. By using a small quantity of wood ashes or lime in the heap, the soap-suds used in the first washing of the clothes are also utilized on the fruit trees. The minimum of loss in the manure both solids and liquids is studied, with the idea, that if you wish good results, the lard must be well fed with good manure. No fertilizers have been bought, except an occasional bag of land plaster. Last year was not a very good year for fruit. In former years we have had double the amount of gooseberries, one year alone \$53.00 worth was sold while more than one half of the apples trees were not bearing. The frost in the early part of May did considerable damage; the trees were sprayed 4 times, once before the buds and immediately after; also just before and after blossoming.

I do not suppose there is anything that there is more loss in each year to the farmers of this broad Dominion of ours than in manure. Some people

never stop to think of their loss, what is it anyway, it is only manure, some bore holes in the stables to let the liquid go down through and will not be bothered with it; save it. it is the most precious of it all.

PETER MACFARLANE.

Chatoauguay, March 10 1896.

MAKING BUTTER IN WINTER.

Why butter won't come—Frozen cream—Porosity of frozen milk—Making up the butter.

In former years butter making was considered, and written of as an art but making gilt edged butter is a science, and by its rules, anyone with common intelligence can make good butter. This is true of any system, and no less so of the system which I shall endeavour to describe.

Presuming in the first place, that "the rule of thumb" must be broken, and a thermometer used instead. I say this, because I know that very few of those who have a small supply of milk to care for, see the necessity of one, while sometimes the difference in the market value of one churning would buy one. I can remember long before thermometers were used to test the temperature of the cream, that it would be "guessed" that "the reason the butter won't come is because it is too warm" consequently it was cooled by water from the spring. And after another discouraging term at the churn, an equally decisive "guess" was given that the cream was too cold with the accompanying dash of warm water, with the inevitable grease as a result. Of the successive pounding, squeezing, rolling &c., called "washing the butter" I need not speak. Enough to say, that to make good butter in that way was an "art" which every one did not attain.

And this fact, Mr Editor, is for the reading of those too young to look back to the days where the standard of butter was a very different thing from what it now is.

I have seen the question asked can frozen cream be made into butter? In one case the answer was "no". In another "yes". And in another. "It is very difficult to make butter from frozen cream." And strange enough only the last answer is the incorrect one, truly. No! Butter cannot be made from frozen cream, while frozen. And as truly yes! butter can be made from frozen cream.

We have made butter from one cow, and all numbers to 25, and kept the milk under all conditions, and with every experiment to get the most money from it. We have kept it in an outdoor milk house in the side of a hill, in the cellar, in the ice house, in the pantry, in the snow, in the cupboard in the kitchen. In earthenware dishes, (a'ways before 40 years ago, in tin dishes, in large open pans, and in creamer cans submerged in ice-water. But the simplest and most economical, and the most perfect system to raise the cream, and at the same time destroy the taint from feeding turnips, &c., and to make first class butter, there is no way like freezing the milk.

I am aware that the great care is, and which is echoed in every dairy journal "keep the dairy room just above freezing." In regard to such directions for a large dairy I have nothing to say. This is written for the convince-ment of those, and there are many,

who, from November to May have but a few quarts of milk each day, and who find a difficulty in making good butter from such a small daily quantity of milk. The final result often being that "the butter won't come" easily, and then generally of poor quality, and no two churnings alike, either in texture, colour, or flavour, and sometimes only bitter grease.

In the first place it may be observed that milk does not, at the same temperature, freeze hard like water. It is more porous, so much so, that the cream rises thoroughly after the milk is frozen. The general rule then is, "keep the milk below the freezing point." Lower than about zero makes it too hard, and more difficult to take off the cream, and the milk will force up and mix with the cream. If by mischance it is allowed to become too hard, it must, before creaming, be brought into a room with a higher temperature. The creaming can be done very quickly with a large iron spoon. In 24 to 36 hours the division between the milk and the cream will be very decided, and a greater quantity of cream than by any other system. We use common tin pans. The cream should be kept from thawing until the whole quantity required for a churning is collected, the cream tub should then be put in a warm place to thaw. Do not forget to stir it among the first things in the morning, and the last thing at night, and several times during the day. By proper attention it thaws in a short time, and no part will begin to ripen until it is all thawed. Consequently, it will be observed that it will all be as fresh as if from the same days milking. The popular taste demands butter of a certain colour, which must be had by nature or art. But give us the colour as it comes from the cow fed on green hay, in connection with roots and meal. If coloring must be used, the proper time to add it has now arrived. If there is a desire to hasten the ripening, a little buttermilk added will have that effect. The sufficiency of ripening will be reached when the mass is like thick cream, of a velvety appearance, and slightly acid. To churn easily, and to get the full amount of butter from the cream, the air in the room, the churn, and the cream ought to be about 65 degrees, and up to 70 if the cows are long calved. When the butter "breaks" the temperature ought to be lowered with cold water, sufficient to prevent the globules from massing together. The churning ought to be stopped when the particles of butter are the size of wheat or smaller. The milk is thus run off, and ice water dashed on the butter to rinse the buttermilk from it. Now, cover the butter with water, and in a few minutes run it off, then throw in a dash of water to rinse it, and if everything else has been properly done, the butter is thoroughly washed. After it has thoroughly drained, weigh the butter, spread it evenly with the paddle on the butter board sprinkle the salt evenly on it, from half an ounce to an ounce per pound, to suit the taste, turn up the edges sufficient to mix the salt, and after standing a few hours it is ready for print or tub.

It is of little consequence what kind of churn is used, the object is to break, and dash the cream about and the one that accomplishes that object best, is the one to use. We have tried many different kinds, and now use a box churn with the necessary airpipe, but there is really nothing better than the old fashioned up and down dash churn, with a hole just above the bottom to allow drawing off the buttermilk, and washing water, and a faucet

sowed in, a plug will not answer, as improper care, or force of churning will drive it out. No churn ought to be half full at starting. As the cream takes air in churning, it increases in volume for the first while, and the churn should never after that occurs be more than half full. To draw off the buttermilk, a punched tin tube of proper size to insert in the churn is very handy.

Certainly by this method, butter can be made in winter with less care, less work, more cream, and better butter than by any other system.

JAMES DICKSON.

Tronholmville, February 1896.

GREEN MANURE.

Ploughing in Green Crops.

Ploughing in green crops is one of the most effective methods of enriching and cleaning the soil. Suppose a farmer to have a field overrun with couch-grass, scented clover, wild taro, or other weeds, of which there are far too many in this country. As soon as the harvest is off, plough about three inches deep. (1) In two or three weeks, harrow and cultivate thoroughly to turn the roots up to the sun, which will dry and kill them. In about 3 weeks more plough across about 5 or 6 inches deep, followed in 2 weeks by another harrowing and cultivating; and in the fall ridge up carefully. In spring as soon as the land is in good order sow with two bushels vetches and oats, buckwheat, or peas and barley; but there is more fertilizing matter in vetches than in the other grains. About the 20th or 25th June plough this in. It might be an advantage to roll before ploughing; but an equally good plan is to attach a chain to the head of the plough, with a weight at the end, and allow it to trail as close to the mould-board as possible. This draws down the green crop and leaves the land in such a state that it can be easily harrowed. Then, sow the buckwheat, 3 to 4 pecks to the acre; some say one peck is enough but I find we can get more crop and clean the land better with 3 or 4 pecks than with one. On the Island of Montreal a great many potatoes are raised for the early market and sold out in the beginning of July. This land is generally sown with buckwheat, oats and vetches or some other grain. The last few years I have tried, with great success, sowing turnips, putting on 5 or 6 lbs. per acre broadcast, with the best results.

SUMMER-FALLOWING.

I am very much in favor of summer fallowing. It is true one crop is lost, but it is made up in the first year after. I know this from my own experience. When I bought my farm a good deal of it was in very bad shape. There was one field particularly dirty, with all kinds of weeds but especially couch grass. The first year I ploughed and sowed oats which yielded 15 bushels per acre, which I knew would not pay for seed and labor so I sum-

(1) Our English grubbers tear up the soil and keep the weeds uppermost. The plough cuts the couch-grass into lengths.—Ed.

(2) Is there ever too much winter-food on a Canadian farm? If so, we can understand ploughing in such a valuable crop as vetches and oats, &c. Three bushels and a half of mixed oats, peas, and vetches, will not be found too much for an arpent.—Ed.

(3) Buckwheat, if allowed to ripen its seed, almost always spoils the sample of the succeeding grain-crop.—Ed.

mer-fallowed it. We had frequent rains that year, therefore the weeds were not killed. Not wishing to give it up half done I repeated the summer-fallow the following year. The season was dry, I ploughed and drilled it 22 times during the summer and fall besides harrowing and cultivating. Less might have done, but I had time that summer, and wanted to make a thorough job. The next spring I sowed oats and seeded down for hay, but the oats grew so rank the grass seed did not take, but I had 47½ bushels oats per acre, without any kind of manure. The following spring I again sowed oats with 4 lbs. red clover, 2 of alsike and one peck timothy per acre. I had 45 bushels of oats per acre and very heavy crops of hay afterwards, and all, as I said before, without the aid of manure or fertilizers. (1)

CLEANING THE LAND.

We can also clean land with potatoes or corn; but I should advise plenty of cleaning with the plough as soon as the harvest is off to prepare the land for the fallowing crop. (Good. Ed.) Never put roots such as mangels, sugar-beets, or carrots into poor or dirty soil. I would advise applying the manure in the fall with at least two ploughings and be guided by the richness of the soil, as to the quantity of manure to be applied. 25 or 30 to 40 cartloads per acre would be a good average. When applied, plough across about 3 inches deep and later plough lengthways 6 inches deep, to thoroughly mix the manure. What would improve the land and crops very much at this ploughing would be to subsoil. Not necessarily to bring the subsoil to the surface, but to run through a rooter, as it were, 5, 6 or 7 inches deep after the plough. Few farmers have a subsoil plough, but nearly all have an iron plough. Take off the mould-board, get the sock, or point as some call it, put in good order with plenty of grip, or dip and follow the other plough. Subsoil ploughing will greatly increase the crop and its effects continue for years. (2)

FEEDING PIGS ON CLOVER

In our rounds as judges of Agricultural Merit we find many enterprising farmers who make many experiments, and among others that of feeding pigs on clover, which impressed me very favorably. Suppose I take, for example, 2 acres on which to raise clover for pigs. In the fall, work it well and manure it. Sow, the next spring, with grain and 1 lb. white clover, 1 lb. alsike and 10 lbs. red clover per acre. When the grain is ripe, cut it pretty high to save the clover during the winter. Do not allow any cattle on it that fall: in the spring, about the 1st or 2nd week in June, it would be ready to turn the pigs on. This would be capable of keeping from 20 to 25 pigs, with what little milk or whey the farmer may have. In one instance, I saw 26 pigs feeding on clover in the way above mentioned and the whey from 15 cows. Nothing else was fed to them until the fall. I saw them in the end of August and advised the owner to take a lot to the fair in Quebec in September, which he did, taking several prizes. They were nearly all Chester Whites and a few Yorkshires; the Chester Whites seem to be the best. It would be necessary to have portable sheds so as to have the land manured equally. In the fall, when

(1) Nothing like summer-fallow for cleaning heavy land.—Ed.

(2) All right.—Ed.

the pigs have done with the clover, plough it as flat as possible about 4 inches deep and harrow so as to rot the clover, of which, if the land is good there will be a lot to plough in. (1)

Then, in spring prepare the land well and put in corn. I think our own Canadian corn would be the best, or any corn that will ripen and give a heavy crop. The manure from the pigs and the clover ploughed in would produce a good crop of corn, but 200 or 300 lbs. of phosphate (2) per acre or 8 to 10 cartloads of manure would greatly augment the yield of corn. The corn and cobs should be ground for the pigs and cooked. Now by keeping up this system of feeding what a quantity of land could be brought into a state of good cultivation. It would be better to have the young pigs come in the months of January or February in order that they might be old enough to fatten on the grass and corn. They would only need to be hardened up with about one bushel of peas to each pig, (3) which I believe would make excellent pork. When everything is in good working order, both the corn and clover, those 4 acres would be capable of keeping 25 to 30 pigs. Now those pigs ought to average 250 lbs. each which, at \$5.00 per 100, would give \$375.00 for the thirty. There would also be an extra profit in the 2 acres of corn stalks which would be fed to cattle.

GEORGE BUCHANAN.

Household-Matters.

Home Dressmaking.—I have just come across the most delightful little magazine, called "Weldon's Home Dress-maker," and really it is just the very thing one has wanted for so many years, and it meets every want on the subject as far as one can see.

Nothing is left to chance, you are started from the very foundation, told exactly how much material to buy, and then taken step by step, through the whole process.

You are given a tissue paper pattern, a smaller copy of the same is drawn out and placed on a diagram of the goods, shewing you exactly how to cut out the pattern so as to get it well fitting and cut to avoid waste of material.

The first thing is to cut out the lining, you are not only told how to do this, but shown how and just where to tack this to the goods.

Great stress is laid on plenty of tacking, no amount of pins will take the place of good and careful tacking, for this, use a very fine needle, also fine cotton to avoid the tacking showing after the threads are pulled out, which must not be done till the garment has been pressed and is quite finished.

I hope I have said enough to incite people who wish, or are obliged, to make their own dresses in these hard times, as a great number of people are not able to pay the exorbitant charges of many dressmakers of the day.

Weldon's Dressmaker can be got at any book store and I have no object but one and that is to let my friends know what a good and perfect thing I have found it, and I hope it may prove a great help to all those who, like myself, have to make their own dresses.

(1) But the writer surely cannot mean that the land should lie all the winter in the harrowed state!—Ed.

(2) But what phosphate?—Ed.

(3) Three weeks on peas is our rule in England.

Protection from moths.—Do not forget that now is the time to fight for the preservation of valuable clothing.

The remedy is so simple, only a bag of unbleached calico, into which put anything you value, a good brushing and combing of furs is necessary to be quite sure the little enemy has not already been there, for if the eggs are not laid you have nothing to fear.

The bag must be tied securely at the mouth, and look well that there is no flaw or hole in the calico and you can feel quite safe of your goods.

A bag, for present use, into which to put valuable jackets, &c., after using, may be tied up with perfect security. I opened a bag of wool, last week, put by for a year, and found every thing just the same as when put in, thus proving that a little care will prevent great waste.

Cooking.—Stewed liver and heart.—Cut up and let the heart soak in a little salt and water; cut out the inside sinewy part of the heart, wipe dry, cut up liver and heart into slices about ¼ of an inch thick, after dipping each slice in flour, fry slightly and turn it into a saucepan to stew.

Fry a large onion brown, but do not let it burn, add water sufficient to cover the meat; a little pepper and salt to the whole: stew for about 2 hours.

A little tomato sauce, or any other flavouring might be added just before serving up, and a little more flour if the gravy is not thick enough.

Home pudding.—Two cups of flour, two of chopped suet, half a cup of brown sugar or molasses.

One teaspoonful of mixed spices, half pound of figs; chop suet and figs together, a sprinkling of flour over the suet will prevent it sticking to the knife, mix the whole well and add a little milk or water if necessary, but as there are no eggs used, be careful to have it quite stiff. Tie it up in a cloth and boil for two hours. If divided in two it will be equally good and take less time to cook.

This is a very cheap and nourishing pudding; every body seems to like it.

Dates used in just the same way are very good but they must be stoned.

The earache season.—It Means Much Suffering for Little Ones, if Mothers are Careless.—Half the time it's the mother's fault when the little ones toss and moan and suffer all night with the earache. What if "the little darling does look just too sweet for anything" in the stylish broad brimmed hat, think of the danger to those cruelly exposed little ears. The ears of all babies, and even of older children, should be well protected from the cold at this season. If this were more generally done in our changeable climate much suffering might be avoided. The big stylish hats may be very picturesque, but the dainty, warm little hoods are surely "sweet" enough to please any mother, when they surround the pretty baby faces, and think of the comfort and safety to the small wearers, and the unbroken sleep for the whole family instead of the distressful night-watches, when the little chaps are suffering with earache. Yet earache frequently attacks infants as well as older children—even the little ones who are never taken out except when securely

wrapped up, and they often suffer unrelieved because they cannot make the mother understand where the pain is. It may be suspected when a child is seized with a sudden fit of crying, when there is no visible cause for it, that the pain is in the ear, especially if certain symptoms follow. The pain may suddenly subside and the crying cease, but the head will be restless and be tossed from side to side, and the child will complain if its ear is touched. After a time, worn out with pain and crying, the little sufferer will fall asleep, and in the morning it will probably be discovered that the ear has been running. Something must be done, or another night of pain will be the consequence. Heat is the best remedy, and a warm poultice should be applied behind the ear, after which it will be well to dry the skin and rub in a little camphorated oil or warm laudanum.

Hints for housewives.—Some of the uses of salt:

A little salt rubbed on the cups will remove tea stains. Salt put into white wash will make it stick better. Use salt and water to clean willow furniture, applying with a brush and rubbing dry. Gingham or cambrics rinsed in salt and water will hold their color and look brighter.

Salt and water make an excellent remedy for inflamed eyes. Hemorrhages of the lungs or stomach are often checked by small doses of salt. Neuralgia of the feet and limbs can be cured by bathing night and morning with salt and water as hot as can be borne. After bathing, rub the feet briskly with a coarse towel. A gargle of salt and water strengthens the throat, and, used hot, will cure a sore throat. As a tooth powder, salt will keep teeth white and the gums hard and rosy.

Two teaspoonfuls of salt in half a pint of tepid water is an emetic always on hand, and is an antidote for poisoning from nitrate of silver.

If you have butter that is not entirely sweet, put it in a porcelain dish with a little salt and a tiny piece of soda, place over the fire and bring to a boil. Turn it into a stone jar and set it in a cool place. The butter will be found perfectly sweet and not too salt for cooking. The impurities will settle to the bottom of the jar.

The skins of fruit should never be eaten, not because they are not palatable or digestible, or are unhealthful in themselves, but on account of danger arising from microbes, which may have penetrated into the covering of the fruit.

A soft cloth, wet in alcohol, is excellent for wiping off French plate glass and mirrors.

A red hot iron will soften old putty so that it can be easily removed.

How to make a good servant: Let the mistress of the house take two pounds of the very best self control, a pound and a half of patience, the same amount of justice, one pound of consideration, and a pound of discipline, sweeten this with charity and let it simmer well. To be taken daily, or, in extreme cases, in hourly doses, and always keep at hand.

FARMERS' SYNDICATE
OF THE
PROVINCE OF QUEBEC,
Office: 23 St. Louis Street,
Quebec.

President: His Grace Mgr. L. N. Bugin.
General Secretary: Ferd. Audot, N.P.
Treasurer: P. G. Lafranco, Cashier of the National Bank.
Farmers, Agricultural Clubs and Societies can be supplied with every thing they want, viz:
Pigs: Choster, Berkshire, Yorkshire, &c., &c.
Cattle: Canadian, Ayrshire, Jersey, Durham, &c., &c.
Sheep: Shropshire, Lincoln, Oxford, Cotswold, South-down, &c., &c.
Fertilizers and agricultural implements of every kind. Send in your order at once for feed cutters. Farm products of all kind sold for our members. Informations of all kind given to members.

MARK LANE. Prices current, Jan. 13th

WHEAT, per 504 lbs.; British s. s.	28	30
White.....	26	29
London flour per 280 lbs.....	27	—
Barley, foreign.....	16	44
Malting English.....	30	38
Grinding.....	16	21
Oats, English per 8 bushels...	15	29
White pease.....	32	36

FOREIGN.

Wheat - Manitoba.....	27	29
Canadian white pease.....	27	—
London Cattle market, Oct. 14th:		
Milch cows, per head..	£15	to £23

BEASTS. s. d.

Scotch.....	4	6
Hercifords per stone of 8 lbs..	4	4
Wolch (runts) " "	4	2
Shorthorns " "	4	2
Fat cows " "	3	8

SHEEP. s. s.

Small Downs " "	5	8
Half bred and Scotch " "	5	6
Lambs " "	7	10
Calves " "	5	4
Pigs " "	3	6

BUTTER. s. s.

Fresh, (Finest factory) per doz. lbs.....	14	14
English Dairy-butter, fresh...	10	12
Irish (creamery).....	11	2
Danish	11	4

CHEESE.

Cheshire per 112 lbs.....	72	76
Cheddar, finest	56	66

BACON.

Irish.....	40
Canadian	36
Hams, Danish.....	54
American.....	48
Irish, small.....	100
HAY, per load of 2016 lbs.....	80
Prime meadow.....	80
" clover.....	90
STRAW, per load 1296 lbs.....	40
Best	40
HOPS from 20s. to 70s. per 112 lbs.	

Prices of Pigs at Calne.
Present prices for prime pigs, in lots of not less than 10, on rail within 100 miles of Calne:—

Prime Stores.	Thickness of fat in any part of the back.	Price per sc.
600 to 10 lbs to 200 to 10 lbs	2 1/2 inches and under	7s 0d
Under 100c 10 lbs	Not exceeding 2 1/2 in	6s 6d
Under 110c 10 lbs	Not exceeding 2 1/2 in	6s 0d
Under 120c	Not exceeding 3 in	6s 0d

Any pigs outside these limits of their value.
Half-truck—12 pigs. Whole truck—25 pigs.

CHAS. & THOS HARRIS, & Co., Limited, Calne, Wilts, Eng. (1)
(1) Messrs. Harris & Co. do not seem to want only 1/2 of an inch on the back as Mr. Laing does!—Ed.

The Horse.

THE HARAS NATIONAL,

Percheron and Clyde Stallions Sold by Auction.

The sale of the Haras National imported and home bred horses was held, Wednesday March 4th, on the premises of the Company, at Outremont.

There was about 500 people present, among the most prominent being Messrs James P. Dawes, Thomas Irving, M. Chevalier, Longue Pointe; Benjamin Descarie, C6te St-Luc S. Nesbitt, John Nesbitt, W. McGibbon, Auzias-Turonno, T. Wieman, James Snowdon, John Whitney Henry Bennallaok, J. Jackson, Rev Father J. V. Villeneuve, of the Agricultural College, L'Assomption; Rev. Father Jobin, Henry Moody, James Drummond, sr.; J. Drummond, jun.; J. Perry, Geo. Muir, Wm Muir, Hippolyte Goull, H Lapointe, W. H. Trenholme, Richard Carran, R Ness, Huntingdon; Father Chauret, Longue Pointe Asylum Farm; David Cain, Rockburn P. Q.; Isaac Cain, Ed. Goldie, Frankfort, New-York; J. F. Bonbais, Sorel; Geo Jeffery, Petite C6te; Andrew McColl, Joseph White, Thos. Dobbio, Lachute; W. Bromby.

The sale was conducted by Mr. H. J. Ashman, and some very good prices were realized. Following is a list of animals sold and by whom purchased: Galant Mod6le, Clydesdale.—Purchased by Mr. Henry Moody, of Terrebonne for \$260.

Joly (15168), Percheron Stud Books of Canada and Franco—Purchased by Mr. Louis Picard for \$230.

Bonne Chance (32170), 5, Percheron Stud Books of Franco and of Canada.—Purchased by Mr. L. Champagne, of Grenville, for \$400.

Clement (32172), 4, Percheron Stud Book of Franco and of Canada.—Purchased by Rev. J. G. Villeneuve, of Terrebonne, for \$170.

Boston (19863), 8, Percheron Stud Books of Franco and of Canada.—Purchased by Mr. J. P. Wood, for \$180.

Brillant Bleu (19862), 7, Percheron Stud Book of Franco and of Canada.—Purchased by Mr. John Rafter, for \$700.

Roscoe, No. 5, Percheron Stud Book of Canada.—Purchased by Mr. Moody for \$110.

Countess (17874), Percheron Stud Book of America.—Purchased by Mr. J. P. Dawes for \$65.

Fanchette (18107), Reg. 1, 13.—Purchased by Mr. A. P. Wiley for \$250.

Marquis de Puisaye, No. 1522 (Stud Books of Franco and the United States.—Purchased by Mr. H. Moody for \$205.

General Frotte (Stud Book of Franco). There being two bidders at \$675 the horse was returned to his stall until to-day, when he will again be put up at auction.

Gipsy—Handsome seal brown; 15 1/2 hands high—Purchased by Mr. J. P. Woods for \$70.

Game Cock—Gelding.—Purchased by Mr. G. W. Mess for \$100.

Holopherne No. 1521. Stud Books of Franco and the United States.—Purchased by Mr. R. S Stephenson, of Belleville, for \$700.

Lady Holmbold—Brown mare, 5 years.—Purchased by Capt. Church, of Ste-Agathe, for \$70.

NORMAN CATTLE.

Pot au Lait, Norman cow.—Purchased by Mr. Stacey, of Cornwall, for \$21.

Fanchette, Norman cow.—Purchased by Mr. Willis, of Lancaster, for \$80.

Porrette, Norman cow.—Purchased by Mr. Stacey for \$27.

Iserie, No. 1256, vol. 5, imported Norman cow, recorded in the Norman Herd Book.—Purchased by Mr. Stacey for \$60.

Avenay 2, Norman bull.—Purchased by Mr. Willis for \$42.50.

There were also a number of pure-bred Shetland and Welsh ponies sold, the average price being \$100.

At the conclusion of the sale, Mr. Ashman was thanked by Mr. Auzias-Turenno, the President of the Haras National, for the capable manner in which he had conducted the sale.

Dear Sir,

The sale of the Haras National was unsatisfactory, as regards heavy draught stallions, some of them being sold for \$150. The Percheron Brillant Bleu got \$700.

The sale of French coaches was better, Holopherne being sold at \$700, G6n6ral Frotte \$695.00, Marquis de Puisaye \$235.00: all will be kept in the province.

The Haras will, probably, keep a few for sale or for the season, this year. I myself also buy a thoroughbred, as I believe, as you know, in putting Canadian mares to pure bred Percherons; then, the offspring to a 1/2 Percheron born in the country; then, the colt to a thoroughbred, in certain cases.

(Signed) R. AUZIAS-TURENNE.

WINTERING FOALS.

The young foal should be carefully handled while very young. It should be accustomed to the pressure of the hand on all parts of its body and limbs. If this is begun quite early, and very carefully and tenderly done, the young animal will take to it kindly, and a low its ears to be rubbed, head handled, and feet picked up without any fear. This is an essential part of the early education of the foal. It is pleasing and instructive thus to train a young foal and watch its development under its master's fostering care. When a month or so old the foal will learn to eat chopped oats and nibble at its food. When about four months old, a light, strong halter should be put on the foal, and after it becomes accustomed to this a rein may be buckled on and the foal taught to lead. This should be done gradually and carefully, the foal being coaxed to follow rather than be made to do it after a fight. At the same time, during the training, it must on no account be allowed to get away; but must be so handled that, without being frightened or whipped, it be made to feel that resistance is useless. A good plan is to lead it at first by the side of the mare. The foal should be weaned at the age of six months. By this time it will have learned to eat oats, either crushed or whole, and be accustomed to share in all the food the mare has received. Weaning time is always a critical one for the foal. It should have plenty of good food, and a variety of it. When taken from its mother have it put with a companion. It is cruel, at weaning time, to keep a foal by itself, away from all its kind. A well ventilated loose box is the best place for the foal. If it has been handled and accustomed to lead, it

may be safely tied up: but to halter a young colt, and at once tie it up alone in a stall, is dangerous. Foals winter better loose and two together, with plenty of room to move about, than when tied in a stall. Exercise is most necessary for the growing animal, and on no account should this be neglected. They should be out more or less every day, no matter what the weather may be. If the weather be very wet, they should not be left out long; but on dry, cold days a good run will do them good. Some have an idea that it makes a colt a hardy horse to expose it to all weathers when young. The contrary is the case. Exposure to cold autumn rains and to winter frost weakens the constitution and makes a delicate horse. Generous treatment with careful nursing gives a stamina that will make a colt grow big and strong. Three pounds of good oats morning and evening will be enough of grain at first. This may be increased as the colt grows. A good-sized carrot or a Swede turnip, cut into small pieces, till it gets to relish them, is good. Afterwards he may be fed whole ones. Turnips are coming more into favor for horse food; many prefer them to carrots. A change is desirable. Good timothy hay or good oat straw as a change may be given. Boiled wheat once or twice a week, alternating with a warm bran mash for supper, is good winter feed for colts. Boiled linseed once a week is desirable; a canful of the boiled mass in bran is the usual feed. Some use boiled turnips mixed warm with cut hay or chaff for supper now and then. Salt should not be forgotten, and the drinking water should be fresh and good. Running water is the best, and soft water is better than hard. If skim-milk be plentiful, a little warmed with a spoonful of sugar will be relished by the young colt, and agrees with it. Remember the exercise. Even the first winter the foal may be hitched up alongside an older horse and given a little exercise. It may thus early be broken in to harness and the load without having any weight to draw. Remember that young things need light and plenty of fresh air for health and growth. Keep a watch on the foal's feet. If neglected, the hoof may grow out of shape and be permanently injured. No foot, no horse; and the hoof is one part we are prone to neglect. Thus looked after with generous food for the first winter the foal will have had a good start. No after care will make up for neglect the first year. Generous feeding and careful treatment are most necessary to get the best results from the young animal.

ESSAY ON THE CULTIVATION OF CARROTS FOR FODDER.

(Prize essay 1896).

Sort of soil for—Preparation of land for—Sorts of carrots—Seed per acre—Hoeing—Moulding up.

The cultivation of the carrot is comparatively simple when compared with that of other roots; the greatest difficulty is in securing a good beginning and giving them a start.

The carrot, unlike most root crops, is very hardy, when once well started it will withstand more unfavorable weather than any other hood crop, being less liable to the ravages of insects that prey on other crops, and less liable to be injured by frost or dry weather. The soil best suited to

carrots is a black loam with clay sub-soil or clay loam made rich with manure, as they are also heavy feeders on the soil and take about the same amount of manurial constituents from an acre as mangels, the preparation of the soil being much the same. Almost any of the soils in this province is well adapted to the growth of carrot. Take land well drained with surface drains, or underdrained and, after harvest, take second sod (after some of the cereal crops, peas being preferable) and plow light or gang-plow three or four inches deep and waen dry, in a day or two or a week, harrow thoroughly until all grass and stubble are on the surface, let it lie in this state, if no grass appears; if so, harrow again, then, about the middle of October apply a good heavy coat of manure, well rotted, and made as fine as possible at the rate of thirty or forty cart loads per acre, spread evenly over the surface and plow under six or eight inches deep (manure from the pig house being most suitable) make sure that all surface water is drained off in order that the land may dry as early as possible in spring.

As soon as the land is dry, and as early as possible, that it will work light and pulverize as fine as can be made, harrow lengthwise and crosswise, until the surface becomes thoroughly smooth, then plow crosswise and let it remain that way for a day or two to dry and warm. Now have seed ready, make sure it is fresh and clean. The carrots best suited for a fodder crop and those most easily harvested, also give the largest yield per acre, are the intermediate or improved Short White, White Vosges, and White Belgian. There are several varieties but those three will be found to give best results for a fodder crop.

Now harrow until all lumps are broken and surface made smooth and fine as possible then raise drills from 24 to 28 inches apart, rake off the surface of the drills with a garden rake (1) to give a level surface for the machine to run on the top of the drill more easily.

Commence and sow at the rate of 1½ to 2 lbs. per acre, which will be thick enough if seed is fresh and good; it is advisable to have them thick as they require to be thinned by hand.

As soon as the young plants can be seen, or as soon as the rough leaf appears, start the scuffler between the drills and cut up within two or three inches of the plants, then with sharp hand hoes trim the remainder, or the shoulders, close up to the plants; now commence thinning before the young plants get too much of a start, which would cause them to become spindly, and check their growth; thin by hand (2) from four to eight inches apart and avoid as much as possible pulling them down; then, in a few days all weeds that have been pulled and cut will have died and disappeared. Now, run the scuffler through them again and with hand hoes, hoe close up to the carrots which will be all that is required until they get well started or about six or eight inches high, then they should be banked or moulded up which will cover all weeds that may have sprung up. Do not mould too sharp unless the season is somewhat wet.

I find from experience that carrots, unlike mangels or turnips, require the moulding as they draw largely from the subsoil and not so much from the surface.

This is all that is required until the

(1) A light roller is better.—Ed.

(2) Chop out with the hoes first, and leave in bunches.—Ed.

harvesting which may be left quite late in the season.

Carrots, unlike mangels, withstand the frost on account of the heavy top which protects the roots, causing them to remain in the ground until the end of October with safety.

I find the most expeditious way of harvesting them is to pull when dry and lay the roots crosswise on top of drill, three drills on one, which gives two clear drills for the horse and cart to come along, then with sharp knife or sickle, commence and top.

Pick up each carrot with the left hand and trim off the top and throw direct into the cart, be careful that no tops or leaves adhere to the roots for they are sure to heat and rot, which causes too much moisture in the root-house or cellar, and if a large quantity is stored will cause them to rot at the crown.

If the above methods are closely observed, and followed carefully with favorable weather, the grower will have no difficulty in producing from fifteen to twenty tons per acre of fodder carrots.

(Signed) R. R. SANGSTER,
Lancaster, Ont.

ESSAY ON THE CULTIVATION OF MANGELS.

Essential points—Preparation of land—Varieties—Width between drills—Horse-hoeing, &c.

There are four essential points to observe to insure the successful growth of a crop of mangels, viz.: first, the soil and its preparation; 2nd, the seed and sowing; 3rd, the thinning and cultivating; 4th, harvesting and storing.

In the first place, the best soil for mangels is a rich clay, sandy or gravelly loam well drained with surface drains, or if underdrained all the better; then take second sod after wheat, oats, barley or peas, the latter most preferable (mangels succeed remarkably well in the same sod year after year) then gang plow three or four inches deep to kill all weeds and rot all stubble and grass, let lie in this state one or two weeks if weather is dry, then harrow thoroughly until all weeds, grass and stubble are on the surface, harrow at intervals to keep the surface smooth, until the middle of October, but if previously cultivated with roots or corn, the land will not require this amount of labour; then apply thirty or forty cart loads per acre of good barn yard manure, for mangels are heavy feeders on the soil, as one acre takes from the soil the following manurial constituents: viz.: Nitrogen, ninety-eight pounds; potash, two hundred and twenty two pounds; phosphoric acid, thirty-six pounds, which must be applied to the soil in farm yard manure; but if any special manure is used in addition to farm yard manure, nitrate of soda would be the best. The manure should be well rotted, spread evenly and ploughed under immediately, do not let the land lie to dry, or allow any of the valuable parts to escape into the air, plough six inches deep and if low land, in ridges about eighteen or twenty feet in width.

Have all surface water well drained off; with plenty of cross furrows; then, if convenient, apply from thirty to forty bushels per acre of good wood ashes evenly spread on the surface of the ploughing, and let lie exposed to the action of the frost until spring

then, as soon as the soil is dry; mangels requiring to be sown early and firm enough to work fine and carry the horses, harrow the surface thoroughly to break all lumps as fine as possible, and after ploughing crosswise six or seven inches deep, let it lie for a couple of days to dry and warm up.

2nd—Now have seed ready and make sure that it is fresh. The best varieties to sow are Long Red, Intermediate Yellow, Yellow Globe, and Golden Tankard, in the order named, three lbs. per acre is sufficient if seed is fresh.

Harrow the land thoroughly until it is all as fine as can be made. Drill it up thirty inches apart, drills running north and south, if possible, to insure as much sunlight as possible to the young plants. As soon as a few drills are raised, rake the top of drills with a garden rake to level the surface for the machine to run more easily, then commence and sow, do not allow the drills to stand over night unsown, for it is very important that all drills raised be sown before the ground settles. If any are raised and not sown the same day, harrow down next day, for herein, lies the surer of success or failure for the seed to germinate as there is something in the settling of the soil that causes the seed to take root and grow more evenly if sown at once. I have, more than once, had a few drills left raised over night and sown with the same seed, and found that not more than half the seed came up.

3rd.—Now, as soon as the plants are up, so that they can be seen from end to end of drills, go through them, with scuffler or horse hoe cutting up within two or three inches of the plants, but not so close as to disturb the plants, this done, then with sharp hand hoe trim off the shoulders, close up to plants, this will kill all weeds that may have started. Then as soon as the plants get three inches high, or the fourth leaf shoots out, commence and thin, which must be done by hands, and avoid as much as possible pulling them down, as that causes them to grow crooked. (1) If the soil is rich thin to ten or twelve inches apart, and do not leave a weed, that done in a few days run the scuffler through again which will pulverize the soil and retain the moisture. In a few days go through them with hand hoes, and hoe between the plants which will loosen the soil and give them a start to set, if the weather is dry and the soil begins to crack, go through with the scuffler quite light and keep the moisture from escaping; but if the weather is wet that is not necessary. A moderately dry season is much preferred for a good crop of mangels. Watch closely that there is no cracking of the soil; if that begins, run the scuffler quite light through them again. I find from twenty years experience that level cultivation is best suited for mangels, finding they derive more nourishment from a level surface rather than from a moulded or banked surface. But if size is wanted for show roots, apply a good dressing of manure with horse and cart driven between the drills, spread even all over the surface and round the plants, the horse walks in the drill and the ordinary cart runs between the two drills, and can be driven to the other end to turn.

The breaking off of the under leaves (2) is of great advantage and keeps the roots from growing crooked,

(1) By no means. Chop out, and thin with the hoe.—Ed.

(2) A great mistake. The leaves are feeders.—Ed.

and allows more sunlight which, in my experience, is of great advantage in producing a much firmer root, and a better keeper with more dry matter for feeding.

This being done no more is required except to watch for any weeds that may spring up, if so, go through and pull by hand, which is all that is needed until harvesting comes on.

4th. Harvesting and storing now commence which must, most assuredly, be done before frost sets in if possible, as frost causes the roots to become colored with spots and causes them to rot more readily. I would advise taking them up about the 20th of September and on dry afternoons, with as much sunlight as can be had, and by all means avoid pulling wet. I recommend hand topping, just hold the root in the left hand and with the right hand grasp the top and twist it off, then throw into the cart direct which can be driven between the drills, taking five drills at a time, watch closely that no weeds or leaves adhere to the roots, for that causes ultimate decay in the root house or cellar. If the above is closely followed and roots stored dry, the grower will have no difficulty in producing from twenty to thirty tons per acre of one of our most valued farm crops.

(Signed) R. R. SARGSTER,
Lancaster, Ont.

The Dairy.

RUTTER, MARGARINE. AND CHEESE IN 1895.

In its annual review of the provision trade the London *Grocer* says as to the above:

BUTTER.—This article has occupied a unique position during 1895. For many months in succession there was at first nothing but declining rates to record, as the result of over plentiful arrival of both Colonial and foreign descriptions, and in May and June the following were the lowest points:—Cork butter from 40s. to 68s. landed, best Irish creameries at 80s. to 86s. Dutch at 68s. to 80s., French at 66s. to 96., Danish and Swedish at 78 to 84s., Finns and Russians at 50s. to 76s., and Colonial at 36s. to 78s. per cwt for ordinary to finest makes, besides fresh (Brittany rolls) at 8s. 6d. to 13s. per dozen. Within the last four months, however, the trade has been almost revolutionised by the changes in the seasons, and the falling-off in the aggregate production, mainly through the drought in Australia, and up to nearly the end of October quotations rapidly advanced, when Cork butter fetched 100s. to 123s., choicest Irish creameries 132s. to 138s. Dutch 118s. to 128s., French 106s. to 124., Danish and Swedish 140s. to 146s., Finnish and Russian sorts 106s. to 130s., Colonial 126s. to 132s., Argentine butter (which began to arrive in September, 100s. to 130s. and creamery American and Canadian 100s. to 130s. per cwt with Brittany rolls (per doz) at 12s. 6d. to 15s. 6d. Since then, with a resumption of Australasian imports, the market has mostly pursued a downward course, and closes from about 20s. to 30s. under the topmost prices of the year.

MARGARINE and mixtures, which in the fore part of the year were much depreciated by the irresistible competition of the genuine product, immediately rose in estimation when the latter became scarce and dear, and an augmenting business has latterly been

done at improving rates, the finest blends bringing 76s. to 88s. instead of only 66s. to 76s. at first.

CHEESE, almost without exception, has been one of the dullest articles for sale in the provision trade during the greater part of 1895; for whereas others have had intervals of briskness with rising prices, this important edible has been under a commercial cloud, almost without a break, from one end of the season to the other. Plenty and cheapness, combined with unremunerative prices, are what holders have most complained about; and yet, although the two former characteristics are supposed to be conducive to an increased consumption, they cannot be said to have altogether led to so desirable a result in the present instance. Makers, consignors, and sellers of cheese have, therefore, been confronted with drooping markets nearly all the year through, and leaving Dutch out of the question, the closing rates for the leading sorts are much lower than those at the opening. In the first half of the year, common and useful qualities of English cheese were disposed of at from 36s. to 52s., and fine to finest at 60s. to 80s., with superbly choice Cheshire as high as 84s. to 90s. per cwt. Subsequently the quotations fell to 46s. and 26s. for ordinary and good medium kinds, to 66s. and 50s. for choicest dairies, and to 76s. and 70s. for anything specially selected, followed by only fitful rallies since. Fancy Canadian and States cheese were realised at 48s. to 52s., until the new season's make arrived in May and June, when the values of the best articles on offer on the spot declined to 40s. and 36s.; but after this there was some recovery, and prices for the pick of the quantity on show have since rebounded to 46s. and 48s., with heaps of stale and summer made description at 32s. to 40s. and low grades at almost any figure. Colonial cheese, which is now an item not to be left out in the general calculation, has moved on the same lines of depreciation, and quality that at one time commanded 46s. to 50s. and 52s. was afterwards forced off at from 28s. to 38s. per cwt, if not lower. Operations in Dutch cheese have been of an uneventful character, and the alterations in prices have been astonishingly few, uniformly ranging from 40s. to 52s. for Goudas, and from 42s. to 56s. for Edams, in the early part of the year, down to 36 to 46s. and 46s. to 52s. respectively in October, with a steady home and export demand.

SHORTHORNS IN 1895.

This has proved a most satisfactory year for breeders of the best class of Shorthorns. The prices for crack lots have been from time to time reported in *The Farmer* but it may be well to repeat them now at the close of the season. The Booth herd at Warlaby heads the list with 43 animals averaging £135 6s. 9d. Dathie's 24 yearling bulls at Collynie came next with £79, 8s. 1d. Thompson, of Inglewood's herd at dispersion sale made £45, 1s. 8d. for 86 old and young. Marr, of Upperhill, sold same day as Collynie's, made £42, 2s. 9d. for 23. At Maisoy Hampton, 48 head made £41, 15s. 2d. The sensation price of the year has just been made by the sale of Sir Lucius Studley (64882), for £700 to go to Buenos Ayres. This great Booth bull was brother of Prince Stephen, for Mr. Deane Willis got the same price £700 some years ago. Sir Lucius is a roan, calved at Warlaby, Nov. 1891, sire King Stephen, and has

in him the same blood as the great old bull Royal Riby. He was hired by Lord Polwarth for a season, and has left beautiful stock, his bull calves being exceptionally promising. He is himself a very compact bull of great quality; standing low and near the ground, he appears smaller than he really is; but his long, square hindquarters, deep thighs and flanks, and big girth, give him a symmetry and substance rarely found in combination with such quality and style as he can boast of. He is a very active mover and carries a fine head, but like many other high-priced beasts sent to South America not much more is likely to be heard of him.

FEEDING ROOTS.

Some interesting experiments have been made in Britain in fattening steers. The lot were divided and fed swede turnips and straw for the basis and then linseed cake. Decorticated cotton cake, chopped oats, and ground Indian corn were tried. Those fed on turnips alone got 150 lbs. daily and all the oat straw they cared to eat. Each of the other lots got 50 lbs. of turnips daily and 5 lbs. of the cake or meal. Those fed on 50 lbs. of swedes and 5 lbs. of linseed meal made the best gains. The turnip fed ones came next, and were close up and in excellent condition. Those which had received cotton cake came next, but far below the average, while those getting the 5 lbs. of Indian corn and 5 lbs. of oats came last. We have had in this country very few experiments along this line, and it would be interesting if our experimental stations would do some testing along the line of cheap feeding for beef. A comparison of feeding certain steers on turnips and straw and others on ensilage would be valuable to our farmers and should be of much benefit by showing which is the best and cheapest. *In Scotland there are a great many cattle fattened on turnips and straw without any grain.—Farming.*

GOVERNMENT AID TO THE DRESSED MEAT TRADE.

Ever since the British Government first put the embargo on Canadian cattle, we have constantly urged on those interested in the trade the advisability of shipping cattle over in the dressed beef form rather than on foot. We have repeatedly pointed out the many advantages to be derived from thus carrying on this export trade. It is certainly the most humane way of so doing, while the slaughtering on this side of the water would result in the starting of several industries that would be profitable.

The recent embargo laid on Canadian and American sheep by the British Board of Agriculture seems to have stirred up the Canadian Government to try its hand at giving the dressed meat trade a start. At a meeting of breeders at Guelph, Prof. Robertson, Dominion Dairy Commissioner, outlined a plan which he had recommended to the Canadian Government for adoption, and to which he had received their assent. Provision is to be made for the purchase of about 500 head of cattle every week during the shipping season at the port of Montreal, the cattle to be slaughtered at that place, and sent over to Great Britain "chilled" in cold storage chambers, and cold storage chambers are to be provided on the other side at

convenient depots where the meat will be retailed. The administration of the whole matter is to be taken up by the Canadian Government, and Prof. Robertson estimates that the whole business can be managed without any loss or charge, and would, indeed, show a profit.

Prof. Robertson considers that "the government control of this business would win for it a status and name in Great Britain at once which no private individual or joint stock company could ever secure. The prestige of powerful government administration, the reputation of the government in having successfully assisted in putting Canadian cheese and Canadian butter on the British markets in the best way, would vanquish the active hostility of retail butchers, without any keen commercial struggle involving loss. The government would be in a position to select the pick of the cattle at Montreal, and it would effectually prevent any such sentiment being foisted upon the consumers in Great Britain towards the dressed beef trade from Canada, as would make them think of it as a 'cheap John' affair, for the disposal only of the beef from the refuse cattle of the country, which were not fat enough or large enough to be shipped alive.

"It need not be managed by the government for longer than one year, for, doubtless, a joint stock company or other commercial concern could be formed to carry it on thereafter."

The threatened exclusion of all live stock from even landing in Great Britain makes this new departure of the Canadian Government the more timely, as, should such an order be issued, the trade in Canadian cattle would be utterly put an end to, until such time as slaughter and packing houses could be established, which would take time. If by starting a dressed meat trade the government can induce a private company to take the matter up, they will be entitled to the thanks of the farming community, more especially since a dressed meat trade can be continued all the year round, while the shipments of live cattle are practically confined to the period between May and the middle of November.

The shipping of the beef in a chilled state will ensure its landing on the other side in first-class order, thus placing it in a far more saleable condition than the "frozen" beef sent from Australia, which is not greatly in demand on account of its unsightly appearance when thawed out, and, even after being cooked, this appearance is evident. This is a most important point, as, in Great Britain, good looks and quality count for everything in the buyer's and consumer's eyes, and prices for things range accordingly. If, then, the suggested arrangements are carried out, a great development in feeding cattle may be expected in the near future in Canada.—*Farming*

CANADIAN LIVE STOCK EXPORT TRADE.

The figures for the export trade in live stock from Montreal during the past season show a gratifying increase over those of last year, although the figures for cattle are still far below that of 1890. During 1895 there left Montreal 96,546 head of cattle and 215,508 sheep, while the horse trade has increased about 800 per cent. over that in 1894, totalling some 12,000 head.

These figures are most encouraging, and, in view of the inauguration of a

dressed meat export trade by the Dominion Government this year, there should be an even better demand for fat cattle and sheep during the coming season. Feeders would do well to prepare for the improved demand.

MISCELLANEOUS.

SHEEP NEED WATER.

A. C. H., Toronto:—“The late lamented Paul Pool, the celebrated artist, painted a picture representing sheep drinking water in a dell, under the shadow of trees. The picture is very pretty, and the subject very poetical, but the piece of art has been criticised as being contrary to nature, as most people are under the impression that sheep do not drink water. Please inform your readers whether or not sheep drink water in any shape or form outside of their usual food.”

[Sheep drink water just the same as cattle or horses, when the amount of moisture in their food is below the demands of the system. With sheep the normal proportion of water to dry food is about 4:1. Where sheep are receiving green grass, roots, or other succulent food, extra water may not be necessary, but where the food does not supply the needed proportion they drink large quantities. We have carried hundreds of pails to sheep, especially ewes suckling lambs. They also drink liberally in summer when on dried pasture, and when water is not supplied them when needed their owner suffers a financial loss by their failure to do well!—“*Farming*.”

On the Downs, near Brighton, Eng. and all along the range of chalk hills, we have often seen the sheep drinking from the carous *dew ponds*, which we described some time ago in the Journal, but only in very hot weather, with the short grass of the Downs parched up. In Kent, the next county, we never saw a sheep drink. Of course, when on fall turnips, neither sheep nor bullocks drink.—Ed

WHAT BREED SHALL BE USED?

Improving a herd of cows— Shorthorn sires.

We have been readers of your paper for a little over one year, and it makes us feel that we should do better with our cows than we are doing. Our herd are mostly high grade Short-horns, with two Jerseys, and two pure bred Short horns. We sell butter to private customers in near by county town, at an average of 20 cents the year round. We raise our calves—the steers for beef, and heifers for cows. The latter are sold as herd increases to Eastern buyers, mostly from Philadelphia, for dairymen near that city, who prefer cows with large flow of milk. We have been using pure bred Short horn sire for several years. We must procure a different sire. Shall it be a Short-horn or not? We have been thinking very strongly of a pure bred Holstein, and would like your advice as to the advantage or disadvantage of the cross with our herd for our purpose. We want a good cow while we use her, and one that will sell well, and at the same time steers that will make good beef.

Alexandria, Pa.

K. BROS.

If these inquirers know for a certainty of any Short horn bull that can trace through both dam and sire to cows that were satisfactory as butter

makers, we do not know of any surer way of accomplishing the ends they have in view than to use such a sire. If they do not know of such an animal, they have doubtless been thinking in the right direction. We advise them, however, before coming to any conclusion, to count up the cost of raising the steers for beef, and when this is done, they may conclude that it will be better to look for a dairy sire, pure and simple. In doing this, they do not necessarily have to go outside of the breeds named, but they will be likely to get as far as possible from the beef form.

(*Hoard's Dairyman*.)

If a “Dairy-Shorthorn” is wanted, the *K. Bros.* must go to the North of England for him.—Ed. J. or Ag.

WAUGH, ON THE TREATMENT OF IN-CALF COWS.

To what extent it will be profitable to feed chop or similar concentrated food to cows is a matter very largely to be left to individual judgment. It seems to me a very great mistake for any farmer to put his cows on dry straw or hay that is very little better than straw, when they dry up. A hearty animal in good condition may do with a less allowance of extra feed, but it is a great delusion to think that a cow in that condition is idle. She is not only nursing an unborn calf, she is resting and building up her own frame for the demand to be made on it during the milk season, and if in good health every pound of extra flesh laid on her will add to her value at the pail when the time comes. A thin cow will often drop a well grown calf, but anyone who has studied the laws of nature will tell you that Nature's great effort is to put all vital force possible into the new life of plant or animal, and if the calf is strong and the dam poor in condition she may eat a lot of good food afterwards and make very poor profit from it.

MILK AND BREWERS' GRAINS.

With reference to the question of the milkmen of the island feeding their cattle on brewers' grains, it is to be remembered that a goodly number use peas and oats exclusively, which produce a much superior milk. These men complain that they appear to have been lumped in with those who use brewers' grains, which is a cheaper food, and which, though it produces a larger supply, does not make nutritive milk. Peas and oats constitute the best food for cattle, and those who use this food find the milk in great demand. It is richer, stronger and more healthful, and can be easily distinguished from the milk produced by brewers' grains. Mr. Thomas Hannab, the well known milkman, who uses peas and oats, exclusively, says that this food, besides being dearer, produces less milk than brewers' grains. It is very much better, of course, but they can only get the same price for it. The milk inspector, when he takes samples can always tell the difference between the two kinds. While neither he nor those who use the better food desire a higher price, they think there should be some recognition for those who are trying to keep up the milk standard. ‘I seriously question,’ said Mr. Hannab, ‘whether the gentlemen who have pronounced in favor of brewers' grains, would like to have their children reared upon the milk which brewer's grains produce.’

Witness.

We do not suppose any one is so ignorant as to believe that the poorer milkman feeds his cows on grains alone. They are only used as a succulent addition to more concentrated foods.—Ed.

THE DRYER AND MOULDER.

How to use—Granular butter—12 % of water—No pressure or friction.

I have had opportunities of seeing the work and the results achieved by the new “dryer and moulder”—Bradford's invention—and consider it, to say the least, a very remarkable machine for use in the butter dairy. It appears to me likely to do a good deal towards disestablishing the butter worker in many of our best dairies, whose butter finds its way into the best establishments in the country, and it denotes a distinctly new departure in the art of butter making. Personally, I have no longer any doubt as to the preferableness and superiority of butter manipulated in Bradford's dryer and moulder, for it has not been crushed or brained in any way after leaving the churn. The cream is churned in the ordinary way, and the butter is washed in the granular state and immediately brined. After resting half an hour in the brine, it is ladled out—still, of course, in the granular state—and put into tin moulds that are lined with muslin. The moulds are arranged around the inner periphery of a wheel that is made to revolve at a high speed. As the wheel revolves, the superfluous wetness flies out of the butter in the form of spray, and the butter can be made as dry as you like. Butter in good condition should not contain more than about 12 per cent of water, and this machine easily reduces the wetness down to this percentage in about 90 seconds. The moulding of the butter is simultaneously done, and within two minutes we have our pounds and half pounds of butter ready for the table, or fit to keep any reasonable time. Used at once, or kept a week, there is something winning and delightful which is seldom, if ever, found in butter that has been subjected to pressure and rapping. It is still perfectly granular, though compacted into pounds and half pounds, as the case may be, and it breaks across freely under gentle pressure, and without the aid of a knife to cut a half inch gash as a starter. Its cohesive state is something like that of a slightly compressed ball of tolerably dry and fresh snow. I do not, however, mean that this granular state is the something “winning and delightful” already alluded to, but rather that in the aroma under the nose, and the flavor on the palate, there is an indescribable attraction which is not otherwise found in butter. For this and other reasons I am under the impression that butter made in this way, completely without any working at all, is destined to win its way well and quickly with people who wish to eat butter in the very pink of perfection. It is to some small extent crumbly; that is to say, it is still granular, free to be easily cut or broken. In use, however, I find no objection to this mechanical condition of the butter, but consider it an advantage rather than a drawback.

I have said that the butter granules are ladled out of the churn and put into the moulds, dripping with wet as

they are; and it may be supposed that the moulds will hold more or less than a pound or a half-pound, as the case may be. Well, this depends on the dairy maid. A little practice will enable any person of average intelligence to gauge the quantity of butter put into each mould, gauge it within half an ounce of overweight in each mould. And this extra half ounce to the pound is what all dairy-maids allow for loss of weight before the butter is marketed. On the other hand, it is easy to adjust each pound or half pound of butter after it comes out of the mould, if need be to do so.—J. P. SHLEDON, in *Agricultural Gazette*.

The Farm.

HOPS.

(Concluded).

When picking time arrives if you have only one kind of hops in your yard, you will find it difficult to get them all picked in time, unless you begin the very instant they are ready; not before, for the reasons we mentioned last month. In England, each yard is, generally, planted with three sorts, which are so chosen as to ripen successively—here, if you do not arrange beforehand to have plenty of pickers, you will get into trouble, as you will probably restrict yourselves to one kind. The proprietor should have nothing to do with the manual labor of picking; it will take all his time to superintend the pickers, to see that they pick clean, do not put any leaves into the bin, and do not waste their time in chattering to each other; for although we pay so much a bushel for picking in England, here, it will probably have to be done by the day. A penny a bushel used to be the price for a good crop! In this country, as the hands are not accustomed to the work, you may think yourselves fortunate if you get it done for 6 cents. And that reminds us that the poles, here, are much too heavy and clumsy; not so great a trouble, one would think, to choose them with a little care at first. It is not in piling the hills that the annoyance is felt, but in the hurried work of harvesting. Bins should be large enough to take a cloth for a woman and two or three children to pick into; the poles, with the bines on, are laid on the bin, and as soon as the hops are off, the bines should be stripped from the poles, as they hold wet and rot the poles. You will soon see how important these apparently trivial matters are in connection with such expensive articles as poles are, even in this well-wooded country. The poles are drawn out of the ground by means of a stout bifurcated tool called, if we remember rightly, a *hopp-dog*, the bines being first cut near the ground. A two pronged fork with very short, thick spines is about thing, with a boss behind to assist the leverage.

Drying.—How the hops dried on such kilns as we have seen in the Eastern Townships escape injury we cannot tell. Only six, or at most seven feet, from the fire to the canvas, is often seen, and hardly any draught; the hops are roasted, not dried, in such kilns. Take a good malt kiln for your model: 11 feet between the fire and the *kiln-head*, i. e. the cloth on which the hops lie; and the height of the *cowl*, 18 to 20 feet above the cloth! Four pipes, say, 3 inches in diameter, should pass through the cloth into the hot air chamber below, and stand

about 3 feet above the hops when the kiln is loaded. This will create additional draught towards the cowl—not a thing to be sneezed at in a foggy morning in September. (1) As to the shape of the kiln, that is utterly immaterial; the distance from fire to kilnhead, the great distance from kilnhead to cowl, the uprightness of the cowl, the draught-pipes (introduced by us into Canada 30 years ago), causing a free circulation of the air from below passing through the hops, constitute the greatest improvement imaginable. In a word the main object in hop-drying, as in drying malt, is to cause the greatest quantity of heated air to pass through the hops, and drive the moisture out at the cowl, without any excess of heat.

If we remember, Dr. Ure, in his volume on Arts, Manufactures, &c., gives a plan of a *Hop Oast* or kiln—we cannot find a copy of this valuable book of a later date than 1843, or we would have given an engraving as an illustration. However, the Township kilns may be copied as far as they go, only altering the dimensions as to height from fire to kiln and from kiln to cowl. We really earnestly beg your attention to this point as many a good sample of hops is spoiled by its neglect.

Heat of Kiln.—Kilns of the kind just described will take a bushel of hops to the square foot. The heat should never exceed 120° F., and to regulate it, take a common thermometer and pass it through the hop until the bottom reaches the cloth, with a small stick attached by a piece of string to the semi-circular piece of iron wire which is found on all metal-cased thermometers, to mark its position.

A large stove, burning either wood or coal, will answer every purpose, but we strongly recommend a sheet-iron pent-house over the stove to spread to heat, and to prevent the fire being too fierce at that part of the kiln head immediately above it. A kiln on the plan we have mentioned should dry off two loadings of hops in 24 hours; which, supposing the kiln to be 20 feet by 12 feet would give, at 1 bushel per square foot each kiln-load, 600 bushels a day. Don't over dry; if a few hops remain clung, or sticky, the heat of the others will dry them in the room where they are put when they come off the kiln. If you are doubtful on this matter, throw the whole lot into a round conical heap: the undried hops will roll down the outside of the heap and can easily be removed. Never pack your hops until they are cool: hops packed hot never drain well from the boiler, i. e. they retain a much larger amount of the worts; a serious matter to the brewer, as both time and value are lost.

Hops are sufficiently dried when the strig, or stalk, will snap. To dry hops well: a moderate heat at first, say 90° F., gradually rising in temperature, till at the end, when the kiln is finished, the thermometer on the cloth indicates 120° F.

Hop-packing.—Here, hops are always trodden into the bags; a hole is generally made at one end of the cooling-room, with a frame and curb raised about a foot above the level of the floor; a round hoop being first fastened in at the top of the bag, it is let down into the hole, the hoop resting on the curb, which being less in circumference than the hoop prevents it from slipping down. The bag being thus slung: a man gets in, and being supplied with hops by a boy or girl,

treads them down as compactly as possible. When full, the hops are down in with stout twine.

In England the chestnut is considered the best wood for poles. In Kent in which county four-fifths of all our hops are grown, the seed of the Spanish chestnut is sown on well cultivated light soil, and the crop is very profitable—18 feet poles of this wood are worth \$12.00 per hundred. Larch comes next in value, and white birch and alder last of all. Here, prices will vary as to locality, but Mr. Paouad, an extensive dealer near St. Hyacinthe, told us some years ago that large quantities of poles are being sent off to Ontario. As several people wished to hear from us on the subject, of course we have told them all we know, and all we can gather from others. *Lance's Hop farmer* is the only authority; this cannot be found in Canada, and even if it were to be had, no book-work can give any idea of the practice to one who has never seen the plant cultivated by a first rate grower. We end with what we started with: Leave hop growing alone; there are plenty of acres in cultivation already.

P. S.—Our Worcestershire friends would have a right to be very angry with me were I to omit to state that in that county is produced a very mild delicate flavoured hop—the quantity produced, however, is small. The North Clays of Nottingham, on the other hand, yield a strong, coarse hop, only fit for such blood-red abomination as the ale they drink in the Potteries. We tasted something like it 30 years ago, before the arrival of Mr Harris in Montreal, when the beer was—ugh!

The farina, which in the course of drying falls through the cloth, is a valuable article, and is termed *hop-dust*; it is scarcely less valuable to the brewer than the hops themselves, if care is taken that no particle of fire fall into the kiln-pit to injure it, and that it be frequently removed therefrom. One pound of hop dust is equal to four pounds of hops. In porter or common beer a small portion might always be used without injury. It is about one-fourth the price of hops. *Levesque on Brewing.*

HARROWING TO KILL CROP WEEDS.

Several years ago a representative of *The Farmer* while attending institutes in Northern Minnesota, laid great stress on light harrowing in spring after the crop had been started, as a means of killing annual crop weeds. Many farmers across the line have since acted on the suggestion and the following letter in the *Dakota Farmer* from L. A. Safford, Kelso, N. D., gives his experience and opinions regarding this year's results from harrowing:—

"Farmers here harrow more grain each year, now that they have learned the advantages resulting from it. The best time, I think, is when the grain is coming up, that is as soon as it may be worked without covering the grain. If the soil bends the grain down and covers it, not much of the covered grain will grow. If the land has been spring plowed, or disced, greater care must be taken, and a very slanting toothed harrow is better. We harrow both soft and hard ground, when the grain is coming up, with common harrows, with upright teeth. The grain does not get bent when very recently above the ground, it is too stiff to get bent down then. It would be well perhaps to harrow before any comes

up, but I like to delay the working that there may be a little more time between the last cultivation before seeding and the next one. It is very seldom that the harrows pull up much. The loss is likely to be by covering and bending the grain down. Unless a very bad job has been done, the grain will shoot out so much more that at harvest time it will be thicker than grain not harrowed. Excepting the early harrowing the grain will look badly, which is discouraging before farmers have learned the advantages. I harrowed all of my grain, excepting where I sowed grass seed with the grain. Have harrowed some, during many years, but not nearly all, till last year. Last year I am sure I raised one-quarter more where I harrowed, having left bulks unharrowed, so that I could test. My whole crop of wheat last year was 21½ bushels per acre, this year 29½. The season this year being wet, I do not think the harrow helped as much as in dry seasons. I got more this year per acre than last year, because the season was better. My few tests show an increase this year of about one-sixth, by the harrowing after seeding. The dirt mulch obtained by the cultivation, is supposed by many, especially by the best farmers and experimenters, to be of great benefit in dry seasons. Probably the greatest good got by cultivation in a wet season, is by keeping the ground nearly clear of weeds. I stop seeding to harrow as the grain is coming up, if the ground is not too wet. With a four or six horse harrow it is but little work to harrow many acres and puts back the seeding but little. I am sure the early harrowing does the most good. I harrow wheat, barley and oats only, but think I will try flax and millet. I drill my grain and, of course, it is all deeply covered."

Mr. Stafford might have made his case more clear than is done by the above letter. First the press drill to put in the seed at an even depth, then harrow as the grain is coming through with very light harrows, and if the dose is repeated in a week the results will be still more thorough. If the land has been properly firmed down, as by first rate summer-fallowing the previous season, there is no fear that the young grain will get buried by the harrowing, if the harrow is not too heavy. Only those who see the average crop delivered at an elevator can have any idea how the land is being exhausted by growing one crop of grain and another of pig weed on the same land every year. Harrowing in spring at the right time, and in the right way, would kill millions of weeds in crops. (1)

SNOW ROADS.

The experiences of the past week in this vicinity, recalls the fact that a large number of valuable horses were spavined or otherwise more or less seriously injured during the winter of 1892, by turning out into the deep and drifted snow for meeting teams. Creamery patrons, who must go in all weather and all conditions of the roads, were special sufferers, and it is more especially for their benefit and comfort that we once more call attention to the system of winter road making which has been successfully tried in portions of Vermont and New Hamp-

(1) Senator Guévremont, by our advice, harrowed and rolled his grain in 1856, and won first prize at Sorel. His neighbours said he was "bien bête" for doing so, but he was not.—Ed.

shire. As soon as a deep snow has fallen, or the roads are drifted, the district pathmaster starts out with two teams hitched to a heavy harrow having a spread of eight or nine feet.

He proceeds along one side of the track to the end of the district and returns, thus harrowing down a strip 16 to 18 feet wide. Following the harrow comes a heavy roller of the same length (8 or 9 feet) drawn by two teams, or more if necessary, and the harrowed snow is rolled down to a solid mass. This is repeated as often as is needed.

The result is a fine, solid winter track, say 13 feet wide, without pitch-holes, admitting at all times of the easy and safe passage of loaded teams. This method is worthy of being remembered and put in practice anywhere that a good winter road is a necessity.—Ed.

THE FEEDING VALUE OF POTATOES.

A large proportion of this year's potato crop will have to be disposed of in other ways than for culinary purposes. Fortunately, almost every farm has a market of its own.

The winter feeding value of all dry, bulky fodder crops is very dependent on a supply of turnips or other vegetables. The average quantity of water in a Swede is 89 per cent; of carbohydrates, 7 per cent; of albuminoids, 1.4 per cent; of fats, .03. The average in the potato is 75 per cent. of water, 20 per cent. of carbohydrates, 2.2 per cent. albuminoids, and fats, .03. Casually observed, a ton of potatoes contains nearly three times as much starchy matter and nearly twice as much albuminoid; consequently the analytical feeding value of the potato is far more than twice as great as that of Swedes. In actual practice, however, the analytical value of green fodder crops is not the only factor to be considered. The water contained in green crops is analytically exactly the same as pure water from any other source; but in some unexplained way it acts more beneficially on an animal. Take, for instance, a rich pasture on which cattle fatten in summer without any outside assistance, then try to feed animals on the hay from the same pasture, supplying the water in the bucket instead of in the form of natural juices, and a far different result is obtained. The animal will not starve, at the same time it will not fatten, no matter how much hay and water are given it. Yet, analytically, water is the only constituent lost in the practice of haymaking. "I don't need to grow turnips now, I've got a windmill," remarked one individual who had fallen into the erroneous notion that his way of furnishing stock water would equal Nature's plan, as found in the succulent turnip. Treating from the other side of the question, the carbohydrates, albuminoids and fats can be supplied more cheaply in the form of cereals and other concentrated foods than from potatoes; but the value of the extra succulence of the potato diet more than makes up for the deficiency in constituents. Says W. J. Maiden in "The Potato in Field and Garden:—

"The fall value of potatoes is not obtained unless they are cooked. In the case of sheep, large quantities of raw potatoes produce scours; in pigs and horses, indigestion. It is our personal experience to have had to feed large quantities of potatoes which have been injured in one way or another, so

(1) Really worth attention.—Ed.

as to spoil them for market but not for feeding purposes, from which we have learned that two tons of Swedes have more value than one ton of potatoes. It is easier to grow 25 tons of Swedes than 12½ tons of potatoes, (1) besides which there is the cost of cooking the latter. We have gone into the subject of the relative feeding values of the two crops, because results of a few experiments are frequently taken as data to show the exceptional value possessed by potatoes as a fodder crop. Experience shows us that there is no special advantage to be reaped by substituting potatoes for Swedes as a crop; nor is it more profitable to buy potatoes at double the cost per ton that would be paid for Swedes at the same time."

As before stated, potatoes should be cooked before feeding. They should also be washed free from dirt, which is easily done by placing a loose wooden grating in a tub or long trough. Fill half the trough with water, place the floating grating on this, then throw in the potatoes, stir and rub them with a broom or hard brush, and in a short time the potatoes will be clean and the dirt will have sunk beneath the grating. Cooked potatoes are readily eaten by all kinds of stock, and poultry thrive on them. They are particularly suitable for horses which are being fitted for sale, as they give a sleek appearance to the skin and a brightness to the coat. *Ex.*

BAD ROADS.

The condition of the country roads in many parts of this continent during the months of November and December in the early part of winter, and March and April in the spring, can be only described as most deplorable. During some seasons their condition is oftentimes so bad that even those farmers who look with contempt and indifference of all schemes of road improvements, from the modest one of a better carrying out of the present system of road work to the elaborate and expensive plans suggested by more thorough road reformers, feel bound to admit that something ought to be done to improve the roads.

The apathy shown by so large a part of the farming community, when road improvement is proposed, is largely due to three causes. First, there is that great conservatism among farmers which finds expression in the statement that what was good enough for their fathers is good enough for them. In the second place, they fear that road improvement is going to be an expensive proceeding, from which they will derive no proportionate return; and, thirdly, they say, with some show of reason, that road improvement is being urged mainly in the interests, of bicyclists and townspeople who possess horses and carriages.

The first reason is the weakest one of all, but it is one which is very often urged, nevertheless. It is, however, believe, very often given as a reason by some in order to avoid stating that they object to the cost of road improvement. This is, after all, the main objection farmers have to all the schemes propounded. If it could only be demonstrated to their satisfaction that improved roads would be a lasting benefit to them much of this opposition would disappear. — *Farming.*

(1) We should say, judging from Sorel crops, than 6 tons of potatoes.—*Ed.*

Orchard and Garden.

POMOLOGICAL.

Annual Meeting of the Fruit Growers' Association at St-Johns.

Winter-seedlings—Cranberries—Prof. Craig on apples—Prof. Fletcher on injurious insects—Distribution of grafts—House plants—R. W. Shepherd on packing and shipping apples—Ball on vegetables—Spraying.

As announced in our last issue the annual convention and business meeting of the Provincial Fruit Growers' Association was opened in St-Johns on Wednesday evening of last week. There were present Mr. R. W. Shepherd, Montreal, president; W. W. Danlop, of Outremont, secretary; Messrs. E. A. Barnard and Chapais, representing the Quebec district, Robert Brodie and Cecil Newman, the Island of Montreal. M. Halero, of Hudson; Messrs Wm. Craig, J. M. Fisk, C. Fisk, Abbotford; S. A. Fisher, Knowton; R. J. Bail, Knowlton, A. Johnston, Cowansville; David Westover, Frelighsburg; M. Peter MacFarlane, of Chateaugay; W. N. Pattison, of Clarenceville and many others.

Prof. Fletcher and Craig, from the Ottawa Experimental Farm, were also on hand and as a matter of course contributed very materially to the success of the meeting. Among the local members of the committee who were present to meet them were Mayor O'Caïn, Messrs. D. and A. Macdonald, Hon. F. G. Marchand, Dr. Wood, Sheriff Arpin, P. J. Doré, Henri Roy, I. B. Fatvoyo, P. A. Chasé, A. J. Corriveau, E. R. Smith, A. Morin, J. B. Demers.

Owing to a misunderstanding as to the place of meeting, the formal opening was deferred till the following evening, and the business taken up was the report of the Committee on Spraying. Messrs. R. Brodie, Fisk, Newman, Chapais, Prof. Craig, Fisher and Prof. Fletcher spoke to this. The general consensus is that spraying is effective and a necessary part of the orchard work. It was said that second and third seasons' experience had shown accumulative advantages. The results increase year to year. After the meeting Mr. Duncan Macdonald, conducted a number of the visitors to his fine residence and entertained them after the meeting.

THURSDAY MORNING.

On Thursday morning the business meeting of the convention took place the annual report, financial statement, etc., being read and adopted. Committees were named and the samples of fruit laid out. Among these were ten entries of winter seedlings, sent in response to the prizes offered for the best new variety of seedling apples which will keep until 1st May. They make a very fine show. Mr. B. Newman exhibited a winter seedling, named Lachine, which he entered in the seedling competition. Mr. Gibb, of Comoy, exhibited Powaukees and Arabkas, and Mr. W. F. Halero, of Hudson, had an unknown variety, which it is intended to name later. Mr. J. M. Fisk, of Abbotford, displayed Canadian Baldwin, Arabkas, Ben Davis, Golden

Russet, and Svintsovka, or Lead apple, and a sample of native cranberries. Mr. D. Westover, of Frelighsburg, had Wagoner Ben Davis and Rhode Island greening, whilst Mr. R. W. Shepherd, of Comoy, exhibited Rambos and Canada Baldwins. Mr. Louis Hamel, St. Hilaire also showed some wonderfully well preserved grapes.

THURSDAY AFTERNOON.

The afternoon session was taken up with a number of most interesting and instructive papers and discussions thereon. Mr. Chapais proposed in a thoughtful essay the establishment of some experimental fruit stations, say four or five, in the various sections. A committee to consider this and interview governments was formed. Mr. Craig gave an elaborate address on the food elements taken from the soil by apple crops and how to supply these.

CRANBERRY CULTURE.

Mr. J. M. Fisk, one of our most practical fruits growers, read a paper on "Cranberry Culture," in which he advocated the cultivation of the plant, which would grow readily from cuttings, in those swamps which were abundant in many parts of the province. The culture of cranberries could turn them to profit. The best vines to select from which to take cuttings were those whose leaves had a greenish-brown color, and not the bright shiny green, which were less productive. The vines should be selected in September, before the fruit was plucked. There was no need to import the cuttings from either Cape Cod or Massachusetts, as abundance could be obtained from our own marshes, and without the risk of importing insects, from which our own vines were comparatively free.

Prof. Craig said that the subject was a very important one, and it was one that was coming up all over the country. As to the profits he had seen accounts showing that, one man in Nova Scotia, from the sales of the product of two acres of last year, realized about \$700. This year the sales had not been quite so good, but the same person had made over \$100 an acre clear money.

Mr. H. Roy mentioned that, near St. Bridget, there were large tracts of land that were admirably adapted for cranberry growing, and, he thought, it would be well if the Government would undertake to make a few experiments there.

The President thought that cranberry culture had been very much neglected in this Province, where we had quantities of suitable land. He was of opinion that every farmer might have a nice little patch of cranberries, and make it profitable.

APPLE GROWING.

Prof. Craig gave "Some Thoughts on Apple Growing," illustrated by charts in which he dealt at length with the elements contained in the soil that were absorbed by apple trees—nitrogen, phosphoric acid and potash—and showed how essential it was that the trees should receive these in proper proportions. Potash was the chief ingredient necessary. Before the trees bore fruit, barn-yard manure, which could be used as a top-dressing, contained all these elements in about the proper proportions, but after a tree arrived at the bearing state, it required more potash, which could be most cheaply obtained

from ashes, whilst the necessary phosphoric acid (1) could be obtained from bone meal and phosphates.

INJURIOUS INSECTS.

Professor Fletcher gave an admirable address on "Injurious Insects of the Garden and Orchard," which is clearly summarized in the Gazette, the need of keeping plants and trees in a healthy condition, so as to be little liable to an attack from insects as possible. Regarding the turnip flea, he said that the practice in the Ottawa District was to sow the turnip seed about the 15th to the 20th June. The plants then came up when the first brood of fleas has disappeared, and the second brood did not appear until the plants were sufficiently grown to escape injury. Among the insects that he had had complaints about in the Province of Quebec was the bad moth, against which late spraying proved most effective. There was also the insect known as the casebearer, against which a spray of kerosine and soap suds or a spray of Paris green was the best preventive. For getting rid of the cabbage maggot, pouring kerosine mixture among the roots of the plants had been found very serviceable, as well as a mixture of hellebore and water. Cut worms should be controlled by wrapping a piece of paper, round the stem of the plant, when putting it in the ground, leaving about an inch of it above the soil; or they could be got rid of by steeping a small bundle of weeds in a mixture of Paris green and water, and putting them down where the pests were. As to the onion maggot, he had not been able to treat it successfully, but has obtained fairly good results by sprinkling carbolic acid and soap suds, or gas lime over the beds. For the plum carculio and the codling moth, he recommended Paris green and Bordeaux mixture. The canker worm should be got rid of, either by thoroughly spraying the trees, or where they are too large to admit of this, by placing some mechanical contrivance round the trunks, either made of tin or a band of paper, and smearing it with fish oil and printer's ink, or with resin and castor oil. To this viscid mixture the moths adhered, and any eggs that were deposited were laid below this artificial band, so that it was easy to destroy them, either by scraping the trees, or by spraying them with coal oil and soap suds. If grass-hoppers ever become numerous as they threatened to do last summer or so, he advised the use of the machine known as the hopper dorer which did good service in the Western States, whilst for exterminating a curious wingless moth, which never left its cocoon, but the caterpillars of which eat holes in apples, he recommended spraying with Paris green.

THURSDAY EVENING.

The gathering took place in the Theatre Royal. The President occupied the chair, and in delivering his annual address, he pointed out that ladies could aid the Society in its work, and recommended that they should be represented on the directorate as soon as one was found willing to undertake the duties of such an office. It was a step which he thought would work to the advantage of the Society. He spoke of the progress made

(1) Plenty of phosphoric acid in wood-ashes.—*Ed.*

(2) We used always to wrap our tobacco-plants, or rather the roots, in maple-leaves. —*Ed.*

by the society during the year, and said that, in the spring of 1895, a small distribution of plants and roots gratis, for experimental purposes, was made to the members of the society—a work that should be developed. This year the list for distribution would be composed as follows: Apples, ten root-grafts—North Western, Greening, McIntosh Red and Windsor Chief, a Gibb Grapevine, a Burbank plum tree; whilst, in raspberries, there will be Golden Queen and Miller and, in gooseberries, there will be Red Jacket. He emphasized the need of a bureau of industries in the Province, in connection with the Department of Agriculture, from which could be obtained statistics and other information having reference to fruit-growing. In conclusion, he spoke of the loss sustained by the society in the death of Canon Fulton and Mr. Hugh McColl, the last named of whom resided at St. Joseph du Lac.

Mr. W. M. Pattison, Clarenceville, — who always looms to the front when any thing concerning fruit culture is on the tapis—contributed a valuable paper on "The Use of More Fruit in Our Diet." (1) in which he quoted from the remarks of numerous eminent medical men and scientists as to the value of fruit as an article of diet, and strongly contended, that if it were more extensively used, much of the money now expended in drugs would be saved. He advocated the eating of fruit at all meals, as a preventive of indigestion, and a means of the prolongation of human life. He paid a large tribute to the value and excellence of the Canadian apple. His paper was loudly applauded.

Prof. Fletcher spoke eloquently on "House Plants." He dwelt upon the beauty and attractiveness of flowers generally, and expressed the opinion that geraniums were the most satisfactory plants to grow in the house, as flowering more continuously than other plants. As to the best varieties he recommended: In single reds, Col. Holden and General Grant; in double reds, S. A. Nutt; in single whites, La Favorite, in double whites, Ayme Chevalero; in pinks, William Pfitzer, cherry color, Gettysburg. In houses where not much sunlight could be obtained, fuchsias and begonias might be grown very successfully in the house whilst in bulbs he recommended hyacinths, tulips and narcissus, besides the calla lily. He declared the leafy mold of the woods to be the best soil for flowers. He showed how easily slips could be grown from almost any plants, and pointed out the absolute necessity of good drainage for all flowers.

Prof. Craig spoke very entertainingly on "The Useful and Beautiful in Horticulture." He explained the process of the fertilization of flowers, spoke of the production of fruit seedlings, dealt with the reproduction of plants by means of cuttings, and explained, in detail, the different methods of grafting.

ELECTION OF OFFICERS.

The meeting then adjourned until Friday morning, when it resumed in the corporation offices. The first business was the election of officers, which resulted as under:—

Hon. President — Sir H. Joly de Lotbinière

Hon. Vice-Presidents — Messrs. J. M. Fisk, Abbotsford; R. W. Shepherd, Como.

(1) For the last 20 years, we have always begun the morning with stewed fruit, and now, at the age of 72, our digestion is perfect.—Ed.

President — Mr. J. C. Chapais, St. Denis, Kamouraska.

Vice-President — Mr. S. A. Fisher, Knowlton

Directors — No. 1 District, Mr. D. Westover, Frelighsburg, No. 2 District, Mr. J. M. Fisk, Abbotsford; No. 3 District, Mr. James H. Carter, Massachusetts; No. 4 District, Sir H. Joly de Lotbinière, Québec; No. 5 District, Mr. Aug. Dupuis, Village des Aulnais; No. 6 District, Dr. Grignon, Ste. Adèle, Terrebonne; No. 7 District, Mr. E. A. Barnard, l'Ange Gardien; No. 8 District, Mr. R. Brodie, St. Henri.

PACKING AND SHIPPING APPLES.

Mr. R. W. Shepherd contributed a practical paper on "Packing and Shipping Apples," in which he stated that his experience of twelve seasons had been confined almost entirely to apples packed in boxes with paste-board compartments, similar to an eggs case. Each box held about 1½ bushels of fruit. The apples should be packed in the boxes in the orchard, and not be put in barrels and then in boxes. He had found that Fameuse and McIntosh Reds sold well in the English market, and Wealthies were also favorites. Some exporters shipped in boxes, with bulging sides, like orange boxes, and the method had been thoroughly successful, each specimen of fruit being wrapped in paper before packing.

Mr. J. R. Ball, a leading horticulturist of Knowlton, read a paper on "The Culture of vegetables." He considered that farmers should be able to supply their families with crisp, fresh vegetables during the summer, but such was not the case in many instances. Every farmer should devote at least a half acre of land to the growth of vegetables and fruit. It would prove remunerative, as well as a source of profit, health and good living. A kitchen garden should not be surrounded by the trees or buildings, which shut out the light and air, but it should be sheltered on the northern and western sides by a tight board fence. He emphasized the necessity of procuring the best seed, thoroughly preparing the soil before sowing the seed, and cultivating well.

In the course of a discussion which ensued, Mr. Ball expressed the opinion that the best kinds of sweet corn to grow, were Early Vermont and Crosby's Early, and for later use, the Country Gentleman. For dwarf peas, he recommended Notts' Early, and for a medium variety, either Stratagem or Biss Abundantia. For beans, he considered that Improved Golden Wax was the best; but, if beans were grown in a locality where they showed a tendency to rot, he should recommend Golden Eye Wax, which, he believed, was rust-proof. Among early tomatoes, he favored Fordhook I., and among early cauliflowerers, he had succeeded well with the Snowball, whilst for early cabbage he liked Jersey Wakefield. (1)

REPORTS AND RESOLUTIONS.

Prof. Craig submitted the report of the Committee on Seedlings. Regret was expressed that all the districts had not been fully represented, but it was hoped that, as the work of the society became more fully known, the competition would be more general.

The final adjudication upon these seedlings for the society's prize will take place on May 1st, but between

(1) We still prefer the Early York. Prejudice, perhaps.—Ed.

now and then they will be examined monthly by the committee in order to ascertain which keeps the best.

Mr. Norman Jack, of Hillele, Chateauguay Basin, read an excellent paper on "Spraying," in which he spoke of the excellent results that he had obtained by the adoption of spraying during the past three years.

Mr. C. Newman moved, that steps be taken to induce the Dominion Government to furnish cold storage, during the coming season, for the shipment of apples, and that a Committee be appointed to secure the carrying out of such movement. The motion was agreed to.

Mr. R. W. Shepherd introduced a discussion on "The Best Varieties of Apples to Grow for Export in Cases and in Barrels." He recommended, for shipment in cases, the cultivation of Duchess, Fameuse, Wealthy, and McIntosh Red, and, for shipment in barrels, for the late keeping apples, he favored Canada Red, Canada Baldwin and Golden Russet. He emphasized the fact that, those who contemplated growing apples for export to England, should cultivate the red varieties, and it was no use sending uncolored apples to the British market; the people would not buy them.

The Committee on Resolutions, in its report, recorded the loss sustained by the Society through the deaths of Canon Fulton, Mr. Hugh McColl and Mr. R. W. Shepherd, and expressed sympathy with the families of the deceased. It also thanked the Town Council of St. Johns for placing the Council Chamber at the disposal of the Society for its meetings; in thank ed the Mayor and the local committee for the trouble they had taken to arrange matters for these meetings, and it thanked the retiring officers for their services.

It was decided to accept an invitation to hold the summer meeting at L'Islet.

Prof. Craig asked the co-operation of fruit-growers, in obtaining the dates when the several fruit trees bloomed in their several districts, with a view to using the information in connection with the fertilizing of such fruit blossoms as were not self-fertilizing.

The Mayor warmly acknowledged the thanks that had been accorded himself, the council and the Local Committee, and at His Worship's request Mr. E. R. Smith also said a few words in appreciation of the work done by this society, and inviting them to come to St. Johns again.

The convention then adjourned.

Swine.

FEEDING PIGS.

(Prize essay, 1895.)

Export of pigs and pork — The proper kind of pig — Feeding of pregnant sows — Price of pork.

For many years our farming methods have partaken of the nature of a spendthrift's wasting and squandering of his legacy. Blessed by nature with a fertile soil and a fine climate, there has been a feeling that these stores of wealth were inexhaustible; a feeling from which there was a rude awakening, when after years of continuous cropping, our farms

were becoming impoverished and our products shrinking far below the paying point.

The change to dairying, which followed, was decided y in the right direction. Farmers who adopted it have the satisfaction of seeing their yearly receipts increasing and their farms becoming more fertile; but we feel that the part of dairying which is most profitable is the part at present most neglected.

The fact which we wish to impress upon the minds of our fellow-farmers is this:—dairying and pig raising go hand in hand, they are twin industries, and in the latter lies the most profitable part of dairying. These assertions, we base, not on mere supposition and theory, but upon our own actual experience. We have learned that there is no animal on the farm which will yield so handsome a return for the time and money expended on it, as the pig.

The pig is an animal whose many good qualities are not fully appreciated and whose claims on our attention are not fully recognized. Requiring no expensive quarters, hardy and prolific breeders, they possess the merit of growing and thriving on food that would be rejected by other animals. It is the latter quality that makes them specially valuable on a dairy farm. We can say we have attained the highest degree of success, only when we have learned to turn all the products of no market value into something which is a marketable commodity. The refuse from the dairy is of no market value, and there is no medium through which it can be turned into dollars and cents so well as by means of the pig.

There is no reason why this country cannot raise enough pork to supply its own needs, and export large quantities. At one time, Canada imported annually \$2,000,000 worth of pigs and their products, but we have overcome that, and are now exporting, though only in small quantities.

There is practically an unlimited demand for bacon in Great Britain. Modern methods of curing are making it so palatable that it is taking the place of other meats. In England, Canadian bacon is so eagerly sought, that it commands a price, higher by two cents on the pound than does the United States product.

This fact can be connected with another, that annually there is wasted on the dairy farms of Canada enough good feed, which if directed in the right channels, would put thousands of dollars in the farmers' pockets. There is certainly, no way that we can use the waste whey, skim milk and batter milk to the same advantage as with the pig. The question as not been properly settled as to the number of pigs a dairy can keep profitably; we think however, it should turn off, at least, two porkers to every cow in milk.

It must be remembered too, that the pig sought after a few years ago — those great lumps of fat — are, very happily indeed, no longer in demand, for they are the most unprofitable to raise.

The pig we must produce to meet the taste of the customer of to day is an animal weighing from 150 to 200 lbs, a size which can be attained in six months. With animals of this class, there is no danger that the market may become glutted. There is no good reason why the Canadian dairy-fed bacon should not stand as high in the eyes of the world, as the Canadian cheese of to day.

We feel that we cannot urge upon our fellow-farmers, too strongly, to

take hold of this industry in conjunction with dairying. Therein lies a source of profit, too often neglected, and any one who tries it, will be surprised at the revenue it yields. For several years, we have heard loud complaints, among our farmers, of hard times, and hard indeed they have been with many, but instead of sitting down and wringing our hands in despair, it is more befitting to us as men, to look about us, examine our farming methods and see if therein does not lie most of the difficulty, and then, to put into practice, better ways of turning the produce of the farm into the welcome and coveted dollar.

We believe that pig raising in connection with dairying is, at least, a partial solution of the problem of "hard times" amongst our farmers. The accommodations required need not be expensive. In their construction, however, four points must be observed. They must be dry, warm, convenient and well ventilated, so that the inmates may always be comfortable.

The first essential in successful pig-raising is a good brood sow. She is like the goose that lays the golden egg, but more than one at a time; hence in selecting a young sow, it is of the utmost importance to see that she is possessed of the characteristics obviously adapted to that end. It must be understood that we are not referring to the fancy points of any particular breed, but rather to those which are to a great extent applicable to all breeds, and which are conducive to the best results, namely: prolificacy and maternal solicitude.

In the first place, then, we should insist on great length as well as depth, and the teats should not number less than twelve. (1) Length gives more space for the pigs to suckle; they will not fight and crowd so much, and it is usually a concomitant of a good number of teats. Depth, we have found to be an indication of a propensity to large litters.

In the next place, temper is important, although even quick tempered sows can be made tractable by kindness. At farrowing time, one is sometimes of necessity compelled to be working around the sow and nothing is so unpleasant as having to leap out of the pen at a moment's notice.

Having secured such an animal, the next point of importance is to breed her to a good boar and just here a most grievous mistake is often made. Don't use a scrub because he is convenient and cheap. In all cases, we should strongly advise the use of pure bred sires. Be sure to keep a note of the date of service so that you will not do like too many, that is, go out some morning and find that your sow has farrowed during the night, and that the young pigs have been frozen stiff.

During pregnancy, sows should be liberally fed, and given plenty of exercise. In summer, a grass run is very much needed. This with a liberal allowance of whey, skim-milk and some bran, shorts, or any other kind of meal convenient, will be found sufficient. In winter, a liberal portion of roots should be given with some bran and whole peas or corn. During cold weather, there is a tendency for sows to keep too closely to their beds, and for this reason we should advise feeding outside unless the weather is very severe. A week or ten days before farrowing time, the sow should be removed to a pen by herself and

(1) A sow of the old "Rudgwick" breed has been known to bring up a litter of 13! All extinct now.—Ed.

fed laxative food; as there is more or less tendency to costiveness at this period, care should be taken to keep the bowels open. After farrowing, the sow should be fed sparingly for a few days, but as the young ones grow, she should be fed more liberally.

At three or four weeks the males should be castrated.

Now comes the most critical time in a pig's life, and that is weaning time. Many pigs are utterly ruined and rendered unprofitable by lack of a little care and attention needed just at this period. The average pig begins to eat at about four weeks of age, and a part of the pen should be partitioned off for his use. Into this, a trough is placed, and the youngsters fed on sweet milk, etc. The young pigs after weaning, require feeding as often as five or six times a day, but after they grow older, three times will answer. The youngsters must be kept growing, and as they advance in age, stronger feed may be added to their ration.

A day or two before the pigs are taken off the sow, she should be fed sparingly on dry feed; this diet is continued for a day or two more, to prevent danger from caked bag.

The aim is to have a pig gain a pound a day, (1) and at the age of six months, you have a pig weighing 180 pounds, and this is exactly what the market requires at the present time. This weight, we maintain, is easily reached with a well-bred and well-fed pig.

It ought to be the aim of the farmer, to produce a uniform supply throughout the year. A great change has taken place in the manner of marketings pigs during the last decade. A few years ago, they were nearly all slaughtered during the months of November and December, but now, with the aid of modern appliances, packers can slaughter and cure at all times of the year. Hence the desirability of uniform supply.

We shall quote from a bulletin issued by the Ontario Government. In only one, out of six years, has the average price fallen below \$5.00 per 100 pounds, live weight. But the most useful lesson of the table is found in the study of the monthly averages. For the six months, October to March, the average price of the six years is \$5.36 per 100 pounds, live weight, while for the six months April to September it is \$5.69. Again, for the three months, November, December and January, when most of the pork is sold by the farmers, the average price of the six years is \$4.92, while for the three months July, August and September, it is \$5.78, a difference of price in favor of the summer months of 56 cents per 100 pounds, live weight. From this it would follow that the season of most profitable feeding is early summer, and that the object should be to get the pigs ready for market in the period of the highest range of prices, say from June to October, but to avoid overstocking the market in summer or winter, a safe course would be to feed with a view of maintaining a regular supply throughout the year.

We believe that we are right in saying that if more of our Canadian farmers would adopt this method of pig-raising, life would look brighter to them, and there would be a less lusty cry of "hard times."

W. H. & C. H. McNIISH.

Elm Grove, Lyn.

(1) A pig ought to gain a Smithfield stone (8 lbs.) a week from birth.—Ed.

FEEDING PIGS WITHOUT MILK.

In a recent letter Mr. J. M. Hurley, the well-known Yorkshire breeder, of Belleville, Ont., writes us on the subject as follows:

"Owing to the different system of agriculture pursued in our section of the county from that usually adopted further west, we have to adopt a somewhat different system of feeding. We grow very little corn and very few roots in our neighborhood, and send all our milk to the cheese factory, so that we have nothing in the way of milk except whey for our pigs."

"For young pigs after the year weaned we find nothing better than soaked peas and bran. In warm weather the soaking seems to prevent founder, and the liquid produced makes an excellent drink. If this feed is given in cold weather it should be steamed or boiled and fed warm, although, as a general thing, I do not think cooking pays for the trouble. In cold weather we usually feed barley and rye ground fine and shorts in equal parts, fed dry in a trough, and give the pigs water to drink in a separate trough. We have also fed ground wheat to young pigs with satisfactory results."

"We always give our pigs a supply of salt and ashes, and also some rotten wood and earth and we find that sprinkling a few wood ashes on their backs keeps their skin nice and clean."—*Farming.*

BACON PIGS.

In a recent number of our esteemed contemporary, the *Breeder's Gazette*, Mr. L. N. Bonham, in reply to an enquiry on the subject of breakfast bacon, made the following remarks: "There are bacon pigs and lard pigs. The fad now is for lean bacon. This can be cut from lean, unthrifty, or mast fed pigs." (The italics are ours.) Now, with all due deference to Mr. Bonham, a number of whose articles we have read with great interest, we beg to question the correctness of this statement. That there are bacon and lard pigs we are quite willing to admit, but that unthrifty pigs are to be looked upon as suitable for making breakfast bacon from is a great mistake. An unthrifty pig will no more make good bacon than an unthrifty steer will make good beef. The word lean, as taken here with the context, also conveys to us the idea that it is used in the sense of a thin pig; if so, this is also an error, for a thin pig is in no way suitable for making bacon from.—What is needed is a well fed pig, but, at the same time, one which, instead of cutting up full of thick fat, will show plenty of lean meat of good quality. Lean meat in a thin or unthrifty pig is, in our experience, hard and tough, instead of tender and juicy.

To obtain the quality of meat necessary to produce good breakfast bacon the first thing to do is to get a pig of the proper stamp, the next to feed him the proper food.

Now, as to the stamp of pig required. A bacon pig should be of a long and deep type, rather than a thick, square type. The long, deep sides are needed to furnish the celebrated Cumberland and Wiltshire cuts; and, besides that, a long-bodied pig always shows a larger proportion of lean to fat in his carcass than a short, thick one. The back should be level and well filled in, but not too wide, as thick, fat backs are at a discount in the bacon market;

To produce the best quality of bacon the food should be varied, and the animal should be allowed a certain amount of exercise.

Care must be taken to feed a ration containing a considerable proportion of albuminoids or flesh formers. Corn alone, or in large quantities, can never produce meat suitable for making choice breakfast bacon, as it contains far too large a proportion of carbohydrates (fat and heat producers). Still, we do not object to a certain amount of corn when fed in conjunction with other foods. Potatoes we have also fed with satisfactory results, and a great many potatoes are fed to pigs in Ireland to produce the well-known Irish hams and bacon. But potatoes also contain a very large amount of starchy matter, and therefore must be fed in conjunction with foods that are largely albuminoid in their composition, such as young clover, either pastured or cut and fed green in summer; peas, either ground or soaked, or fed dry; linseed meal, which must be fed sparingly; and skim-milk. This last, when available, is a grand help in turning out bacon of extra choice quality, as is also buttermilk.

Barley meal we have also fed with capital results, and this is the staple feed in England for fattening pigs. English feeders generally feed it dry to their pigs, giving water to drink in a separate trough.

In conclusion, a bacon pig should not be fed to too heavy a weight. From 160 lbs. to 220 lbs., live weight, is quite heavy enough, and after that weight is reached every succeeding pound will be costing more in proportion.—*Farming.*

THE ROTHAMSTED FEEDING EXPERIMENTS.

(Continued)

EFFECTS OF NITROGENOUS AND NON-NITROGENOUS FOODS—COMPOSITION AND INCREASE OF ANIMALS.

It will be further seen that the figures range up to 300, (1) and that, for example, in the case of pen 1 the black coloring extends above the 300 line; that is to say, there were more than 300 parts of nitrogenous substance consumed in that pen, against only 100 in pen 5. In like manner the height to the coloring for each of the other pens represents the proportion of nitrogenous substance consumed in that pen compared with the amount in pen 5 taken as 100.

Exactly the same plan is adopted in representing the relative amounts of nonnitrogenous and of total organic substance consumed in the different pens. Thus, the lowest amount of nonnitrogenous substance consumed per 100 pounds live weight per week was in pen 10, which is therefore represented as 100, and the relative amounts consumed in the other pens are represented by the different heights of the yellow coloring above the 100 base line.

Again, of total organic substance consumed per 100 pounds live weight per week, the lowest amount was in pens 23 and the greater amount so consumed in each of the other pens is represented by the height above the base line of the red coloring in each case.

It need only be added that precisely the same plan is followed in the con-

(1) These diagrams are too extended for reproduction here.—Ed.

struction of diagram II which shows the relative amounts of the substances consumed in the different experiments to produce 100 pounds increase in live weight.

Referring to the results, and first to those represented in Diagram I, which shows the relative amounts consumed per 100 pounds live weight per week, a glance brings strikingly to view the fact that there was no uniformity whatever in the amounts of nitrogenous substance so consumed in the thirty different cases, representing as many different rations. Indeed, it is seen that the amounts ranged in the proportion of 100 to more than 300, with very great variation between these amounts. The range in the non-nitrogenous substance so consumed is, on the other hand, very much less, reaching, in but few cases, from 100 to 150. Lastly, in the case of the total organic substance the range is less still.

Next, referring to Diagram II, showing the relative amounts of the different constituents consumed to produce 100 pounds increase in live weight, there is again no uniformity in the amounts of nitrogenous substance so consumed. There is, however, great uniformity in the amounts of the nonnitrogenous substance consumed; and there is, in the majority of cases, about the same uniformity in those of the total organic substance consumed.

It should be understood that in these diagrams relating to pigs as in the table relating to the experiments with sheep it is the amounts of the crude nitrogenous, the crude nonnitrogenous, and the crude total organic substance as determined by the methods of analysis already described, and which were the only ones practicable at the time, that are represented. Of course, therefore, the indications of the actual results have, as in the case of those with sheep, to be interpreted with due regard to the known facts in each case. But, to meet objections, we, nearly twenty years ago, re-calculated the results and reconstructed the diagrams, making correction for indigestible or nonavailable constituents in the various foods, in accordance with the then published tables of Prof. Emil von Wolff, and more recently, as in the case of the experiments with sheep, we have had them again recalculated according to his more recent tables, already referred to.

It may be stated that the diagrams, as first reconstructed, entirely confirmed the conclusions previously drawn; and, indeed, illustrated the points brought out by those at first, and now again given even more strikingly still; that is, they showed a wider range in the amounts of the nitrogenous substance consumed in the different experiments; with one or two easily explained exceptions, a less variation in the amounts of the non-nitrogenous substance, and especially a less range in the amounts of total organic substance consumed. The two methods showed, moreover, with some obviously necessary exceptions, comparatively little difference in what is called the "nutritive ratio;" that is, the relation of the non-nitrogenous to the nitrogenous constituents. As it is impossible on this occasion to give and discuss both sets of results, it seems best, after this explanation, to adhere to the originally obtained and recorded results which led to the conclusions arrived at so long ago, rather than to adopt corrections based upon factors as yet not sufficiently established. Nevertheless, it is satisfactory to find that, applying the best methods of correction which subsequent investiga-

tions suggest, the conclusions formerly drawn are confirmed and emphasized, rather than in anyway vitiated or modified.

In conclusion, in regard to this branch of the subject, it must be considered established that, taking ordinary food stuffs as they go, neither the amount consumed in relation to a given live weight of the animal within a given time (which, of course, in the fattening animal covers the requirements for increase as well as for sustenance), nor the amount consumed to yield a given amount of increase in live weight (which covers the requirements for sustenance also) was at all in proportion to the amount of the nitrogenous constituents supplied. It is, on the other hand, obvious that the consumption, both for sustenance and for increase, was much more nearly in proportion to the amount of the digestible and available nonnitrogenous constituents supplied, but that it was more nearly still regulated by the amount of the total digestible organic substance—nitrogenous and nonnitrogenous together—which the foods supplied. The indication is, indeed, as will be more clearly seen further on, that if there be a deficiency of available nonnitrogenous constituents, an excess of the nitrogenous may to a certain extent take the place of the nonnitrogenous; that, in fact, within certain limits, the two classes of constituents may, for the purposes of respiration and fat formation, mutually replace each other.

When the character of the main products of respiration and the prominence, in a quantitative sense, of the respiratory function in the maintenance of the body are considered, it seems only what might be expected, that the consumption by a given live weight of animal within a given time should be regulated more by the supplies in the food of the oxidizable nonnitrogenous than of the nitrogenous or more specially flesh-forming constituents; and now that it is known, as I shall further on have to show is the case, that in the exercise of force the respiratory action is enormously increased, while that of nitrogenous transformation is but little augmented, the result is rendered still more consistent and intelligible.

That the increase in live weight of the animal should (provided the food be not abnormally poor in nitrogenous substances) also be regulated more by the supplies of the nonnitrogenous than of the nitrogenous or flesh-forming constituents, does not at first sight seem so intelligible.

There is, however, no doubt of the fact that our current fattening rations are, as such, more valuable in proportion to their richness in digestible and available nonnitrogenous than to that of their nitrogenous constituents. At the same time, as the manure is valuable largely in proportion to the nitrogen it contains, there is, so far, an advantage in giving a food rich in nitrogen, provided it is other respects a good one, and, weight for weight, not much more costly. But since in recent years the vegetable products most benefited by nitrogenous manures have been so largely imported as much to reduce the value of the home grown crops, even this advantage of highly nitrogenous food stuffs is becoming of less importance, and that of having the best food for the progress of the animal one of more and more consideration.

The question obviously suggests itself. Of what does the increase of the animal chiefly consist? To experimental evidence on this point I propose next to direct attention.

TABLE 68. — Percentage composition of the carcasses, the offal, and the entire bodies of ten animals of different descriptions, or in different conditions of maturity.

Description of animal.	Mineral matter (ash)	Nitrogenous substance.	Fat.	Total dry substance.	Water.	Contents of stomachs and intestines (in moist state).
Carcass :						
Fat calf.....	4.58	16.6	16.6	47.7	62.3	.....
Half-fat ox.....	5.56	17.8	22.6	46	54	.....
Fat ox.....	4.56	15	31.8	51.1	45.6	.....
Fat lamb.....	3.63	10.9	16.9	51.4	48.6	.....
Store sheep.....	4.36	11.5	23.8	42.7	57.3	.....
Half-fat old sheep.....	4.13	14.9	31.3	50.3	49.7	.....
Fat sheep.....	3.45	11.5	42.4	60.3	39.7	.....
Extra-fat sheep.....	2.77	9.1	55.1	67	33	.....
Store pig.....	2.57	11	28.1	41.7	55.3	.....
Fat pig.....	1.40	10.5	19.5	61.4	38.6	.....
Means of all.....	3.69	13.5	34.4	51.6	48.4	.....
Offal (excluding contents of stomachs and intestines) :						
Fat calf.....	3.41	17.1	14.6	35.1	64.9	.....
Half-fat ox.....	4.05	20.6	15.7	40.4	59.6	.....
Fat ox.....	3.40	17.5	26.3	47.2	52.8	.....
Fat lamb.....	2.45	18.9	20.1	41.5	58.5	.....
Store sheep.....	2.19	18	16.1	36.3	63.7	.....
Half-fat old sheep.....	2.72	17.7	18.5	38.9	61.1	.....
Fat sheep.....	2.32	16.1	26.1	41.8	58.2	.....
Extra-fat sheep.....	3.64	16.8	31.5	54.9	45.1	.....
Store pig.....	3.07	14	15	32.1	67.9	.....
Fat pig.....	2.97	14.8	22.8	40.6	59.4	.....
Means of all.....	3.02	17.2	21	41.2	58.8	.....
Entire animal (fasted live weight)						
Fat calf.....	3.80	15.2	14.8	33.8	63	3.17
Half-fat ox.....	4.66	16.6	19.1	40.3	51.5	8.19
Fat ox.....	3.92	14.5	30.1	48.5	45.5	5.98
Fat lamb.....	2.91	12.3	28.5	43.7	47.8	8.51
Store sheep.....	3.16	14.8	18.7	36.7	57.3	6
Half-fat old sheep.....	3.17	14	23.5	40.7	50.2	9.05
Fat sheep.....	2.81	12.2	35.6	50.6	43.4	6.02
Extra-fat sheep.....	2.90	10.9	15.8	29.6	35.2	5.18
Store pig.....	2.67	13.7	23.3	39.7	55.1	5.22
Fat pig.....	1.65	10.9	32.2	54.7	41.3	3.97
Means of all.....	3.17	13.5	28.2	44.9	49	6.13

COMPOSITION OF OXEN, SHEEP, AND PIGS, AND OF THEIR INCREASE WHILE FATTENING.

I propose to show the composition of some of the animals of the farm in different conditions as to age and fatness; to estimate the probable composition of their increase in live weight during the fattening process; and to show the relation of the constituents stored up in the increase to those consumed in the food. The results which have been obtained will also afford data for the discussion of the question of the sources in the food of the fat produced in the animal body; they will further supply evidence as to the composition of the manure in relation to that of the food consumed; and lastly they will lead to a consideration of the characteristic food requirements of the body in the exercise of force.

To determine the ultimate composition, and in a sense the proximate composition also, of oxen, sheep, and pigs, and under such conditions that the results obtained should serve as data for the estimation of the probable composition of their increase while growing an fattening, 10 animals were selected for analysis, namely: a fat calf, a half-fat ox, and a fat ox; a fat lamb, a store sheep, a half-fat old sheep, a fat sheep, and an extra-fat sheep; a store pig, and a fat pig.

Table 68 (p. 334) shows the percentages of mineral matter, of nitro-

genous compounds, of fat, of total dry substance, and of water, in the upper division in the collective carcass parts, in the middle division in the collective offal parts (excluding contents of stomachs and intestines), and the lower division in the entire bodies of the 10 animals. The weight of the contents of stomachs and intestines is also given.

It may in the first place be observed that, comparing one animal with another, all the results tend to show a prominent connection between the amount of total mineral matter and that of the nitrogenous constituents of the body; there being a general tendency to a rise or fall in the percentage of mineral matter with the rise or fall in that of the nitrogenous compounds.

Comparing the composition of the different carcasses, it is seen that there was, in every instance excepting that of the calf, a considerably higher percentage of fat than of total nitrogenous substance.

In the carcass of even the store or lean sheep there was more than one and a half times as much fat as nitrogenous substance, and in that of the store or lean pig there was twice as much. In the carcass of the half fat ox there was one-fourth more fat than nitrogenous matter, and in that of half fat old sheep there was more than twice as much.

Of the fatter animals, those assumed to be in a suitable condition for sale as human food, the carcass of the fat ox contained two and one third times as much, that of the fat sheep

four times, and that of the very fat shoop even six times as much fat as nitrogenous substance. Lastly, in the carcass of the moderately fat pig, there was nearly five times as much fat as nitrogenous compounds.

Turning now to the second division of Table 68 which shows the composition of the collective offal parts (excluding contents of stomachs and intestines), the figures do not show such an uniform tendency to a diminution in the percentage of mineral matter coincidentally with that of the nitrogenous substance as the animal matures, as was observed in the case of the carcasses. This, however, is doubtless due to the fact that the ash of the offal parts include adventitious matter adhering to the pelt, hair, or wool which it was impossible entirely to remove.

It is seen that the percentage of nitrogenous substance is in every case greater, and that of the fat very much less, in the collective offal than in the collective carcass parts. In the case of oxen and sheep, a large amount of the nitrogenous substance of the offal is in the non-consumable portions, the pelt, hair or wool, and hoofs; while some of the remainder is in the stomachs and intestines, which are only very partially consumed, and the rest in other parts which are more generally consumed, namely: the head flesh, with tongue and brains, the heart, the liver, the pancreas, the spleen, the diaphragm, and sometimes the lungs.

Lastly, in regard to the composition of the collective offal parts, it is seen that they contain a higher percentage of nitrogenous substance, a lower percentage of fat, and a lower percentage of total dry substance, and, consequently, a larger proportion of water than the collective carcass parts.

It is obviously a matter of interest both from a dietetic point of view and as showing what proportion of the gross product of the feeding process is salable as human food, to consider what proportion of the fat and of the nitrogenous substance of the slaughtered animals, will, on the average, be consumed as human food in one form or another. The result of much inquiry leads to the conclusion that in our own country, on the average, the whole of the carcass fat and one-fifth of the offal fat of oxen will be consumed; that of sheep, an amount equal to the whole of their carcass fat will be consumed; that of the pig, an amount equal to the whole of its carcass fat and, in addition, more or less of its offal fat, will be sold and consumed as food.

(To be continued.)

NOTES AND NOTICES.

Ruckingham's Dye for the Whiskers does its work thoroughly, coloring a uniform brown or black, which, when dry, will neither rub, wash off, nor soil linen.

Vitality exhausted by overwork or disease, is quickly restored by use of Ayer's Sarsaparilla.

CONSUMPTION CURED.

An old physician, retired from practice, had placed in his hands by an East India missionary, the formula of a simple vegetable remedy for the speedy and permanent cure of Consumption, Bronchitis, Catarrh, Asthma and all Throat and Lung Affections, also a positive and radical cure for Nervous Debility and all Nervous Complaints. Having tested its wonderful curative powers in thousands of cases, and desiring to relieve human suffering, I will send free of charge to all who wish it, this recipe, in German, French or English, with full directions for preparing and using. Sent by mail, by addressing, with stamp, naming this paper.

W. A. NORRIS, 630 Powers' Block, Rochester, N. Y.



Purest and Best

Windsor Cheese & Butter Salt.

Has during the season of 1895 given the best satisfaction on account of Purity, evenness of Crystal and **SPLENDID** working qualities.

It is now used in all the largest Cheese Factories and Creameries in Canada.

Windsor Salt Works, - Windsor, Ont.

6 95-121

DERICK'S Patent Steel Shell Hay Presses.

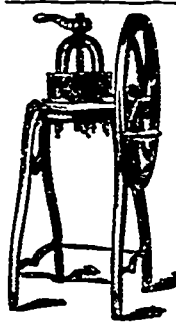
Made of Steel—Lighter, stronger, more power, everlasting, and competition distanced.



Also all styles of **Rale Ties** made from the best Steel Wire, and repairs. Manufactured by **BEYD & CO.,** Huntingdon. 7 95-121.

The Lang Packing & Provision Co.

LIMITED. PORK AND BEEF PACKERS, MONTREAL. Office, 339 & 341 St. Catherine Street. Packing House, 95 to 111 Parthenais St. Slaughter House, East End Abattoir, (on C. P. Railway.) 6 95-121. Buyers of Live Hogs and Cattle



MAKE HENS LAY.

By feeding green cut bones, the greatest egg producing food in the world. Better than medicine and cheaper than grain.

Mann's Bone Cutter FOR POULTRY FOOD.

Warranted to cut dry or green bones and gristle; all without clogging. For sale by

The Malleable Iron Co'y 19 to 29 Mill Street, Montreal ap m.

Helderleigh Fruit Farms and Nurseries.

Salesmen wanted in Province of Quebec to sell a FULL LINE OF HARDY FRUIT TREES AND ORNAMENTAL STOCK.

Prices to suit the times. Terms liberal as I am a grower and not a dealer.

Address, E. D. SMITH, Prop. 1-95 121. Winoua, Ont.

Land Plaster.

When using **LAND PLASTER** in the stable it absorbs all ammonia (which otherwise escapes), it makes manure from stable superior to any fertilizer, equal to ten dollars per head of cattle otherwise lost.

It is the greatest helper sown on meadows in spring. Send for circulars giving full particulars. Sold by all General Stores and Groceries. Manufactured by

C. L. MALTBY,

Office: 309 St. James Street, 2-95 31 MONTREAL fma

J. G. MAIR, Breeder and Importer of IMPROVED YORKSHIRE HOGS.

My herd is one of the Best and is headed by Two Imported Boars. I furnish REGISTERED PEDIGREE with ALL stock. I sell and ship nothing but the best.

Write for prices, or come and see the stock RAILWAY STATION and POST OFFICE Howick, Que. 6-95-121

Improved Yorkshires, Berkshires and Suffolks

Fine stock, all ages; ready for shipment. Some litters four months old. Also some exceptionally fine prize winning sows, all at very low prices. Correspondence solicited; JAMES H. LLOYD, St. Lin, P.Q. 12 95 121

PETER ARKELL, Summerhill Stock Farm, Teeswater, Ontario, Canada; two miles from Teeswater, C.P.R., and eight miles from Millomay, G. T. B., Breeder and Importer of Registered Oxford Down Sheep. Stock of all ages and both sexes for sale. Correspondence invited. Visitors always welcome, Telegraph Office, Teeswater. 11 95-12

THOS. IRVING, Importer and Breeder Clydesdale Horses & Ayrshire Cattle, NORTH GEORGETOWN, P.Q. (Howick Station, G.T.B.) 6-95 121

BROOK HILL AYRSHIRES—We have still on hand a few choice BULL CALVES, from deep-milker and sired by 'Uncle Sam' 6974, and one yearling Bull, a handsome animal sired by Allan Gordon' 5211. Also a choice lot of Bronze Turkeys from selected stock. Prices reasonable. W. F. & J. A. Stephen, Brookhill Farm, Carr's Crossing Station, Trout River, P. Q. G. T. B. 6 95-121

CANADIAN CATTLE.

For sale on the farm of Revd. F. P. Cott, curate of St. Valerien, Shefford County, Calves of this year, varying in prices from \$10 to \$15 according to age. Also, a few registered cows. For particulars address to

Revd. Messrs F. P. Cott, Pres. Agr. Mission 9 95-12 Curate of St. Valerien, County of Shefford

AYRSHIRE CATTLE

Imported and home bred. Silver King imported. First Prize at all principal shows in Canada, at head of herd. Stock for sale. Write for prices.

DUNCAN McLACHLAN, 6-95-121 Petite Côte (near Montreal), Que.

ROBERT NESS, Importer and Breeder of Clydesdales English and French carriage horses, Shetland Ponies and Ayrshire Cattle. A few choice young bulls for sale. 6-95-121 Woodside Farm, Howick, P.O., Que.

1864. HILLHURST FARM. 1894.

HACKNEY HORSES.

Shorthorn and Aberdeen-Angus Cattle, Shropshire and Dorset-Horn Sheep.

M. H. COHRANE,

9 95-121 Hillhurst Station, P.Q.

WANTED—Canvassers in every city, town and village in the Dominion to take orders for crayon portraits, live men can make good wages. Address G. C. Arliss & Co, 191 Fortification Lane, Montreal, Que. ap.m.j. 3

HOLSTEIN-FRIESIAN CATTLE. I offer for sale at low prices, registered young stock of both sexes, sired by the noted bull Artis Peer 9048 H.F.H.B., 676 C.H.F.H.B., and out of record cows imported from Holland and the United States. I have several yearling and two-year old bulls of exceptionally fine breeding and conformation. ap.m.j. W. H. BUTTERS, Stanstead, Que.

FOR SALE. Six Ayrshire Bulls, out of Good Milking Dams, and prize-winning sires, ages from one month to two years. Address,

The Charlemagne and Lac Ouareau Lumber Co. Ltd. mh.ap.m. Charlemagne, Que

Berkshires. First prize herd. Some choice stock of all ages. Not akin. Now booking orders for spring litters. ALBERT F. DAWES, Lakeview Farm, Lachine, Que.

FOR SALE—COMMON SENSE BOACH, BND BUG and BAT Extirminator, in tin, 50c., 50c. and \$1.00. Money returned if it does not clear your house. 71 Main Street, Montreal. 7-95-12

When good, live seed is sown, the planter's battle is half won. The seeds for wide-awake farmers and gardeners are

GREGORY'S HOME GROWN SEEDS.

Their vitality is assured. Everything that pays they grow. Get Gregory's Seed Catalogue for 1896 (mailed free) and you'll have a book worth reading. Filled with hard facts for planters.

J. J. H. GREGORY & SON, Marblehead, Mass.

SPECIAL offer for Dec.—Lee Farm Jersey Bull fit for service—Young cows and heifers in calf. All stock registered and of the St. Lambert strain. 20 p. cent. dis. on all animals purchased in 1895. This herd cannot be surpassed for better qualities. Come and see or write. Address, E. P. HALL, 6 95-121 Lee Farm, Rock Island, Que.

AYRSHIRES FOR SALE.—Young stock of both sexes, sired by Silver King 6809, and Chieftain of Barchook 5362, for sale at reasonable prices. Write for prices or call and see my stock. D. DRUMMOND, Jr., Petite Côte, P.Q., near Montreal. 6-95-12

Woodstock Wind Motor Co'y. WOODSTOCK, ONT.

MANUFACTURERS OF STEEL WIND MILLS For Pumping Water.

—Also—**POWER MILLS** For driving machinery. 4 corner angle steel towers any height.

Iron Pumps, Iron and Brass Cylinders, and all kinds of Fittings. We make a specialty of round Tanks of all sizes up to thirty feet in diameters. Crushers, etc. Cuts, descriptive circulars and estimates on application. Good responsible AGENTS WANTED in the Province. of Quebec. 6 95-121

— THE — **MANITOBA WASHER!**

THE Best Machine in the United States or Canada

Takes Less SOAP WATER LABOR

And washes more clothes at one time than any other machine. Write for catalogues and testimonials.

DOWSWELL BROS. CO., Hamilton, Ont. Manufacturers of Churns, Wringers, Washers, and Mangles, etc. 11-95-121

Milk, Creamer, Railroad and Delivery Cans.

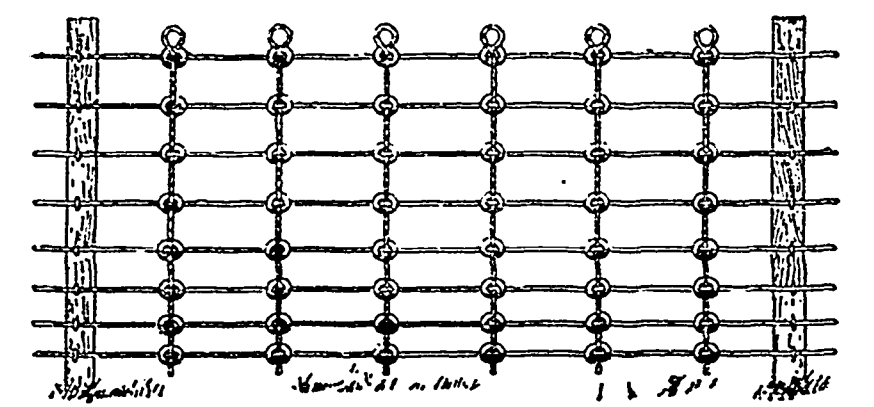
MILK CANS made from the McCLARY MANUFACTURING CO'S TRIMMINGS are the Best and Strongest Milk Cans made.

Enameled Ware. Tin ware of all kinds, Oil Stoves, Cook Stoves

MAKERS OF THE CELEBRATED **MODEL COOK STOVE** For Farmers.

McCLARY MANUFACTURING CO'Y. 93 St. Peter Street. WHOLESALE ONLY.

Montreal Locked Wire Fence Co. 368 ST. JAMES STREET, MONTREAL.



For Farm, Railroad, Cemetery and Lawn Fences. Write for catalogue. Agents wanted in every county.

Suit you exactly, Sir!



I picked him up from a man who knew nothing about a horse. The neighbors said he was "hard to keep." I knew where the trouble was. His hair stood on end like the feathers on a Poland hen. His hide was so tight that the slap of your hand or him sounded like the beat of a drum. He was so thin you could see him only when he was

"broadside on." Yes Sir. I brought him home under a blanket - was ashamed to be seen with him - gave him Dick's Blood Purifier and now after six weeks just see him. Yes Sir just six weeks - You can't beat Dick's, it simply puts an animal right. Its worth dollars where it costs cents. You can get it from druggists or at general stores but if they don't have it don't let them palm off something else on you - because you can send 50 cents to Dick & Co., P. O. Box 482, Montreal and they will send you a trial package - post paid.

E. LEONARD & SONS

Engines and Boilers

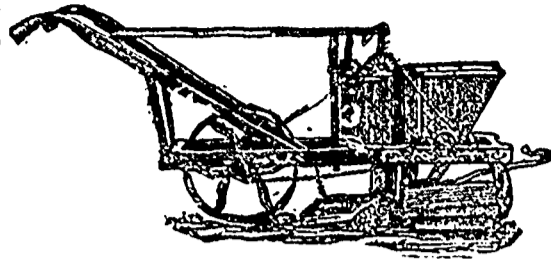
For BUTTER & CHEESE FACTORIES
... And all uses ...

The MOST ECONOMICAL Engines and Boilers built. Perfect in operation. Also: - Portable Engines and Boilers, on skids and wheels. Write for prices and particulars.

169 COMMON ST., - - Montreal, Que.

QUEEN CORN PLANTER.

With or without FERTILIZER DISTRIBUTER.



For planting Field and Ensilage Corn, Peas, Beet and Turnip Seeds in hills or drills. Every MACHINE GUARANTEED. We furnish this year FREE, Attachment for Planting Finest Seeds.

SOLE AGENT FOR THE
WALTER A. WOOD MOWERS,
Rakes, Binders, Hay
Tedders, etc.

Write for Illustrated Catalogue showing our steepl Plows, Cultivators, Weeders, Land Rollers and Steel Scrapers.

W. F. VILAS, Cowansville, Que.

WALL PAPER

FROM
THE CHEAPEST
BROWN BLANKS
UP TO THE MOST

ARTISTIC EMBOSSED GILTS & INGRAINS

WITH ONE and TWO BAND FRIEZES.

New Designs, New Colorings now out.....

Ask your dealer for our goods. The firm's name on the margin of each roll. Awarded First Prizes wherever exhibited.
TO THE TRADE ONLY. - If our Travellers do not reach you, your sample request will have our attention

Sole Agents in Canada for Anagypta.

COLIN McARTHUR & CO.

OFFICE - 1030 Notre Dame Street. FACTORY - 11, 13, 15, 17, 19, 21 Voltigeurs Street, 1032 and 1034 Notre Dame Street. MONTREAL.
3 96 mAs

Sole Manufacturers in Canada of the
Celebrated

The 'NATIONAL'
BUTTER WORKER
THE BEST IN USE

NELSON, BUZZELL & CO.

COWANSVILLE, Que.

Manufacturers of all kinds of
Butter and Cheese FACTORY APPARATUS

Write for our prices.

Sole Manufacturers in Canada of the
Celebrated

"KEY CITY"
CHURN
THE BEST IN USE

N. F. BEDARD

CHEESE COMMISSION MERCHANT

AND DEALER IN
BUTTER AND CHEESE FACTORY SUPPLIES.

"PRESERVATIVE," The Best Preparation to keep any food substance in its natural and fresh state without requiring ice and without affecting the taste, quality or flavor.

SOLE AGENT IN CANADA FOR THE SALE OF
The Celebrated "B'd'or" brand Rennet Extract, Cheese & Butter Coloring
Also the renowned "Empire State" Milk Can.

The Jones Cheese Hoop For Gang Press.

The "Mikado" and "Empire" Cream Separators.

All kinds of machinery utensils and supplies necessary for the complete organization of a Cheese and Butter Factory together with the latest improved tools will be FOUND IN MY ESTABLISHMENT, - also, Bottoms, Headings and Hoops for Cheese boxes and Hand machines for the making of boxes. ALL AT MODERATE PRICES.

Ask for my illustrated catalogue and price list before purchasing elsewhere.

N. F. BEDARD,
30, 32 & 34 Foundling Street, Montreal.
Bell Telephone 2461 }
P. O. Box 62

POTATO -- PLANTER.

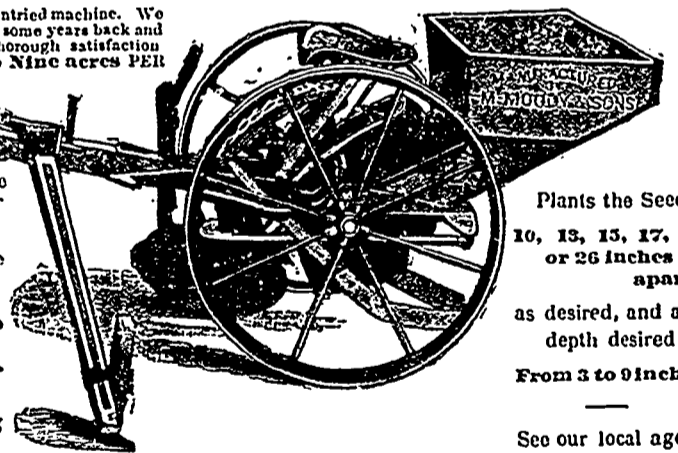
This is not a new untried machine. We have sold them for some years back and they are giving thorough satisfaction PLANTS FIVE TO NINE ACRES PER

DAY with one man and a pair of horses

It OPENS the Drill, PLANTS

THE SEED And CLOSES The Drill automatically,

the driver being on the seat.



Plants the Seed
10, 13, 15, 17, 21
or 26 inches
apart

as desired, and any
depth desired

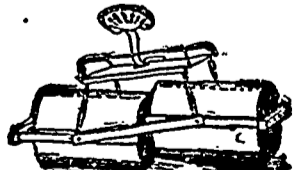
From 3 to 9 inches.

See our local agent.

STEEL LAND ROLLERS.



This Roller has no axle and each section therefore follows the inequalities of the land. The Rollers being made of Steel are everlasting.



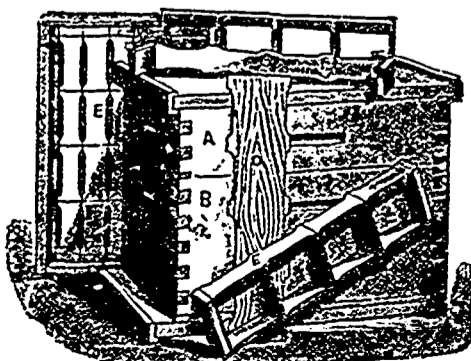
MATTHEW MOODY & SONS,

Montreal Office:
10, 12 & 14 Le ROYER ST.

Head Office and Factory:
TERREBONNE, Que.

BEE KEEPING ADVANCING.

New Process
of making
COMB
FOUNDATION.
You want
THE BEST.



We take pay
in Wax for
making COMB
FOUNDATION.
Also for
BEE SUPPLIES.

The best hives and other appliances will give you the best results for the least work. We have 15 years experience and can give what you want to help make a success of Bee-keeping. Advice, circular and price list and sample copy of "Canadian Bee Journal," free.
Address, Gould, Shipley & Muir Co., Ltd. Brantford, Canada.

CANADIAN OFFICE & SCHOOL FURNITURE CO. PRESTON ONT.
OFFICE SCHOOL CHURCH & LODGE FURNITURE
SEND FOR CATALOGUE

STEEL SHINGLES
1000000 for BARNs
CHEAP AS WOODEN SHINGLES.
GUARANTEED FOR 25 YEARS
SEND FOR CATALOGUE AND PRICES.
PEDLAR ROOFING CO. METAL ROOFING OSHAWA, ONT.