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

VOL. I.

HALIFAX, N. S., FEBRUARY, 1867.

No. 24.

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MILK, BUTTER AND CHEESE.

Second Article.

CHEMICAL CONSTITUENTS OF MILK.

We found that milk consisted of water, casein, oil, sugar, and certain salts. It is on account of the presence of water (to the extent of 86 per cent.) that milk is a fluid; it is the casein that enables it to be made into cheese, the oil that forms the butter, the sugar that gives it a slightly sweet taste, and the salts that perfect it as a complete food, capable of yielding bone material as well as flesh and fat to the young animal.

FERMENTATION, COAGULATION AND OTHER CHANGES OF THE MILK CONSTITUENTS.

The sugar of milk is different from ordinary cane sugar, and likewise from the sugar of grapes. Grape sugar and cane sugar more slowly, ferment and yield alcohol, and then, in weak solutions exposed to air, the alcohol becomes oxidized into vinegar. But milk sugar is not prone to ferment, although it may be made to do so, and in fact an alcoholic beverage is prepared in some countries from mare's milk. The more usual change of milk sugar is not into alcohol, but directly into

lactic acid. When milk is allowed to stand for some time, the casein acts upon the sugar, leading to its change into lactic acid, which is readily known by the sour taste of the milk. This acid is no sooner formed than it in turn acts upon the casein, causing it to coagulate and become solid. This coagulated or solid casein is the material which forms CHEESE. Instead of allowing the milk to stand until the casein coagulates spontaneously in this way, the change may be brought about immediately by adding almost any acid; even common vinegar will form a curd very rapidly. But the agent most commonly employed for this purpose in the dairy is rennet, the strained liquor in which the salted stomach of a calf has been soaked. This substance coagulates the casein without exercising any decomposing action upon it, or upon the other constituents of the milk, as acids are apt to do.

CHEMICAL PRINCIPLES OF THE CHEESE MANUFACTURE.

Cheese is more variable in quality than any other product of the farm. It consists not only of the casein of the milk, but also of a portion, or the whole of the oil or cream, together with volatile flavoring oils in minute quantity. If we com-

pare the cheese to a cake, the casein may be looked upon as the flour, the essential element that forms the basis, whilst the cream and any added ingredients are the fruit and flavorings. The richness of a cheese then depends upon its poorness in casein, just as the richness of a cake depends upon its poorness in flour and the corresponding abundance of the richer materials. If the cream be taken off the milk before it is made into cheese, the proportion of casein will be increased, and the cheese made poorer; and on the other hand, if we not only retain the cream (or new milk) but add thereto the cream from other milk, and fatty matter from any other source, we thereby increase the richness of the cheese. It is impossible to make good cheese out of poor materials, poor milk; but as the process requires great care, it is quite possible to make bad cheese out of the very best materials. The reason why Dunlop, Cheshire and Annapolis cheeses have acquired a fame in the world is not that there is anything peculiar in the pastures, or that the cows that yield the milk are more meritorious, but simply that the Ayrshire, Cheshire, and Annapolis dairy-women have attended to their business better than the dairy-women of other regions. The necessity of care,

cleanliness and promptness in all dairy operations depends upon the proneness of the milk constituents, like those of all other organic bodies, to undergo the putrefactive process very rapidly when in the moist state; and the oil of milk, like all other oils, has a remarkable power of absorbing those volatile oils upon which the *smell* of bodies so often depends. Want of cleanliness initiates the putrefactive process, which, when once set up, cannot be arrested, and the prevalence of bad smells, whether in the cow house, or the pasture, or the dairy, will necessarily communicate the disagreeable qualities to the milk, the cream, the butter, and the cheese. The neatest, cleanliest dairy-woman with the best eye for spying out specks of dirt, the greatest delicacy of the smelling sense, and the most active, willing hands will, in ninety-nine cases out of a hundred, be most successful. It is on this principle that prizes are now so often given for the best dairies and to the best dairywomen.

VARIETIES OF CHEESE.

In a previous article and the present, we have indicated sufficiently fully the chemical nature of the constituents of cheese, and the leading points to be observed in its manufacture. It is well known, however, that the *flavor* and general character of cheese made in different regions often differ very widely. This depends upon details of manufacture; we, therefore, now proceed to describe the modes of manufacture adopted in different localities.

THE FACTORY SYSTEM OF CHEESE-MAKING ADAPTED TO NOVA SCOTIA.

The factory system of cheesemaking, which originated a few years ago, is being actively carried out in Canada. Some 50 or 100 farmers (fewer or more according to the size of farms) join together in erecting a factory, and appoint two or three hands to make the cheese. Each farmer sends his milk to the factory every morning or evening, and receives back his proportion of cheese. By this method the cheese is made on the great scale more perfectly, at less labour and expense, and the farmers and their families are spared all the care and trouble. We earnestly commend this system to the attention of the farmers of this Province. We enquired carefully into the system in Canada last fall, and we see no reason why it should not be carried out in our rich agricultural districts with quite as much prospect of success as in Canada.

DISHONEST FARMERS THE ONLY DIFFICULTY.

We could find only one rock upon which those cheese factories were likely to split, and it is one that equally affects every other branch of manufacture or trade, viz., the dishonesty of the farmers

themselves. As the cheese return depends upon the quantity by measure of milk sent in by each farmer, some of the more unscrupulous partners pumped into their cans a good deal of milk from the cow with the iron tail.

HOW THE DIFFICULTY IS TO BE OVERCOME.

But this difficulty could be pretty well mastered if the manager of the factory had full power to reject milk that was found deficient. A certain standard of richness could be fixed upon, and by means of the Lactometer or other simple modes of analysis, a check sufficient to protect the company's interests might be interposed. The prospective Manager of such a concern should, in fact, go to a college where chemistry is taught, and practice the examination and analysis of milk for a month or two before entering upon his duties, or samples of suspected milk might be sent for analysis to a competent person, and defaulters prosecuted for fraud. Energetic measures would no doubt overcome this form of dishonesty as readily as any other.

We this month give the method of manufacturing AYRSHIRE, or, as it is often called DUNLOP CHEESE. The description is a very full and thoroughly reliable one from Mr. Sturrock's Report of the Agriculture of Ayrshire, for which the Highland and Agricultural Society of Scotland voted a premium of thirty sovereigns.

MANUFACTURE OF AYRSHIRE OR DUNLOP CHEESE.

Reserving the very small holdings under forty, an average-sized dairy farm may be set down as between 100 and 120 imp. acres, in Cunningham and Kyle at least, but in Carrick the same will be 50 acres, or more, larger. Such a sized farm usually keeps a milking stock of from 18 to 22 cows, turning out one cheese daily of more or less weight during the season. A large number of the stocks run between 20 and 30 cows; some few comprise from 30 to 40 or even more, but by much the greater proportion range within 14 to 20. Too many cows on a farm is no profit. A less number, and the more abundant pasturage consequent, always pays better in the long run; besides, the money shut up in overplus stock may be put to other (and paying) uses. Somewhere about five o'clock, A. M., the morning milking of the cows takes place. The milk is carried direct in the "luggies" as drawn from the cows, and emptied through a very fine wire-cloth sieve (the "milsey"), or else through a thin canvas cloth, into a large "milk-boyen" or tub standing in the contiguous dairy-room. The cows being milked, are guided by the byre boy to the field or fields on which they may be for the time grazing. The fields generally are not more than about

6, 8, or 10 acres, in extent each—few exceeding 10 or 12 acres, although they are much larger on the green-cropping along the coast, and commonly in Carrick. Leaving the cows to refill their udders at leisure as best they may, return we to the dairy-room.

The cream of the previous evening's milk is skimmed off, and the remainder being warmed in a vessel in the boiler to about or fully 100°, is then added through the sieve, along with the cold cream, to morning's meal already in the tub, and raising the whole when added to an uniform temperature of from 86° to 88°.—Milk as it comes from the cow is about 96°. After stirring in the "rennet," the milk takes about 30 minutes—seldom less, sometimes more—to properly "thicken" or coagulate. The milk of cows feeding on upland clayish pastures must be thickened at a higher heat than that from cows grazing on more fertile low-lying farms; and during very cold weather, or towards the end of the season, the temperature is always slightly increased. Thermometers are hardly ever used by any of the "Dunlop-makers." The proper warmth is determined by the feel of the fingers or hand, and it is wonderful how near they hit upon, and regularly keep to, that precise degree of heat at which they are accustomed to thicken. Most of the cheese-makers are the wives and daughters of the farmers, only a few of the larger farms, or gentlemen—or bachelor-farmers, engaging bred dairy-women; for in Ayrshire, unlike England, every process connected with the milk, the butter, or the cheese, is conducted by women, and rightly, too; and although most of the "gudewives" and their "doughters" may be much more at home in fingering a cow's paps than the keyboard of a piano, they are not on that account any the less better women, less lovable, or less thoroughly useful members of society.—Rennet, as made in Ayrshire, is simply the strained liquid in which the cut-up salted stomachs of calves (popularly "yearnins") have been immersed for a few days, the water being usually boiled and allowed to cool again to milk heat ere the "yearnin" is put in to steep. The stomach is emptied of its contents, and being cleaned and mixed with a handful or two of salt, is put back again, and being likewise well rubbed outside, the stomachs are then hung up to dry in the kitchen, and where they often hang for a year or more before using. It takes about one gill of rennet, more or less, according to its strength, to properly thicken the day's milk of about 20 cows.

The breaking of the thickened fluid comes next in course. This is effected, generally, by passing the arm and outspread palm, softly and steadily, in all directions through the coagulated milk.—After a short time allowed for the curd

to subside—most assisting by pressing it gently down with their palms—the whey is lifted off with a suitable vessel, and poured through a sieve into some receptacle for the use of the pigs. The massed curd left in the “boven” is then cut into about 4-inch cubes, which are tied into a wet coarse cloth, spread within a square wooden box with perforated bottom and sides (termed a “dreeper” or “drainer”), and subjected to a pressure of about 30 lbs. or so. The curd undergoes this process four to six times (varying at different dairies), with lengthening intervals between, and each succeeding time being cut into smaller pieces, with increased pressure, till the whey has been as completely expressed as the “dreeper” is capable of. In some dairies still the broad lump of solid curd is now minced fine with a peculiar S-shaped long-handled knife; but in the better-conducted dairies, for many years back, the lump is first cut into 4-inch cubes or so, and which are then put through the “curd-mill.” The mills were furnished at first with sharp knife-teeth, but the cylinders are now fitted with eighth-part rectangular pegs (galvanized) which *tear* the curd into fragments. The breaking thus of the curd is considered an improvement, not only in being more expedite and less tiresome than the old-fashioned S-mincer, but the *fracturing* every bit undergoes, leaves the ground curd in a ragged state, forming more perfect cohesion afterwards, and any remaining *serum* coming more readily away. Due allowance of salt having been intermixed, a fit-sized “Chessat” (abbreviation for “Cheese-vat”) is selected, and a cheese-cloth being spread within it, the prepared curd is firmly pressed in with the hand; the corners of the cloth being brought up over all, and the contained curd, it may be, jutting some three to four inches above the edge of the chessat.—By this time it is rather past noon of the day. Some then place the chessat in front of the kitchen fire, with the lid weighted, and standing there for most of the afternoon, frequently turned so as to equalize the heat, and at evening it is put into the cheese-press. Others warm the prepared curd in a vessel before the fire prior to making up the cheese. During the process of pressing, too, the chessat is occasionally brought to the kitchen fire, an operation inconvenient and annoying, as well as laboursome for young women. To obviate these, Mr. Andrew Calderwood, of High Borland, Craigie, had a “hot plate” fitted-up in his boiler-house or making-room, for warming the curd, &c. The plate is of $\frac{5}{8}$ inch cast-iron, about four feet by two, grooved on top for the whey to run off by, and laid flat on the top of a brick flue fired from the end, in line and on a level with the boiler.—Several have since adopted Mr. Calderwood’s plan. A certain degree of heat

tending to improve the quality as well as facilitate the pressing, must be kept up within the curd whilst becoming solid.

The kind of salt in general use is “Salt-coats-marine.” When the cows are receiving turnips, most add about a half-teaspoonful of saltpetre along with the salt, or else (dissolved) into the milk before thickening, and which tends to counteract the turnip flavour. The proportion of salt to the varying weight of curd is off or on as 1 to 48. Aiton says 13 oz. salt to 24 lbs. curd, but he must either have made a mistake, or the makers have greatly changed since 1810. The reporter is not aware of any using above 1 lb. to a two-stone cheese, and most do not salt so heavily. The Cheddar people use still less salt; for instance, Mrs. Lindsay, of Townsend, Craigie, one of our best Cheddar makers, salting at the rate of only 1 lb. to 64 lbs. curd. Many of the Dunlop makers salt partially during the “dreeping” process, again adding salt ere putting into a cheese shape, and some of the salt being dissolved at the former stage and coming off with the expressed whey; more weight has to be used when thus done at twice. The chessats are always of hard wood, composed of thick staves strongly iron-hooped, with heavy barred close-fitting lids, and stout perforated bottoms; and persons who have seen Ayrshire or Dunlop cheeses—who of any *gout* has not?—can tell as to the size and shape of the mould. The ratch-and-pinioned wheeled, iron-framed, lever presses, have been in general use over Ayrshire for the past 40 years at least; and many are now providing themselves with new presses on a combined screw-and-lever principle. The “double screw cheese-press,” made by Messrs. J. and A. Taylor of Ayr, at a cost of £4 15s., seems to act most efficiently, and is noted for its simplicity, durability, and easiness of labour to those working it. With it any pressure from 7 cwt. to 21 cwt. can be put on as desired.

About 5 o’clock, p. m., the cows are brought back to the byre to be milked; produce being carried to the milk-room, and poured about 3 inches deep—much shallower of course in butter-making dairies—into wide flat-bottomed vessels, in some cases of earthenware or glass even, oftener of tin or zinc, but still more commonly yet of wood, and where it rests till used next morning as afore-mentioned. Soon as milked the cows are again put on one of the nearest grass-fields till the evening is well gloamed, when they are brought in for the night. The *complete milking* of the cows is a very important matter. If the whole from carelessness is not entirely drawn off, the cow gradually declines in her milk and becomes much sooner dry. The last milk drawn besides is about ten times richer in cream than that which comes away at first; and a se-

rious loss indeed is inflicted by careless or incomplete milking. In winter-time the cows are generally driven out to the watering-place, for an hour or so in the middle of the day when the byre is “mucked,” and which is much healthier for them than carrying water into the byre.

The made-up cheese we put to press towards evening, is taken out of the chessat on morning of second day, and is then, in very many dairies though not by all, scalded with the cloth on for near an hour in hot water, fully as hot as can be tholed with the hand. It is wiped when taken from the hot bath, wrapt in a dry cloth, and put to press again. It is removed and dry cloths substituted at noon and evening of same day, reversing the cheese in chessat at each remove. Like performance has to be gone through, it may be only once in some dairies, perhaps twice in others, and even three times occasionally, on the third day, by which time the cheese is perfected. The dairy woman has thus always three cheeses in hand. The cheese is then placed without more ado wherever it is to lie till sold and sent off; being reversed and rubbed with a dry cloth every day for a short time at first, and afterwards at lengthening intervals. None of their inward colouring with annatto, or outside painting with Spanish brown; nor sweating, nor greasing, nor canvas-swaddling, at all; just the naked unadulterated truth.

The cases are so very rare in Ayrshire, where the stock is numerous enough as that a cheese can be made from each meal, that it is hardly worth while noticing them; the manufacture is the same in principle. Some few dairies here and there, but very limited,—amongst the best being those of Mr. Hugh Hunter, Barassie, Troon; and Mr. John Lambie, Hill, Crosslands,—are devoted to the making of small cheeses, from 10 to 12 lbs. weight each, and somewhat erroneously styled “imitation Stilton.” These are commonly made on the Dunlop method, always “full-milk” or even more some times, and coloured with annatto; but it is questionable if the higher price they fetch, from 6s. to 8s. per cwt. extra, does more than compensate for the greater trouble and labour had with them.

[Next month the Cheshire system will be described.]

THE ADMIRAL’S BULLOCKS.

In an account of the proceedings at an Edinburgh cattle show in December last, we observe that “in particular, may be mentioned the bullocks of * * * Admiral Sir J. Hope, of Carrington, Linlithgow, which for symmetry, breeding, and feeding for the market, and not merely for show, could scarcely have been equalled.”

AGRICULTURAL SEEDS.

About the beginning of May every year the Secretary of the Board of Agriculture receives a large number of letters enquiring for seed grains, grass seeds, new potatoes, and seeds of other root crops. These letters are mostly from Agricultural Societies. We wish to call the attention of the officers of these Societies to the fact that the Board of Agriculture, with all its powers, has not the gift of prophecy, and cannot be expected to know what the various Societies will require. But if each Society will, in the month of February, send in a statement of what seeds its members wish to have, it will give the Board great satisfaction to arrange with some one for the importation of any reasonable quantity of seeds, and supply them to Societies.

REMARKABLE PLUM GROWTH.

John Northup, Esq., has handed to us two shoots from a *Magum Bonum* Plum tree grown in Mr. Troplet's garden, Gottingen Street. These shoots, from a tree which ripened fruit during their growth, measured respectively 7 ft. 1 inch, and 7 ft. 9½ inches. Such growths as these, in one season, show that our Nova Scotian summer is peculiarly favorable for the growth of fruit trees. The following particulars from Mr. Troplet's garden diary will show the progress of the shoots during the season. Dr. Honeyman says they have larger shoots at Antigonish, for they had some at the Antigonish Show as tall as Miss Swan. It is an easy matter to get a very long sucker from a strong root,—but these shoots of Mr. Troplet's are not suckers, but the year shoots from a fruit-bearing tree.

FROM GARDEN DIARY FOR 1866.

- April 25—Willow catkin swelling; goose-berry leaf one inch long.
 May 8—Emperor moth first seen.
 “ 25—Garden Yellow Bird heard.
 “ 28—Plum trees in blossom.
 June 19—Plum scion 8 inches long.
 “ 27—The two plum scions measured 1 ft. 8 in. and 1 ft. 10 in.
 July 28—3 ft.
 Aug. 3—(Mr. Northup) 5 ft. and 5 ft. 2 in.
 “ 7—5 ft. 2 in. and 5 ft. 7 in.
 “ 21—6 ft. and 6 ft. 5½ in.
 Sept. 10—6 ft. 11 in. and 7 ft. 5 in.
 “ 24—7 ft. 1 in. and 7 9½ in.

SIDE SADDLE FLOWERS, PITCHER PLANTS—(SARRACENIAS).

Some interesting articles have lately appeared in the London *Gardener's Chronicle* on the cultivation of Pitchers. These plants, on account of their beauty and

grotesque forms, are much esteemed in England, but the difficulty hitherto has been to grow them. This may seem odd to persons here who are accustomed to see them shooting up like marsh marigolds in the swamps, only more abundantly. We do not think there can be any real difficulty in raising *Sarracenia*s, if they are rationally treated. *S. purpurea* is an extremely hardy plant, capable of bearing the hottest sunshine of a Canadian or Western summer, so long as its roots are kept wet, yet it is necessarily embedded every winter in a solid mass of ice; it should obviously be kept cool, and not stewed in a stove, as is the method of killing by kindness adopted by many English gardeners.

One fact we wish to mention. Two years ago we found the *Sarracenia* luxuriating in an exposed peat bog, on the top of a hill seven hundred feet high, in the cold island of Cape Breton. It was growing side by side with the cloud berry, (*Rubus Chamamorus*), a sufficient evidence that it was exposed to a cold summer as well as a severe winter; for it is only high up on the Scottish mountains or elsewhere, except in Arctic countries, that the cloud berry grows.—Let cultivators of *Sarracenia* think of this, and of how the great white bear pants by the side of his cool bath in the Regents' Park Garden, even on a day that is not warm to a Briton, and then he will hesitate before he puts his pot of *Sarracenia*s in an orchard house or even a cool fernery. *Sarracenia* must be cooled down to rest in winter and gently warmed into life in summer, like the snakes, and *always* kept floating in water, with its stringy roots in peat.

FELICITIES OF FANCY FARMING.

The editor of the *Gardener's Monthly* treats us this month to a treatise on the “Illusions of Country Life,” through which runs a vein of humour sparkling with grains of golden truth. The article is too long for our columns; we have therefore thrown it into our editorial pan, and here are some of the larger particles from the washings:—No land is bad, but some land is worse, for it takes a salary to maintain it; many who thought “ten acres enough” have found to their sorrow that less than ten is a great deal too much. The author's friend, JESSE RURAL, is a perfect enthusiast, and has had some sad experiences in his time. Jesse planted his raspberries with long canes attached to the roots, and fruited them the first year. “Ah, my boy!” said he, “look at that for a city farmer!” Poor Jesse; fruiting his canes the first year destroyed his costly plants. Now he went into ever-bearing raspberries, those marvellous sorts that fruit through the four sea-

sons. In two years he had half an acre of them, but ultimately concluded that his nurseryman had made a slight mistake and sent him the *never-bearing* instead of the ever-bearing sort. Jesse took to dwarf pear trees, and planted them in holes four inches deep with smooth mounds of earth about them; the mounds soon got hoed away, the hot August sun dried up the roots, *Saperda bivittata* laid its eggs upon them, and—they died. So now, done with surface planting, he planted in sod and mulched his trees heavily with litter. The mulch made a nice shelter for the mice in winter, and these interesting Rodents neatly girdled all the trees. Jesse, with indomitable energy, planted again,—standards, large trees so as to get the fruit early; some were full of fruit buds, and he expected to have fruit in two years. More than half of these trees died from natural causes the first season, and a pet goat finished the remainder while Jesse was at the sea shore. Other trees were planted in the garden and experimented upon with manures to heighten the colour and improve the flavour of the fruit; they dropped off mysteriously, one after another, and “aridity of the atmosphere” and “fungous at the roots” were the verdicts found.—His peaches were attacked by the peach worm; he applied gas tar, killed the worms and—the trees. The strawberries were the next summit of ambition; he planted Hovey's seedling in trench: rich land, and wondered why he got no fruit. He now grows Wilson's seedling in plain soil and succeeds better. Plum and cherry trees grow luxuriantly and the curculio, black knot, aphid and birds divide among them the spoils. He always had good potatoes, but wished to improve them; so he sent to England for seed and imported a new kind of rot along with his new seedlings. Jesse read in his favorite horticultural journal that if peas were planted 18 inches deep they would come up strong like bushes, and a single row of vines might be cropped the whole season. Jesse planted accordingly last spring, but the peas are not yet up. His melons were affected with insects, and he sprinkled them with petroleum; the bugs disappeared, and the plants went into a decline. Let it here be observed that it was the *Gardener's Monthly* that first recommended the use of petroleum, and the *Nova Scotian Journal of Agriculture* that first pointed out the danger of using it, and that our remonstrances have subsequently been fully borne out both in Europe and America. Jesse put too much brine on his asparagus bed; he hatched 400 chickens in winter in the loft of his barn, and tried to make his hens hatch by force, shutting them up with eggs, &c. Some rebelled, some died on the nests, the rats killed many small chickens, the pip took others, and of what

were left ten or twenty pairs would be carried away of a night by chicken thieves. Enough, enough, let us now turn the Philadelphian picture to the wall.

BOTANICAL CONGRESS AT PARIS.

We observe it stated, on the authority of M. Chatin, that the Botanical Society of France intends to organize an International Botanical Congress, the programme of which will be shortly issued. There are likewise special arrangements for horticultural and pomological exhibitions, and a scheme of prizes for garden products has been published.

Communications.

UNION AGRICULTURAL SOCIETY OF EAST CORNWALLIS.

SECRETARY'S REPORT.—APATHY OF MEMBERS—IMPROVEMENT OF STOCK—CROPS.

To the President of the Union Agricultural Society of East Cornwallis:—

SIR,—In submitting my annual report of the Union Agricultural Society of East Cornwallis for the year ending this date, I beg to say, that while there has been an increase of members, and a desire on the part of some of our farmers to extend the usefulness of our Society, there is confessedly a great want of spirit and enterprise to make our Society the really useful institution that such institutions are calculated to be.

The attendance of members at the regular meetings is much less than is desirable, and the disposition evinced in the discussion of topics connected with our calling, is feeble and defective.

Our annual dues are quite too small to enable the society to import or purchase all the improved breeds of stock, sheep and swine we really require, and until our dues are increased, and the moneys due the Society are promptly paid, our transactions in the purchase and keeping imported bulls, etc., must be conducted on a limited scale.

The Society deems it better to husband its funds and purchase one or more bulls of improved breeds, than to expend its funds in an exhibition of stock.

At the September meeting they placed the bulls, Sir Gaspard and the General, in the hands of the council, to be disposed of as they might see fit. Sir Gaspard was sold to an Agricultural Society in Co. Limerick county for \$50. The General was taken to Windsor, exhibited at the show and fair of the Windsor Agricultural Society, and obtained the first prize. As no satisfactory offer was made for him, he was brought back, and is now in good condition.

At a special meeting held in October, a committee was appointed, consisting of Levi Eaton and Jonathan Rand, Esqrs., to proceed to Halifax and purchase one or more bulls for the Society—one Durham, and one of some other breed, as they might determine. The gentlemen attended to their duty, and upon examining the various bulls, they purchased the red Durham bull Sir William, a yearling, weighing alive thirteen hundred and sixty pounds, and comes well recommended, and is certainly a fine animal of his age, cost \$185.

As the season has much to do with the growth and perfection of the barn crops, of farm produce, fruits and vegetables, we beg to say that seldom has there been so peculiar a season for many years past. In the early part of the season there was rather more rain than usual, which was followed by a drought for almost a month, and as soon as the weather broke again a more rainy season has not been known for many years, making farming operations broken and tedious.

On dry and sandy soils and gravelly loams, the continued wet had a beneficial effect in producing a larger growth of plants, etc., than usual; but on clay and retentive soils the rain had a very severe effect in injuring the growth of many kinds of vegetables, and the frequent rains prevented the farmer from securing his crops, especially the hay and grain, in as good condition as in former years. Upon the whole, in this section of the township, the crops are better than could be expected with so much moisture. The hay crop is a fair average one, and the early cut was secured in good condition; but on late meadows there are much of the crops partially damaged, and some totally destroyed.

But little wheat was sown this season, but has proved in many instances to be of superior quality, little injured by the weevil, which seems to be gradually disappearing, and we hope soon to be able to grow more of the staff of life, and not to depend on a foreign supply.

Rye not largely sown, both winter and summer. Some have proved indifferent in quantity and quality.

Oats are more than an average crop; more sown than usual, and of better quality.

Indian Corn is more than an average crop, and we would recommend that farmers would sow more than heretofore, especially of the early varieties. The prices of all kinds of bread stuff are so high it is desirable that the cultivation of all coarser kinds of grain be attended to.

Potatoes not an average crop, and not of as good quality nor keeping as well as in former years, and are inclined to the old-fashioned rot or decay.

Turnips are more largely sown than

last year, and of better quality than for some years.

All kinds of garden vegetables are of superior quality, and more largely grown than in former years.

The fruit, especially apples, was not so large a crop as in former years; and while some kinds are superior others are indifferent.

The income and expenditure of the Society, for the past year, will be found in the Treasurer's accounts, which have been submitted and approved by the Society.

Officers elected for the ensuing year:—*President*, Leander Eaton, Esq.; *Vice Pres.*, Robert Starr, Esq; *Secretary and Treas.*, D. N. Newcomb, Esq.

E. E. DICKIE,
Late Sec'y & Treas.
Cornwallis, 4th Dec., 1866.

REPORT OF MALBOU AND PORT HOOD AGRICULTURAL SOCIETY, FOR THE YEAR 1866.

The officers and directors of the Malbou and Port Hood Agricultural Society beg to report the proceedings of such Society for the year just ended, as follows, that is to say—

That a considerable amount of funds being at the disposal of the Society, as by the statement hereinafter will appear, a meeting of the officers and directors of such Society was duly called and held on the 30th day of August last, for the purpose of appropriating such funds, in such manner as best appeared for carrying out the objects of the society, when it was decided that an importation of improved breeds of cattle and sheep from P. E. Island, was advisable. Mr. John McNeil, one of the directors of the society, was accordingly nominated, and authorized to employ a vessel and to proceed to the said place for the purpose of purchasing and importing such cattle and sheep. Delay, however, being incurred owing to the difficulty of chartering any vessel, and the Provincial stock having been advertised in the interim, Mr. McNeil's visit to the Island was abandoned, and instead he was authorized to attend and make such purchases of cattle and sheep at the said Provincial sale, as, being in attendance, he might consider the most profitable, and for that purpose all the available funds of the society were placed at his disposal.

Having accordingly attended such sale on the 2nd day of November last, Mr. McNeil made purchase of the following stock at the following prices, viz:—

No. 5.—1 Bull, " Duke of Edinburgh,"	price \$75 00
6.—1 do. " Cato,"	" 70 00
14.—1 Heifer, " Nelly the Third,"	" 97 50
18.—1 Shearling Cotswold Ram.	" 40 00
24.—1 do. do. do.	" 46 00
32.—1 Leicester do. do.	" 48 00

Which said cattle and sheep were afterwards, on the 15th day of the same month, sold at Port Hood, pursuant to due notice given, and were purchased by the following persons and at the following prices, viz:—

Bull, "Duke of Edinburgh," by L. McKeen,	\$51 00
Do "Cato," by Farloch McDonald,	56 00
Heifer, "Nelly the Third," by Jno. McNeil,	81 00
Ram, Cotswold, by Lewis McKeen,	27 00
Do. do. by William Murray,	30 00
Do. Leicester, by Alexander Beaton,	40 00
	<hr/>
	\$285 00

The officers and directors are happy to report that this introduction of this most improved breed of stock must prove of incalculable benefit to the agriculture of this section of the country, which perhaps more than any other required an infusion of new and improved breed of cattle; nor can such introduction of animals so strikingly superior, fail to stimulate an interest in this community for the success of the society, as affording an instance of the advantages derivable therefrom, and from sustaining the same in a healthful state of organization and activity.

Owing to the disappointment in procuring the aid of vessels, no further importations were made during the year for the benefit of the society.

The following is a statement of the amount of funds under the control of and owned by the society for year past:—

1855.	
Dec'r.—By amount in Treasurer's hands, less \$18.50, price of a ram sold, but which never arrived	\$192 95
Proportion of the Provincial grant for the year 1855	85 69
1856.	
Aug't—By amount of subscriptions for the year 1856	43 00
By amount received by J. McNeil from Dr. Lawson	60 00
	<hr/>
	\$380 95
1866.	
Nov. 2.—To paid for purchase at Provincial sales, within,	\$374 50
" paid freight for do.	8 50
" paid J. McNeil, expenses in Halifax, as per bill	50 70
" paid N. Murphy, for stabling, &c.,	7 80
" paid com. on \$188 at 5 per cent.	9 40—450 90
	<hr/>
	\$69 95
Nov. 17.—By amount proceeds of sales as within	\$285 00
By balance	215 05
	<hr/>
	\$285 00 \$285 00

The annual general meeting of the Mabou and Port Hood Agricultural Society was held at Port Hood on the first Tuesday of December, 1866, when the following officers and directors were elected for the ensuing year, 1867:—

President, George C. Lawrence, Esq.; Vice do., Jas. D. Cameron, Esq.; Sec'y & Treas., Hugh McDonald, Esq. Directors, John McNeil, Alexr. Beaton, Lewis McKeen, Geo. C. Lawrence, jr., Alexander Gillies, Esq.
Yours, &c.,
HUGH McDONALD,
Sec'y & Treasurer.

PROCEEDINGS AT THE ANNUAL MEETING OF THE "MINUDIE AND BARRONSFIELD AGRICULTURAL SOCIETY," CUMBERLAND CO.

December 4th, 1866.

Pursuant to notice a meeting was held at the Secretary's office, Dr. Mitchell in the chair. Minutes of last meeting read and approved. Mr. Bourgeois submitted his report, shewing a service of 117 cows, of which is collected \$27.25, yet due, \$8.08—which was approved.—The society proceeded to the election of officers for 1867, which resulted as follows:—Pres., Robert Mitchell; Vice Pres., Charles Baker, 1st; Sec'y., John Hunter; Treas., Rufus Seaman; Directors, Messrs. Stephen Baker, Stephen Clark, Charles Baker, Paul LeBlong and John Kirkpatrick.

On motion the directors were empowered to make inquiries respecting a short horn Durham bull and report at the next meeting; also to purchase a ram of some approved breed. The meeting adjourned to the first week in May next.

GILBERT SEAMAN, Sec'y.

ST. ANN'S AGRICULTURAL SOCIETY.

South Gut, St. Ann's, Dec. 11, 1866.

This, the third annual meeting of the St. Ann's Agricultural Society, was held in terms of the Act. The officers for last year were unanimously re-elected, with the exception of the Treasurer, Mr. Lachlan McKinnon, resigned. Mr John Morrison was elected Treasurer, also the Directors for last year were re-appointed. The accounts were examined and found correct.

Abstract state of receipts and disbursements up to 11th December, 1866.

1855.		
Dec. 5. Fo Balance in Treasury at date.	\$130.05	
" Proceeds of sheep sold by Soc'y.	50.50	
1866.		
May. " Do. agricultural implements sold by Society.	48 95	
Oct. 6. " Lx. rams sold by Society.	17.25	
" Am't. of subscriptions for year ending Dec., 1866.	40.00	
	<hr/>	
	\$286.75	
1866.		
May. By Agricultural implements bought, including freights and expenses,	\$82.00	
Oct. " Rams bought, including freights and expenses	36.00	
" Registers, postages and sundries	7.50	
	<hr/>	
	\$125.50	
Dec. 11. Balance due Society to date.	\$161.25	
Amount unpaid for sundries.	75.04 1/2	
	<hr/>	
	Correct balance in Treasury.	\$86.20 1/2

Shortly after the annual meeting in December last, the sheep imported for the use of the society were sold, and notwithstanding the high prices paid and the breed of sheep not being at all what was expected, after a year's experience, the society is convinced that the money was not thrown away. In May about eighty dollars worth of agri-

cultural implements was imported and sold to members for something less than first cost. (The Secretary is requested to send, for the information of the Board, a full list of implements purchased.) In October four ram lambs were imported, which cost the society (freights included) \$36. The amount realized by the sale was only \$18. One lamb died shortly after they arrived.

The Gleason potatoes were distributed to several members last spring. The average yield as far as reported was at the rate of thirty bushels to the bushel. One member reports that out of two seeds only, he raised 30 potatoes all fit for table use. The society is of opinion that the Board of Agriculture has conferred a boon upon the country by the introduction of such a valuable article. The Goodrich calicoes do not promise to be of much profit. The return of the different kinds of potatoes was better than it had been for the last twenty years. As for other crops, such as hay, oats, barley and wheat, the growth was unusually heavy, but by reason of the wetness of the season the different kinds were materially damaged.

JOHN ROBERTSON, Pres.
JOHN MORRISON, Sec'y.

THE SEASON'S CROPS IN SHELBURNE COUNTY.

The hay crop in this county the past year has been above an average crop. In some cases it was not housed in as good condition as it otherwise would, owing to the prevailing wet weather about harvest time. The crop of potatoes has been very fair; very little rot heard of. Garden crops middling. Wild fruit very abundant.

R. H. CROWELL.

CROPS IN UPPER LONDONDERRY IN 1866.

Hay more than an average crop. Wheat fair crop; but little sown. Oats, good. Barley, very good. Buckwheat, a fair crop. Potatoes, light. Turnips, a good crop. Carrots, an average yield. Indian Corn, good, but little planted. Beans, pumpkins, squashes, &c., a good yield.

D. F. LAYTON.

ANTIGONISH AGRICULTURAL SOCIETY.

Antigonish, Dec. 12th, 1866,

The annual meeting of the Antigonish Agricultural Society was held in the Court House, when a statement of the doings and funds of the society was given by the Secretary, but in consequence of the Government grant apportion not having been paid, and not having been advised

as to the amount allowed, it was impossible to balance the books.

There are sixty-nine members now belonging to this society, who have paid in \$82; balance from last year, \$61.68. Expenditures about \$300—\$133.90 of which was awarded in prizes, about one half of which has been paid, leaving the Secretary slightly out of pocket. Balance of premiums will be paid immediately on the government grant being paid; also a report of the doings of this society, together with the state of the funds, will be forwarded so soon as we shall be able to ascertain as to the last mentioned particular.

At the annual meeting the following office-bearers were appointed for the ensuing year:—*Pres.*, D. Chisholm, Esq.; *Vice Pres.*, Adam Kirk; *Sec'y.*, C. B. Whidden; *Directors*, A. McGillivray, Esq., James Burnside, J. McDonald, Esq., Alex. McNeil and Colin Chisholm.

Amount of receipts.....	\$320.02½
" disbursed.....	306.30

Balance in hand.....	\$13.62½
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I remain, &c.,
C. B. WHIDDEN,
Sec'y Antigonish Agr. Society.

REPORT OF KING'S COUNTY AGRICULTURAL SOCIETY FOR 1866.

It is gratifying to report that the society is in a flourishing condition, and numbers some fifty-four members, including honorary members.

The society had no funds in hand at the close of last year, have paid some \$10 for the "Canada Farmer," also \$5 for the "Journal of Agriculture," leaving but a small sum to purchase and keep its stock, and consequently could not make any purchases of the stock imported by the Central Board.

One bull was purchased by the society, which cost \$50. This sum, with the other expenses, will leave the society a little in debt at the close of the year.

A bull which the society has owned for two years, was sold on a credit of six months for a small sum, which will appear in the next account.

The Society now own a bull and two boar higs, besides several farm implements; also one Canadian ram.

Respecting the crops of the past season, the hay was an average crop, a small part of which was housed in good condition, but a large portion was much injured by the frequent rains, some nearly spoiled. A good many of the low meadows, were submerged for several weeks, and the crop was not cut, but the surplus of last year will supply the deficiency.

A middling large breadth of land was sown with different kinds of wheat. The winter variety succeeded well; that sown early in the spring was almost entirely

destroyed by the weevil. The late sown escaped the weevil, but owing to the heavy rains was broken down early in the season, and partly overrun by weeds, and the yield will be light.

A large breadth was sown with oats, and notwithstanding the wet harvest, which has nearly spoiled the straw, the yield will be good.

Of rye, but little was sown here. That sown in the fall yielded well; that sown in the spring was not so good.

A middling large breadth was sown with barley, and the yield was good. We have two varieties here, the bald and the bearded.

But little buckwheat was sown here, which yielded well.

A small breadth was planted with Indian corn, and the crop good.

A large breadth of land was planted with potatoes, and those planted in wet soils nearly all decayed in the ground. The crop on dry lands was pretty good, and not so badly diseased as was expected, and the tubers are keeping pretty well in the cellars; but the want of a market for this valuable crop will be much felt by the people here.

A small breadth was sown with turnips, and the yield middling, the season being too wet.

Other vegetables generally good. The fruit crop was very light, especially plums.

Some fifty copies of the "Canada Farmer" were taken by the society, which have been extensively read, and have diffused a vast amount of useful information. Ten copies of the "Journal of Agriculture" were also taken by the society. This paper is highly prized by the people here, and they anticipate much benefit will result from its publication.

The society express their gratitude to the Board of Agriculture, for the deep interest manifested by them in the agricultural interests of the province, by the importation of cattle, horses, sheep, &c.

The following officers were elected for the ensuing year:—*Pres.*, Stephen Gould; *Vice Pres.*, Jas. W. Harris; *2d Vice Pres.*, Geo. E. Cox; *Sec'y and Treas.*, George Hamilton; *Ass't. Sec'y*, Thos. Tuzo; *Committee*, Wm. Stewart, Wm. Falkner, Leonard Newcomb, Charles Reed, Samuel Palmeter.

The accompanying account will show the receipts and expenditures for the year. All of which is respectfully submitted.

STEPHEN GOULD, *President.*
GEO. HAMILTON, *Sec. and Treas.*

FAIR AT BRATTLEBORO, VERMONT.—
We are indebted to H. Davenport, Esq., for the premium list of the Fair of the New England and Vt. Agricultural Societies, held at Brattleboro, on 4th to 7th September, 1866.

OFFICERS OF SYDNEY AGRICULTURAL SOCIETY.

Sydney, Dec. 7, 1866.

DEAR SIR,—It occurs to me we have omitted giving you the list of office-bearers for 1867. These are:—*Pres.*, Henry Davenport; *Vice-Pres.*, Roderick McLellan; *Treas.*, William Buchanan; *Sec'y* A. H. Bourinot; *Directors*, Alex. Howie, William McLeod, James Muggah, Jacob Ingraham, Patrick Caddigan.

As Mr. Bourinot, our active Secretary, is leaving for Halifax, it gives me an opportunity of rectifying the omission. These societies are not very easily kept in order, and give one a vast amount of trouble in getting signatures and payments in proper time. I ought to have 120 members on my list, yet only 54 signed the roll by 1st Sept, and 77 by 1st Dec; and now, when all for this year is too late, subscriptions are coming in.

I am, &c.,
H. DAVENPORT.

NEWPORT AGRICULTURAL SOCIETY.

Newport, Dec. 31st, 1866.

The annual meeting of this society was held in terms of the Act, on Tuesday, 4th December. The annual report of the Board was read and adopted, and the Treasurer's accounts reported correct.—Office-bearers for the ensuing year were elected as follows:—*Pres.*, James W. Allison, Esq.; *Vice Pres.*, Saml. Chambers, Esq.; *Sec'y and Treas.*, Charles Cochran; *Directors*, Robert W. Allison, John Northup, jr., Israel Sanford, John Burke and Oliver Baxter, Esqrs.

CHARLES COCHRAN, *Sec'y.*

DIGBY CENTRAL AGRICULTURAL SOCIETY.

Digby, December 28th, 1866.

I herewith forward to you a copy of the report presented at the annual meeting held on the 5th inst.

As the number of societies is limited to four in each county, I think it will be found necessary to extend the limits of our society further in two directions; if so, we will require two more bulls, which will take some more of our funds, and I think will be the means of adding to our numbers and helping to create an interest in the improvement of stock, which is very much needed in this part of the Province. If you think this will not meet the approval of the Board, will you please inform me and oblige.

[The Board will no doubt cordially approve of the Society's action in this matter.] Yours, &c.,

JAMES M. AYMAR,
Sec'y. of the Digby Central Agr. Soc'y.

THE CROPS, &c., IN YARMOUTH.

I forwarded early in the autumn a brief statement of the season and crops, as far as I could then ascertain. Root crops at that time were not sufficiently matured to enable me to more than conjecture as to the ultimate crop. Appearances at that stage of their growth indicated a fair crop of most kinds of roots and vegetables, but the continuous heavy rains caused considerable rot in the potato, and seriously injured the turnips, especially on low lands. The crop of potatoes secured in good condition was, after all, above an average for a number of years. Turnips, on the whole, were a light crop. Carrots, and other roots, fair. Grain, as I before informed you, was much damaged in the harvesting, and the crop, on the whole, a small one. The autumn has been unusually open, and the after grass, on the meadows and pastures, abundant; in consequence farmers have fed much less hay than at the same period last year.

JAMES CROSBY,
Sec'y Yar. Agri. Soc'y.

AMHERST AGRICULTURAL SOCIETY.

Amherst, December 29th, 1866.

Dear Sir,—The following are the officers elect, for the ensuing year, of the Amherst Agricultural Society:—*Pres.*, Hon. R. B. Dickey; *Vice Pres.*, T. R. Black; *Sec'y.*, J. Hiram Black; *Treas.*, W. F. Cutten; *Directors*, John W. Smith, James E. Page, Wm. Keiver, Edward Bent, Isaac Logan.

I remain, &c.,
J. HIRAM BLACK, Sec'y.

[We have not room for the annual report this month.—ED.]

NORTH-EAST MARGAREE AGRICULTURAL SOCIETY.

N. E. Margaree, Dec. 18th, 1866.

Dear Sir,—I take the liberty of sending you herewith the annual report of our agricultural society.

The stock purchased at the Richmond sale on the 2nd November last arrived safe, as you will see in our account current. The members are highly pleased with the appearance of the Durham bull, and I am directed to thank you for your attention on this occasion.

I remain, &c.,
JOHN MUNRO, Sec'y.

[The report will be published next month.]

THE LABOUR DIFFICULTY.—In Britain, as on this continent, agriculture is now suffering in consequence of the high rate of wages and the inferior character of workmen.

Miscellaneous.

GLEANINGS FROM THE ENGLISH AGRICULTURAL PAPERS.

THE SEASON OF 1866.—In Britain there was a backward spring, followed by an ungenial summer, and that, in its turn succeeded by one of the wettest and most protracted harvests on record, resulting in serious damage to the crops in many places.

BONE DUST.—It has been recommended never to use bone dust until it has been treated with sulphuric acid, which greatly promotes its action.

A SHEEP TEAM.—At the exhibition at Stanley there were two educated sheep, that performed various gymnastic feats, followed their trainer, and going abreast in harness with a will for work; they were "highly commended."

"TENANT BODIES SCANT O' CASH."—Many of the landed proprietors are making reductions in their rents on account of losses by the cattle plague.

QUITE RIGHT.—In consequence of the outbreak of Cattle Plague in Holland, a portion of the frontier between Wesel and Munster has been occupied by soldiers, and all intercourse prohibited.

A PLAGY POTATO.—At Helperey, in England, a cow was declared by the Inspector to be suffering from Cattle Plague and was accordingly destroyed. A veterinary professor was sent to examine the body, found the throat inflamed, and a potato lodged therein; the inspector was dismissed.

THE BRITTANY COW.—The Brittany breed is the only one, it is said, that has escaped Rinderpest; they are very small animals, of a dark colour, very easily fed, and yield a large amount of milk.

NEW PUBLICATIONS.

American Stock Journal, N. P. Boyer, Gun Tree, Chester Co., Pa., a monthly periodical that should be read by every raiser of stock. The January number is illustrated by full "Page" engravings of the white bull Senator and cow Mary Gay, both Durhams, Kentucky sheep, &c.

The Gardener's Monthly, edited by Thomas Meehan. Brinckloe, Philadelphia, Publisher. January.

Journal of Agriculture, Edinburgh.—Very much improved of late, and now published monthly.

Phrenological Journal, January.—Fowler & Wells, 389 Broadway, N. Y.

American Agriculturist, January.—Orange Judd & Co., 41 Park Row, New York. This carefully edited and copiously illustrated monthly journal is undoubtedly the best one of the kind pub-

lished on this continent; it is read to some extent by our farmers, and we hope its circulation will increase in the Province.

Seventh Annual Report presented by the Council to the Board of Agriculture, Victoria, 1866.

Canada Farmer, January 1st. Published fortnightly, and well adapted to our Province. Hon. George Brown, Toronto, Publisher.

The Abstainer, weekly, P. Monaghan, Halifax.

Colonial Farmer, weekly, Fredericton. *Journal of the New York State Agricultural Society.*

TO CORRESPONDENTS.

The Editor of the *Journal of Agriculture* will feel obliged, if some one personally acquainted with the details of cheese making in Annapolis county, will furnish a description of the process employed by the best cheese-makers in the county.

Just as the present number is going to press we have received a valuable communication on the "Raising of Stock" from "A FARMER," Colchester. He points out the true causes of degeneracy in our Province, and the remedies to be applied. The paper will be given in next number. Meantime the author has our best thanks.

ADVERTISEMENTS!

FOR SALE!

A 3 year old BULL, part Ayrshire and part Durham, rather a fine animal.
Antigonish, Nov. 1866. CHAS. BIGELOW.

BULL FOR SALE.

AN ALDERNEY BULL, 4 years old, a fine animal, not cross, and raises fine stock. Lowest price, \$30. Apply to

H. B. MITCHELL,
Sec'y Chester Agri. Soc'y.

TO CORRESPONDENTS.

Literary Communications are to be addressed to Dr. Lawson, Secretary of the Board of Agriculture, Dalhousie College, Halifax. All lists of subscribers and remittances of subscriptions are to be sent to Messrs. A. & W. McKinlay, Publishers, Granville Street, Halifax.

The Journal of Agriculture

—is published monthly by—

A. & W. MACKINLAY,
No. 10, GRANVILLE STREET,
HALIFAX, NOVA SCOTIA.

TERMS OF SUBSCRIPTION:—

Fifty Cents per annum—payable in advance. A limited number of Advertisements in connection with *Agriculture* will be inserted on application to the Publishers.