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THE ILLUSTRATED JOURNAL OF AGRICULTURE

PUBLISHED BY THE DEPARTMENT OF AGRICULTURE FOR THE PROVINCE OF QUEBEC.

Vol. I.

MONTREAL, APRIL 1880.

No. 12.

Committee of The Provincial Exhibition.

Official notice.—By virtue of the powers conferred upon me by Act 41 Vict., chap. 5, sect. 4, I hereby appoint, by these presents, L. H. Massue, Esquire, of Varennes, P. B. Benoit, Esquire, of St. Hubert, J. W. Browning, Esquire, of Montreal, Andrew Sommerville, Esquire, of Lachine, The Hon. Louis Beaubien, of Montreal, members of the Council of Agriculture, and J. B. Rolland, Esquire, of Montreal, Irénée Boivin, Esquire, of St. Romuald, Thomas White, Esquire, of Montreal, Henry Bulmer, Esquire, of Montreal, and A. A. Stevenson, Esquire, of Montreal, members of the Council of Arts and Manufactures,—to be members of the permanent Committee of the Agricultural and Industrial Exhibitions of the Province.

(Countersigned) Ernest Gagnon, (Signed) J. A. Chapleau,
Secretary. Commissioner.

Department of Agriculture and Public Works.
Quebec, January 20th., 1880.

Notice to Members of Agricultural Societies.

In future, the list of subscribers to the Agricultural Societies, who have a right to receive the Journal of Agriculture gratuitously will only be changed twice a year: on the first of May, and the first of January. We will distribute, in advance, to the Secretaries of the different Societies blank lists on which the names of those members who have paid their subscription for the current year will be inscribed; to these alone will the Journal be sent gratuitously. Those who wish to receive the Journal of Agriculture must therefore, pay their subscriptions for the year 1880 before the first of May.

Our Engravings.—The Smithfield Club show of 1879 will always be remembered, by farmers and breeders, as the "Priory Princess" year. This marvellous animal, bred by Mr. Stratton, the breeder of Rosalba, whose portrait appeared in our last number, is one of the most perfect specimens of the Shorthorn tribe that has ever been exhibited.

The Holstein cow, though plain in appearance, particularly at the setting on of the tail, won the first prize for milch cows at the Islington exhibition of dairy cattle, 1879.

Her milk, which was subsequently tested by Professor Voelcker, was poor in butter, and the quantity not wonderful 25 quarts, imperial measure, but the length of time which had elapsed since she calved, and the excitement of the journey &c., may be considered as diminishing the yield by at least one third.

The Laval Separator.

This machine has, at last, had a thorough, practical trial, in the hands of a practical man. Mr. Tisdall, of Holland Park Dairy Farm, Kensington, who is an active member of the Council of the Dairymen's Association, and one of the largest suppliers of dairy produce to the London market, has

the "cream separator" constantly at work, and the following are some of the results obtained.

Thirty two gallons of milk, fresh from the cow, poured through the separator in one hour, constantly coming in at the top of the revolving can, which was making about 6000 revolutions a minute, at the same time, two separate streams were pouring out over the edge; one a large stream, the skim-milk, the other a small yellow, rich-looking stream, the cream.

The faster the supply falls, the larger the flow of cream, but the poorer it is. Any thickness, or quality, of cream can be made by adding to or diminishing the feed; but in all cases the skim, or remainder, milk is found to be perfectly exhausted of its weightier matters, nothing being left but the "thrice skimmed sky-blue."

Forty quarts of milk, fresh from the cow, were put into the separator, and the cream, immediately it flowed out, placed in a churn, from which, 20 minutes afterward, 4 lbs. of good butter were taken. The milk which had contained 12 per cent of solids, of which 3.3 were fat, yielded a cream containing 54.9 per cent of solids, of which 48.7 were fat.

At another trial, at the same place, the milk yielded cream of which 52 per cent were solids, and 44.1 of them were fat; and the skim-milk in this case contained 9.5 of solids of which only 0.4 were fat. A similar sample of milk set and skimmed in the usual way had yielded a cream containing 52 per cent of solids of which 44.0 were fat while the remaining skim-milk contained 10.5 of solids, of which as much as 1.3 were fat.

The experiments of Professor Nathorst, of the Swedish Royal Agricultural College, show that, in eight analyses of the skim-milk, only from 0.19 to 0.30 per cent of fat remained.

As we all know, skim-milk has never been a very pleasant article of food; but now, fresh as it comes from the separator, it must be fit for human food, whether in its own form, in cookery, or in the shape of cheese. The use of it in the calves' pen too will be extended, for it will no longer pay to give calves butter at 25c. a pound when the necessary per centage of fat can be easily supplied in the form of linseed meal, and here is another incitement to grow flax.

A. R. J. F.

Experiments in Phosphates.

Mr. Brown, of Watten Mains, Caithness, Scotland, has completed a series of experiments on various phosphated manures against the usual mixture of equal parts of Peruvian guano, bone-meal, and dissolved bones. We draw from these trials, which seem to have been most painfully conducted, the following conclusions.

Land, good loam; 30 acre field; 4 drills, 400 yards in length, to obviate any fault owing to inequality of soil, 12 tons of good farm yard dung ploughed in. Quantity of phosphates applied was regulated by the amount of phosphoric acid contained in 5 cwt of bones and ground mineral phosphate, or coprolites as they are called in England, from

an erroneous idea that the nodules of phosphato of limc found in the "Crag" or "Green sand stone" are the fossil remains of the dung of extinet animals, "Coprolite" bearing that meaning, or nearly so, in Greek. The following table shows the result of the seven trial plots.

TURNIPS TOPPED AND TAILED.

MANURE.	PRICE PER ACRE.			WEIGHT PER ACRE.		
	£	s.	d.	ton.	cwt.	qr. lb.
1 Ground coprolites	1	7	6	12	10	1 14
2 Bone meal	2	2	4	15	6	3 17
3 Dissolved bones	2	16	0	16	2	1 16
4 (1) Superphosphate	2	2	0	15	1	0 0
5 do. and ground coprolites	1	13	9	16	1	0 0
6 Dissolved bones and bone meal	2	9	2	16	8	2 16
7 Usual manure (1) Mineral.	2	14	0	20	8	1 6

The usual manure is the mixture of Peruvian guano and bones mentioned above.

The coprolite (same constituents as our apatite) turnips came away very shily, were late to the hoe, and made no great improvement until September; they then made fair progress, but they were always full of blanks.

Bone meal—irregular like the former; made no progress all the summer, but improved very much in the autumn.

Superphosphate—the reverse was the case, nothing could come better or more rapidly to the hoe; but they fell away towards autumn, and did no good after October.

Dissolved bones and bone-meal—started well, and came in second up to the end of September, when they passed the superphosphate (mineral), and kept first.

Ground coprolite and superphosphate (mineral), made good progress, but did not equal the last.

To my mind the experiments are highly satisfactory, and prove that Lawes and Gilbert have been right all along in saying, that turnips want a dose of Ammonia, as well as mineral manures. The "usual manure" containing as it does 187lb. of Peruvian guano, or about 18½ lb. of ammonia, fills up the vacuum, and its effects are seen in the superior yield of four tons over the best of the other plots.

Coprolites evidently require some time before they become available for plant food, they are not, in other words, calculated to force the young plants forward to the hoe.

Bone meal is more quickly at work of course; from the decomposing cartilage ammonia is evolved, and the rapid growth of the infant plant is the consequence, this is most important, as the escape of the young turnip from the fly is dependent upon its quick growth.

Nos. 5 and 6 are about on a par. They clearly show that a quick acting phosphate is necessary in combination with the slower coprolites and bone-meal.

In no. 7 we see the ammonia in the guano start the plant, and bring it rapidly to the hoe, the dissolved bones then do their share of the work, and the bone-meal, supplementing, the other two, carries on the growth until the end of the season.

There is no doubt however that the fearfully pluviose year, 1879, has been a most unfortunate one for all the experimenters on ground apatite &c.: the wet and cold season has prevented them from acting as rapidly as even their torpid nature would allow with an average amount of sunshine. The above experiments were tried with "Yellow Aberdeen" turnips; I subjoin another lot tried on Swedes, which confirm the foregoing conclusions, I should add that Mr. Brown feels convinced that his extravagance in this series has been very great, as one half of the quantities of coprolites and superphosphat.s would have yielded an equal return.

	Quantity.		Price per acre.	Weight per acre.	
	cwt.	qr. lb.		t. cwt.	qr. lb.
1. Guano.	4.	2. 0	2.16. 3	18.	2. 2. 0
2. Superphosphate	12.	0. 0	2.17. 6	16.	18. 1. 0
3. Ground coprolites.	15.	0. 0	4. 2. 6	14.	10. 0. 0
4 Guano £18.2.	2.	1. 0	2.16.11	17.	10. 2. 0
Superph. £18.9.	6.	0. 0			
5. Guano £18.2.	2.	1. 0	3. 9. 5	16.	8. 0. 0
Gr. cop. £2.1.3.	7.	2. 0			
6. Gr. cop. £2.1.3.	7.	2. 0	3.10. 0	16.	6. 1.18
Superph. £18.9.	6.	0. 0			
7. Guano £18 s. 2d.	1.	2. 0	3. 5. 5	16.	18. 2. 7
Superph. 19 s. 2 d.	4.	0. 0			
Gr. cop. £17.6.	5.	0. 0	2. 6. 6	18.	14. 2.10
8. Guano 19 s. 7 d.	1.	2.18			
Dis. bones, 12 s. 7 d.	1.	2.18	2. 6. 6	18.	14. 2.10
Bone meal, 14 s. 1 d.	1.	2.18			

Mr. Brown may be thoroughly trusted to have conducted his experiments with every possible care and attention, as he has long been engaged in practical agriculture, is the author of many valuable communications to the various farming journals, and heads the first class of those students in the Principles of Agriculture, who last year submitted themselves to the Government examination.

ARTHUR R. JENNER FUST.

Hereford Cattle.—I do not know whether it is generally known here, that the practice of the men who breed Herefords is to allow the calf to run with its Dam all the season.

The cows calve in February and March, and the young ones are weaned towards October. The mothers are dried off, and of course, being never milked, they are in fine condition for calving in the spring, without much expenditure being incurred for their winter's keep. Here and there, a herd is kept for the pail, but the general rule is the one I have mentioned. No wonder the cows are only moderate in their yield of milk, and dry off, of their own accord, in early winter; for long habit has become second nature, and, if 10 quarts of milk satisfy the calf, the mother will give no more, but put the unused remainder of her food on her own body.

A. R. J. F.

Lighting Stables.

Stables should be moderately well-lighted, but we should avoid throwing the direct rays of the sun on the horse's eyes from the front. If too dark, the eyes become habituated to this, and in the absence of the customary stimulus of light, become less able to bear it; and when suddenly taken into the glare of sunshine, and especially of sunshine reflected from the winter's snow, they are liable to suffer from irritation and inflammation. If, on the other hand, the light falls directly on the horse's eyes from a window in front, the constant glare may of itself injure the eyes. In the one case, we have the condition of horses in mines, where the darkness and inevitably accompanying damp lead to an extensive prevalence of blindness; in the other we have that of the glass-blower or iron-puddler, whose bleared eyes betray his occupation. The light should be abundant, but should fall from windows placed behind or to one side of the stables, and not in front. (1)

National Live-Stock Journal, Chicago.

(1) On a North-eastern, or Northern, exposure, one single pane of heavy glass to each stable will be found to give sufficient light without hurting the horse's eyes. That is our experience. E.A.B.

Dairy Management in Winter.

Dairymen are learning every year more and more about their business. It used to be considered good management for a dairyman to get through the winter season with as little expenditure of food as possible. It was a common thing for a smart one to boast how cheaply he had carried his herd through the cold season, principally on straw, saying: "They are a little thin, but they will pick up when grass comes." This man did not seem to realize that the "picking up" would all be expended on the recor-

ery of lost condition, and that very little milk would be produced while this was going on. Most dairymen have learned ere this, that a cow in poor condition in spring will yield a comparatively poor return of milk through the season. They have learned that "something never comes from nothing," and that no policy is more suicidal for a dairyman, than to winter his cows on innutritious food, so as to reduce their flesh. Every dairyman, who has observed the effect of condition on the flow of milk after calving, knows that extra flesh represents an extra yield of milk. It is not difficult to determine, very closely, how much milk every pound of extra flesh and fat represents. A deep milker is very apt to draw so heavily upon her own flesh as to become thin at the end of the season, having used all the extra food consumed during the summer in the secretion of milk, besides her extra flesh in the spring. If a cow has accumulated 100 lbs. of extra flesh or fat during the winter, she will yield (if a good milker) at least 500 lbs. more milk during the season, 5 lbs. of milk for one of extra flesh or fat. We think 6 lbs. of milk to one of flesh is nearer the actual yield. The dairyman, therefore, who does not feed his cows well through the winter, is not only unmindful of the comfort of his cows, but is cheating himself out of the profits of the next season. (*Idem.*)

To keep a gun from rusting, clean the barrel occasionally, and cover the exposed portion of the metal with a film of linseed oil.

Increasing the milk-flow of heifers.

This season of the year is of so much importance to the dairyman that we cannot afford to forget for a single moment that upon the results of the fall products, both of milk and butter, and the condition of the stock, the question of future profits largely depends. This is especially the case with regard to heifers in their first milking season. Particular care should be given to them at this time, as their future value largely depends upon the result of the first year's yield. It is a well known physiological fact among breeders, that a longer flow of milk can be produced by generous feeding and continued milking the first year. It seems to fix that particular type on young cattle, and the question of profit and loss may be the one of milking the herd ten or eight months, and as this quality of holding out largely depends upon food and training, we should, if we may use the term, educate the heifer to that end, which may be done by generous feeding and long milking. It would be better to milk them twelve, or even fifteen months, if this habit can be fixed. There are many well-known instances, where only one cow is kept, when a heifer has been milked for even eighteen months, and kept growing all the time by a liberal diet, and they have often proved the very best of milkers.

A large milker must be a good feeder, and a heifer that, during the first year of milk, is well fed, not only develops the flesh and fat secretions, but also the milking propensity.

The fall of the year is the trying season for dairy stock, and great care should be taken that there is no mistake made. A liberal supply of food adapted to milk production, as well as fattening, should be provided, and shelter when needed. A decreased flow of milk at any period can not be overcome, and the loss, caused by whatever means, cannot be regained. Will our dairy farmers see to it that the young animals are well provided for, and don't forget that the first year is the time to fix upon them the milk producing qualities? *The American Dairyman.*

Stable Floors.

Mr J. Wilkerson, a rural architect of much experience, in the *Turf, Field and Farm*, has hit upon the following plan for improving the construction of stable floors: The floor is made level, fore and aft, but leaving a gentle slope from each

of the two sides to the centre, or half the width of a stall. The planks are laid crosswise, inclining to the centre, leaving an opening between the ends in the centre, just wide enough for the urine to drain through a metal gutter under the floor, which conducts it outside the building to a hoghead or to the manure pit. This prevents it from being absorbed in the bedding, which, otherwise, is wet, fetid, and uncomfortable to the horse. The cleanliness of this arrangement of floor is another advantage, as it admits of the animal lying as he always does, where he can, in pasture fields, i. e., with his back up the grade. Then the floor, being always kept dry, makes a good bed for the horse without litter, during the summer months, besides being cooler and freer from the ammonia which the litter exhales. *Grange Record.*

FARMING AT A PROFIT.—The Essex farmer whose practice and its results we quoted in another number is not the only agriculturist who has made his farm pay in this disastrous season. Mr. Prout, the experimental and scientific agriculturist whose farm near Sawbridge-worth has been often the subject of comment, has this year a show of crops which simply astonishes all who look at them after witnessing the dreary look of the majority of harvest fields. "The crops of wheat and oats look really splendid," says Mr. W. Fowler, who went over the fields in the company of several men of great experience, and were astonished at such a magnificent prospect in such a disastrous season; "I do not well see how they could look better." The weeds have had no chance, for the corn has choked them, and so has reversed the usual order of things. Mr. Prout takes extreme pains as to cleaning his land, and this year he has had ample reward for his trouble. *Gloucestershire Chronicle.*

Montreal Horticultural Fair.

For the third time, we this year attended this exhibition of the flower, fruit, and vegetable growers of the Province of Quebec, and found it most instructive and profitable. We have sometimes doubted if our state and county agricultural fairs, even with the horse trots thrown in, really pay the visitor — except, perhaps, as a means of "seeing the folks." — but we have no doubts about the value of such exhibitions as this of the horticulturists and orchardists of our neighboring province. The progress from year to year is very manifest, and is clearly the result of the combined stimulus and instruction afforded by these various exhibits, demonstrating what may be effected by the combination of knowledge and industry. We pity the man who, desirous of growing good fruit, depends for his information as to what he should plant, and for what he plants, upon a lying and swindling tramp who calls himself a nursery agent. Failure and discouragement, loss of money and of confidence in his fellow-men, are the common consequences of such "deals." But let men who wish to make a success of fruit-growing, especially under the difficulties they must encounter in the "cold North," attend exhibitions such as our Montreal friends get up. Let them form the acquaintance of the successful fruit-growers there, and visit them afterwards in their homes and orchards, and they will be able to make fruit-growing a success at a less price than it costs them to make a disgusting failure under the tuition of the tree peddlars. It is really astonishing to note the progress of fruit growing in Canada. Already they nearly supply the home market, and are planting orchards with the view of exporting fruit to Europe; while northern Vermont is eating Michigan apples by the hundred car-loads every year. — DR. HASKINS, in *Vt. State Journal*,

Cattle Condiments.

There has been, and I suppose there always will be, a considerable amount of swindling carried on at the expense of the farmer. Even in England he suffers frequently from his too great confidence in other's people's assurances: he ought to know better by this time, and I am in hopes that he is getting a little more wary.

As a rule, Cattle Condimental Food is a complete imposition. I don't mean to say that the different articles sold under this name do not assist the fattening animal, but I do say that the prices charged for them are out of all proportion to their intrinsic value. I won't mention names, but I have seen \$120 a ton paid for a mixture of linseed, pease and lentils, finely ground and well mixed, flavoured with Fenugreek, Gentian, and coloured with Turmeric. The latter ingredients are harmless enough, and, no doubt, induce appetite; but the price is the absurdity. A few cents worth, sprinkled amongst the ground grain and pulse, would have the same effect, and the mixture would not cost more than \$35 to \$40 a ton.

Some years ago a very clever cattle-feeder of mine used to ask me periodically for a few shillings, with which he used to buy from the chemist in the neighbouring town certain *spices*, as he called them. I was of course bound in honour not to enquire what they were; but I could smell Fenugreek, and taste a bitter very like Gentian. The bullocks ate their mixed food of bean-meal and crushed, boiled linseed, with great avidity, and ripened very fast; but the extra cost was a mere trifle, certainly not 4 cents a week per head.

I am sure that Indian corn and linseed, in the proportion of 3 of the former to one of the latter, the linseed to be ground with the quantity of oats necessary to prevent clogging the stones (about 2½ bushels to 1), with a good handful of the ground aromatics I have mentioned sprinkled over the damp mess, cut hay or straw chaff being used to fill up with, will push cattle along as fast any condimental food that can be bought for three times the cost of this preparation.

If a crusher exist on the premises, the linseed may be used without the oats in the proportion of five of corn to 1 of linseed. Linseed grows well here, but it is a pity that, except among the French-canadians, so little is sown.

A. R. J. F.

On the cultivation of Linseed.

I presume, from the little care I see taken in the preparation of land for this crop, that it is supposed by farmers in general that the growth of seed and fibre of good quality is hopeless. This is not at all the case, as I proved in 1853, when I grew 14 bushels of good seed per acre, and sold the flax, unretted, for £12 (\$60) per acre on the spot; making a gross return of more than \$88. The preparation was as follows; previous crop, wheat, after a heavy crop of clover mown twice, the young seeds (clover) heavily manured in the autumn, and the wheat (45 bushels an acre) receiving 1 cwt. of nitrate of soda per acre. The stubble was ploughed about 8 inches deep before winter; cross-ploughed in February, grubbed across with Coleman's drag-harrow in March, the seed 2½ bushels per acre sown broadcast, lightly harrowed in, and the roller, Crosskill's Clod-crusher, finished the work on the 15th of April.

The crop received no weeding, as the land was perfectly clean, and the flax was pulled in August, the seed bolls *rippled*, i. e. pulled off by being drawn through an iron comb, the fibre tied in bundles, stacked, and thatched; after this the land was ploughed, harrowed and rolled, and white turnips, with 3 cwt. of superphosphate, sown, which produced a great amount of sheep feed late in the following spring, the oat crop, black Tartarians, then following, yielding nearly 80

bushels an acre. The soil was low-lying gravelly loam, but nothing uncommon in the way of natural fertility.

To grow the very finest quality of flax and the greatest amount of seed at the same time is impossible. Good, fair flax, and nearly thoroughly filled out seed, may be secured by attending to the following directions. Make the land fine by harrow and roll; sow 2 bushels to the acre of clean, well ripened seed—all thin-sown flax branches out and produces a coarse fibre, fit for sacking &c., but useless for linen. When nearly ripe, try the flax every day by cutting the ripest *boll* (capsule) on an average stalk across, horizontally, and when the seeds have changed from the white, milky substance which they first show to a greenish colour, pretty firm, then is the time to pull. The old prejudice in favour of much ripening is erroneous, even as regards quantity; and the usual test of the stalk stripping at the root, turning yellow, and the leaves falling off, should not be depended on. From what I have seen in this province, 9 men out of 10 let their flax stand too long.

I have no experience in the preparation of the fibre by *retting* &c., as I have always sold mine in the straw. I have mentioned the course of cropping on my own farm in England, in order to show that flax, on land properly treated, is not so exhausting a crop as is generally supposed; though, in Scotland, landlords used to forbid its cultivation, as it took all from the soil, and returned nothing. However, if the seed be consumed on the farm, as the stalk is not ripened, very little damage can be done. I should imagine no landlord would object to the straw of the wheat-crop being sold, if the grain were given to animals on the farm.

A. R. J. F.

I have received the following letter from Mr. Skaife, a first rate butter-maker, at least so says Mr. Crawford of St. James' street, Montreal.

Sir,
I called at the office 10 St. Vincent St. two or three days before I left Montreal.

I wished to have some conversation with you about Butter making; the Jan. No. of "The Illustrated Journal" had an article on butter-making which interested me much. I have strong faith in the old Devonshire plan of "clotting" the cream, and having lately read Mrs. Brassey's interesting journal, "A Voyage round the World," where she speaks in high terms of some Devonshire-butter, after 10,000 miles sail in the Tropics, I should like to see my way clear to make our butter on the same principle.

You explain clearly—to my mind—the reason why butter so made, excels the best made in any other plan.

We have 9 milch cows. The last two summers we have made butter on the "Cooley System," which, as you probably are aware, consists in immersing the pans in cold spring-water 10 or 12 hours, and then drawing the milk off at the bottom. We like the plan—it is a great saving of trouble to the Dairymaid, but the churning is a very slow process.

Now, it has struck me that we might combine the two methods. I find that my house-keeper has been acting on the heating principle—"learned from her mother when she was a girl"—since the winter commenced. Her plan is "only for the winter," and is as follows. She places the milk-pan upon a small kettle on the stove, 24 hours after milking. The bottom of the pan fits into the kettle like a lid—the kettle half full of lukewarm water. On the stove it gradually heats—until the cream becomes a deeper yellow—not *boiling* but *scalding*. When sufficiently heated the pan is removed to the pantry shelf to cool some 30 hours—or so—when the cream is skimmed.—This process prevents the cream from getting bitter.

Now, I have an idea that, after 10 hours in the spring-cold water, our Cooley tins might be treated in the same way.

Perhaps you would kindly give this matter a little thought, and favour me with your opinion. Our "Cooley tins" are 19 inches long and 8½ wide; holding about 20 quarts.

Your answer will oblige yours truly,

A. SKAIFE.

In reply, I beg to say that the "Cooley" pans are the

perfect complement of the Devonshire system, enabling the same quality of butter to be made winter and summer, which renders the process perfect. The only default in the plan has been that, occasionally in very hot weather, there was some danger of the milk souring before it had thrown up all its cream.

If any one wishes to try the Devonshire way of making butter, I should advise them to get their Tinsmith to make a strong tin vessel extending over the stove (cooking), and perhaps five or six inches, on each side, beyond it. Ten to twelve inches deep is enough. In this, filled half full of warm water, immerse the "Cooley" pans, and raise the heat gently until the thick, corrugated, clotty, yellow appearance is seen on the top of the milk. Remove, then, the pans to the cold water, and, when cool, skim, and churn as described in the January number of the Journal. If the vessel to stand on the stove is made with a copper bottom to fit the holes when the rings and middle pieces are removed, it will last four or five years, and the cost should not exceed \$6 or \$7, at the outside. It might be of zinc or other metal, as the milk does not come in contact with it. If farmers would consider the saving of time and labour in churning, the extra quality of the butter, and the perfect sweetness of the skim-milk, so great a boon where there are calves to rear, I am certain there would be a great change in the style of butter brought to market before another summer passes over. It is the plan for a hot climate like ours.

ARTHUR R. JENNER FUST.

POULTRY DEPARTMENT.

Under the direction of Dr. Andres, Beaver Hall, Montreal

Caponizing—How it is Done.

Strange as it may seem, we have met with a number of ordinarily intelligent persons who supposed a Capon to belong to a distinct race of fowls, as do Games, Bantams, etc. For fear that others may have a similar notion, it may be well to say that a Capon is an altered male fowl, and bears the same relation to other fowls that an ox does to a bull, a wether to a ram, etc., and may be produced from any breed of fowls. A capon brings in market 50 per cent more than an ordinary fowl, and often double the price of common male birds; besides, a capon will reach double the weight of a common fowl at the same age. As there is no difficulty whatever in caponizing, and the instruments cost very little, the practice might become very general. Having practised the operation for several years, the writer can truly say that by using no more care, and with no more skill than are needed in operating

FIG. 1.—Hook.

upon a male pig, not more than one out of 30 or 40 fowls need be lost. For several years the writer has operated on from 12 to 30 fowls each year, and the loss during that time has not been more than five or six birds in all. The operation is best performed upon chickens about 3 months old, although it will succeed, if carefully done, with the majority of fowls when they are 10 or 12 months old.



FIG. 2.—Tweezers.

As with many other operations, this is one that can be learned most readily by seeing it done, and we advise those who would undertake it to procure instruction wherever it is available. Still, if one has a little confidence, he will meet with success if the directions here given are carefully followed.

In the first place, a table is needed in which a few screw rings are inserted at convenient places; these are furnished with broad tapes, by which the bird is securely held during the operation. The best plan for a novice is to kill a bird and operate upon that first, in order to learn the position of the



FIG. 3.—Forceps.

parts. Lay the dead bird upon the table, dispose it as hereafter described, and then place the screw rings where they would be needed to secure a live fowl. One or two will be required to hold the wings, and one for each leg; six will be all that will ever be necessary. Place the bird upon the table, and fasten it down upon its left side, as shown at fig. 5, where the rings and tapes are seen. The spot where the opening is to be made is shown by the x. Here the feathers are plucked, and an opening is made through the skin with a pair of sharp-pointed, long-bladed scissors. We have found these better than a knife. The skin is drawn to one side, and an opening is

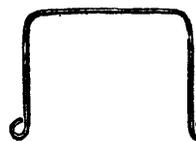


FIG. 4.—Spring Hook.

made with the scissors between the last two ribs for an inch and a half in length, great care being taken not to wound the intestines. The ribs are then separated by the spring hooks, fig. 4, so as to expose the inside. The intestines are gently moved out of the way with the handle of a tea-spoon, and the glands or testicles will be seen attached to the back. The tissue which covers them is torn open with the hook, aided by the tweezers, fig. 2. The gland is then grasped with the forceps, fig. 3, and the cord is held by the tweezers. The gland is then twisted off by turning the forceps, and when this has been done the other one is removed in the same way. Care must be taken not to injure the blood vessel which is connected with the organs, as this is the only seat of danger in the operation, and its rupture will generally

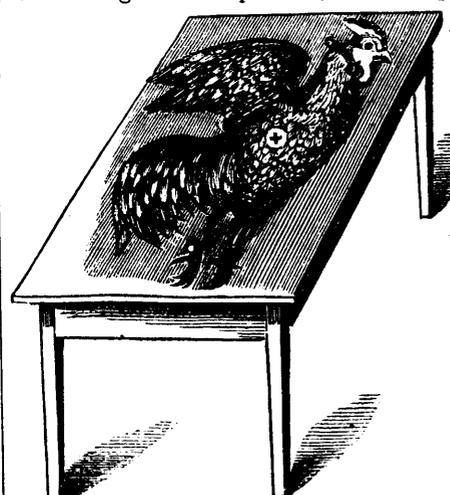


FIG. 5.—Operating table and fowl position.

be fatal. The hook is then removed, and if the skin has been drawn backwards at the outset, it will now slip forward and cover the inner skin which covers the intestines, and close the opening. No stitching is needed. A few feathers are drawn together on each side of the opening and plastered down upon the skin with the blood, where they will dry and form the best possible covering to the wound, which will begin to heal at once. The bird should be fed with a very little soft bread and milk for a few days after the operation, but should have plenty of water. For two nights and one day before the operation, no food or water should be given to the birds; this will greatly facilitate the work and reduce the chances of loss. The operation, after a few successful trials, may be performed in less than one minute, and by the use of the rings and tapes, no assistance is needed. Capons may be made to earn their food by fos-

tering young chicks, to which business they take very kindly. To bring them to their full and most profitable size, they should be kept until the second year. By giving them corn-meal steeped in warm milk, and providing a warm house, they will grow during the whole winter, and their flesh will become very white, sweet, and juicy. A good capon of Light Brahmas will weigh 12 to 15 pounds, at 22 months old, and will bring at the holiday season \$2.50 to \$3.00 each. The instruments above described are to be procured of H. H. Stoddard, Esq., Hartford, Conn. (1)

(1) In Kent and Surrey, as I think I have mentioned before, the Farmers' wives and daughters let the nail of the right fore-finger grow long and, extract the glands without further bother. But they are thoroughly used to it, and these instruments, which I have known for about 30 years, will save the life of many a fowl in the hands of an unskilful operator.

A. R. J. F.

Baked Bones and Oysters shells.

We give to our readers an article, from the *American Poultry Yard*, that is in accordance with our own experience and recommend them to read it carefully :

" I suppose I did my duty by my hens when I burnt bones to ivory whiteness, ground them to the consistency of flour, and fed them occasionally, with the idea that I was giving them egg-shells in a very available form. But I did not consider that the gelatine, the fat, the ammonia, and other constituents of the bones which were discharged by the internal heat (leaving only a little pure lime) were really the richest possible food for the hens, and the greatest egg producing diet that could be furnished them. My new tenant only bakes them, more or less brown, in an old tin plate on the top grate of the stove oven. This is not a very pleasant process; for, like all scorched portions of the animal frame, they give a pungent, half-suffocating smell, which tempts you to "clar de

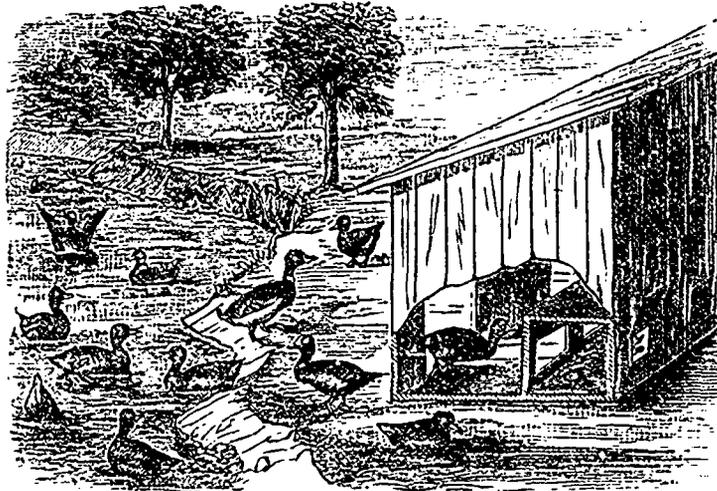


FIG. 1.—View of a convenient duck-house.

kitchen" till the fresh air from doors and windows has sent the objectionable odors into outer space. But you soon become reconciled to this invasion of ill scents when the fiery combs, the ceaseless cackle, the evident high health of your fowls, and the daily-filled egg-baskets show you what they have accomplished.

" No other food, not any amount of food, if this is left out, will give you such returns; and this baked bone, pounded with a hammer on a rock in your poultry-pens and fed with ordinary feed, will give results that ought to satisfy the most craving disposition. The hens cluster around that primitive bone-mill, palping down the rich morsels with evident delight, and, since everything necessary for the production of eggs is thus fully furnished, there is no undue strain on the vital forces, no weakening of the system, but a daily attention to business, to the complete satisfaction of the fowls and their owners.

" You can hardly give too much burned bones to your hens to provide the necessary amount of lime for the egg-shells, and the next best thing for that purpose is oyster-shells, which can be obtained by the barrel (and generally without any cost except taking away) at hotels or restaurants in your nearest city. My new tenant goes eighteen miles for them, and considers them cheap enough at that. The hens eat them when pounded into fragments as eagerly as they pick up the shelled corn, and they furnish the needed material for the egg-shell more completely than anything else.

" I do not quite believe in giving broken earthenware, as

some propose doing. The sharp corners are more likely to cut or otherwise injure the crop than the more easily digested oyster-shells. It is very probable, also, that some of the constituents of the shells may be beneficial to the hens in other ways than simply furnishing egg-shells, and it is not possible that they could find anything nourishing in broken kitchen dishes."

Will it pay to raise Ducks ?

Two years' experience with a flock of Pekin ducks has convinced the writer that there is a satisfactory profit in raising these birds. But the conditions must be favorable, and these include a water run, either a stream or pond, in which the ducks can gather food, and a house conveniently arranged for securing the eggs. The first year a beginning was made with a trio of the birds, and these were conveniently accommodated in an ornamental rock-work house among some evergreens on a side lawn. A neighboring stream of water kept the ducks out a mischief in the day-time, and they came home regularly at night; they were not let out in the morning until the eggs had been secured. The two ducks laid 202 eggs the first season, of these, some were sold, some eaten, and the remainder set under hens. "Bad luck," in which may be included the destruction of three fourths of the eggs when under the hens, and the killing of several of the sitters by a stroke of lightning which went through the poultry-house, reduced the produce of young ducks to between 30 and 40.

But one of these died after leaving the nests, which goes to prove the hardness of this variety. The young ducks thrive well, and when six to eight months old weighed five to six pounds on the average. A large portion were killed and eaten; the flesh was found to be remarkably juicy and tender. The retail market price of such ducks was about 25 cents a pound, so that each would be worth at least \$1.25. The second year it was necessary to provide larger accommodation, and a house was made for them on the bank of a pond adjoining a brook, in which there is an abundance of water cress and other food, both vegetable and animal. The water-cress is eaten with avidity by ducks, and has myriads of snails and other water animals upon it. A plan of this house is shown at figures 1 and 2. For 50 to 100 ducks it should be 30 feet long, 12 feet wide, and from 4 feet high in front, to 6 or 8 feet in the rear. Entrance doors are made in the front, which should have a few small windows. At the rear are the nests; these are boxes open at the front. Behind each nest is a small door through which the eggs may be taken. It is necessary to keep the ducks shut up in the morning until they have laid their eggs, and a strip of wire netting will be required, to enclose a narrow yard in front of the house. Twine netting should not be used, as the ducks put their heads through the meshes and twist the twine about their necks, often so effectively as to strangle themselves.

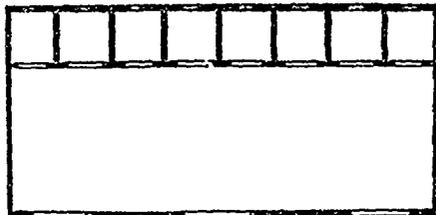


FIG. 2.—Ground plan of the house.

To avoid all danger, the wire fence should have a 3 or 4-inch mesh. The Pekin ducks are prolific layers; a fair yearly product for a duck in its second year is 120 eggs, and 60 to 80 for a yearling. Their feathers are of the best quality, white, with a creamy shade, and 5 ducks weighing 5 pounds each, have yielded, killed in the winter time when fully feathered, more than one pound in all. It will be right to pick the ducks when moulting is beginning; the feathers are then loose, and are picked easily and without injury (1). This will considerably increase the yield of feathers, and will prevent a useless loss; otherwise the loose feathers from 20 ducks will be found spread over their whole range.

(1) Picking ducks and geese alive is a detestable piece of cruelty. The S. P. C. A. should look after any one guilty of such barbarity. It is a remnant of the days, when unhappy cats were skinned alive, because their fur looked the better for it.

A. R. J. F.

How Butter is Spoiled.—Winter and spring butter is often very much injured in flavour by allowing cows to eat the litter from horse stables. Cows are not unfrequently very fond of this litter, though it is impregnated with liquid manure from the horses, and, if allowed, they eat greedily, and the effect is that their milk and butter will be tainted with the taste of this kind of food, in the same way that the flavour is injured by eating turnips, but to a more disagreeable degree. If litter is allowed to be eaten, it should be given to cattle not in milk, and on no account should milch cows be allowed to consume other than the sweetest and purest food. Very nice butter-makers are sometimes at a loss to account for stable taints in butter, especially when extraordinary precautions have been taken to have the milking done in the most perfect manner, and so in all the processes of handling the milk until the butter is packed for market. Still, the butter has a disagreeable taint, and the

cause often comes from allowing the cows, when turned out to water and exercise, to feed about the horse stable, where they consume all the litter which, on account of its being soaked with liquid manure, is cast out of the stable.—*Pioneer Press.*

Science of cream-raising.—Professor Arnold's explanation of the rising of cream, resting on the assumption that the difference in the specific gravity between milk and cream is greatest when hot and least when cold, is controverted by W. J. Van Patten (in the *Country Gentleman*), who holds that this opinion had its origin in the common error of regarding cream as subject to the laws governing liquids, and the habit of speaking of butter globules as cream globules; whereas cream is not a distinct substance of itself, but a mixture of solid globules of butter, with more or less milk. He says: "Cream does not rise; only the butter globules do that, mixed and entangled more or less with milk, and then constitute what we call cream." "Being composed of solid butter they are subject to the law governing solids, and not to those of liquids." Hence, he argues that as cream, in the process of rising, is only the butter globules suspended in the milk, it is impossible for them to cool any more rapidly than the medium in which they are suspended; and as the liquid milk contracts more than the solid globules, the difference in the specific gravity of the milk and the cream, at a low temperature, must be greater than at any temperature short of the melting point, at which the butter would become subject to the laws governing liquids—and when, of course, it would come to the surface quickly. If his premises be correct, no theories of currents or of falling temperatures are needed to account for the cream appearing at the top of the milk; the simple fact of the difference in the specific gravity of the butter globules is sufficient, just as wood when thrown into water will return to the surface.—*Bulletin of American Jersey Cattle Club.*

Calves.—Diarrhoea or white scour carries off a large number of newly-born and carelessly-managed young calves. It spreads rapidly in crowded, insanitary places. It is contagious, and once occurring in the pens or stables, continues to haunt them until they are thoroughly cleansed and disinfected. But although distinctly contagious, several experimentalists have failed to produce it by giving healthy calves the intestinal secretions of those affected. It is most common where cows and offspring are housed, and amongst calves brought up artificially. Its chief causes are those above noted as producing indigestion. The first symptoms are the dirty tail, dulness, carelessness as to food, and abdominal fulness. The fæces are fluid and charged with mucus, are sour and bad smelling, yellow or white, from the imperfect digestion of the milk rapidly hurried through the digestive tube, and are discharged with violence and pain. Weakness is early apparent; the calf lies much; its eyes are weak from the reducing discharges and consequent anæmia; it is sometimes blind and unconscious, dying without a struggle. In foul, dark cowhouses young calves are frequently attacked, and die within twenty-four hours. The stomach and intestines are usually empty; their lining membrane covered with mucus of a dirty grey colour, studded with patches of congestion and œdema. Cases that have survived a few days exhibit spots of ulceration, especially of the lower bowels, with deposits of purulent matter, amidst which flow crowds of minute organisms (by different authorities regarded as microscopic entozoa or cryptogamic parasites), whilst neighbouring lymphatic glands are reddened, swollen, and infiltrated. The liver is small, pale, and bloodless; the muscles

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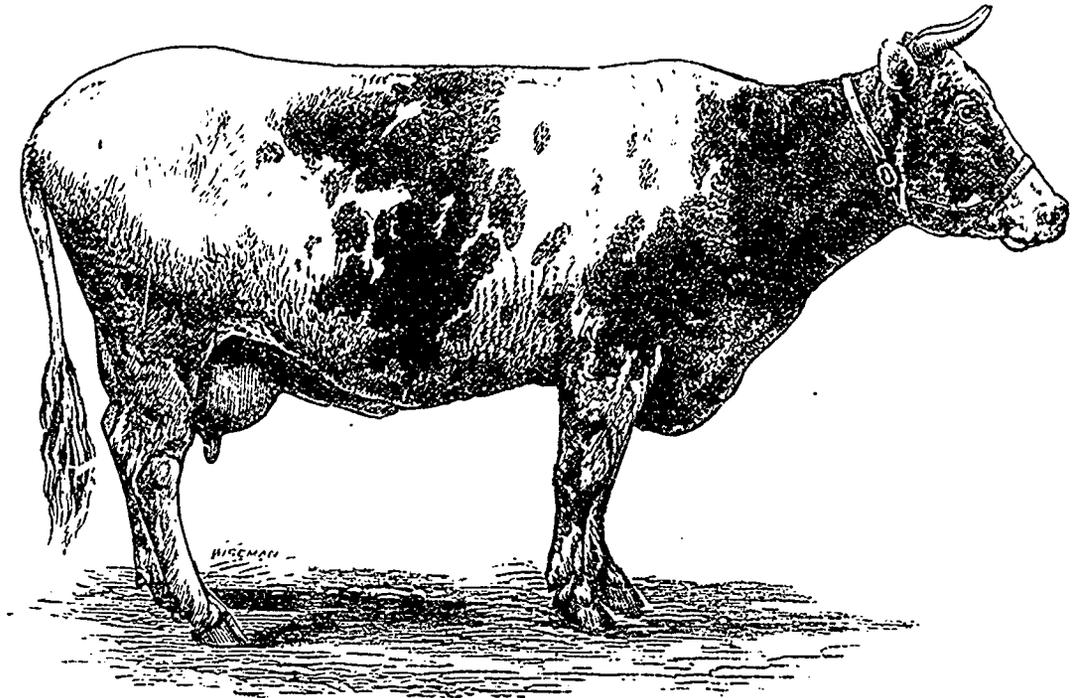
and organs generally are in the same state..... If the milk continues to disagree, withhold it for several days, and sustain the calf with well-boiled starch gruel, of which 6 or 8 oz. are given every three or four hours, white of egg, or beef-tea, stirred into it renders it more nutritive. Condensed milk and Liebig's farinaceous food are also useful in such cases when the ordinary milk keeps up the wasteful diarrhoea. An occasional elytor of 3 or 4 oz. of tepid starch gruel, containing 20 drops of laudanum, often relieves the straining. —Wm. Watson, in "Kansas Farmer."

On certain rapid growing shade trees.

There is a tree of great size and beauty which is almost unknown to us. In size, and beauty of form, it rivals the White Elm! What higher praise can I give than this? for the White Elm is the noblest tree of the North American

forest. In going down the St. Lawrence by steamer, between Longueuil and Varonnes, I was struck by the grandeur of what I took to be old Elms, but, as I found out afterwards, they are not Elms.

The tree is elm-like, both in size and form. The trunk is slightly larger, and the bark is deeply, and regularly ribbed; ribbed even when the branches are but three inches in diameter. The small branches are not like those of the elm, delicate and graceful, but coarse and clumsy. The leaf is a bright green on both sides, and much like that of the Western Cottonwood (*monilifera*), or the Lombardy, or Balsam Poplars; and quite unlike that of the Balm of Gilead. It will I suppose grow readily from cuttings. I have not grown it myself, but, have thus grown several other kinds of poplar with little care in culture; and, in fact, cuttings now in my sawdust box already promise growth. There is a grand old tree of this variety in Montreal, on the South-West corner of



Holstein Cow.

Monique and Palais streets. Botanists tell me that this is not a native species, and one may therefore suppose that it may have been brought out from France by the early settlers, along with the Abele and the Lombardy.

Abele, or European Silver Poplar, when quite young, and especially when grown as a shrub rather than a tree, is of singular beauty; but this beauty it loses with age. On dry soils, especially, does the leaf become small, and the long straggling limbs are but very sparsely clothed. It is a good grower, but to my mind of medium beauty. Mingled with other trees, in windy places where the bright pure white of the under side of the leaf is continually shown, it forms a striking contrast to the green of other trees, and may be not only admirable, but quite ornamental.

BALM OF GILEAD.—This is a type of tree of which there are many varieties, alike always in form and color of leaf, but differing much in form and color of branch and limb. It sometimes attains a great height, so that we cannot look down upon it, even mentally, if we would. In Montreal, it is largely grown as a shade tree. Now and then, one comes across a

country village where the trees are nearly all of this variety. Would that in its stead there had been planted that European Poplar, of unknown specific name, which I have already described.

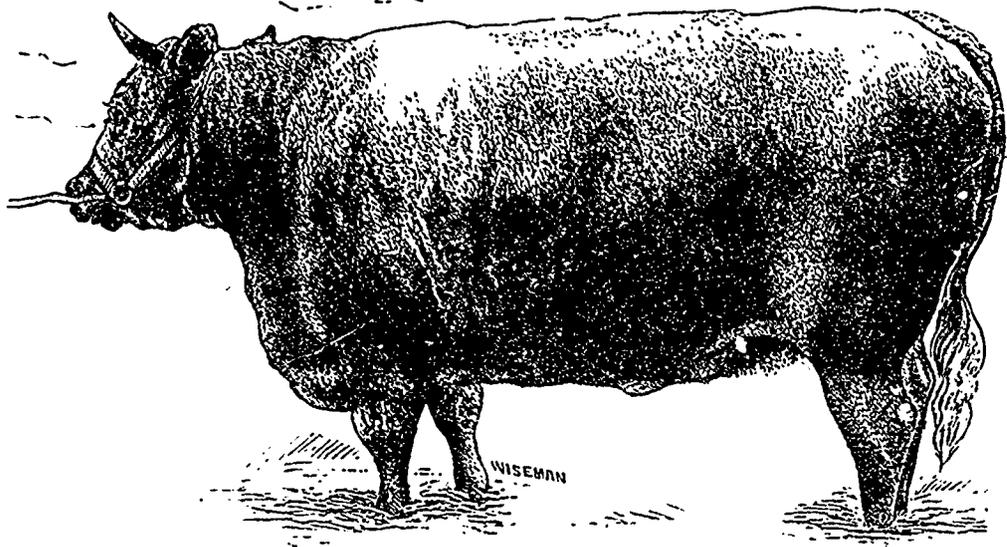
One type of this tree I wish to draw attention to which has a leaf as large as a Basswood, or very nearly so. There is an example of it in the main street of Longueuil, half way between the Church and the road that turns down to the wharf. Whether it will grow to a large size I cannot say, but its beauty is such as should tempt propagation.

Cottonwood (*Populus Monilifera*, or *Angulata*), is a tree that should be grown when quick shade is needed. It is a compact grower, and a good tree for shelter to the cattle in our shadeless fields. It and the White Willow are the pioneer trees of the prairies of the West. I have also seen it on the borders of Lake Champlain. In the province of Quebec, I have seen but two trees of it, one of 5 years planted and about 35 feet in height, the other, a large tree, about 15 years planted, I should suppose, and set along side of a Balm of Gilead, which it has outgrown by at least one third.

Some parts of this province are almost as treeless as the Western Prairies. Our farm houses need more trees, both for shade and ornament. The cattle in our fields need shelter from the summer's sun. Our villages and towns have many a street in them without a single tree. This want must be supplied by rapid growers, and, in such cases, the Balm of Gilead is the one chosen; whereas, what I would urge, is, that for ease of propagation, rapid growth, great size, and beauty of form, we have no tree that can at all compare with this nameless European Poplar. C. G., Abbotsford.

Milk as Food.—Unadulterated, undiluted, unskimmed, and properly treated milk, taken from a healthy cow in a good condition, and produced by the consumption of healthy and nutritious grasses and other kinds of food, contains within itself, in proper proportions, all the elements that are necessary to sustain human life through a considerable period of time. Scarcely any other single article of food will do

this. When we eat bread and drink milk we eat bread, butter and cheese, and drink water—all of them in the best combination and condition to nourish the human system. All things considered, good milk is the cheapest kind of food that we have, for 3 pints of it, weighing $3\frac{1}{2}$ lb., and costing $6\frac{1}{2}d.$, contain as much nutriment as 1 lb. of beef, which costs $9d.$ There is no loss in cooking the milk, as there is in cooking beef, and there is no bone in it that cannot be eaten, it is simple, palatable, nutritious, healthful, cheap, and always ready for use with or without preparation..... This is to say that, chemically, 3.7 lbs. of milk is the equivalent of 1 lb. of beef in flesh-forming or nitrogenous constituents; and 3.17 lbs. of milk is the equivalent of 1 lb. of beef in heat-producing elements or carbo-hydrates..... We must, therefore, assume, from the data offered, that the relative values of beef and milk as human food are as $3\frac{1}{2}$ to $11\frac{1}{2}$, or as (in round numbers) 1 to $3\frac{1}{2}$. If milk is $4d.$ per quart, then it is the equal in food value to beef at $6\frac{1}{2}d.$ per lb.; and, *vice versa*, when beef is at $1s. 0\frac{1}{2}d.$ per lb., then milk should be $8d.$ per



Priory Princess.

quart, calculated on its food value. We thus see that, at any ruling prices, milk is certainly one of the cheapest, if not the cheapest, food that can be furnished to the family, while all experience is in favour of its healthy qualities.—*From Part I. of "Dairy Farming," by Prof. Sheldon, for July.*

The Curry-comb in the Cow Byre.—Two lots of 2 years-old steers of two in a lot, of like weight and thrift, and of the same blood, were selected. One lot was carded [curry-combed] seven weeks, and the other lot left uncarded. At the expiration of this period the carded lot were left uncarded, and the uncarded lot carded for seven weeks following. The result was that for both periods the sum of the growth of the uncarded lot was 1 lb. more than the carded lot. Weighing, at each change of carding, the food consumed by the carded and uncarded steers, I found as the result of the different changes that the carded steers ate in forty-eight days, 2170 lb., and that the uncarded steers ate in forty eight day, 2018 lb.; loss of 152 lb. in forty-eight days, or over

3 lb. of hay a day. The reader will bear in mind that whenever I changed carding, a change in the amount of food consumed immediately followed—the steers that ate 3 lb. more per day now eating 3 lb. less, and this result occurred whenever I changed carding. The publication of such facts as these are considered by some as injurious, or anti-progressive. Having long worked assiduously at the card, and taken a just pride in their sleek steers, it seems to many like back tracks. Facts will harm none that do not make a wrong application of them; and I would be distinctly understood as assuming, for the present, only that, with the ordinary stables of New Hampshire, from the beginning of cold weather until April, carding entails a loss. I may add that, when time and the amount of fodder consumed are considered, I am quite doubtful whether, except in rare instances, carding will prove a profitable practice as now accomplished with rough cards. I presume that an instrument may be made that will remove dust and other impediments to the healthy and normal functions of the skin, and yet not be rude enough to root out the hairs so much needed for protection in cold weather, and thus enable the practice

to be pursued in warm, well ventilated stables to advantage. Talking with Joseph B. Walker about the relation of external influences to animal growth in winter, he remarked that in Switzerland he saw cows frequently blanketed; thus radiation of heat was very largely reduced in amount. With such practice carding might be a healthful process.—*J. W. Sanborn, in "American Cultivator."* (1)

IMPRISONMENT FOR GIVING A FRAUDULENT CERTIFICATE OF THE AGE OF A BULL.

At the late assizes held at Warwick, "a gentleman farmer," named Hopkins, was sentenced to three months imprisonment with hard labour for fraud, in having furnished to the Committee of the Birmingham Christmas Cattle Show a false pedigree concerning a (2) bull exhibited by him, by means of which he obtained a first prize of £20. *Veterinarian.*

THE CANADIAN PROVISION PACKING CO., QUEBEC. — We take pleasure in calling the attention of our readers to the advertisement under the above heading. We have tried the various preparations of this Company, and have found them really excellent, even after keeping some of the packages over two years in the house. Nothing could be more convenient to those who reside in the country, travellers, &c. A little boiling water will enable any one to serve in few minutes the best dinner that can be wished for. All these preparations are made by one of the ablest *cordons bleus* of France.

BOOKS RECEIVED. — "The National Quarterly Review." (\$4 a year, or \$1 single number), in-8 vo, 240 pages. A highly interesting publication, embracing general literature, reviews, and economy, expositions of Science, History, Philosophy, and Biography; Problems, &c., &c.

CORRESPONDENCE.

Melbourne, 26 March, 1880.

Dear Sir,

Next in benefit to Agricultural Societies, and in a great measure springing from them, are to be placed Agricultural Journals. While their beneficial effects have been almost unlimited, they have injured no one, and, now that their utility has been fully tested by experience, that farmer is guilty of an unpardonable inattention to his true interests who neglects to provide himself with a well conducted journal of this kind. I am sensible there is a prejudice against what is termed book farming. With some men it is enough to condemn any proposition, or discredit any statement, that it comes from a book or a journal. And what is this book farming, about which such unreasonable notions prevail?

A few cultivators of the earth agree to communicate to each other the results of their experience in farming, — raising cattle, — sheep and pigs, — the best modes of preparing and using manure, their experiments with artificial manures, — the most profitable crops, and the best modes of raising them, — the best breeds, and the best system of fattening animals, and all things of general interest relating to the occupation of a farmer. These results are committed to writing, go through the press, and become a book.

He who chooses to follow the results of enlightened experience, as there detailed, is guilty of book farming. A gentleman who has money, inclination and leisure, following nature as a guide, commences a series of agricultural experiments which result in doubling the means of existence from a given quantity of land, or in other words, makes two blades of grass, or two bushels of wheat grow where but one grew before. Such a man is a benefactor to his country — although few see it — but, if actuated by a regard for the general good, and anxious that all should partake with him in the benefit, he sends a history of his proceeding to a journal,

(1) The curry-comb is used in England to clean the brush, and ought never to touch horse or cow. — A. R. J. F.

(2) The Bull "Grand Patriot 2nd." Mr Allsop had to get rid of half his young stock in consequence of this piece of rascality; but Hopkins, although a farmer, cannot be a "gentleman" in any way. A. R. J. F.

that others may avoid his errors, it is denounced as book farming. No matter how important, or how valuable the published accounts may be, if they add one half to the productiveness of the farm, there are many who scout them as unworthy of notice. If, however, we were required to point out the men who had done the most to advance the agricultural interests of the country, who have introduced the most valuable breeds of cattle, the most successful methods of raising crops and improving the soil, we should be obliged to fix on those who are emphatically book farmers, men who were bred to other pursuits, but who have relinquished them for the safe, honorable, and, in their case, successful cultivation of the soil.

Farmers should not think themselves so far advanced towards perfection in their pursuits as to be beyond the teachings of recorded experience.

The theoretical farmer who with time, and money, and nature, for his guide, submits his ideas to the test of experiment, may obtain results astonishing to himself, and which, when laid before the public, demand its lasting gratitude. To books then we must continue to look for practical instruction in the most approved modes of agriculture.

A journal is a reservoir in which is accumulated the experience of ages, and the practice of thousands, and to it the young farmer may profitably go for information on a multitude of topics, respecting which the inexperienced and uninformed must necessarily be ignorant. To all then who aspire to the honorable title of an intelligent tiller of the soil, we say, take some standard agricultural work.

To every present subscriber to The Journal we say, not only continue your subscription to your Agricultural Society, but endeavour to promote its circulation among your neighbours, and become a contributor to its columns of the results of your farming experience, your success, and your failures. Preserve the numbers carefully, and see, when each volume closes, they are well bound. Read carefully, compare thoroughly, reduce your knowledge to practice, and you will be singularly unfortunate indeed, if you do not find yourself remunerated tenfold. *AYLMER.*

A Western Hay-Gatherer.

It must not be supposed, that, in the great wheat growing regions of the North West, grain only is produced. The fact is, that those vast prairies are magnificent grassy meadows, which in places yield as much as four or five tons of hay per acre. It is here where the "Blue-joint" (*Calamagrostis Canadensis*), so well known in the broad "beaver meadows," and river-flats of the Northern and Western States and Territories, flourishes so luxuriantly; and this grass, when cut in good season, is found to be equal to the best of our cultivated grasses for hay. A large quantity of this hay is cut every year, and put up for the purpose of supplying the numerous teams employed on the enormous wheat farms which are now worked in the localities referred to. Cheapness of operation is a marked necessity in doing business in a large way, and the hay cut upon those broad prairies, is put up for about one dollar per ton. The method of working is as

follows: The grass is cut by mowing machines, and, as it rarely rains, the cutting goes on steadily until sufficient has been laid down. A rake is then employed to gather, and carry it to the stacks. The implement used, is a long

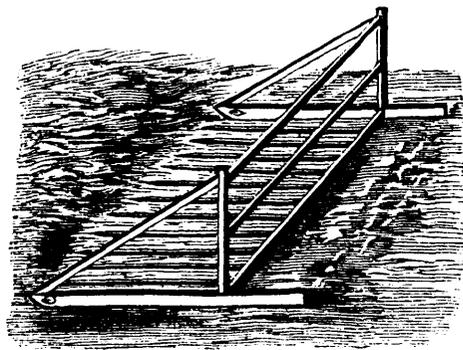


FIG. 1.—A Hay-Gatherer.

frame, which is drawn upon runners, as shown at figure 1, and is made of a principal bed-piece, or sill, to which the run-

ners are fastened. Side posts are fixed to the runners, and these are connected by cross-bars which confine the hay. Long rake-teeth are inserted in the bed-piece, and these gather up the loose hay, which is piled up in the frame. When this is filled, it is drawn to the stack. It is readily seen that this contrivance may be made of varying capacity, either small enough for use in getting in hay on a small farm, or large enough to gather a ton at once if needed. *Am. Agriculturist*

A Hay Weighing Rack.

"L. A. W." gives us a description of a rack for weighing

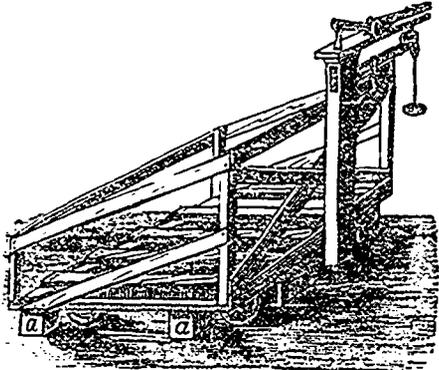


FIG. 2.—A Hay Weighing Rack

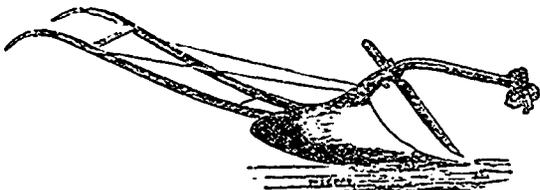
hay. It is made to rest upon a platform scale, and is five feet long, two and a half feet wide, and higher at the back than at the front, as shown in figure 2. It is made of light boards, and will hold 350 lbs. or more of hay, which may be weighed at one time. In using the rack, small blocks are put under the sides a, a, and when it is filled, these are knocked out so that the rack drops upon the platform of the scale. By attaching cords to the four corners of the rack, the hay may be weighed by means of a common steel-yard of a sufficient size for the purpose.

Champion Potatoes again.—Mr. J. J. Clark, of Hove, Brighton, England, states in letter to *The Times* his experience of the yield per acre of the three leading varieties of potatoes last season, 1879:

	YIELD PER ACRE.		
	Sound. ton.	Diseased. ton.	Total. ton.
Regent	1 1/2	4	4 1/2
Victoria	1	2 1/2	3 1/2
Champion	5 1/2		5 1/2

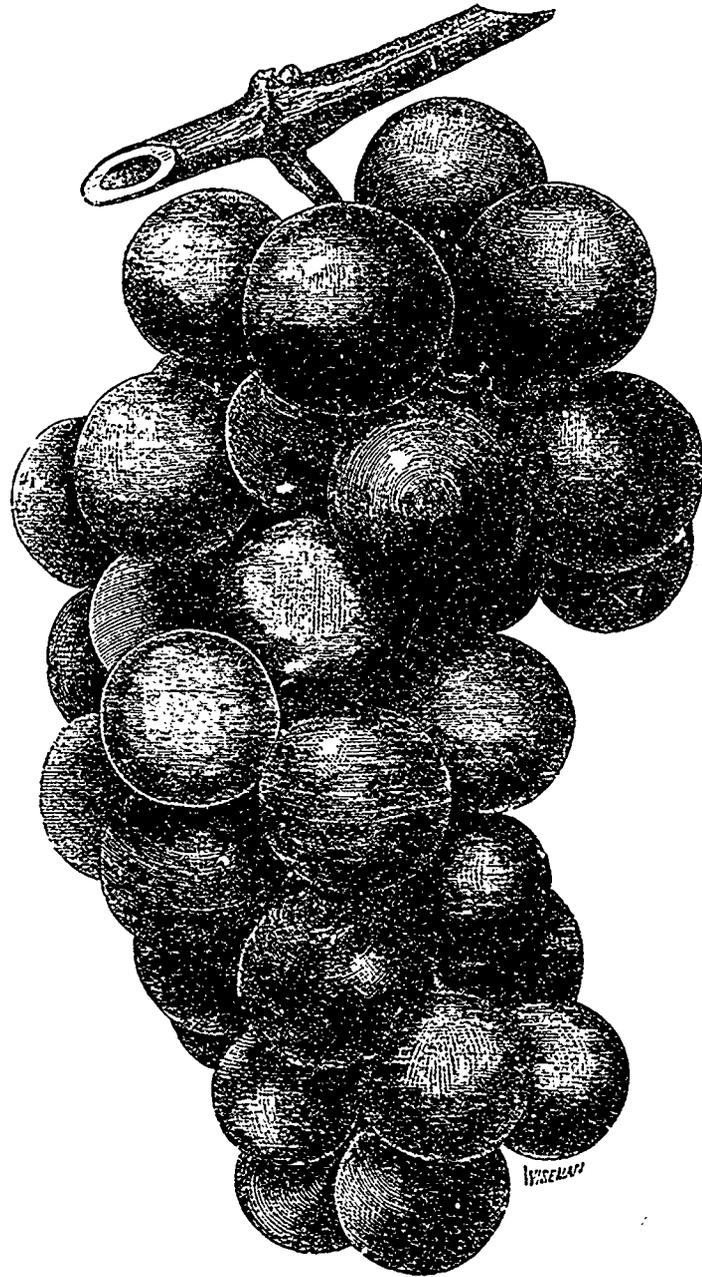
Out of 230 tons of Champions grown on 44 acres, he had not more than 7 cwt. of diseased tubers. In 1878 he grew 9 ton (360 bushels) to the acre, all sound. A. R. J. F.

Ayrshire breeders.—In the last num' r of the Journal, Dr. McEachran gave the names of several Ayrshire breeders of note. Amongst these that of John L. Gibb, of Compton should have been inserted. Mr. Gibb, has always obtained high honors whenever his stock was shown and he deserves every encouragement. See his advertisement elsewhere.



Messrs. Frost & Wood's Scotch Ploughs.—The above engraving represents fairly a beautiful plough, made of steel and of the best materials generally. This plough has taken high honors in various exhibitions. It has moreover the advantage of being offered at the moderate price of \$16 cash. Messrs. Larmouth & Sons, 33 College St. Montreal, are the sole agents.

Moore's Early Grape—We find from our American exchanges that this grape has for several years back taken numerous 1st. prizes as the best and earliest maturing grape yet produced. It obtained two silver medals and no less than eight 1st. prizes last season 1879. From all we can see it should succeed very well in our Province and we should like to have it fully tried and reported upon. We shall plant several this spring and report progress for the benefit of our readers. The vines can be had from John B. Moore, Concord Mass. Price 90c. and upwards, according to age.



Moore's Early Grape (natural size.)

"The Sugar beet."—This is the title of a new quarterly journal, printed in the best manner and richly illustrated, which we have read with great interest. It is evidently written by men who are complete masters of the subject they write about. We call attention to the advertisement in other column, in which the objects of "The sugar beet" are fully given. We hope that it will meet with full encouragement.

Champion Potatoes.—I have been much interested in reading the several accounts of the Champion potatoes given in the *Agricultural Gazette*. I enclose you my experience of them for the past season grown in Berwickshire, as also of Victoria, and Orkney Reds. Ten cwt. of each kind were planted after lea on a good red and dry soil sloping to the sun. The fat sheep were folded upon the grass the previous summer, getting cut swedes and cake. It was ploughed up last winter with an ordinary 7-inch lea furrow, and grubbed as deep as three horses could work it before planting. No muck was used, but about 4 cwt. of artificial manure, principally bone meal with a very little guano, was sown in the drills at the time of planting. The result obtained by measuring, weighing a chain length on each drill when lifted, gave:—Victorias, average 107 cwt.; highest, 119 cwt.; lowest, 95 cwt. per acre. Orkney Reds, 128 cwt.; highest, 150 cwt.; lowest, 95 cwt. per acre. *Champion*, average 209 cwt.; highest, 228 cwt., lowest, 189 cwt. per acre. Each sort was weighed at three places. The Victorias were planted in 27-inch drills, the others were 28 inches apart. Victorias, diseased; Reds, pretty sound, but very small; *Champion* sound, and a good size.—*T. H.* (1)

HORTICULTURE.

Fruit Growers Meetings—Our Prospects as a Fruit Growing Province.

The Fruit Growers Association of Abbotsford held its annual meeting on the 20th of January, at which its officers were elected by ballot for the ensuing year. The report of the Sec.-Treas., showed a smaller deficit than usual, therefore the finances of the Society were considered in a healthy condition, and it was decided to hold our fifth annual Exhibition next autumn, providing the season was a favorable one for fruits. A special meeting was also held on the 28th Feb. for the purpose of adopting the Constitution provided by the Council of Agriculture; which was done with certain amendments. This meeting was well attended, some having driven twelve miles to attend and become members, while others nearer by became members, when they found they would receive the *Illustrated Journal of Agriculture* free. However a new impetus has been given to the Society, and we are looking forward to the future with renewed hope. The Secretary read a letter he had received from a member of the Council of Agriculture, in which it was stated that the Premier, Hon Mr. Chapleau, had promised the grant for local Horticultural societies, which would shortly be placed at the disposal of the Council. This news was received by the members of the Association with much satisfaction; as we have held four annual Exhibitions, and published fruit lists, and reports, without any grant, deficits have been an annual occurrence, and consequently quite a tax upon the Directors, as each year's debts, were "wiped out" before contracting new ones, and also as there had been some doubts entertained as to whether the Government, under its present difficulties, would carry out a promise made by the Joly Administration, and thus open another drain upon the "Public Chest." We are strong advocates for economy, and especially so in these hard times, but we feel that this is a right move in the right direction, for are not Agriculture and Horticulture the "corner stones," so to speak, of our Country's prosperity. Although the Government has provided liberally for Agricultural Societies, there has been comparatively little done for Horticulture.

This Association gave in the January number of this journal the amount (as near as could be ascertained) expended for Horticultural premiums in the Province of Ontario—as compared with that of the Province of Quebec, for the year of 1877, which are

as follows: Ontario, \$11,091; Quebec, \$1,615; a balance in favor of Ontario of \$9,449.

This difference of expenditure is not because the Province of Quebec is not adapted to fruit growing.

But rather, from a want, of a proper organization by her fruit growers, in order to attain a knowledge as to what varieties and cultivation of fruits, are best adapted to our soils and climate, and a readiness of by far too many of our planters who "take it for granted," that foreign grown trees are quite as good as those that have been acclimated.

Any one who visited the Horticultural exhibitions held last September at Montreal, Abbotsford, and Dunham, must have come to the conclusion that we are neither lacking in soil or climate to grow many varieties of first-class fruits to perfection: and those shown were much admired, and pronounced by connoisseurs to be in quality unrivalled.

Of course, Ontario can grow many varieties of fruits which are too tender for our climate. But in point of quality of the apple, we can hold our own with any country. Still, Ontario has the advantage over us in many respects. And it should be remembered that at the time for which the above figures were given, Ontario was well organized, having twenty-five local Horticultural Societies, besides several larger ones in her cities; and most of her County Agricultural Societies offer prizes for Horticultural purposes, while Quebec had but two Horticultural Societies (Montreal and Abbotsford,) and but few of her County Agricultural Societies entered the field of Horticulture all.

But we are glad to find that these things are changing. Government is disposed to foster the development of Horticulture. The Montreal Horticultural Society has since become a Provincial Society, with a grant of \$1,000 a year, and publishes annual reports (which are of great value to the country) with her membership and prize list, open to all, and offering fair prizes for county competition.

Missisquoi organized about a year ago, and held her first Horticultural Exhibition last Sept. at Dunham, which was such a success as to be a surprise to many of her most sanguine Fruit Growers. To judge from the variety and quality of her Fruits, Flowers and Vegetables, then displayed, we predict she will yet win laurels at our Provincial Exhibitions.

The District of St. Francis has lately organized under the name of the "St. Francis Horticulture and Fruit Growers Association," with head quarters at Sherbrooke. Also the county of l'Islet has organized, and we hope soon to learn that other Counties have done likewise.

Now that we are to have grants for local Horticultural Societies, will it not largely depend upon the fruit growers and those interested, whether these grants are to be continued, increased, or withdrawn? It would seem that now is the time for each Town or County (who have not yet done so) to organize, either independently, or in conjunction with its Agricultural Society. To judge from our own experience, it is essential to success, in order to know what to plant, where to plant, when to prune, and how to cultivate, &c.

In a climate so changeable, and with soils so variable, it is impossible without experience or knowledge to say what varieties are adapted to a particular locality or soil. We have many varieties of apples which are doing well on our mountain slopes, and when tried even but a few miles distant do not give satisfaction, and *vice versa*; for we also have varieties in orchards upon our porous gravels, which are not satisfactory, yet these same varieties, on heavier soils, are all that could be desired in point of thrift and hardness. With a thorough system of organized societies throughout our country gathering the varied experiences of its members, making local fruit lists, holding annual exhibitions to compare fruits, correcting names, and bringing to notice our seedling apples, of which there are, no doubt, many of value to the country if propagated, and sending their annual reports to the Provincial Society for publication: with these scattered through the land, what changes would be effected in our fruit lists, and in our present method of doing things, and the vexed question of "what to plant, and how to cultivate," would be more definitely settled, and we should then be in a position to grow an abundance of first-class fruits, not only for our own consumption, as a people, but with a surplus for export, as is the case with our sister Province, Ontario.

JOHN M. FISK.

Abbotsford, 24 March 1880

(1) is to be hoped that some of our Seedsmen will import a few tubers of this valuable potato. It is, from all accounts, almost disease-proof.—A. R. J. F.

Land & Home: Such is the title of an American journal "for land owners and home lovers, everywhere." The numbers published, so far, give promise of a most useful career. For the last twenty three years we have read with care several of the best American agricultural journals. Amongst much that is good, experience has taught us that there has been a great deal too much undigested matter, written either to take the eye, or, worse, for *axegrounding*. Such articles, always hurtful to many farmers, still find room in most journals and are unfortunately, put in without editorial comment: in fact, the aim seems to be, to too great an extent, quantity of reading matter, and not quality. In the long run the publication of all such matter does a great deal of harm, and discourages the ordinary farmer from the reading of agricultural journals or books, no matter how useful. It gives some reason for the cry, still so common, against book farming generally.

"The Land and Home" is a beautifully printed and extensively illustrated weekly; it replaces the *Scientific Farmer* a monthly, which in its five years of existence had secured for itself a very high reputation. This new journal is edited with great care by men who appear to be remarkably well informed on all matters relating to agricultural pursuits. So far, particular pains have been taken to give room in their paper to the most reliable articles only. The names on the Editorial staff are known in America amongst the most able farmers; men whose whose aim has been to reason out every farm operation and to bring brain work as a guide to manual labor. With such men and such a programme added to the business enterprise shown so far, this journal should become, very soon, the leading agricultural publication in America. We wish it every success, and should be happy to have it extensively circulated in Canada. Any of our readers sending us fifty cents will receive "The Land and Home" for three months, post paid.

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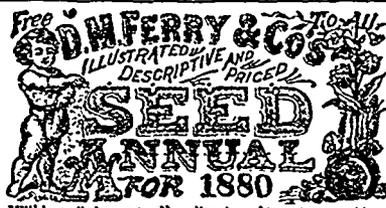
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