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Published under direction of the Board of Agriculture of Nova Scotia.

Omniun rerum, ex quibus aliquid acquiritur, nihil est agriculturâ melius, nihil uberius, nihil homine libero dignius.—Cicero: de Officiis, lib. I, cap. 42.

VOL. IV.

HALIFAX, N. S., AUGUST, 1884.

No. 48.

EXHIBITIONS.

Annapolis	Sept. 30th—Oct. 3rd.
New Glasgow	Sept. 30th—Oct. 2nd.
Dartmouth	Oct. 1st—3rd.
Baddeck	Oct. 6th—9th.
Amherst	Oct. 6th—9th.
Liverpool, N. S.	Oct. 7th—9th.
Yarmouth, N. S.	Oct. 9th—10th.

Halifax, Aug. 7th, 1884.

The first prize list of the season we have received, is that for the District Exhibition to be held at Baddeck, C. B., on Monday to Thursday, October, 6th, 9th, 1884. There is no charge for entry of exhibits. W. F. McCurdy, M. P. P., chairman, C. R. Hunt, Treasurer; T. S. McLean, Secretary. The public opening will take place on Tuesday, Oct. 7th, at 3 o'clock, when an opening address will be given. The grounds and building will be open each succeeding day to visitors from 9 a. m. to 5 p. m. Admission 25 cents, children 15 cents. Bands of music will be in attendance. Exhibits may be removed from the grounds on Thursday afternoon, Oct. 9th, immediately after the closing address has been delivered. Entries must be made on or before Sept. 18th, or, in case of plants or flowers, roots and vegetables, before 27th Sept. The total amount of prizes offered is \$2,341. The prize list is neatly printed in pamphlet form, by the Island Reporter Printing Co., Baddeck, each alternate page being devoted to an advertisement of some commercial, agricultural, manufacturing, or other industry of the Island.

The Exhibition for District No. 4, is to be held at Amherst on Tuesday and Wednesday, 7th and 8th October, 1884. The ground and buildings will be open on Monday 6th Oct., for receiving exhibits. On Tuesday, Oct. 7th, at 2 o'clock, the Exhibition will be open to the public, when the opening address will be given. The grounds and buildings will be open on the following days to visitors from 9 a. m. to 5 p. m. Admission 25 cents, Children 15 cents. Bands of music will be in attendance daily. Exhibits may be removed from the grounds on Thursday afternoon, 9th Oct., at 4 o'clock, immediately after the closing address has been delivered. The Treasurer will commence to pay premiums on the grounds at 1 p. m., on Thursday. No fee is charged for entries of exhibits. Live stock must be entered on or before 13th Sept. Plants, flowers, fruit, grain, roots, vegetable, and other field and garden products, agricultural implements and manufactures may be entered up to 20th September. G. W. Forrest, *Chairman*; Henry Hicks, *Treasurer*; B. W. Keston, *Secretary*.

In reply to your enquiry about state of weather and crops I beg to say, the weather for the last two weeks has been remarkably rainy for this time of year. This will keep back the potato hoeing and make the haying somewhat later than usual. The hay crop will be a fair average, much better than was at one time expected. Grain of all kinds is also looking well. Potatoes, although the

price was very low last year, our farmers do not appear to be discouraged and have again planted about as formerly and the crop is looking fairly well. Apples and peas promise a large yield. The country is looking nicely and farmers generally are looking forward with bright anticipations of an abundant harvest.

C. F. EATON.

Lower Canard, July 18th.

The Director of the Royal Garden at Kew has applied to Prof. Lawson, for specimens of the Wax Myrtle of Nova Scotia, and of the Wax manufactured from it, for the Kew Museum. This plant was described in last month's number of the *Journal of Agriculture*.

We are sorry to hear of an accident from an Ensilage Cutter to the President of the Board of Agriculture, which may for some little time deprive him of the use of his right hand, and thus interfere with his customary prompt attention to correspondence in Agricultural matters.

STRAWBERRY plants set out this month will give a good yield next season. If ordered from a distance, plant them thickly in a hotbed or protected place and keep well watered for a few days and then transplant where wanted.

Crop reports from John McKeen, Esq., Mabou, Cape Breton, and C. F. Eaton, Esq., Cornwallis, did not reach us in time for last number.

CENTRAL BOARD OF AGRICULTURE OF NOVA SCOTIA.

ARRANGEMENTS FOR LOCAL VISITS OF THE PROVINCIAL VETERINARY SURGEON FOR 1884.

W. JAKEMAN, Provincial Veterinary Surgeon, will visit the several localities arranged for, and will be prepared to treat cases of Domestic Animals suffering from Disease or Accident, or requiring Operations performed.

Scale of Fees (modified under arrangement with Board):

Visits, advice and prescription, \$1.00 for first, and 50 cents for each succeeding visit. Medicines extra at reasonable rates.

Operations from \$1 up to \$5, according to nature and circumstances.

When called specially to a distance at places or times not advertised, the charge will be \$5 per full day, and actual necessary travelling expenses.

Mr. Jakeman will visit the several places mentioned in the following list, at the dates noted:

	June.	July.	Aug.	Sep.	Oct.	Nov.
Windsor	25	30	20	19	29	11
Doran's Hotel.						
Bridgetown		14	11	9	6	3
Beckwith's Hotel.						
Kentville		15	12	10	7	4
Lyons' Hotel.						
Annapolis		16	13	11	8	5
Dominion Hotel.						
Digby		17	14	12	9	6
Daleys' Hotel.						
Yarmouth		18	15	13	10	7
American House.						
Truro	9	...	7	1	16	14
Victoria Hotel.						
New Glasgow	10	21	26	2	21	25
Norfolk House.						
Pictou		22	27	24	22	26
Revere House.						
Antigonish		23	28	25	23	27
Cunningham's Hotel.						

By order of the Central Board of Agriculture.

The Exhibition for Agricultural District number 5, will be held at New Glasgow from Sept. 30th to Oct. 2nd. *Chairman*—Adam C. Bell, M. P. P.; *Vice Chairman*—J. D. McGregor, Esq, G. W. Underwood, and John Ross; *Secretary*—A. M. Fraser; *Assistant Secretary*—J. Northup Cameron; *Treasurer*—Thomas Cantley, Esq.

The Exhibition Grounds and Buildings will be opened on Tuesday Sept. 30th, at 9 o'clock, a. m., and continue open during the day until sunset, for the reception and arrangement of Exhibition articles and animals.

Stock to be on the Ground at one o'clock first afternoon, and judges to meet at same hour and proceed to award prizes, all awards to be completed by six p. m., and any stock not on the ground when

their class is called will be debarred from competing. Flowers and perishable articles will be received on Wednesday morning from sunrise up to 9 o'clock, a. m., unavoidable delays to be dealt with at the discretion of the Committee.

The exhibition will be opened to the public on the second day at 9 o'clock, a. m., and the address will be delivered at 2 p. m. Closing address to be delivered at 2 p. m., on the third day, the Grounds and Exhibition Building will be open each day to visitors from 9 a. m. to 5 p. m.

Admission 25 cents. Children 10 cts. Bands of music will be in attendance daily.

The judges will meet at the Secretary's office on Wednesday morning at 9 o'clock a. m., obtain entry books and proceed to award premiums. On completing their work, which must be finished by Thursday at 1 o'clock, p. m., they will personally show their books to the Secretary and will be furnished with the requisite Prize Tickets; which it will be their duty to place carefully, and as soon as possible, upon the various articles, before giving up their books and report.

Exhibits may be removed from the grounds on third afternoon, the 2nd., at 3 o'clock, immediately after the closing address has been delivered. The Treasurer will commence to pay premiums on the grounds at 3 o'clock, p. m., on Thursday. Prizes not claimed within three months from the close of the Exhibition will be forfeited.

Every intending competitor must transmit to the Secretary, not later than the dates mentioned below, an entry paper, containing a correct list of the animals or articles which he intends to exhibit, and in the case of thorough-bred stock, a reference to the registry numbers of the Nova Scotia Stock Register. Any competitor failing to transmit his entry certificate at the proper time will be excluded from competition. No fee is charged for the entry of animals or articles.

Horses, cattle, sheep, swine or poultry, must be entered on or before Saturday, September 6th, and the age of each animal should be stated in years and months, at date of exhibition; the precise date of birth to be given when necessary. Plants and flowers, fruit, grain, roots, vegetables, and other field and garden products agricultural implements, and manufactures of all kinds, and articles not elsewhere enumerated, may be entered up to Tuesday September 23rd one clear week preceding the show.

It is a good plan to put under the tomato vines hay or straw to keep fruit clean and surface moist in view of a dry fall season after these excessive rains have ceased.

ANOTHER ADDITION.

The number of Lucyfield Short Horns to be offered at Richmond increased by a fine Bull Calf dropped on 31st July by Princess Dolly Gwynne. He is already drinking out of the pail. He will form Lot 26 of the Catalogue:—

Lot 26. FOREST PRINCE. Red, white speckled on hind quarter, white spots on feet and one on forehead. Dropped at Lucyfield 31st July, 1884. Sire Red Rose Prince of Lucyfield, 142. Lot No. 2.

Dam, Princess Dolly Gwynne of Lucyfield, by Gwynne of the Forest, 16 (imported from England in 1875.)

Grand d, Polly Vaughan, 9, by Seventeenth Duke of Oxford, 25994, English Herd Book. (Imported from England in 1875.)

g g r d Rose Gwynne, 4th, 8, by Duke of Cumberland, 21584, Eng. H. B.

g g r d Rose Gwynne 2nd, by General Jackson, 2nd, 17954, Eng. H. B.

g g g r d Rosebud, by Mango, 4359, Eng. H. B.

g g g r d Cowslip, by Wallace, 5586, Eng. H. B.

g g g g r d by Tom Gwynne, 5498, Eng. H. B.

g g g g r d by Marnion, 406, Eng. H. B.

g g g g g r d bred by Mr. Matthews of Durham.

SHORT HORN SALE.

The following thorough-bred Short Horn Cow, will be offered for sale by the Lunenburg Agricultural Society, at the Great Sale of Lucyfield. Short Horns to be held at Richmond Depot, Halifax, on Wednesday, 13th August, 1884. Sale to commence at twelve o'clock noon:—

LOT 25.—PRINCESS OF LUCYFIELD.

Nova Scotia Short Horn Register, No. 34. White. Calved 17th March, 1880. Bred by Prof. Lawson, Lucyfield, County of Halifax, N. S. Owned by Lunenburg Agricultural Society. Sire Lucyfield Duke of Edinburgh 32. Dam Queen Caroline 22 by Viscount Oxford imp. 15. G. d. Polly Vaughan 9 by Seventeenth Duke of Oxford 25994 Eng. G. g. d. Rose Gwynne 4th 8 by Duke of Cumberland 21584 Eng.—Rose Gwynne 2nd. by General Jackson 2nd 17954 Eng.—Rose Gwynne by General Jackson 14604 Eng.—Rosebud by Mango 4359 Eng.—Cowslip by Wallace 5586 Eng.—by Tom Gwynne 5498 Eng.—by Marnion 406 Eng., bred by Mr. Matthews of Durham.

THE prospects are that we shall have the heaviest crop of raspberries we have grown for years. All are healthy, with no signs of rust or blight.

JERSEYS AND GUERNSEYS— GRADES.

The great annual sales of the Jersey herds have chiefly passed, and at declining prices, in the average, from the sales of a few past years—the consequence of throwing so many hundreds of them on the market at their tide of prices, and probably more than half the bull calves, not being gilt-edged in pedigree, and out of fifteen to twenty-pound butter cows, have gone to the butcher.

I observe that some of your readers think me opposed to the Jerseys. I am not. I believe in their useful qualities to elevate our common or native cows for dairy purposes into high grades, where they may be made quite as profitable as thoroughbreds, and at much less expense in rearing when pure-bred dams bear a high market value. But no dairyman can afford to buy thoroughbreds at two or three or more hundred dollars each to keep for simply butter-making, when he can rear high grades by the use of a pure, well-bred bull at the same expense that he can a common cow, barring the extra cost of bull service, provided he has not paid an extravagant price for him. Thus he can rely upon an average product of six or eight pounds of butter a week from them for the year—as much as the average of any *full-bred* herd of Jersey cows gives throughout the country, extravagant feeding in frequent cases excepted. The high-priced fanciers can indulge their tastes as they choose without further remark from me.

Yet for myself I have a choice in the Channel Island cows, based partly on information from the island where they have long been bred, and partly from many years' experience, both in England and the United States, of those who have bred and used them for dairy purposes. These are the Guernseys. My own experience with them has been short, and that only in young grade heifers. Four years ago I bought a promising bull, one year old imported inside of his dam (begotten in Guernsey), and she made 16 pounds of butter per week in her best season, although I am ignorant of what she was fed on to produce it. Bred to good grade Short-Corn cow, this bull produced for me about a dozen fine heifer calves, although, much to my disappointment, there were more bull calves from these cows than heifers, all of which went to the butcher at veal prices. The bull turned out badly after two years' service, beginning his use at eighteen months old. He then grew both cross in temper and lazy in service; so much so in the latter as to be worthless, although my herdsman could have managed his temper if he had proved a successful sire. As a result he was fed off and slaughtered at

three and a half years old. Liking the young heifers, and still in hope of further success, I purchased another young thoroughbred Guernsey bull, well descended from an imported cow, and have since used him in my herd to the same class of grade Short-Horn cows, with equally good results in his heifer calves, of which I now have nearly twenty in number, thrifty and promising in growth.

Now, my reason for breeding these Guernsey bulls to high-grade Short-Horns rather than to common cows, of which I have a few very good ones in my dairy herd, is that I wished the dams of my grade Guernsey to be good looking beasts; and as these dams were sired by a thoroughbred Short-Horn bull of good milking stock, I considered them a sure basis for producing good milkers than from common cows, however good they might individually be from the miscellaneous parentage through which they were descended, beside being more comely in form and appearance.

The heifers descended from the first bull have severally come into use, and proved without exception excellent milk and butter-producers, coming in at about two years old, and increasing to ages of four or five years, will prove first-class cows. A word as to their flesh in the beef line. With no extra food in either pasture or winter, a butcher looking over my herd in the pasture a few days ago, offered my herdsman fifty dollars each for a couple of half-bred Guernsey pregnant heifers for slaughter! Of course he was refused, as a hundred dollars each would not buy them. They are perfect beauties, inheriting the Short-Horn shape, with the predominating dairy marks of the Guernsey. This is, of course, a short experience, but so confident am I in its success that, if life and health be spared, I shall rear a herd of cows in their progressive grades of Guernsey blood to satisfy all my ambition in the dairy line. These young Guernsey grade cows, are, every one promising milkers, giving this summer, on grass pasture alone, equal yields of milk, in the average, with a much larger percentage of cream upon it than upon the milk of either of their dams or the common cows, although both of the butter classes are good ones, thus showing fully the superior value of the Guernsey blood for butter and cheese. They may not be so productive as cows of other larger breeds, in quantity of milk. I speak of them only for butter-making, as that is the use I want them for. My heifers, those having their second calves, in several cases have been difficult to dry off. I wish to give them full five or six weeks' rest from milking before the next progeny appears. Common cows frequently go dry for two or three months, of their own volition, before a successive calf is born.

In the English papers (partially copied in the *COUNTRY GENTLEMAN*), I find that several trials with a Guernsey bull cross on Short-Horn cows have been quite successful in breeding first class dairy cows, and I know not why we in America cannot follow their example with equal success. The Guernsey is of equal size to our common cows, quite equal in flesh and, graded with the Short-Horn, prove capital beef animals for the dairy.

In accordance with the adage, "A new broomsweeps clean," my short observation may be too hopeful, and prove faulty in the end, but from the information I have gathered, I think the Guernseys, although as yet few in number compared with the multitude of Jerseys, will soon establish themselves among the highest standards of our dairy breeds. Candor, however, compels me to mention a drawback in the Guernsey bulls. They are inclined to be vicious in temper. My first one proved so, and his successor is no better. A large, powerful beast, weighing 1600 pounds at three and a half years old, has to be thoroughly guarded in his use, and so secured as to be harmless to his keeper. I hear of others which are quiet in temper, as I hope a majority of them may be. The cows, on the contrary, are as docile as any others of whatever breed. My own young ones are remarkably so. I may remark, in relation to their rearing, that a few days after birth they are fed on skimmed milk, and grass in summer until five or six months old, and when dropped in the fall and winter months, on the same kind of milk, with cut hay, Indian meal and mill feed until ready for the spring and summer grazing. They are thrifty, and in excellent condition.

L. F. ALLAN.

—In the *Country Gentleman*.

(For the *Journal of Agriculture*.)

The subject of Thoroughbred Cattle has, of late, very properly engaged the attention of farmers almost everywhere.

The thoroughbred or bloodhorse, embraces one class of pure bred horses only; but among cattle, any pure bred animal is termed thoroughbred. In every case, however, an untainted pedigree is requisite, and though the different breeds of neat cattle must, in the first instance, have resulted from admixture, yet the breed having become once established, no admixture is thereafter admissible.

If any one should be fortunate enough, by crossing or mixing any of the present distinct varieties, in such a way that the peculiar features of the original stock shall be obliterated, and a perfectly unique variety established, producing its like in every instance, he will have accomplished the feat of introducing a *new breed*. Many a first-cross has been obtained, possessing qualities superior to

those of their parents, but there the matter has generally rested. Half a century of weeding and selecting is not too much time for the perfection of a breed that shall possess the desirable properties, such as fair size, plump form, soft skin and hair, rich color, good quality of flesh, abundance of milk, richness of cream, high colored butter, of good quality, and plenty of it. Add to this, beauty of form, and you have a model breed, which will have a boom all the time and everywhere.

It does seem as if, in this way, an improvement might be made on any of the pure breeds of cattle.

There is no doubt much to be said in favor of keeping the existing varieties distinct, and intensifying, if possible, their peculiar characteristics, but is there no danger in pursuing such a course, of overstimulating certain organs to the neglect of others, of upsetting the healthy balance, and eventually rendering the breed *impotent* and weak; such a state of things is already foreshadowed in the *Jersey*, its precocity, its liability to milk fever and garget, the impotency of the males, and the incontinence of the females. The same may be observed in one way or another in other breeds, which have been forced to produce beef or milk exclusively. The *Holstein* may be said to be nearly perfect, but the beef is said to be of inferior quality, and the milk, though abundant, not uniformly rich in butter. It is not at all probable that the desirable properties of beef, milk, butter, size, and beauty, will be secured in perfection for a long time to come, but let some energetic young man try the experiment, and if he succeed, all generations shall call him blessed.

PROGRESS.

The thoroughbred Ayrshire Heifer, "Alpha," bred and owned by the Rev. A. C. Macdonald, Bayfield, gives promise of a very deep milking capacity. At this date, (July 14th) she has given a continuous milk flow of an average of seven quarts per day, and although within three weeks of calving, all efforts to dry her off for the past three weeks have proved unavailing. This flow exhibits over 2,500 quarts for the period named, and places to her credit 1000 quarts over the average cow. "Alpha" may be reasonably expected to exhibit a high record, as, with the good habits now formed, there is in her veins a high milking strain, both on the dam side, "Lille," and the sire side, "King of Hearts." The bull calf dropped by this cow, when she was about three years old, has just turned his first year, and, being sired by "Marmion," owned by Millford Haven Society, one of the finest animals imported into Eastern Nova Scotia, may be expected to occupy a high place in the ranks

of this fine breed. An increase of the progeny of "Alpha" and "Marmion" is now looked forward to with interest by the occupants of the Rectory, Bayfield.—*Eastern Chronicle.*

MILK PRODUCTION.

What are the sources of the ingredients of milk; It is readily admitted that the *albuminoids* of the milk must be derived from either the albuminoids of the food or from those of the animal economy; and that the albuminoids of the milk are of the same character as those found in the serum of the blood; but that caseine is not found in the fluids or tissues of the animal body, but is, rather, the special product of the milk glands. And, contrary to the general prevailing views, fat of milk is derived from albuminoids. These facts have been proven by investigation with the microscope, which reveals the fact that the formation of the fat-globules in the epithelial cells are plainly seen. These investigators have found that even carnivorous animals, on a strictly meat diet, produce natural milk, thereby showing that the fat of milk may be formed out of albuminoids, and, also, that the greatest quantity of milk is always produced in greater ratio out of foods rich in protein. It was also shown by experiments that the carbo-hydrates were consumed in the production of animal heat, and not in the production of milk-fat to any great extent.

On the other hand, both the proteins and carbo-hydrates in the food of herbivorous animals may result in the formation in the milk of *milk-sugar*.

That quantity of milk does not depend upon the quantity and quality of food exclusively, nor to so great an extent as is ordinarily supposed, but upon the development of the milk-glands; and that both quality and quantity of milk, also, greatly depend upon the physiological capability and aptitude of the epithelial cells of the vesicles of the milk-glands. For, with precisely the same food, one cow will give much and another but little milk; and that the milk of one will be rich in fat, while the milk of the other will be very poor in that ingredient; or that another will be rich in cheese or caseine, which is a product of the milk-gland, since it neither exists in the blood nor in the animal body; or that another cow, whose peculiar pre-disposition furnishes a milk better suited to a beef product. From all of these facts, it is essential to possess a cow suited for either special product desired. Neither Mr. Holly, Mr. Fuller, nor any other breeder of Jerseys could make the Jersey cow Dandehon, or Mary Ann of St. Lambert, or any other Jersey cow, superlative cheese cows, no matter how fed, nor how much food

they consumed. But these grand cows, with splendidly developed milk glands and superlative butter capabilities, will make butter out of hay, straw, oats, corn, bran, brewers' grains, ensilage, fish, fowl, beef, or mutton. All this is because their butter-yielding capabilities have been bred in-and-in, and these are the inheritances bequeathed from ancestors for generations, to yield large quantities of butter. But food, as we shall see, does yield results, according to quantity and quality, if the powers in the animals to which it is fed are of a kind and degree to transform it into suitable products.

The Ayrshire cow has an extraordinary capability to convert nitrogenous food into nitrogenous product—cheese; the *Holstein Dutch Friesian*—"what's in a name"?—cow has, also, a marvellous ability to yield quantity of milk—almost 19,000 lbs. in a single year, while the *Jersey* will make, out of the same food-equivalent a third more butter, even though the quantity of milk be half as great, and her own weight but two thirds that of either of the other cows.

It has been stated that the cells of the milk-glands are chiefly composed of protein, and the natural inference would be that food rich in this element would prove most serviceable, not only in the quantity but also in the quality of the product yielded. Still further, we have seen, that fat and a part of the milk-sugar are also derived from nitrogenous foods. In fact, it has been repeatedly demonstrated that the largest flow of milk, and the richest milk, result from fodders richest in protein. The milk from such food contains less water, and relatively more solids—butter, cheese, milk-sugar and salts. And, as it is the solid part of the milk that makes it valuable, the quantity is but a poor criterion of the quality of product obtained, though it is true that milk equally rich in solids has a value corresponding exactly to quantity. For instance: if the standard of 88 per cent. of water and 12 per cent. of solids in milk were uniform from all breeds of cows, however fed, it would be easy to estimate the quantity of produce by the weight of milk.

But it has been seen that, though 10 to 15 lbs. of Jersey milk yielded a pound of butter, it has required from 20 to 30 lbs. of the milk of some of the other breeds of cows to furnish a pound of butter. But, a liberal supply of foods, rich in albuminoids—bean-meal being the richest—not only favors great increase of the production of milk, but also keeps up the flow to a fuller extent than watery foods, poor in protein. The natural tendency is a large flow of milk after calving, which tapers down to a small yield at the seventh or eighth month of gestation, while the liberal feeding of foods rich in

albuminoids keeps up the flow for a long time, at an almost uniform quantity. This it is that foots up creditably in the 240 or 280 days tests.

Cotton-seed meal, palm-nut meal, or other meals rich in fat, seem to add little richness of fatty matter to the milk, even when long and freely fed. But cows given less food than the large yield of milk demands, the animal system supplies the deficiency, and the cow loses in flesh. Poorly-fed cows show a larger proportion of stearin as compared to the more fluid normal fats, palmitin, and olein in the butter.

Experiments in the feeding of different fodders are more satisfactorily determined by the quantity of butter, by means of careful weighing.

Frequent milking secures a less watery milk, and the last milk of a milking is also less watery than the first drawn.

The production of large quantities of rich milk must mainly depend upon the liberal supply of protein in the fodders, though a proper nutritive proportion must be maintained.

Wolf recommended the following proportions per day for 1,000 pounds of live weight of cow :

Digestible protein	2.5 pounds.
“ fat4 “
“ carbo-hydrates	12.5 “
Nutritive ratio	1 : .5 : 4 “
<hr/>	
Total dry matter	24 “

This is about the relative proportions of the elements in good pasturage. When hay is fed, an addition of nitrogenous and digestible meals must be added, as corn meal, bran meal, bran or shorts, to bring up the ration to the proper standard of excellence to produce a large flow of milk. This proves that there must be a proper proportion of all the elements of food. If the addition of a pound of oil-cake to a ration causes an increase of a quart per day in amount of milk the addition of two pounds may only give half the additional increase of milk and this will depend on the proper proportion of the elements of the food ration.

All of the salts required by the animal system must be daily supplied in food, or otherwise, to maintain robust health. The salts amount in a milk cow to about the following proportions :

Phosphoric acid09 pounds.
Lime13 “
Potash24 “

Ordinarily, foods contain these substances in abundance. But, as common salt is readily eliminated from the system, a daily demand for it is requisite. It also adds to the palatability and digestibility of fodders, as well as being a stimulant to the appetite. A cow yield-

ing a large flow of milk requires more salt, and will thus consume more food than when the supply is stinted.—*Jersey Bulletin.*

AMERICAN APPLES.

For the following valuable remarks addressed to exporters of American Apples by Messrs. John S. Martin & Co., New York, we are indebted to Messrs. Draper, Covent Garden :—

Before the Apple growers and packers in New York State shall have made their barrel contracts for the crop of 1884, we desire to present for their consideration some suggestions which may be of interest and use. A few years ago, New York State Apples occupied the leading position in the trade. They were considered both in local and foreign markets as the best produced in the country and commanded higher prices than the product of any other State either east or west. Of late years, however, there has been a material change in this respect. The State fruit has steadily lost its prestige with the trade, and goods packed in the Western and North-eastern States, as well as in Canada, and the provinces, have steadily gained in popularity and have commanded decidedly the highest prices. The quality of the fruit raised in this State is certainly equal to any raised in the country; its decline in favor is due, first to the style of package used, and second to the manner of packing the fruit.

The New York State Apple barrel now generally in use contains about 3 1/2 bushels; it is made with flat hoops and has the unfortunate characteristic of appearing smaller than it really is. Most of the western, eastern, and northern packers use a full three-bushel, round-hoop barrel. To this difference is mainly due the popularity of the latter when in competition with State fruit. Now if a “pony” barrel of Apples could be sold at the same price as a full three-bushel barrel it would be manifestly to the interest of growers to use the former; but that is not the case. There is a very strong prejudice among Apple dealers for three-bushel, round hoop barrels, and this prejudice is so great that they even over-estimate the actual difference in the quantity of fruit contained. The prices realised for full three-bushel, round-hoop barrels are not only higher than those obtainable for equal quality in smaller packages, but the difference in price is far greater than the actual difference in quantity contained would justify. During the past season, when Eastern Baldwin in round-hoop flour barrels were selling at 18s. per barrel, State barrels containing Apples of equal quality were unsaleable above 15s.—nearly 17 per cent. less, while, considering the State

barrel as holding two and three-quarter bushels, the difference in quantity is only 8 1-3 per cent. Furthermore, the use of the three-bushel barrel would effect a considerable saving to State packers in cost of barrels, labour of packing, and freight.

The unpopularity of the style of barrel used at present in this State is especially marked in the export and local shipping trades. Shipping and export orders almost always call for three-bushel, round-hoop barrels, and can be filled with no other style. Some of the principal Apple dealers of this city, finding by past experience that they cannot profitably handle the State fruit as it has lately been put up, are driven to the necessity of going to other States, west, east, and north, to purchase fruit where it is packed in a manner suitable to the requirements of the trade.

In regard to packing the fruit, there is also much room for improvement, and the fault in this respect is not intirely confined to State packers. A large part of the receipts, especially during the last two seasons, have been “stuffed,” the middle of the barrels containing inferior, trashy fruit, topped off with a few layers of good Apples. Buyers soon find this out, and the poor Apples bring no more than they are worth. The stock should be closely graded, the primes and seconds being packed separately and plainly marked. Only one variety should be packed in a barrel, and the kind and grade neatly stenciled on the head. The top layer should show, on opening the barrel, a fair average of the quality throughout the package. Brands which are packed in this manner very soon acquire a reputation among buyers, and command prices which amply repay packers for their care and honesty.

We are convinced, by careful observation of the market, that if State growers will adopt the three-bushel, round-hoop barrel for their crop, and pack their fruit honestly and with careful selection, they will obtain much more money for their product than they otherwise can. Their fruit will be much more saleable, and will speedily regain the prestige with the trade which it occupied a few years since.

[We reprint the above from *The Garden*, a London publication, marked copy of which was sent to us from London as an obvious hint to our Nova Scotian fruit growers.]

THE one sure way to have good cows is to raise them yourself.

CURRENT bushes, as also gooseberries and quinces, may have their branches bent down and covered with earth and make fine plants by fall.

WEEDS.

The present season is conspicuously distinguished by its wet weather and weeds. The relation of weeds to wet weather is well indicated by the results of Sir J. B. Lawes' observations on weeds and nitrates, briefly detailed in the *Agricultural Gazette*, last year:—

In common with many other farmers, I have found it exceedingly difficult to keep my mangels—under crop I have at present on the farm about 30 acres—free from weeds.

I have, however, about 8 acres of mangels under experiment, on land which has grown nothing but roots for more than forty years, and here, in consequence of the careful attention which it is absolutely necessary to employ in carrying out an experiment, the mangels are almost entirely free from weeds.

The farm mangels have been heavily dunged, and when the plant was fairly established about 1½ cwt. of nitrate of soda was applied as a top-dressing.

In walking over the two fields I have been very much struck by the more rapid progress of the experimental roots, as compared with those grown in the ordinary cultivation of the farm, and the fact has led me to consider how far the growth of the latter has been retarded by the presence of the weeds.

Assuming that the soil contains a sufficient supply of alkalies and phosphates, it may be said that the weight of the crop would depend upon the amount of nitric acid which the mangels could take up from the soil.

The nitric acid may be derived from various sources—(1) from the stock of organic nitrogen in the soil; (2) from previous applications of manure; (3) from the manure applied in the present season; (4) from the nitrate applied as a top dressing.

Now as weeds take up large amounts of nitric acid, their roots and finer fibres when destroyed under ground, may nitrify and serve as food for the mangels grown this year. But the bulk of the weeds which are destroyed by hand, or by horse-hoeing remain on the surface and do not nitrify until they are ploughed under the soil.

This conversion of nitric acid into organic nitrogen in the form of weeds, instead of crop,—although in some cases unavoidable—becomes a source of considerable loss, and in my own case I have very little doubt that on some parts of the field, the weeds have taken up as much nitric acid as was contained in the nitrate of soda applied as a top dressing, and that the crop of mangels will be so much the lighter for the loss.

The rapid appropriation of nitric acid this year by weeds is very apparent in

our wheat fields where the plant is thin. When the crop is in bloom, it usually takes but little nitric acid from the soil; but if at this time the surface soil is moist, nitrification takes place rapidly, and a field which was comparatively clean when the wheat was in bloom, may have become one mass of luxuriant weeds when the crop is cut.

BUTTER TEST OF NAIAD OF ST. LAMBERT, H. R. 12965.

John I. Holly, Esq., President A. J. C. C.

Dear Sir:—The undersigned at your request, as a committee for the American Jersey Cattle Club, visited "Oaklands" the farm of Valancey E. Fuller, Esq., at Hamilton, Ont., for the purpose of inspecting the test for butter of the cow Naiad of St. Lambert.

The results of the milkings and churnings, with the times at which they were done, the character of the weather, its temperature at noon, the temperature of the cow, and the special witnesses, are presented in tabular form.

The test was conducted by the manager of the farm and herd, Mr. William T. Norton, who had the entire management of the test, under the guidance of the proprietor, who was personally present every day at least one milking, as well as at the drawing-off of the cream, and at the first churning.

The test commenced at 6 p. m. on Thursday, the 5th of June at which time the cow was milked as usual, and proved to be stripped dry by Mr. Weld at exactly 6 o'clock and 10 minutes. After that she was milked at 6 o'clock, morning and evening, for seven days, the last strippings being taken at 10 minutes past 6 p. m., on Thursday, June 12th.

The milk was weighed, as soon as drawn, on a spring balance, hanging in the stable, and used for weighing the milk of other cows. This balance was tested and found reasonably accurate. The milk was taken at once to the dairy, where it was strained into one of the cans of a four-can Cooley Creamer in ice water. The creamer was locked and sealed at once, being banded with tape after locking, and was perfectly secure.

The cream was removed once a day, at evening, after the second day, the milk having been set twenty-four and thirty-six hours. It was placed in another creamer containing two cans, and kept at the ordinary temperature of the atmosphere. This creamer was also securely locked, banded with tape, and sealed.

The milk, before setting, when the locks were off, as well as during skimming and churning the milk, cream and butter, and all the operations, were con-

stantly under the inspection of one or the other, and usually of both of us.

New locks were purchased, and a seal used bearing the initials of the Club.

The butter from the first churning, when removed from the churn, was very firm and cold, and, though it appeared to be well worked and dry, really contained too much water and buttermilk, as shown by the slight gain from salting and re-working.

The butter from the second churning was not so cold, gained more weight in salting, and is of better quality. We submit samples of both.

The salt added was an ounce to the pound.

The table-scales used for weighing the butter was tested by a pound weight, purchased as a standard, and having the Canadian official seal in lead upon it.

Naiad was fed by Mr. Morton at his discretion. She was kept with the herd both in the stable and at pasture, but brought in to be fed.

The pasture was, part of the day, a field of heavy red clover, with timothy and other grasses, the clover just coming into bloom at the end of the test, and part of each day and at night the cows were turned into a large lot which had been several years in grass, and from which the clover had nearly disappeared or was no longer conspicuous, but in which a variety of grasses, with the white clover, afforded abundant feed for twice as many cows.

During the last three days of the test we arranged to have a quantity of each kind of meal weighed, and from these weighed quantities Mr. Morton used as much as he pleased, the bags being weighed at evening. This gave us accurately the amount of grainfeed consumed daily during this part of the test, when the cow was, no doubt, fed more than before. The various quantities of each kind of feed given daily for the fifth, sixth and seventh days of the test are submitted in tabular form herewith.

The weather for the first three days was fair, but hot and sultry, while that of the rest of the week was rainy, foggy, and cold for the season. The change seemed favorable to the production of milk, but the butter product seems not to have been affected either by the increase of feed or by the change in the weather.

The last day there were intimations that Naiad was coming in heat, and on the following day, at the morning milking, her milk fell off to about ten pounds.

(Signed) M. C. WELD,
HENRY E. ALVORD.

New York, June 19, 1884.

Naiad of St. Lambert 12965, solid gray, shading to fawn, bred by Romeo H. Stephens, is a finely formed cow,

below medium size, four years old in January, and weighs about 750 pounds.
M. C. W.

	TEMPERATURE.		MILK.		CHURNING.		RETTING.		WITNESSES.
	AIR.	COW.	P.M.	A.M.	JUNE 11 and 12.	13.	14.	15.	
June 6	6	Fair.	56	57	Dry	11	10	10	M. C. Weld.
7	7	"	78	102.5	16	18	18	18	Weld and H. E. Alvord.
8	8	"	80	102.5	18	19	19	19	Weld and Alvord.
9	9	Showers	83	102	18	18	18	18	Weld and Alvord.
10	10	Cold rain.	80	100	17	17	17	17	Weld and Alvord.
11	11	Cold fog.	83	101	21	22	22	22	Weld and Alvord.
12	12	Very foggy.	83	102.2	20	20	20	20	Weld and H. H. Fuller.
Seven days (average 83-1.7 lbs. per day)..... 507 lbs. milk.									
Oats, Crushed.....	21								
Linseed cake meal.....	10								
Peas meal.....	11 1/2								
Wheat Bran.....	5								
Total.....	47 1/2		43 1/2		51 1/2				

M. C. WELD,
HENRY E. ALVORD, per W.

[There are two or three obvious typographical errors in the figures as published in the *Jersey Bulletin*, which we have corrected. There is still one discrepancy that we cannot explain, viz., that 10 lbs. 12 oz. added to 12 lbs. 11 oz. of unsalted butter make only 21 lbs. 7 1/2 oz.]

WHY BUTTER IS SALTED.

If the question, "Why is butter salted?" were asked of a considerable number of persons, the most probable reply would be, "Oh, to keep it?" or, "Because every one else does." But that every one does salt butter, and the butter does not keep, together with another fact, that the poorest butter is always abundantly salted, seem to point to a conclusion that salting butter does not have nearly so much to do with its keeping qualities, as does understanding some of the conditions that influence the keeping qualities far more than the salt. Occasionally we find

a butter-maker who can make a butter so fine, and salt it so exactly, that it will steadily improve in flavor as the months and years roll on; but the average maker, salt or no salt, is forced, by the rapidly changing character of his compound of butter fats and salt, to find a market and sell fresh-made butter. It would seem if salt were a preservative of butter, that all the lessons that are published in the *COUNTRY GENTLEMAN* could better be said in one word—salt. But the experience of all makers is that there are conditions of age, temperature and practices of churning to be first taken note of, before the salting stage is reached, or else a butter will result that no age will ripen, or to which time will add no more delicate and exquisite aroma.

Occasionally one hears of a case where butter was kept for a long time, and without loss of flavor; but that it gathered new flavors, or was increased in market value, excites our curiosity. But when one does find butter of considerable age of good flavor, it will always be found that it was most skillfully made of the best materials, and kept at a very low, uniform temperature, and thoroughly excluded from the air; and that salt played second part in its keeping, is evidenced by the usually well made butter, well salted, but by neglecting to keep at a low temperature, and projected from the air, it spoils within a few days.

Butter is essentially an animal oil,—its principal parts being stearin and palmitin, the same as the tallow of the kidneys; but, in addition, it does contain liquid fats, peculiar to it, and giving butter its distinctive characteristic. That these liquid oils, minute in amounts, are liable to quicker decomposition than the other fats composing the main part of the butter, we have no direct proof; but as, in the case of the Danish exhibit of unsalted butter at the Centennial, made three years before, we may conclude that the different elements of butter are equally good keepers.

Then we must look to some other cause for butter not keeping, and for some reason why salt is not a preservative agent. In the usual store butter, we find the butter charged with abundant traces of buttermilk, and the result is, that the butter soon becomes rancid, unless it is kept at a temperature so low as to wholly arrest any chemical changes that would otherwise take place. Buttermilk contains solid matter, the largest part of which is caseine or cheesy matter, together with milk sugar and the like. Caseine will soon begin to ferment, if left in its natural state, unless the agency of heat is introduced to "cook" it—and all the sooner if the butter is made from acid cream. It is true we salt the curd in cheese, but the curd has been thoroughly cooked;


the digestive principle of rennet has been introduced to change its nature, and, last, it is put under great pressure, and then banded and painted with grease, to exclude the air. But with the caseous matter in the butter it is different, and having had no check put upon it, nor the gases which it will develop cooked out, the salt fails to correct it, and the butter is soon off-flavor, rancid, and lastly worthless.

So good an authority as Prof. John Voelcker says of caseine "that when exposed it undergoes fermentation, which causes a partial breaking up of the fats of butter, and resolves them into their constituents—the acids, and these give rancidity * * * but when milk is scalded, the caseine becomes in part insoluble, and the decomposition is longer in taking place." And, again, "the keeping of the butter is attributed to exclusion of the caseine from the butter by washing with fresh water, several times repeated, and then working out the surplus moisture," giving first to scalding curd or caseine to render its actions latent, and of more slow decomposition, as in the case of scalded cream, and second to thorough washing of butter from ripe cream, as the real reasons for butter keeping well, but does not mention salt once as the chief agent in making a long-keeping butter.

It is not my purpose to declare against salting butter, for in a secondary place salt has its uses in butter-making; but to try to show that good, long-keeping butter is dependent upon something else than salt to give it staying quantities. Salt may for a time disguise imperfections in butter, but between a salt taste and a genuine butter flavor there is a wide gulf; while he who depends upon salt to bridge over the period between manufacture and consumption, will often find himself without short connections.

That there is no standard for the uniform salting of butter, and all degrees of saltiness are called for by the consumer, proves that there is a great demand for salt in butter from the education of habit, rather than from the real needs in the preservation of the table fat. Butter may need salt to some extent to absorb surplus moisture, and mayhap "pickle" (as in the case of beef and pork) the membranous matter that it is asserted exists in the milk; but if the cream is churned when "ripe," not sour, and before the acids have commenced their work upon the fatty oils, and the butter is thoroughly washed from its sugar and caseous matter, the agency of salt to keep the product will become less to be relied upon—and found wanting—and the consumer more often delighted with a clear, pure butter, in contrast to a butter kept with salt, but odorous with butyric acid.

[J. G.] Western Reserve, O.
—Country Gentleman.

 Catalogues of the Great Sale of Thoroughbred Short-Horn Durham Cattle, to take place at Richmond Depot, Halifax City, N. S., on 13th August, are now ready, and may be obtained by sending card of address to Prof. Lawson, Halifax, or personal application at the office of Messrs. J. Duggan & Sons, Auctioneers.

Editor Jersey Bulletin:

My cow, Woodland Maid 8156, made in seven days, from 15th to 21st inclusive of June, 1884, 14 lbs. 2 oz. of butter from 256½ lbs. of milk. This cow was due to calve September 7, 1884, but lost her calf May 27, 1884, and for that reason I think this a good test, as I believe, in favourable circumstances and moderate feed, she will produce 16 lbs. in seven days. She is a model shaped cow and very quiet in disposition.

Yours truly,

C. BORDWELL.

—in Jersey Bulletin.

Advertisements.

Resolution of Provincial Board of Agriculture, 3rd March, 1882.

"No advertisements, except official notices from recognized Agricultural Societies, shall be inserted in the JOURNAL OF AGRICULTURE in future, unless prepaid at rate of 50 cents each insertion for advertisements not exceeding ten lines, and five cents for each additional line."

DEDERICK'S HAY PRESSES.



Manufactory at 90 College Street, Montreal, P. Q.
Address for circular P. K. DEDERICK & CO., Albany, N.Y.

**FOR SALE!
AYRSHIRE BULLS.**

"KING HUBERT," 5 years, Pride of the Hills," 2 years, second to none ever imported into the Province. Also orders taken for Berkshire Pigs, from stock imported in 1882. Price \$50.00 per pair 6 months old.

C. P. BLANCHARD.

Hillside, Turo, N. S.

**GREAT SALE OF
Thoroughbred Short Horn Durham
Cattie.**

From Professor Lawson's Herd at Lucyfield.

To take place, by Public Auction, at Railway Cattle Sheds, Richmond Depot, Halifax, on Wednesday, 13th August, 1884, at 12 o'clock noon, precisely:

- Lot. SHORT HORN BULLS.**
1. OXONIAN - White, 7th March, 1883, by 2nd Nicholas.
 2. RED ROSE PRINCE - Red, 12th Jan, 1882, by P. Gwynne.
 3. PRINCE GEORGE - Roan, 26th July, 1883, by 2nd Nicholas.
 4. SIXTH NICHOLAS - Red, Roan and White, by 2nd Nicholas.
 20. FOREST PRINCE - Red, some White, 31st July, 1884.

SHORT HORN COWS AND HEIFERS.

5. ROSELEAF - Feb. 20th, 1878, imported from England.
6. PRINCESS DOLLY GWYNNE - 22nd August, 1875.
7. QUEEN-CAROLINE - 6th Nov., 1877.
8. COLCHESTER QUEEN - 27th Feb., 1877.
9. ROSE GWYNNE - 10th Sept., 1881.
10. OXFORD PRINCESS - 24th Aug., 1880.
11. CAWOOD PRINCESS - 3rd Aug., 1883.
12. LUCYFIELD WITCH - 7th March, 1882.
13. WHITE ROSE - 24th Nov., 1875 (Lot prizes).
14. SECOND WHITE ROSE - 23th Nov., 1879.
15. DUCHESS CAWOOD - 17th Dec., 1883.
25. PRINCESS OF LUCYFIELD - 17th March, 1880.

GRADES.

16. PATIENCE - 22nd Dec., 1881, A three grade Short Horn, whose progeny will be eligible for the N. S. Register. Served by Prince George 3rd July, 1884.
17. VICTORIA - Short Horn x Ayrshire. 22nd Dec., 1881.
18. BELLE - Short Horn x Ayrshire. 5th July, 1882. Served 6th July, 1884, by P. George.
19. TULIP - Short Horn x Ayrshire. 18th May, 1880. Served 23rd April, 1884, by 4th Nicholas.
20. HEIFER CALF - May, 1883. Dam 17.
21. PINAFONE - May, 1879. Sire Bellahill (Ayrshire). Served 7th July, 1884, by P. George.
22. OLIVET - 20th March, 1881. Served June 23th, 1884, by P. George.

23. HEIFER - May, 1883. Sire 2nd St. Nicholas. Dam by Lord Lorne 37.
24. IDA - 22nd March, 1882. Served 6th July, 1884, by P. George.

On view from sunrise on morning of sale. Term - Approved joint notes at 9 months. Catalogues with full Pedigrees on application to PROFESSOR LAWSON, Halifax,

Or
J. DUGGAN & SONS,
Auctioneers.

**PERCHERON NORMAN STALLION
"TROUBADOUR."**

Troubadour is a handsome dapple gray horse, with good action and an honest worker. Sire Yeoman, No. 501. Percheron Norman Stud Book. Yeoman was imported from France, and owned by Fairweather & Roach, New Brunswick. Ho weighed 1900 lbs. and cost \$1700. At St. John and in New Brunswick he always took first prizes in his class. Dam of Troubadour was a Clyde mare with Percheron cross.

Troubadour will stand each fortnight until the end of July at the following places: - Calling at Hopewell, Monday morning, June 2nd; New Glasgow, Monday, June 2nd, till 4 o'clock, p.m.; James Grant's, West Merigomish, Tuesday, June 3rd, forenoon, calling at Stewarts Blacksmith shop, French River, for one hour same day; Hugh McDonald's Ponds, afternoon June 3rd and until noon Wednesday, June 4th; Avondale Station afternoon Wednesday, June 4th; Edward Rowlin Antigonish, from noon on Wednesday, June 4th, until Monday, June 9th; John McDonald's (Joe) afternoon Monday, June 9th, until forenoon Tuesday, June 10th, Francis McKenzie's, Kenzieville, afternoon Tuesday, June 10th, calling at Sutherland's River, forenoon Wednesday, June 11th, until noon on Thursday, June 12th; Robert McLean's, Springville, afternoon Thursday, June 12th, until noon Friday, June 13th; at the subscribers, Lorno, afternoon Friday, June 13th, until Monday, June 16th, continuing the above circuit throughout the season of 1884.

TERMS - \$3.00 for Season, payable last round.

WM. S. FRASER.

Printed at the Office of the Nova Scotia Printing Company, corner of Sackville and Granville Streets, Halifax, N. S.