JOURNAL OF AGRICULTURE AND HORTICULTURE

CIRCULATION, 78,075 — ENGLISH, 7,000 FRENCH, 71,075

VOL. 15 — NO 5. NOVEMBER 1st., 1911

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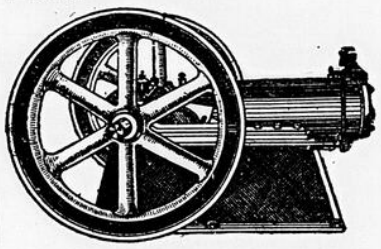

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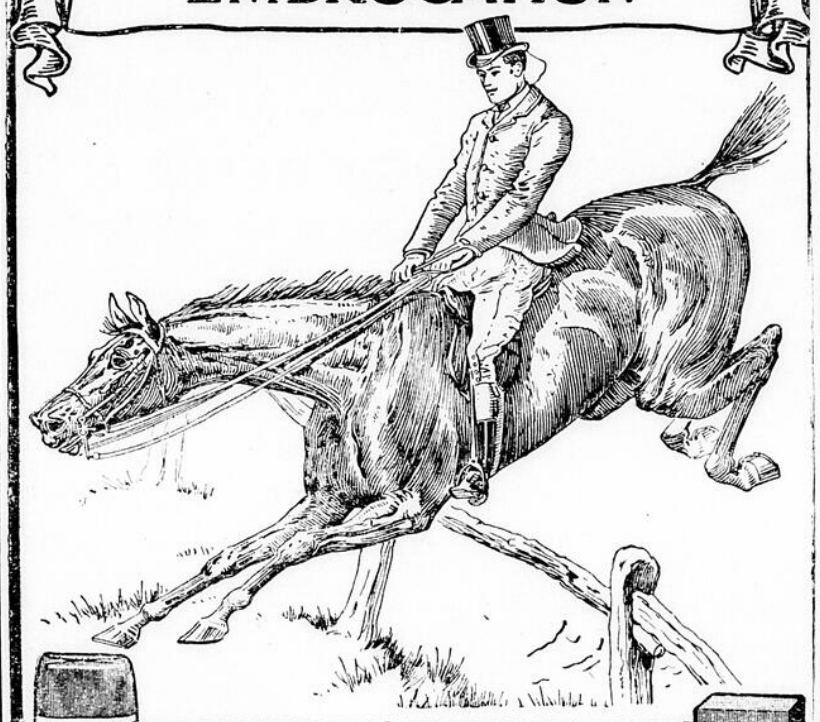

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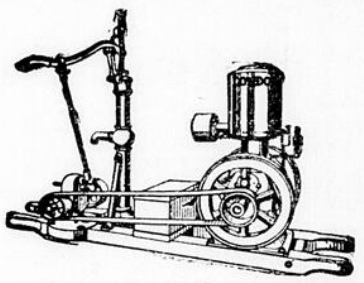

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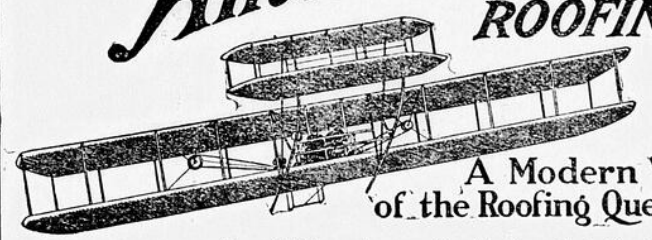

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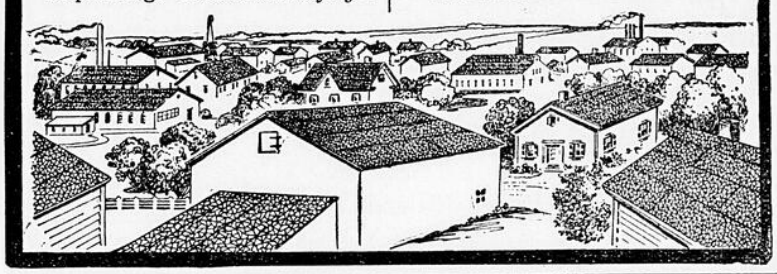

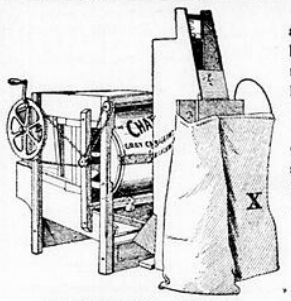

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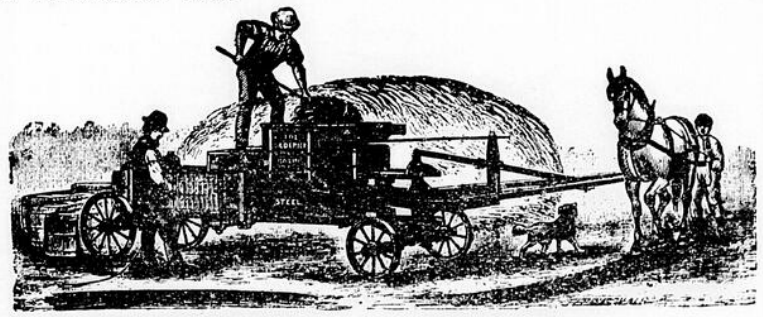

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The Journal of Agriculture and Horticulture

VOL, 15 — NO. 5. ★ NOVEMBER 1st. 1911,

The Journal of Agriculture and Horticulture

"The Journal of Agriculture and Horticulture" is the official organ of the Council of Agriculture of the Province of Quebec. It is issued monthly and is designed to include not only in name, but in fact, anything concerned with Agriculture in the various branches of Stock-Raising, Fruit-Growing, Dairying, Poultry-Raising, etc. All matters relating to the reading columns of the Journal must be addressed to Prof. W. Lochhead, Macdonald College, P. O., P. Q. For rates of advertisements, etc., address the Publishers.

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NOTICE TO SUBSCRIBERS

Subscribers and members of agricultural societies, of farmers' clubs, and of the Provincial Dairymen's Association, who do not regularly receive either the English or the French Journal of Agriculture and Horticulture are requested to address their complaints to the Secretaries of their respective Societies, who will transmit them to the Secretary of the Council of Agriculture at Quebec.

Editorial

FARMERS' CLUBS AND AGRICULTURAL SOCIETIES.

The "Journal of Agriculture" earnestly desires to get into closer touch with the numerous Farmers' Clubs and Agricultural Societies, — more especially those in the English-speaking sections of the Province. The editors have frequently invited correspondence with the Clubs and Societies but the response has been very weak. They feel that they could make the "Journal" more interesting to its farmer readers if the Clubs would cooperate to a greater extent than they are doing, and if they fully realized that this paper is their paper, and is published for their special benefit.

The editors would suggest that each Farmers' Club and Agricultural Society appoint one of its members as correspondent and reporter of its doings to the 'Journal'. Every section has its own peculiar interests, and if the editor were made aware of these, special discussion of them would gladly be made in the "Journal". Address — Editor of "Journal of Agriculture", Macdonald College, P. Q.

OUR WINTER EVENINGS

How many of our young people on the farms are preparing to use the long winter evenings to the best advantage? On most farms winter is a season of comparative freedom from that strenuous labor that characterizes the other seasons of the year. Too frequently, however, the winter evenings with their opportunities for self-improvement are frittered away in a reckless fashion without any thought of the days to come; and in many sections the whole of the spare time in winter is spent by our young people in rounds of jollity and fun.

We would be the last persons to deny young men and women their innocent pleasures. We would not if we could; but at the same time we do not believe the best interests are served when all the free time of the young are spent in fun. Some time should be set apart for more serious things, — things that make for the progress and improvement of themselves and the community.

First of all, some time every week should be given to the reading of useful books, dealing with biography, history, agriculture and standard fiction. If there is no convenient library, organize and get one. A good library is a valuable asset to any community.

Next, let the young men join the district Farmers' Club, and take part in its proceedings. The number of topics that can be dealt with is large, and their discussion may take the form of a written paper, a talk, or a debate. They may deal with anything that concerns the welfare of the farmer, — the growing of crops, the care and feeding of live stock, the improvement of the dairy herd, the selection of seed, the control of weeds, the making of good roads, or the advantages of tile drainage. A young man who honestly prepares himself by reading for participation in the discussion of such topics can honestly say that he has used his leisure moments to good advantage.

Besides, the young women should take an active part in the organization and work of Women's Clubs, which are destined to have a large sphere of usefulness. There are many improvements to be effected in every community, but which will not be done unless the women demand them. By all means Women's Clubs should be encouraged in the rural districts.

Occasionally union meetings of the men's and women's Clubs might be held whenever it was felt that the subjects to be discussed were of general interest.

The "Journal of Agriculture" is willing to help Clubs in the selection of books and topics for discussion.

HON. MARTIN BURRELL

The New Minister of Agriculture for Canada

With the defeat of the Liberal Government under Sir Wilfrid Laurier at the polls on Sept. 21st, a Conservative Government under the leadership of Hon. R.-L. Borden will now administer the affairs of Canada. It is generally conceded that the new Cabinet is a strong one, containing as it does many members who have already shown their capacity for administration. However, there are several untried members who have yet to show their fitness for the responsible positions entrusted to them. The portfolio of Agriculture, so long and ably held by Hon. Sydney Fisher, is now given to the Hon. Martin Burrell of British Columbia, one of the untried members of the new Cabinet. For the sake of agriculture, and the welfare of this great agricultural country, we sincerely hope that Mr. Burrell will measure up to the standards of his predecessors in office.

The qualifications of the new minister of Agriculture are not generally known. He has for many years been a practical fruit-grower —both in the Niagara district of Ontario and in British Columbia — and as such should be familiar with the needs of this important and growing industry. Fruit-growers generally will therefore welcome his entrance into the Cabinet.

His interest in, and knowledge of, the great branches of agriculture, —namely, Live Stock and Dairying — are, however, yet to be revealed. Live stock men should not be too ready to find fault with the new appointment, inasmuch as they have had for fifteen years a Minister who has been specially interested in Live Stock and Dairying. It is but fair that Fruit-Growers should now have their innings.

Mr. Burrell's record in the House has been one of steady progress, although it must be said that his experience has been rather short. He has shown himself to be a vigorous debater and critic, displaying a thorough knowledge of the matters discussed in Parliament.

The "Journal of Agriculture" believes that the new Minister of Agriculture will make good, and it will do everything in its power to promote any measures he brings forward which will aid in the development of Agriculture.

HON. MARTIN BURRELL.

THE CARE OF FARM MACHINERY

It is too frequently the case that farm implements and machinery lie out summer and winter exposed to all kinds of weather, the sun and the rain, to the heat and the cold. Surely everybody knows that such treatment of valuable machinery always involves a heavy loss. Many of the iron and steel parts never work as smoothly after they have once been rusted. The parts of the machine fit more loosely; there is more play and hence greater wear. Bolts and screws snap, and long before the natural life time of the machine it is consigned to the junk-heap or sold for scrap.

Wooden parts are also badly affected by changes of temperature and moisture, for they soon warp and go to pieces.

November is a good time (if not done before) to put away under cover the machinery that has been used during the summer. The shed or cover should be dry, and the delicate parts of the machine should be rubbed and oiled before putting away. Every farmer should have a good implement shed or barn where he can store his buggies, reapers, mowers, plows, etc., whenever they are not in use. Exposure to the weather does more harm to machinery of all kinds than the actual use of them in the fields. Machinery agents make money out of the careless farmer, for new parts must soon be bought to replace the broken ones, and the misused machines are exchanged for new ones at a great sacrifice.

Then, too, the element of lost time is a most important consideration. Breaks occur most frequently of course when the farmer's time is most valuable

The prudent business-like farmer looks after his implements and machines most carefully, for he knows that they are costly, and that he cannot afford to replace them frequently and at the same time make farming profitable.

EDUCATION AND PROFITS

Among farmers, as among business men, there exists much difference of opinion as to whether any education more than the most rudimentary pays as a preparation for their particular line of work.

The number of instances upon which men base their judgment is necessarily limited by the range of their observation. Unless one has made a special study of the question one is likely to base one's conclusion upon a few striking instances. Having once expressed or even formed an opinion one way or the other, one is apt to be ever after prejudiced, to be blind to the instances that are out of accord with one's own opinion, and to see only those which lend support to it, or to look at both through colored glasses. It is only by the impartial study of a large number of instances that really reliable conclusions can be reached.

Such a study we now have. It covers several townships of the county in which Cornell University is situated. This comparison of the profits of farmers of only district school education with those who have had a higher education forms a part of the "Agricultural Survey" of Tompkins County, made by the Department of Farm Management of the Cornell University College of Agriculture, to which we have made previous reference.

Not only were the investigators who conducted thie extensive economic "survey" able to examine a larger number of cases than ordinarily come within the ken of individuals, but they were favored with more confidential information than men commonly give out to their neighbors. These investigators were therefore in good position to get at the real truth and to give an absolutely reliable answer to the question "Does education pay for the farmer?"

The answer is positive and emphatic. It "does pay" a farmer to have education above that of the common school.

The comparison is made on the basis of "labor income". By this is meant the net earnings of the farm after allowance has been made for unpaid labor and for 5 per cent interest on the capital invested in the farm. If a farmer's labor income for any year is $500, he has by his year's work made 5 p.c. on his capital, and has in addition cleared $500 above all farm expenses, besides having the use of a house and such of the farm produce as was consumed by the household.

Of 573 farmers of Tompkins County, owners of their farms, 398 had received only a district school education, while the other 175 had received more than a district school education. Most of the latter had attended high school. Ten had been to college. Only three or four of these had received any agricultural instruction whatever in the schools or colleges. Now while the average labor income of the 398 district school farmers was $318 a year, the average labor income of the 165 high school farmers was $622 — or $304 better. The investigators point out that this would be 5 per cent interest on $6080. In other words a high school education has the same value to a farmer as $6000 worth of 5 per cent bonds.

The few college-educated farmers that came within the purview of the investigation gave a good account of themselves. The ten averaged $847 annual labor income — which is $225 better than the high school men and $529 better than the district school men. But the number of instances of this kind is too small to justify such a definite estimate of the money-making value of a college education as we may unhesitatingly make in regard to the high school education.

To make sure that the superior earning capacity of the better educated men was not due to their having had at the outset any financial advantage — such as inheriting property — comparisons were made of the average labor incomes of "district school" and "more than district school" farmers of equal capital. In every instance the more highly educated farmers had the higher

average labor incomes. For example, of the farmers with $2000-$4000 capital, those with only district school training averaged $241 labor income, and those with a higher education $275; and of those with $10,000 to $15,000 labor income the district school men made an average of $525 and the "more than district school" men $1,091. In other words, given an equal start at the beginning of the year the better educated farmers are ahead at the end of the year.

Parents of boys who are going to farm should ponder these things. It costs much less to give the boy a high school education than to give him $6,000 in bonds or farm property. The two are of equal value in Tompkins County, New York, and no doubt of nearly equal value in Quebec. To give him a two year course in agriculture costs under present conditions in this Province less than $250. Such a course is without doubt worth more to him than a high school education without agricultural training, and therefore worth more than $6,000. In addition to its money value the education ensures him a broader, richer life. Could parents make any better investment ?

THE DRAINAGE SURVEY WORK

Dr. Lynde, the Professor of Physics of Macdonald College, has received many applications for assistance in planning farm drainage systems this year. He has completed the survey of a considerable number of farms, but limitations of time and assistance have prevented his attending to all the applications that have come to him. The remainder will receive attention in the spring. Meantime we would advise all others who will want aid in this line in the spring to send in their applications without delay. The only outlay involved is the payment of the travelling expenses of the drainage adviser at the rate of 1 cent a mile each way and board whole on the job. Application forms may be obtained of the Department of Physics, Macdonald College P. O., P. Q.

PROCEEDINGS OF THE COUNCIL OF AGRICULTURE.

Minutes of a meeting of the Quebec Council of Agriculture held in the kiosk of the Department of Agriculture (constructed on the Quebec Provincial Exhibition grounds in the city of Quebec) at 10 a.m., on Friday, September 1st 1911.

Present — the Hon. C. E. Dubord, and the Hon. N. Garneau; Messrs. Robert Ness, Paul Tourigny, Auguste Dupuis, W. H. Walker, W. Grignon, H. Pilon, J. C. Draper, L. Lavallée, T. Hunter, S. Venne, Jos. Lafontaine, J. E. Roberge, J. S. Messier, Robert E. Skillen and Chas. C. Descary, forming the quorum with Robert Ness presiding.

The secretary read the minutes of the meeting of March 21st 1911, and, proposed by Mr. Dupuis and seconded by Mr. Pilon, the minutes were approved.

Mr. Ness informed the members of the Council that the Hon. Jos.-Ed. Caron, Minister of Agriculture, regretted his inability to be present at the meeting, as he was detained at his office by previous engagements.

A letter was read from the president, Mr. A. J. Dawes, informing the members of the Council that he was prevented by illness from being present at this meeting.

ELECTION OF OFFICERS.

Proposed by Mr. Lafontaine, seconded by the Hon. N. Garneau, and passed:

1st RESOLUTION : That A. J. Dawes be re-elected president, and Paul Tourigny be re-elected vice-president.

NOMINATION OF THE COMMITTEES

Proposed by the Hon. N. Garneau, seconded by Mr. Draper, and passed:

SECOND RESOLUTION: That the various committees should be made up of the following members: —

Agricultural Merit Committee — Messrs. Ness, Tourigny, Talbot, Draper, Hunter, Roberge, Lavallée and Lafontaine.

Committee of the Schools of Agriculture and Veterinary Surgeons :— The Hon. Dubord, and the Hon. N. Garneau; Messrs. Dupuis, Walker, Dawes, Draper, Pilon and Messier.

Committee of the " Journal of Agriculture":— Messrs. Venne, Talbot, Descary and Carbonneau.

Committee of Stud Books for the Registration of Animals:— The Hon. C. E. Dubord, and Messrs. Ness and Grignon.

Proposed by Mr. Grignon, seconded by the Hon. N. Garneau, and passed:

THIRD RESOLUTION : That the members of this Council request the Honorable Minister of Agriculture to have comparative ensilage tests made of Indian corn, sunflower seed, and Jerusalem artichoke, in three different silos; and that an analysis of this fodder be made, if possible, to ascertain the alimentary value of these different ensilages.

Proposed by Mr. Descary, seconded by Mr. Draper, and passed:

FOURTH RESOLUTION : That Article 89 of the rules of this Council be amended by the addition of the following words— " The breeding syndicates, the cooperative agricultural societies, and the agricultural clubs, having their principal seat of business in the county or division represented by the Society, may be competitors, provided they are members of the Society".

A request was read asking permission for Messrs. Philippe and Gedeon Garceau, of Pointe du Lac, St. Maurice County, to be competitors at the exhibitions held by the Agricultural Society of the city of Three Rivers.

Proposed by Mr. Grignon, seconded by the Hon. N. Garneau, and passed:

FIFTH RESOLUTION: That Article 93 of the rules of the Council be amended, by substituting instead of the last paragraph the following:— " A member who is an owner, farmer, or tenant in two counties must notify on, or before, March 1st the Society where he will compete."

Mr. Walker read a letter from Messrs. W. Lochhead, editor of the English " Journal of Agriculture ", and J. F. Snell, assistant-editor, first-drawing the attention of the members of the Council to the distribution of the English edition of the " Journal of Agriculture ", and secondly-asking that their present salaries be doubled.

Proposed by Mr. Draper, seconded by Mr. Walker, and passed:

SIXTH RESOLUTION: That this letter be referred to the Honorable Minister of Agriculture.

Proposed by the Hon. N. Garneau, seconded by Mr. Tourigny, and passed:

SEVENTH RESOLUTION : 1st. That congratulations be tendered the Hon. Jos. Ed. Caron, Minister of Agriculture, for the active part taken by his Department at the Quebec Exhibition in organizing the arrangements, and agricultural demonstrations of the greatest interest; thus contributing largely to its success.

2nd. That thanks should also be tendered to the Hon. C.-E. Dubord, president of the Exhibition Company, and to the directors, for having been kind enough to ask the members of the Council of Agriculture to hold their meeting at the head-quarters of the Exhibition.

3rd. That it should be suggested that the Exhibition Company hold a grand provincial exhibition each year at Quebec.

Proposed by Mr. Grignon, seconded by Mr. Lavallee, and passed:

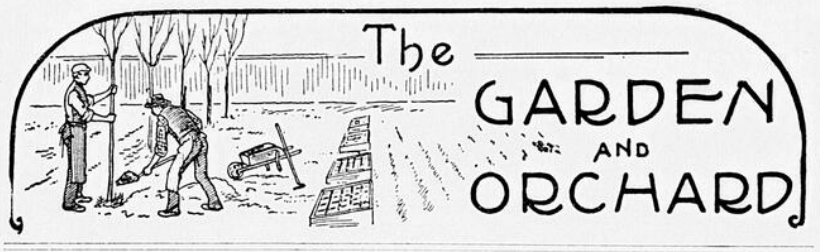
EIGHTH RESOLUTION : That the debate as to the adoption of a provincial law for the protection of sheep from stray dogs be postponed to another sitting.

Proposed by Mr. Skillen, seconded by Mr. Venne, and passed:

NINTH RESOLUTION : That the Council adjourn.

OSCAR LESSARD,

Secretary, Council of Agriculture.



THE POMOLOGICAL AND FRUIT GROWING SOCIETY

Annual Meeting and Exhibition.

In connection with the annual meeting of the Pomological and Fruit Growing Society of the Province of Quebec, to be held at Macdonald College on December 5th and 6th, there will be a Fruit Exhibit, open to the Province.

The following is the premium list :

PREMIUM LIST.

	Prizes 1st	2nd	3rd
Best Collection of Fruit	$8.00	$6.00	$4.00

This collection will be judged as follows:

Color and Quality	40 points
Variety	25 "
Quantity	15 "
Arrangement	10 "
Nomenclature	10 "

CLASS II

	1st	2nd	3rd
Best 12 Commercial Varieties	$7.00	$5.00	$4.00

Five specimens, named

CLASS III

	1st	2nd	3rd
Best 6 Export Varieties	$4.00	$2.00	$1.00

Five specimens, named

CLASS IV

	1st	2nd	3rd
Varieties	$1.00	50c.	25c.

Five specimens, named:

Alexander, Fameuse, Wealthy, McIntosh, Wolf River, American Golden Russet, Scott's Winter, Baxter, Pewaukee, Canada Baldwin, Canada Red (Pomme de fer) , Northern Spy, Blue Pearmain, Bethel, Any other named variety.

CLASS V

	Prizes 1st	2nd	3rd
Best Winter Seedling	$8.00	$6.00	$4.00

10 specimens preferred for judging purposes. This class will be left with Prof. Blair, Macdonald College, till March, to judge the keeping qualities. Only specimens deemed of actual worth will be awarded prizes.

CLASS VI

	1st	2nd	3rd
Best Packed Barrel, Fameuse	$4.00	$3.00	$2.00
Best Packed Box, Fameuse	$3.00	$2.00	$1.00

CLASS VII

	1st	2nd	3rd
Best Packed Barrel, McIntosh	$4.00	$3.00	$2.00
Best Packed Box, McIntosh	$3.00	$2.00	$1.00

RULES

1. Entries may be made with the Secretary, personally or by letter, one week previous to Annual Meeting.

2. Intending Exhibitors, who cannot attend personally, may send their exhibit, prepaid, and the Executive Committee will arrange the exhibit. Each article must be plainly marked and a list should be sent to the Secretary.

3. In Classes II and III larger quantities will not be admitted than those called for

4. Classes VI and VII, Best Packed Box, calls for Canadian Standard 10" x 11" x 20" inside measure.

5. Class VI. Preference given to red variety.

Secretary's Address:

PETER REID,

Chateauguay Basin, Que.

A WARNING TO QUEBEC FRUIT-GROWERS.

The Apple Maggot.

It has been found that the dreaded Apple-Maggot or Railroad Worm is more numerous, this season in Quebec orchards than heretofore. Apple growers should realize that this pest is a serious menace to their industry, wherever it occurs. It should be watched for and properly attacked when detected. Fruit apparently sound may be utterly riddled with it. Apples are frequently refused from orchards known to be infested. This happened with several Canadian orchards this season.

The life-history and habits of this fly are, briefly, as follows. The adult is a two-winged fly, smaller than the house-fly, with beautifully banded wings. It lays its eggs in summer through slits in the skin of the fruit. The young maggots, when hatched, bore into the pulp and drive winding tunnels in any direction. The maggots are nearly colorless when small and are then difficult to detect. Later, their reddish tunnels are evident as soon as the fruit is cut. Infested apples frequently drop early, and the maggots leave such later to enter the ground for the winter. They bury themselves usually an inch or so below the surface and appear as flies in the following summer to lay eggs on the fruit. It is not uncommon, however, to find many infested apples among those which have been picked and packed as sound. These maggots are probably from late-laid eggs, and are still too small to cause the fruit to drop. They continue their work, however, and when the apple is cut, weeks later, it is found utterly riddled with the tunnels. It is through these infested fruits that the pest is spread, and the bad reputation of the orchard obtained. An apple may contain many maggots and yet give little external evidence. The tiny scar of the egg slit can be found if looked for, but unless the maggots have been boring near the skin there may be little or no distortion of the fruit.

Rigid destruction of fallen and other infested fruit is the only effective method of control. It is useless to spray for this pest. The maggots are at all times within the fruit until they leave to pupate. There is no way yet devised to prevent egg-laying. Fall-plowing under the trees for the purpose of burying the pupae so deep that the flies would be unable to reach the surface may be tried ; but seems to be of little use. It has been shown in experiments that the flies will emerge safely through six inches of earth.

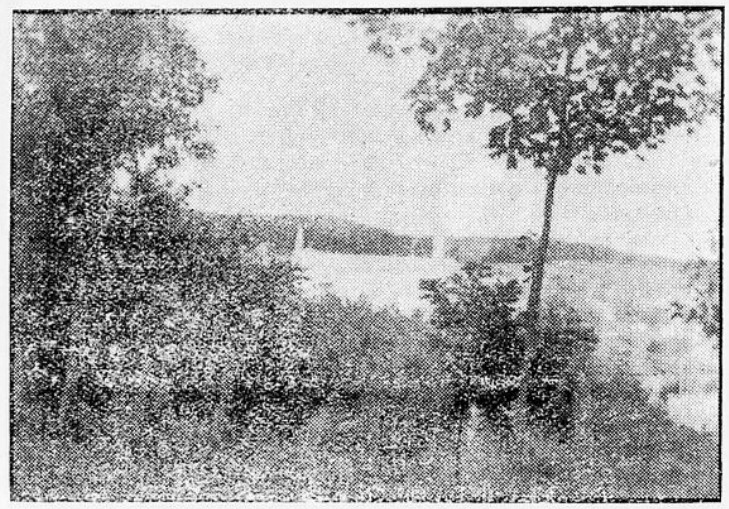
There is only one method left — to destroy the infested fruit. Gather the wind-falls every day, or every second day, boil and feed to stock, or otherwise completely destroy them. If buried, they should be covered with lime and over a foot of earth. Hogs are turned into the orchard by some for the purpose of destroying the fallen fruit.

Apparently the flies travel only a short distance ; commonly returning to lay their eggs on the trees from which they came the previous season. By careful work the pest may be effectively controlled. As this insect is probably spread chiefly by infested fruit a constant watch for it should be kept in apples brought from outside, and infested fruits destroyed. A few such "maggoty" apples thrown out in the ground may start the trouble in a neighbouring orchard.

This destruction of fallen fruit AS SOON AS POSSIBLE AFTER THE APPLES HAVE FALLEN is also perhaps the most effective method of controlling the curculio, which has also been more injurious this season than usual.

The Maggot cannot be mistaken for codling-worm or curculio ; the latter two cut large holes about, and through, the core. The maggots bore throught the pulp in all directions.

J. M. SWAINE.



View of the Trappist Monastery from the road running down the hill from the Agricultural Institute.

SUMMER MEETING OF THE QUEBEC SOCIETY FOR THE PROTECTION OF PLANTS AT LA TRAPPE,

Sept. 26th and 27th.

Good Attendance; Fine Educational Excursions; Excellent Weather.

Tuesday Sept. 26th was one of the most delightful of our many fine autumn days. The trees on the hillsides were gorgeously clad in yellows and reds and purples, and the air was mild and balmy, with just that amount of haziness that adds charm to a lovely landscape. La Trappe was at her loveliest, surrounded as she is by treeclad hills. Her orchards and her vineyards were never so laden with fruits.

The Summer meeting of the Society for the Protection of Plants was therefore held under the most favorable conditions. The large delegation of members from Macdonald College was headed by Professor Lochhead, Mr Swaine, and Mr. Brittain. The fine day brought a larger number of visitors than usual, but they were all most hospitably received by Brother Liguori, Fathers Edward, Honore and Emilien, Professor Dargons, and the senior students of the Agricultural Institute.

After mid-day lunch, three separate parties were formed for trips through the orchards, gardens, nurseries and woods. Collections of insects, plant diseases, and weeds were made, and field talks given on each interesting discovery. The dry season just past was very unfavorable for the development of fungous and insect pests so that the collections made by the parties were smaller than those made at the similar meeting last year.

At 7 in the evening a general meeting was held in the large lecture-hall of the Institute, Prof. Lochhead, President of the Society, occupying the chair. The leaders of the parties discussed the collections of the afternoon. Mr. Swaine dealt specially with the five most injurious insect pests of the apple, viz. Woolly Alphis, Codling Worm, Lesser Apple Worm, Plum Curculio, and Railroad Worm, — giving concisely the main points in the life-history of each, and the best methods of control. Mr. W. Dreher, a student of Macdonald College, summarized Mr. Swaine's remarks in French for the benefit of those who did not understand English.

Mr. W. Brittain, Instructor in Biology in Macdonald College, spoke on some aspects of insect life exhibited in the collections before him, with special reference to the preparation insects make for passing the winter. Mr. Parent, a student of Macdonald

THE REVEREND FATHERS IN THE ORCHARD GATHERING APPLES AND PACKING THEM IN BARRELS.

Some members of the Quebec Society for the Protection of Plants inspecting the nursery beds under charge of Father Emilien.

College, summarized in French Mr. Brittain's remarks.

Professor Lochhead spoke for a short time on the fungous diseases of the Apple and the Grape, and showed how diseases such as the Apple Scab, the Powdery and Downy Mildews of the Grape, and the Blight of Potatoes can be controlled by spraying. He also described the two outstanding plant phenomena of autumn, viz. — the fall of the leaf, and the coloration of the leaf. The changes in structure in the one, and in cell contents in the other, were described at length, also the economic bearing of these phenomena in the life plants.

At the conclusion of these addresses Brother Liguori, Father Edward, and Professor Dargons spoke regarding certain phases of the work of the Society. Professor Dargons referred to the use of Arsenate of Soda in France as an insecticide and as a fungicide. Mr. Clouthier, a senior student of the Agricultural Institute, La Trappe, also spoke in reference to the value of the work of the Society to the Fruit Grower.

The meeting was considered a great success by all who were present. Father Edward on behalf of the Agricultural Institute invited the Society to hold its next summer meeting at La Trappe as he recognized the value of such meetings in directing the attention of his students to the importance of an intelligent war against weeds, insects, and plant diseases.

NOTES ON THE GRAPE.

Its History. — Development of Grape-Growing in America.—By-products of the Wine Industry.

The grape of the Old World, Vitis vinifera, can be justly called one of the oldest fruits on the earth. It is among the fruits mentioned in the Books of Moses, and may have been, as Milton has said, "The Vine" of the Garden of Eden. Noah planted a vineyard after leaving the ark, and the vine appears to have been cultivated, and the fruit used then, as at the present day. As far back as the records of man have been traced, the grape has been found as one of the important fruits. Grape seeds have been found in the remains of the Swiss lake dwellings of the Bronze Period, and in the tombs of Egypt. Its written history is as old as that of man and interwritten with it.

Botanists state that the probable home of the European Grape, Vitis Vinifera, was in the region around the Caspian Sea. From there it was carried Eastward into Asia, and Westward to Europe and Africa. Probably the Phoenicians, the earliest colonizers along the Mediterranean, carried it to the countries along that sea.

It is certain that grapes were widely grown in that region at a very early period, for Hesiod about 1000 B.C., gave full directions for the care of Vines, so full, indeed, that they need little change at the present time.

GRAPES IN AMERICA.

The first man to touch American soil mentions as one of the features of the country the wild grapes in the woods.

The Norsemen, who, it is supposed, touched the northern portion of America about the year 1000, gave the name Vineland (Wineland) to one portion where the wild grapes were very common, probably some part of the New England states. Jacques Cartier in 1534, also mentioned the grape vines found on the shores of "Baie des Chaleurs". On his second voyage in 1635 he ascended the St. Lawrence and found an island so covered with vines that he named it the Isle of Bacchus. Later came the English colonists to New England, who found the grapes one of the chief wild fruits. Winslow in 1621 wrote, that in New England were "grapes, white and red, and very strong also". A Vineyard was planted by the Governor of Massachusetts in 1630. In 1632 Governor's Island in Boston Harbor, was granted to Governor Winslow on condition that he plant a vineyard, and in 1634 the yearly rent of this Island was a hogshead of wine.

Nearly all the early colonies in America tried to grow European Grapes, but never with much success. The most energetic of these early attempts was in Virginia, where, on the first importation of European vines, the Colonial Assembly passed an act requiring every householder to " plant ten cuttings and protect them from injury ". Following the revoking of the Edict of Nantes in 1685, many Huguenots sought refuge in America, settling chiefly in the Carolinas and Georgia. They made many attempts at vine growing but without any permanent success; yet the efforts kept the subject before the public, and out of the failures there finally came the type of grape that persists to-day.

Numerous attempts to grow European grapes in America were made during the next century and a half, but never with any marked success. They would grow vigorously and bear well for a few years, and then disease would wipe them out.

In August 1796 there arrived in Philadelphia a Swiss named John James Dufour, who was destined to play a very important part in the founding of successful grape culture. After travelling through all the grape regions for a year or more, he organized the Kentucky Vineyard Society, and planted a vineyard on the Kentucky River about 25 miles from the present City of Lexington. The Company was organized with $10,000 capital in shares of $50 each. Dufour was given 60 shares as salary to conduct the business until it became productive, when he was to receive a salary of $1,000 a year. Owing to disease and frost the vineyards proved a complete failure, and only a few bunches of grapes were ever picked. Dufour's next attempt was in Indiana on the banks of the Ohio. Congress in 1802 granted him 2500 acres of land on a credit of 12 years, and the settlement of "New Switzerland" was established. Vineyards were planted and for a time promised success. Disease soon began its work however, and the European vines quickly sickened and died. This venture was a failure, and in 1827 Dufour died after having given his whole life to prove that the European wine grape could not be grown in Eastern America. He, himself, had made a failure of every attempt, but indirectly he had laid the foundation of successful grape growing in America, In his vineyards he had found that one variety, which was supposed to have originated at the Cape of Good Hope, and was consequently called the " Cape ", proved more resistant to disease than any other. This was really a seedling of Vitis Labrusca and the first grape of true American origin. During the next ten years this "Cape" variety, and another of American origin, the " Bland ", were widely distributed by Peter Legaux, one of the pioneers of successful vine culture. One of the first plantations of native grapes was that of Mr. Thomas Eichelberger of York, Penn. Four acres were planted by him in 1818, and by 1826 there were more than 150 acres of vines in the borough of York. The chief varieties were the Cape, York Claret, and York Lisbon.

THE GRAPE IN CALIFORNIA.

While the exact origin of the grape grown in California is not known, it is unquestionably of the European species, Vitis Vinifera. How, or when it was introduced into that state is not known definitely, but it is supposed that cuttings were brought from Spain by the early Spanish missionaries. It is certain that they grew grapes in connection with their mission stations at a very early date. Their vineyards were large, and were worked by the Indians attached to the stations, under the direction of the priests. So far as is known but one variety was grown, a variety still retaining the name " Mission " though often erroneously called California. This is altogether different from the native wild grape, Vitis Californica.

It was not until quite late in the fifties, after the gold excitement had somewhat abated, that some German and French pioneers began to give attention to the culture of grapes, and to make and handle wine systematically. Up to this time wine was mostly kept and transported in skins of rawhide, as in the olden times. It may be said, therefore, that the grape industry, as such, on the Pacific coast is only about 60 years old.

Up to 1850 the " Mission " was almost the only grape cultivated, and most of the Vineyards were clustered around Los Angeles. It was soon found, however, that the European grape, which could not be cultivated successfully in the Eastern states, had found a congenial home in California, and the best varieties from the old world were soon imported. One important point lost sight of, however, was that the hot rainless summers of that region produced a grape having a very high sugar content and not suitable for wine making. The poor wines made gave a setback for a time to the industry. The injurious practice of selling the entire produce of the vineries , good, bad, and indifferent, at an average price, also crept in. As a consequence, the dealers who bought the wines disposed of the low grade goods as " California wines", and those of better quality as French or German wines. The state thus suffered all the discredit for the poor wines, and got no credit for the really good wines produced. This was during the period between 1855 and 1875, at which time wines and grapes fell to a price so low that it was not profitable to grow them.

At the present time some of the largest vineyards in the world are to be found in California. Of those the Leland Stanford plantation of 5,000 acres is the largest. This vineyard is nearly seven miles long, has a wine factory connected with it that covers six acres, and where from 400 to 850 tons of grapes are crushed daily.

With the developement of the wine industry to such a great extent came the serious problem of waste disposal. From what in the early days of the industry was looked upon as useless garbage is now being made a number of by-products, that help swell the revenue to no inconsiderable extent. A few words as to what there are should be of interest.

Pomace Brandy :— Made from the refuse pomace of the wine factories.

Pomace Silage :— Pomace is slightly salted and stored in silos, after fermenting for a time it makes excellent feed for stock.

Pomace Fertilizer:— After having the acids neutralized with lime, pomace makes a valuable fertilizer, being rich in potash and nitrogen.

Acetic Acid:— Pomace is dried in vapour-tight chambers until it has lost fifty to sixty per cent of its weight. The vapour is condensed and contains from five to ten percent acetic acid.

Paper:— Made from refuse stems.

Ground Feed:— Seeds are ground up and sold as stock food. They are stated to have a value equal to, or greater than that of oats.

Coffee:—Seeds, parched and ground.

Olive Oil, Linseed Oil: — Imitation oils of both kinds are made from the seeds. An excellent soap is also made with the vegetable oil as fat.

Cream of Tartar:—Tartaric acid and argol are made from grape skins and also from the sediment in wine casks.

E. M. STRAIGHT,

Macdonald College.

A FRUIT SPOT OF APPLES

Specimens of apples have been received from various localities, in Ontario, Quebec, and New Brunswick, which show dry brownish areas scattered through the flesh. The first lot of spotted apples came from Dundas Co., Ontario. The varieties affected were MacIntosh Red and Fameuse, and were grown on sod. The apples began to fall early, while orchards near by were unaffected.

The second lot was observed in an orchard of the Trappist Fathers in the County of Two Mountains, Quebec. In this case only individual trees were affected. The brown dead areas occurred throughout the flesh of the apple.

The third lot came from New Brunswick and was collected by R. P. Gorham B. S. A. The variety was a local one and was not given. In this case the brown spotting occurred just beneath the skin and resembled the well-known " spot " of the Baldwin.

It is not known how wide-spread is this injury to apples, but undoubtedly the fruit affected is unfit for the market.

As to the production of the " spot ", it would appear that drought conditions may be an important factor. At La Trappe the tree that was most conspicuously spotted was situated on the side of a hill, near the top, and among boulders. It is quite probable that the tree was set upon a bed of boulders and clay, and therefore very liable to periods of drought.

If such were the case then it is easy to understand how evaporation from the surface of the fruit in day-time might exceed the supply sent from the roots, and the cells about the end of the conducting strands in the fruit will wilt, and if the conditions prevail for some time they will dry up and die.

Again, the death of many small areas within the fruit may be due to rupture of the cells. If transpiration from the fruit is so retarded at night or other time that a high pressure is set up on account of the activity of the roots, it is quite possible that the tender cells at the end of the conducting strands may be ruptured.

However it may be explained, the fact remains that only certain trees are affected. These trees show lack of adaptation to environment and should be gradually replaced by trees that show thorough adaptation.

W. L.

DEFOLIATION OF FORESTS BY THE SPRUCE BUDWORM.

Considerable uneasiness and even alarm has been felt by lumbermen and others interested in forest products, over the depredations in different parts of Canada, of the spruce budworm, (" Tortrix fumiferana") . It was feared that the spruce might suffer a fate similar to that of the tamarack which was killed by the larch sawfly about twenty-five years ago. As a result, however, of careful investigations begun by the Division of Entomology of the Dominion Department of Agriculture during 1909 and still in progress, the situation appears to be much more satisfactory and reassuring than was at first considered possible.

The destructive work of the budworm was first reported two years ago from Vancouver Island, where the Douglas fir was attacked ; and from Quebec, where the spruce and the balsam suffered chiefly. In the case of Quebec, the pests were at first confined to the west-central portion of the Province, but during 1910 areas on the east of the St. Lawrence were also attacked. It was this latter circumstance that roused timber owners to a sense of the possible extent of the danger.

While in the caterpillar stage these insects destroy the buds of the spruce and balsam, especially at the tops of the trees. They also bite off the leaves, which, together with the excrement of the caterpillars, cause the tops of the trees to assume a reddish brown appearance. When a large area is attacked it appears as if it had been swept by fire.

As such plagues of air insects can only be controlled by natural means, the Dominion Entomologist visited a number of the infected districts for the purpose of discovering a natural remedy that would meet the situation. Various insect enemies or parasites were found, that prey upon the budworm, and these are being used to destroy the pest. As the percentage of important parasites, especially of the minute species which attack the eggs of the budworm, is unusually large, there is abundant reason for hoping for the extermination of the latter. Judging by previous experiences in studies of this nature, it is not improbable that the insect will be controlled by its natural parasites in the course of a year or two, that is, before it has inflicted any serious damage to the spruce and balsam by repeated defoliation.

Bulletin Conservation Commission.

INFLUENCE OF GRASS ON FRUIT TREES.

The injurious effect of grass growing round fruit trees is well established, but an experiment has been begun by the National Fruit and Cider Institute to ascertain whether the gain in growth is sufficient to pay for the labour necessary to keep an area round each tree free from grass.

Circles of 9 ft. and 6 ft. in diameter have been kept free from grass round the stems of apple trees of eight varieties since planting, and the effect produced has been measured by the diameter of the stems. The most interesting feature at present is that the advantage of the 9 ft. area over the 6 ft. area was almost entirely in the first two years that measurements were taken—i.e., the third and fourth years after planting.

Each year there has been an appreciable gain with both free areas over the trees planted in grass land, but in the fifth and sixth years after planting it has only been enough to justify the labour of keeping the smaller area free.

This leads to the suggestion that instead of planting directly in grass land, as is customary, the better plan may prove to be to plant in cultivated land, which may afterwards be sown to grass, since apparently it is during the first season or two after planting that the tree reaps most benefit from the absence of grass in its proximity.

The Farm and Farm Crops

ILLUSTRATION PLOTS OF ALFALFA

District Representative Wood of Huntingdon Summarizes the Work in that County.

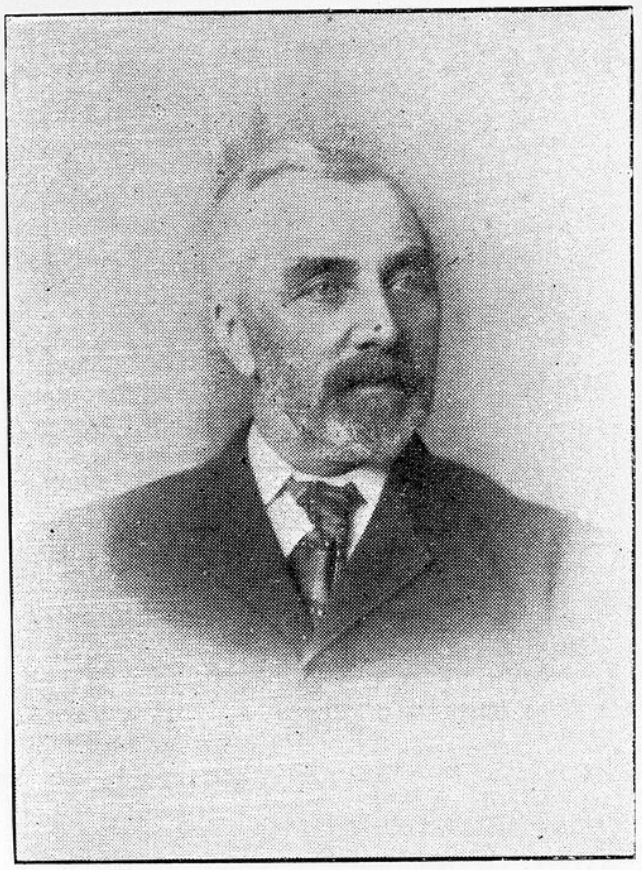
In the August issue of the "Journal of Agriculture" there appeared a short article describing the work with alfalfa which was being planned and carried out in the counties of Huntingdon, Brome and L'Assomption, by the Committee of Lands of the Commission of Conservation. A brief statement covering the work done in Huntingdon county should prove of value to those who are interested in the growing of this crop.

The object of these illustration plots, it will be remembered, is to determine the suitability of alfalfa for these districts when the best known methods of soil culture and seed treatment are employed.

At Macdonald College during the past five years splendid results have been obtained with this crop. On an average, three crops a year have been removed and a substantial growth has been allowed to freeze down each fall and protect the roots from severe freezing and sudden changes of temperature. While it was not reasonable to expect that in many cases such satisfactory results would be obtained in different parts of the Province, it was felt that these illustration plots would afford an excellent means of making a first hand study of the difficulties encountered by those who have met with somewhat indifferent success in their attempts to grow this crop.

Being a tender plant in the early stages of its growth, alfalfa requires careful treatment. A fairly fertile soil, free from grass and weeds is the first essential. The land must be well drained, free from acid and have a deep but firm and well prepared seed bed. Failure to observe one or more of these important factors is, in large measure, accountable for the seeming inability of some farmers to get and maintain a good stand of alfalfa.

Owing to the late date at which these illustration plots were selected, all spring crops had been sown and as a result the only land available was either in pasture or in meadow. In order to prepare such land for late summer seeding, much more labor was necessary than would have been required had the alfalfa followed a hoed crop as is generally recommended.. However, by ploughing the sod shallow immediately after haying, and by cultivating at intervals of a week or ten days for a period of a month, the greater part of the grass was killed. On two of the farms an application of lime was found to be necessary. This was applied and thoroughly mixed with the soil.



W. H. WALKER, M. L. A.
First Secretary Huntingdon District Dairymen's Association.

After a short time had elapsed manure was applied at the rate of about fifteen tons to the acre. The land was then ploughed a second time, thoroughly worked to form a good seedbed and firm the lower layers of soil, after which the seed was sown during the first week of August. The seed, which had previously been treated with nitro-culture, was sown broadcast at the rate of 25 lbs. per acre. The grass seed attachment on the ordinary grain drill proved very satisfactory for seeding.

On the seventh of October, when a representative of the Commission last inspected the plots in Huntingdon the alfalfa had made a fairly satisfactory growth. At that time the crop averaged seven inches in height, the plants were dark green in color and have promise of being able to withstand the winter. A second acre is now being prepared for seeding next spring.

G. W. W.

FALL PLOWING

Its Effect in Conserving Moisture.

In the September number of this Journal Professor Klinck points out the many advantages to be gained by ploughing all land in the fall.

The purpose of the present article is to show the gain in moisture of soils ploughed in the fall, as compared with similar soils ploughed in the spring; for it is generally admitted that in Canada the preservation of as much moisture as possible is necessary if heavy crops are to be produced. In fact one of the chief aims of cultivation is to store in the soil as much as possible of the rainfall, and to reduce the loss of water by evaporation to a minimum; this loss being greatly checked by keeping a thin layer of fine earth on the surface and renewing it after every rain.

Professor King states that he has observed "a mean difference of 2.31 per cent (110 tons per acre) more water in the upper three feet of immediately adjacent lands plowed late in the fall as compared with that not plowed, the surface of neither having been disturbed until May 14th. The larger quantity of water in the fall-plowed land, in this case amounting to not less than 6 pounds to the square foot, was due partly to two causes, namely, — the loose open character of the overturned soil, causing it to act as a mulch during the fall, and again in the spring after the snows had disappeared; and the more uneven surface, which tended to permit more of the melting snow and early spring rains to percolate into the soil."

From Mr. A. D. Hall we quote: "Breaking up the stubble after harvest is an important factor in catching the winter rain; all land which is to lie idle through the winter, previous to the sowing of roots or spring grain, should be early turned over with the plow and left rough through the rainy season. On the old stubble, which has been made solid by the weather and the tramping during harvest, the rain lies for some time and evaporates, and if the land be at all on a slope the water shoots off into the ditches. But the broken surface of a ploughed field both hinders the flow of the water and affords it many openings by which to sink in. At the same time the increase of pore space in the loose ploughed layer enables this portion to absorb more water before percolation begins.

"The following table shows the effect of plowing up a stubble in autumn on a thin chalky loam where the soil is only about 2 feet deep. The samples were taken on March 3rd 1902. There had been little rainfall except in the previous December. The figures show mean percentages of water in the wet soil.

PER CENT OF WATER IN WET SOIL IN SPRING.

	Land Plowed in Fall.	Adjoining Land not Plowed.	Gain due to Fall-plowing.
1st foot	16.45	16.0	.45
2nd foot	15.8	14.6	1.2

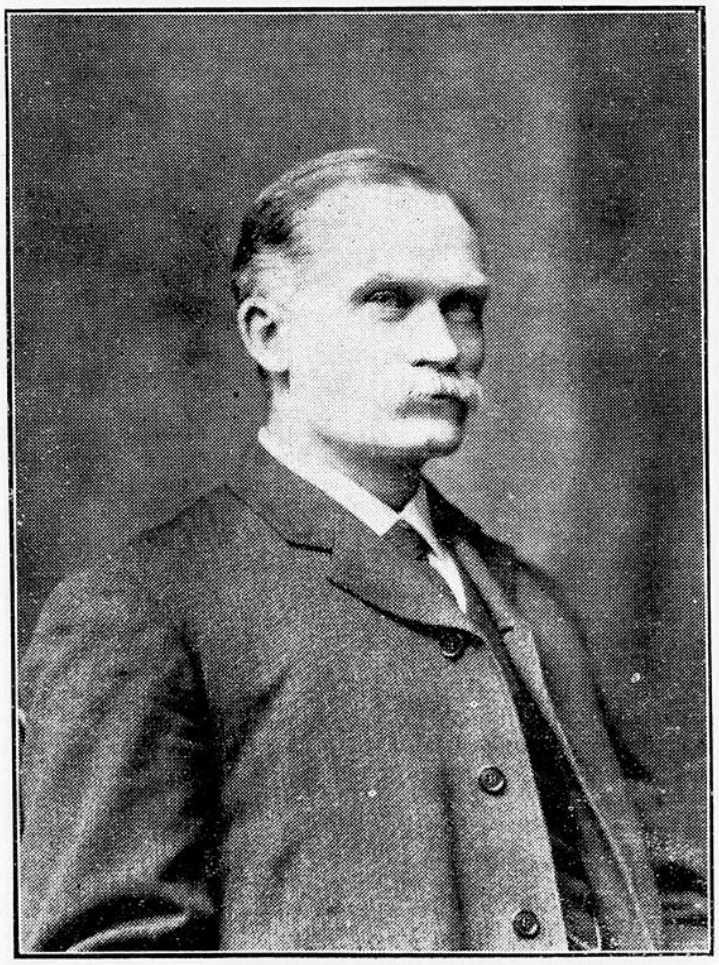
This would mean a gain of about 80 tons of water per acre in this very light soil. The importance of conserving the rain in the soil may be better realized if one remembers that a crop of mangolds, 40 tons per acre, will evaporate rather more than 1200 tons of water per acre in producing this yield, or an amount equal to 12 inches of rainfall.

H. S. HAMMOND,
Macdonald College.

IMPROVEMENT OF TIMOTHY.

Some Excellencies and some Defects Improvements sought.

Timothy is the most popular hay and pasture grass in Quebec. Reasons for this popularity are not far to seek. It is an extremely hardy grass and is admirably adapted to the wide range of soil conditions found in the Province. It luxuriates on heavy clay soil, thrives on most undrained lands, is unexcelled on peat soils, and stands without a peer on reclaimed swamp areas. Being a perennial, it occupies the ground for years without reseeding. It possesses good tillering properties but being a "bunch" or "tuft" grass never forms a dense sod. Unlike many perennial grasses it is excellent in rotations, few grasses, if any, being more easily killed when it is desired to break the land out of sod. Timothy produces a heavy tonnage of nutritious palatable hay which is highly prized by feeders, especially by horsemen. It cures readily and can be made into hay with a minimum of labor. The time at which it may profitably be cut, without deteriorating in quality, extends over a longer period than that of any other widely cultivated hay plant. Being particularly heavy in proportion to its bulk it is an economical shipper, and as the proportion of stems to leaves is high, loss in curing and subsequent handling is small. It is



JAS. W. ROBERTSON, C. M. G., L. L. D.
Appointed Dairy Commissioner Feb. 1st 1890. Resigned from the service December 31st 1904. Afterwards Principal of Macdonald College and at present Chairman of the Royal Commission on Industrial Education.

admirably adapted for sowing with mammoth red clover as it matures at the same time, but it requires too long to develop to make the best quality of hay when sown with common red clover. The ease with which the seed may be harvested and cured, its low cost, and its ability to retain its vitality for a long time, coupled with the fact that its purity can readily be determined, are additional factors which contribute to the deserving popularity of timothy.

Timothy, however, is not a good pasture grass. It begins its growth late in the spring, grows slowly after it makes a start, is easily injured by tramping and close grazing, and gives too little aftermath. On poor, dry soils bulbs are developed at the base of the stems. In such situations this " tufted " habit of growth is decidedly detrimental, as the roots are exposed to the action of frost, the attacks of insects, the poaching of live stock, and the injurious effects of close pasturing.

While timothy is beyond question our best general purposes grass, it is evident that it is very weak in some points in which a grass so widely cultivated should be strong. Obviously it would be impossible to combine all the desired features in one strain, therefore different strains must be bred up to meet the widely divergent requirements of timothy growers in this Province.

The work of evolving new strains of timothy, while of comparatively recent origin, is by no means new. From widely separate sources, where soil and seasonal conditions closely approximate our own, and where breeding work with timothy has been conducted for years, the Cereal Department of Macdonald College has collected many promising strains. Among these strains are found some characterized by earliness, others by high seed producing qualities, others by their power to form a more dense sod than the ordinary strains, and still others characterized by a tendency to make a rapid early growth and give considerable aftermath, after the hay crop has been removed. These selections are now in row tests at Ste. Anne's and show such wide departures in the desired directions as to give promise of enabling us to isolate an early, productive strain suitable for sowing with common red clover, another strain selected for high seed production, and a third characterized by an earlier and more rapid growth, a denser sod, and greater ability to furnish a good bite of pasture during late summer and early fall.

L. S. K.

A FOUR YEAR ROTATION.

Question. — I have a dry gravelly farm, full of small stones, and I want to know all about your four year rotation of crops — the crops raised each year, and if clover is raised. When would you apply the manure ? My meadows have been in hay for a long time and are not yet plowed. If you can find time to reply I will be greatly pleased.

G. W.,
Granby P. Q.

Reply. — To plan a four year rotation it will be necessary to have one quarter of the farm in cultivated crops such as corn, roots, or potatoes; one quarter in grain, and seeded with grasses and clovers; one quarter in hay; the other quarter in hay or pasture. Next season on the field where the hay or pasture has been for two years put corn or cultivated crops. The grain follows the corn crop each year, and hay follows grain. With this plan a new section will be cultivated each year, thus destroying weeds and thoroughly pulverizing the soil. You will also have a good sod to turn under on one quarter of the farm, which should add a great deal of fertility to the soil, and bring it into a much better mechanical condition. To get the most out of the manure I would advise putting it out in the green state ; and I prefer a very light dressing to a heavy one. The corn and root land should have a light dressing, the balance, or the greater part, being used as a top dressing to the newly seeded meadows, after the grain crop is removed. The manure should be put on with the manure spreader, and as light a coat as possible given.

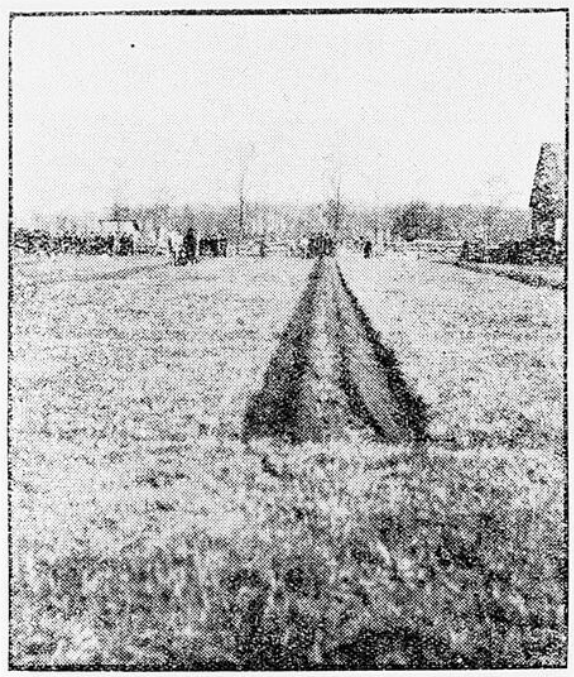
Clover and timothy should be sown with the grain crop every year. Cut the clover early, and save your clover seed from your second cutting of the same year. Your timothy seed should be saved from the second year's growth.

J. FIXTER.

ANNUAL PLOWING MATCH OF THE WEST SHEFFORD FARMERS' CLUB

Keen Competition ; List of the Prize Winners.

The Annual Plowing Match of the West Shefford Farmer's Club, held on Thursday Oct. 12th, on the farm of Mr. H. E. Malboeuf, was a great success. In spite of the threatening weather there was a very large attendance of farmers, not only from the immediate vicinity, but from localities more remote. Veteran plowmen were there to try their skill which they had often displayed in matches of years ago. Young men, who in the near future will be the leaders in their district, turned out also in large numbers.



THE BEST OPENING OR CROWN AT THE PLOWING MATCH.

Mr. Malboeuf very hospitably provided dinner for the contestants and for many of the visitors. The Directors are to be congratulated on the perfect success that attended the match, and for the encouragement they have given to good plowing, which is no small factor in crop improvement and better agriculture.

In future matches some educational features might be introduced to good advantage. For example, many young men do not know the essentials of good plowing, or how to set a plow. If it could be arranged to have a special instructor give a demonstration how to set a plow; how to open and finish a furrow; how to cut the proper widths and depths of furrows; and how to make the in and out furrows; how much good would be accomplished!

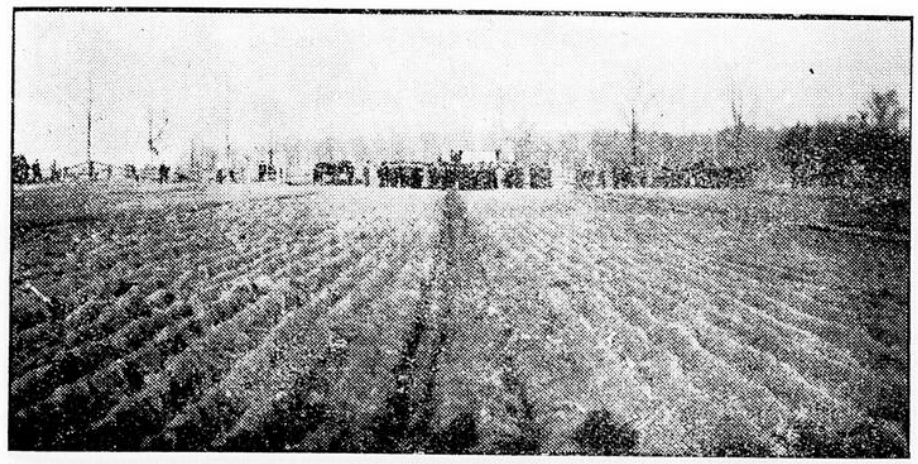
Much profit might be gained if the instructor could give advice to the Junior Plowmen while plowing.

Following is a list of the successful winners. —

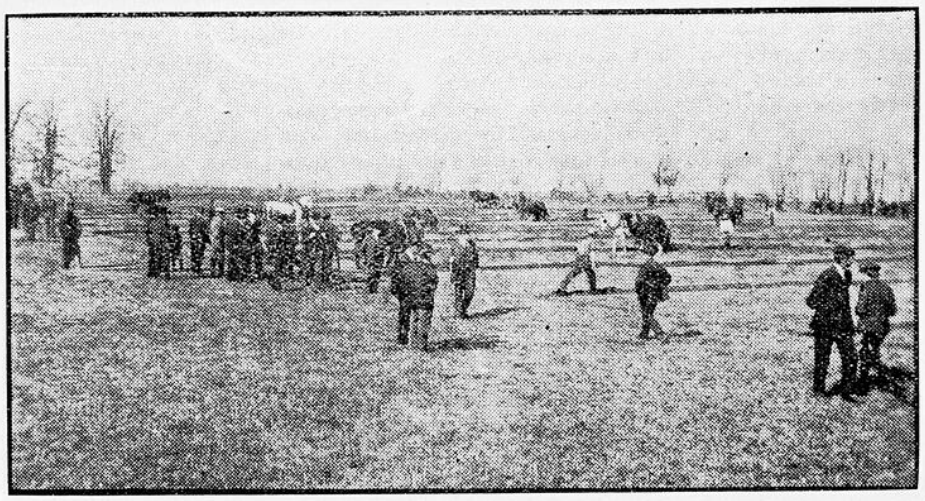
ADVANCED PLOWMEN

Mr. A. Bienvenue was the successful winner of the special prize donated by the Hon. S.-A. Fisher. This prize is a silver cup, and has to be won three years in succession before it becomes the property of the winner. Mr. Bienvenue also won the following.—

1st Prize for Best Plowing; cultivator $10.00, donated by E. Deragon, cash $2.00.
1st Prize on Ins and Outs, $1.00.
1st Prize on Finish, $1.00.
2nd Prize went to Mr. JOHN DAVIS; 1 Horse Cultivator $8.50 by W. F. Vilas, 1 Pair Pails, $1.50 by E. Dandelin.
1st Prize for straightest furrow, $1.00
2nd Prize for Outfit, $3.00.
3rd Prize for Plowing went to Mr. A. JOHNSTON. This prizes was 1 Bag of flour, $3.00, by D. C. Homer & Son ; Cockerel $2.00, by W. H. Harris; Cash $2.00.
1st Prize for best Crown, $1.00.
4th Prize for Plowing went to EUCLID MESSIER. This prize was 10 lbs. Butter by Z. S.



THE BEST FINISH AT THE PLOWING MATCH.



THE PLOWMEN AT WORK. THE VISITORS TAKE A GREAT DEAL OF INTEREST IN THE PROCEEDINGS.

Lawrence Dairy Co. $2.50 ; 1 pair Hame Straps, $1.00, by W. M. Harris; cash $1.00.

1st Prize for best outfit in the class, 1 Barrel of Flour, $6.00, by H. H. Bennet.

SENIOR CLASS.

1st Prize Plowing, won by Mr. A. BEARD. This prize was 1 Plow, $10.00, by Massey Harris Co.

1st Prize also for best crown, $1.00.

2nd Prize Plowing, won by C. ROBINSON. 1 Horseshoe, $8.50, by J. McIntosh. 1 Cockerel — $1.50 by the Rev. Mr. Mason.

1st Prize for Ins and Outs ; $1.00 ; also

2nd Prize for outfit in this Class, Insurance by P. M. Hayes.

3rd Prize Plowing, won by HOMER CAVERLRY. 1 Pair Blankets, $3.00, by Bail & Normandin; 1 Bag Oatmeal, $2.75, by C. D. Horner & Son.

4th Prize Plowing, won by HENRY BOOTH. 1 Pair Halters, $2.00, by S. Woodard, Cash $2.00.

5th Prize Plowing, won by A. R. ROBINSON, 100 sap spouts $2.00, by H. A. Lawrence, cash $1.50, also

1st Prize for straightest furrow, $1.

1st Prize for best finish, $1.00.

1st Prize for Ins and Outs, $1.00.

6th Prize Plowing, won by A. CARON ; medical attendance $2.00 by Dr. Larose; Cash $1.00.

7th Prize Plowing, won by JOSEPH SIRARD. Veterinary services $2.00, by C. E. Hayes; Cash, $1.00.

8th Prize Plowing, won by CHARLES BIENVENUE. Blacksmithing, $1.00, by W. J. Taylor ; Cash, $1.00.

9th Prize Plowing, won by JOHN McMAHON, Blacksmithing, $1.00, by W. J. Taylor ; cash, $1.00; also

1st Prize on outfit, Insurance, $3.00, by P. M. Hayes.

10th Prize won by WM. DUNLAVEY. This prize to be donated by the Directors.

11th Prize win by WM. HARRIS. This prize also to be donated by the Directors.

JUNIOR CLASS UNDER 21 YEARS.

1st Prize Plowing, won by E. DONAWAY; 1 Plow by Frost & Wood, $12.00.

1st Prize Crown, $1.00.

1st Prize on finish, $1.00, and

1st Prize for straightest furrow, $1.

1st Prize for best Outfit, $3.00 by P. E. McMahan.

2nd Prize Plowing, won by S. BENOIT, 1 Pair Blankets, $3. by L. V. Marchessault ; 1 Woollen Rug $2.50, by H. Couture; Cash $3.00; also

1st Prize for Ins and Outs, $1.00.

3rd Prize Plowing, won by L. DUNLAVEY. Tailoring $2.00 by A. Matte; cash $2.50.

4th Prize Plowing, won by L. HAYES; Blacksmithing, $1. by H. Leduc; cash $2.50.

2nd Prize for best outfit, $1.00.

President—R. S. Bell; Sec. Treasr. —C. Lawrence; Officer—P. M. Hayes; Judge— John Fixter of Macdonald College.

FALL RYE FOR SOILING

Editor, "Journal of Agriculture".—I have five acres on which I grew potatoes this year. It is a heavy sandy loam, and the field is quite convenient to my barns. I thought of putting it into Fall Rye to cut for soiling in early spring time. Do you think it too late this autumn? How much seed should be sown per acre ? Where can Fall Rye seed be secured? I have considerable manure on hand. Would it do to give it a top dressing this autumn ?

W. R.

Reply.— Fall Rye sown as late as November has given a very good crop, but much depends on the late autumn growth. Fall Rye to do best should be sown the last week in August, or the first week in September. Some farmers have good results by sowing in July after a hay crop has been removed. It will then make good pasturing for the autumn months. In case of pasturing, care must be taken not to allow cattle on while the soil is wet, or to crop it too close before winter. The seed is usually sold by any of the large seed dealers. Sow 1 1-2 bushels of seed per acre. If you have manure available, by all means put it on. The manure spreader will be found best for this purpose. A light dressing will be better than a heavy one. If the land is clean, after the rye is harvested I would advise plowing thoroughly, then sowing the field to Alfalfa. The Alfalfa will be found very much better as a soiling crop than fall rye.

J. FIXTER.

WHAT IS BEST TO DO WITH SHOCKED CORN.

Editor, "Journal of Agriculture".—My silo this season would not hold my corn at the time of cutting. I then shocked it up and it is now almost dry. Would it do to cut it up and put it into the silo now that my ensilage has settled down sufficiently to hold it; or would it be best to feed it during the winter?

J. W.

Reply. — If your corn ripened so that the grain could be fed, husk it. Then the stalks and leaves may be put into the silo. If the corn did not cob well, or come to the glazing stage, cut the whole lot and put into the silo. As your corn is now very dry great care will be necessary to save it. Keep the knives on the ensilage cutter perfectly sharp, and cut it as finely as possible, as this will serve to pack the ensilage more closely. The corn in the silo should be thoroughly tramped. If you can get a horse in to tramp the ensilage, all the better, as the keeping qualities depend a great deal on how firmly it is packed. If water is convenient it would be well to add a few pails to each load, although this is not necessary if thoroughly packed. When the silo is full, if you do not propose to begin feeding I would advise you to put about one foot of earth over the whole surface. The earth may be hoisted in pails with a rope and pulley attached to the filling door.

J. F.

THE ADVANTAGE OF ALFALFA OVER TIMOTHY HAY.

The advantage of Alfalfa hay over timothy is well brought out in the following account of experiments made at the University of Illinois by Prof. Wilber J. Fraser :

Legumes not only give larger yields per acre than timothy hay, but are also more valuable ton for ton as feeds for dairy cows, because they supply a large part or all of the protein furnished by the high-priced concentrates usually purchased. Because dairymen in general do not realize this fact a feeding experiment was conducted throughout the winter to show the relative value of alfalfa and timothy hay in the ordinary ration for dairy cows.

For this purpose sixteen cows were divided into two lots of eight each. As the other portion of the ration for both lots was exactly the same, 10 lbs. of corn stover and 12 lbs. of grain, a direct comparison was made between alfalfa and timothy hay. The results showed alfalfa hay to be worth $10.86 per ton more than timothy hay. The average yields per acre obtained in Illinois are approximately four tons of alfalfa hay and one and one-half tons of timothy. When timothy hay is worth $10 per ton, one acre of alfalfa is worth $68.44 more than an acre of timothy, under the conditions which existed in this experiment and when milk is sold at $1.30 per 100 lbs.

The value of the alfalfa will vary with the price received for the milk, and for this reason the following table of values has been constructed:

THIS TABLE SHOWS THE FEEDING VALUE OF ALFALFA HAY OVER TIMOTHY WITH MILK AT DIFFERENT PRICES.

Milk per 100 lbs.	Value of alfalfa, per ton above timothy.	Value of alfalfa, per acre, above timothy, when timothy is worth $10 per ton. (Alfalfa 4 T. per acre timothy one and one-half T. per acre).
$1.00	$ 8.36	$58.44
1.10	9.19	61.76
1.20	10.03	65.12
1.30	10.86	68.44
1.40	11.70	71.80
1.50	12.54	75.16
1.60	13.38	78.52
1.70	14.21	81.84
1.80	15.06	85.24
1.90	15.88	88.52
2.00	16.72	91.88

It must be borne in mind that the above figures can be applied to alfalfa only when fed with the feeds used in this test, or with other similar feeds.

Besides the greater returns in milk, the condition of the cows counts for much. At the end of the experiment the cows which were fed alfalfa hay were in much better condition than those fed timothy. The timothy, although of good quality, was not palatable, and the cows receiving it lost in flesh, their hair was rough and they were in poor condition, generally. A number of them were more or less "off feed" at different

times. Such was not the case with the same cows while being fed alfalfa. They had better appetites than when receiving timothy hay. If the effect on the cows is so great in so short a time too, it is easy see why many of the dairy cows come out of winter in poor condition and have a small milk account to their credit.

THE CONSERVATION COMMISSION'S AGRICULTURAL SURVEY OF QUEBEC.

The Committee on Lands of the Conservation Commission, of which Dr James W. Robertson is Chairman, is engaged in collecting information upon the actual conditions of agriculture in Canada. Both in the summer just past and in the preceding one, the Committee has had men out on this so-called "survey" work in selected counties of this and other provinces. The results of the observations made by these men in 1910 have been worked over so as to obtain general results, and these general results are published in the Commission's "Report on Lands, Fisheries and Game and Minerals, 1911."

We abstract from this report the section relating to the Province of Quebec.

ENGLISH SPEAKING DISTRICTS.

Of the area visited, sixty-six per cent. was under field crop, seventeen per cent in unbroken pasture, and fifteen per cent. in woods.

ROTATION OF CROPS

Twelve per cent. do not follow a systematic rotation of crops. Thirteen per cent, follow a five year rotation, and the rest, while they mention the crops grown, cannot be said to follow anything approaching a systematic rotation. The majority grow grain from four to six years with hay and pasture three to five, and but very few roots, or they grow hay from four to ten years, with a few roots and some grain. Many of the farmers are engaged in the raising of hay for marketing purposes, and in dairying. Very few understand the value of rotation of crops or the value of thorough preparation of the soil before sowing them, Tile drainage is almost entirely unknown. If practised on many of the farms visited, it would be of immense value in reclaiming large areas and in increasing the production of lands now under cultivation.

SEED SELECTION

Ninety-four per cent. grade their seed grain by the use of the fanning mill. Ten per cent. of those using the fanning mill hand-pick their seed wheat. By many, very little attention is paid to this important branch of farm operations.

MANURE

All the farmers visited use barnyard manure at the rate of about fifteen loads per acre on roots and grain. Thirty-five per cent. apply manure as top dressing to meadows. Three per cent use artificial fertilizer. In many instances, few cattle are kept on the farms. This means that the amount of manure applied each year is sufficient to cover only a very small part of the farm. A lack of knowledge in the care of manure is evident. Too little attention is paid to this valuable asset as a means of replenishing the fertility of the soil.

WEEDS

Twenty-nine different kinds of weeds were reported, among which couch grass, sow thistle, Canada thistle, fall dandelion, ragweed,green foxtail, viper's bugloss and ox-eye daisy are the worst. These are all very troublesome. Where they are very prevalent or increasing, the principal causes given are careless neighbours, impure seed and neglected roadsides. Another cause mentioned is that threshing mills, after having been used on dirty farms, are not properly cleaned before being used on other farms. There are not enough short rotations. The long periods for which many fields are under hay give many of the weeds an opportunity to get a firm hold on the land before anything is done in the way of proper cultivation to bring them under control.

PESTS.

One hundred per cent, report potato beetle, which causes a loss of from five to ten per cent of the crop. About fifty per cent report rust on oats. This is largely due to the oats being sown late on land which cannot be worked earlier on account of lack of proper drainage. About thirty per cent report apple worm, the loss being from five to ten per cent. of the crop. There is room for demonstration work in up-to-date methods of orcharding. About twenty-five per cent. report smut on oats. Very little is done in the way of treating seed grain for smut, hence there is need for help along this line from some source or other.

WATER SUPPLY

One hundred per cent. have wells ; five per cent. of the wells are in the houses· four per cent, have water piped to the buildings, and ninety-two per cent. either carry the water by hand or have it hauled. Very little has been done in the way of improving the facilities for conveying the water from the well to the buildings.

FUEL

Eighty-two per cent. burn wood only, while twenty per cent. burn wood and coal. About ten per cent. have a perpetual supply of wood on the farm. The average estimated length of time for the other lots to last at the present rate of consumption is thirty-four years. There is much carelessness and waste in connection with the handling of the wood lot and if proper care were exercised many of the lots, which at present are rapidly diminishing, could be made to last for all time.

TYPHOID

Five per cent. report typhoid in the last ten years, fourteen cases in all. In three instances where typhoid had occurred the wells were from ten to fifteen feet from buildings. In nearly every instance where cases were reported the surrounding land sloped toward the well. Many of the wells are poorly protected and surface water is allowed to seep into them.

GENERAL

The genejral impression gained by those who visited the farms was that the farmers were ignorant of many things which they should know, such as the names of weeds, insects, and the remedial measures generally taken to get rid of them. Few had any idea of the immense value of seed selection and crop rotation. From the questions asked the different farmers and the peculiar answers sometimes given, together with the state of the farms as seen, the conclusion was formed that there is much need for help along these lines. The herds being small they had very little to return to the land in the way of barnyard manure.

FRENCH SPEAKING DISTRICTS.

Eighty-three per cent. of the area visited was under field crop ; two per cent. in unbroken pasture and ten per cent. in woods.

ROTATION OF CROPS.

None follow systematic rotation of crops. Hay and grain are the chief crops, each being grown for an indefinite period. Out of all the farmers visited, only five were pretending to follow anything like a regular rotation, and these could not be considered systematic. Some adopt a system on part of the farm ; but on the other portions of the farm it is very irregular. The farms are not generally divided in a systematic way to facilitate regular systematic rotation. The usual practice is to leave the best portions of the farm in hay as long as the yield is satisfactory, while on the remainder grain is grown.

SEED

None use systematically selected seed Most of the farmers use their own best seed, while a number buy their seed grain, and some exchange, seed every few years. A number of the farmers have been able to get a start from the samples received from the Experimental Farm. This important subject seems to be fairly well understood, and interest in the systematic selection of seed is just now beginning to be evinced. Many acres of second crop clover might have been saved and the seed from it sown. A large number fail to get a stand of clover because they do not sow enough seed. They think they cannot afford to sow seed thickly when they have to buy it. If they saved their own seed they could afford to put on enough to insure a good stand. Many of the farmers do not realize the value of clover in cleaning, ventilating and enriching the soil.

MANURE

All those visited use farmyard manure, and about twenty per cent. of these also use artificial fertilizer. Manure is used on hoed crops and as top dressing to meadows. In many cases the amount used is not reported; but where reported, from twenty to twenty-five loads is used on hoed crops, and from ten to fifteen loads as top dressing. The farmers do not know enough about chemical fertilizers to use them successfully, and trust too much in the supposed knowledge of the agents. In many cases the manure is not properly kept.

WEEDS

Among the worst weeds reported are chicory, ox-eye daisy, couch grass, mustard and milkweed. Some farmers state that where they are now paying more attention to the improving of the farming system and better selection of seed, the weeds are being kept in check, and in some cases are diminishing. Chicory is increasing very rapidly in almost all localities. It is particularly bad along the highways, ditches and fences. Those farmers who are taking good care of the land have fairly clean properties.

PESTS

The potato bug is practically the only pest the farmers complain very much about, and when the potato crop is properly sprayed there is very little loss outside of the cost of the materials. Rust has been noticed in a few cases on oats which were sown late in the season.

WATER SUPPLY

The water supply is furnished by rivers, pipe lines, springs and wells. Fifty-eight per cent have water piped to the house. Seven per cent have windmills and fourteen per cent carry water to house by hand. L'Assomption county seems to be one of the most favoured as regards water supply, being furnished by the large rivers which flow around it and through it, as well as by the numerous springs which flow from the hills existing in nearly every parish. The stable wells are often badly situated, being too close to the stables and receiving the drainage water from the yard or manure heap.

FUEL

Wood is generally used. Eighty-one per cent, report a continuous supply. Others buy or have a small supply. The majority own a sufficient quantity of wood for their continuous needs, and many for more than that.

TYPHOID.

Thirteen per cent. report typhoid in the last ten years. There was a serious outbreak at one time near L'Assomption which brings up the average. The water used by the majority of those reporting fever was obtained from a pipe line system. It is the opinion of the man who made the survey in L'Assomption county that the progress of agriculture would be greatly increased by sending bulletins to the farmers showing rotations, describing preventive and instructive methods for the handling of weeds, discussing the preparation and selection of seeds, and the necessity for having a pure water supply and the most practical way to obtain it.

FALL WORK AGAINST INSECTS.

The insect injury is about over on our farms for this season; but efforts towards insect control should not be relaxed on that account. Very much may be done in October and November towards reducing the numbers of the insect pests which would otherwise winter over on the farm and attack the crops in the spring and summer.

Fall-plowing is often recommended as a control method for wire worms and white-grubs. It is not by any means a perfect remedy, but it is often quite effective, and should certainly be practised on infested lands. By this operation the delicate pupae are injured and destroyed; therefore the more thoroughly the soil is disturbed the greater will be the benefit derived.

Clean-Culture.—Vines of cucumbers, melons, squash and pumpkins, and of peas, beans, and potatoes, should be destroyed as soon as the crop is off. Roots of cabbage and allied plants should be removed and destroyed, or plowed under deeply as soon as the valuable part is gathered. A rule that should be rigidly followed is : " Destroy the worthless remains of all crops as soon as possible after the valuable part is removed." That practice would save farmers of this province many thousands of dollars each year if faithfully carried out.

Multitudes of insects multiply throughout the late summer and fall on neglected crop remains, winter over on or in the same, or near by, and are ready for their destructive work in the following season. Notice the numbers of plant lice on the lower leaves of the cabbage, after the head is removed.

Weeds about the farm serve in some cases as food-plants for injurious insects, after the crops are off. This is an additional reason for the eradication of weeds.

Inasmuch as the carrot rust fly is widely spread through this province, care should be taken to winter carrots in such a way that the pests which winter in them can be destroyed in the spring. If kept packed in earth the earth will contain the insects in the spring, and should then, or before, be spread in hen-houses or yards, or thrown into a pond.

Oyster-shell scale which is so common and injurious in Quebec orchards can be controlled in the fall by giving the trees two sprayings of thick white-wash after the leaves have fallen. The second coat is applied soon after the first is dried.

The tussock moths and the Tent-caterpillars are wintering as eggs upon the trees. The former are among our most serious enemies of shade-trees, and may be easily checked by gathering the conspicuous white egg-masses which remain attached to the trunks and branches. The eggs of the tent-caterpillar moths are attached in bands around the twigs of fruit trees and others. They usually form an entire band about the twig, and are covered by a dark-colored varnish-like substance. They are easily collected and burned.

The plant-lice are now to be found in large numbers on the apple-leaves, very busy increasing their numbers for egg-laying. The females of the last brood are already depositing bead-like eggs on the twigs. These eggs hatch in the spring into females which deposit living young. These young are mature and also depositing young in less than two weeks. And this process continues throughout the early summer.

The progeny of one such aphis, if allowed to breed freely throughout the season, would number hundreds of millions. It is not surprising that fruit trees suffer so severely in the early summer from plant-lice. The usual practice is to spray for plant lice in the spring before the leaves have curled badly. Lime sulphur wash, spring strength, sprayed before the leaf-buds open, holds them in check, and is an excellent practice for many reasons.

A contact spray early in October would destroy most of the plant-lice before the winter eggs were laid,and avert much trouble from this cause in the following season ; but is unnecessary if lime-sulphur is to be sprayed next spring. Fish-oil soap, one pound in seven gallons of water, or kerosene emulsion diluted 1-12, would be effective. Kerosene emulsion is made by dissolving a half-pound of hard soap in one gallon of hot water and churning the mixture thoroughly with two gallons of coal-oil. This will produce a creamy emulsion which will keep for some time. For use, one part of this is mixed with twelve parts of water.

The apple woolly aphis can be controlled as well now as at any time. It occurs on the trunks, branches, and twigs of our apple trees as whitish woolly patches. Beneath the wool-like waxy secretion will be found the female plant-lice and their young.

By the first of October the young colonies may be found on green bark, particularly about wounds and in the forks of twigs. Their constant sucking causes deformities of the bark, and badly infested trees may be seriously injured. A powerful spray of fish-oil soap or kerosene emulsion of the strength given above directed at the woolly patches will remove or kill the greater part.

Usually only a few trees will be found badly infested. This insect should not be allowed to become numerous.

J. M. SWAINE.

THE IMPROVEMENT OF THE FARM CROPS OF CANADA.

The Importance of Demonstration Farms.

(Synopsis of an address given by John Fixter before the Senate Committee, Ottawa) .

During my connection with the Dominion Experimental Farm and the Macdonald College, for many years I have had excellent opportunities of meeting and discussing farm topics with many farmers from all parts of Canada, and of showing them big yields and fine herds as the result of the application of the best modern methods of farming. While there has been a vast amount of information distributed from those institutions and put into practice by the up-to-date shrewd business farmer I venture to say there are but few of the many farmers who visit the Experimental Farms and Colleges, attend farmers' institutes, listen to most excellent addresses containing much practical and useful information, who put such advice into practice. It is not so much what we know as what we practise that makes us successful farmers. Why is this seeming indifference on the part of most farmers to good advice?

Scarcely any two farmers have identically the same conditions to deal with, hence they will not be able to carry out the needed improvements in the same way. Naturally the farmer is cautious, and desires to know beforehand the conditions which surround him, and when the expert gives advice at conventions or on the Government farms, that advice to some extent is general in its application. As a result, while the farmer agrees with the advice given he fears to make the change necessary on account of the slightly different conditions. If, however, the expert and the farmer could work out the desired changes on the latter's own farm and get such big crops as reported, then financial results through his own efforts would follow. Thus general interest would be aroused in these demonstrations which would lead to careful observation and study on the part of the farmer, his family, and the community. Public meetings could be held on the farm for the discussion of farm management, and practical demonstrations could be given.

THE KIND OF DEMONSTRATIONS MOST URGENTLY NEEDED.

Rotation of Crops; its benefit in enriching the soil.

Selection and Cleaning of Seed.

The Growing of Alfalfa and other crops, such as Corn and Roots.

The advantage of thorough preparation of the soil. Deep in the autumn with implements that will not bring the subsoil to the surface.

Shallow and thorough preparation in springtime, and especially working the soil when it is in the right condition.

Importance of intensive tilling during the period of the growing crop.

Conservation of Soil Moisture.

The importance of a high content of humus in the soil.

The uses or legumes, their value as fertilizers.

Best methods of applying barnyard manure.

Destruction of weeds and insects.

The accomplishing of more work in a day by using more horse power and better implements, and the use of implements on hand to do better work.

The value of underdraining; how to instal it.

Keeping an account of each farm product in order to know from which the gain or loss arises.

GROWING CLOVER FOR SEED

How are we to encourage the growing of more clover ? By encouraging the farmer to grow clover seed for sale. There are but few farmers in the Province of Quebec who are making a business of growing seed. The majority who produce seed from time to time look upon the clover seed crop as a sort of present that comes to them, should the season prove favorable. This is especially true of the common red clover seed which comes either after clover is pastured until about the middle of June, or after the first crop is taken off for hay. The land in either case has produced a paying crop before the attempt is made to produce seed, and is the richer for having grown it because of the plant food properties of the clover plant. The clover seed producing area of Ontario is west of Kingston although it can be grown equally well east and in the greater part of the province of Quebec. It is estimated that fully 150,000 bushels of clover seed is annually exported from Ontario, which at $7.00 per bushel represents $1,050,000.

It is safe to say the home trade demands at least 200,000 bushels for our own seeding and if the farmers of the Dominion would use ten times the above amount very much better results from other crops would be obtained, and instead of Ontario alone exporting clover seed the province of Quebec is capable of exporting at least 300,000 bushels annually which at $7.00 would mean a clear gain to the Province of $2,100,000. This most profitable crop can be successfully grown on almost any kind of soil that is fairly rich in plant food, and where the water line does not come too near the surface. If possible select a field that has had corn or roots on it the previous year, or select a field that is clean and had been thoroughly cultivated after harvest the previous year and ploughed in the autumn as deep as the plant food will allow. The furrows should be well set up, so that the winter frost will do its part. In spring time allow the soil to get in perfect condition before working. If worked too wet the soil will bake, if too dry the soil will not germinate. Cultivation in spring should be shallow and thorough. Make a perfectly fine seed bed before sowing. If possible select barley, a six rowed variety. This will ripen early and give the clovers a better chance to make a good strong growth before autumn.

Live Stock

REGISTRATION OF FRENCH CANADIAN HORSES

Important Notice.

As we receive from time to time applications for the registration of horses in the Stud Book of the Breeders' Association of the Province of Quebec, which book was closed by order of the Association on December 31st 1909, it has been decided to reopen the Stud Book during the interval between August 15th and December 31st 1911.

All persons who wish to have their horses inspected for registration should make direct application for such registration by letter addressed to the Live Stock Commissioner, Department of Agriculture, Ottawa. This application should be made promptly in order that the inspection may be completed before December 31st 1911, the date when the Stud Book will be permanently closed.

J. A. COUTURE,

Secretary, French Canadian Horse Breeders' Association.

REGISTRATION OF HALF-BRED ARDENNAIS FILLIES.

Owhers of fillies desiring to register them and get certificates are asked to communicate with J. A. Paquet, Secretary-Treasurer of the Canadian Society of Belgian-Horse Breeders, Department of Agriculture, Quebec.

THE HOLSTEIN MEN MEET AT SHERBROOKE.

Pleased with "Journal of Agriculture".

The 6th Annual Banquet of the Quebec Branch of the Holstein Friesian Association of Canada was held in the Directors' Dining Hall of the Sherbrooke Exhibition at 7 p.m. It was a most enthusiastic meeting. After the banquet, Mr. F. E. Came of St. Lambert, secretary of the Association, called the meeting to order, and letters of regret from Professor Grisdale and other absentees were read. Attention was drawn to the advance of the Holstein Breed in Quebec during the past year; and its signal success in the Butter Test at the Sherbrooke Fair. The tests were conducted by the Ottawa Government under the rules of the Winter Fairs at Guelph, Ottawa, etc. Holstein prices have advanced during the year, and bid fair to go higher. The champion grade cow this year was sired by a pure-bred Holstein bull.

Comment was made on the great improvement in the English Journal of Agriculture, published by the Quebec Government. The editors would like it widely known that they wish to receive pictures of Holstein animals, and will gladly publish them free of charge. A vote of sympathy was sent to the President of the Association, Dr. L. de R. Harwood, on the loss of his father.

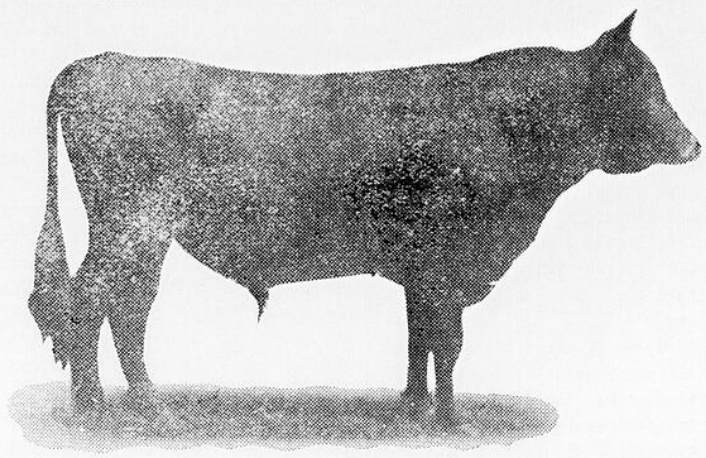
Sow along with the barley: clover, 8 to 10 lbs., timothy, 8 to 10 lbs., per acre. This may seem heavy seeding, but when each farmer grows his own seed the few extra pounds will never be missed. The extra crop, however, will more than pay for the seed.

HARVESTING CLOVER

Clover seed from the common red variety is secured from the second crop. This necessitates the first crop being harvested early, if possible by June 20th, when the heads are coming out, or not later than July 1st. The earlier date will give best results as the seed will have a longer season to grow and mature. After the first crop is harvested care must be taken to see that no weeds appear and ripen along with the clover seed. Weeds should all be removed while standing in the fields. It will be found cheaper to eradicate them this way than to separate them from the threshed seed.

Time to harvest the second crop for seed. — The crop is ready for being cut when the heads have all turned brown, except a few of the smaller and later ones. It may be cut by the mower as ordinarily used, by the mower with a board platform attached to the cutter bar, or by the self-rake reaper, or by the grain binder. The self-rake reaper will be found to give good satisfaction, as it lays the clover off in loose sheaves. These may be made large or small, and if care is taken to lay them off in rows the lifting of the crop is made much easier. When clover is cut with the mower it should be raked into winrows while it is a little damp. If raked while dry, many of the heads will break off and will thus be lost. The idea prevails that clover seed cannot be successfully threshed until the straw has almost rotted in the field. Since the introduction of a Monitor Clover Huller the clover crop can be cut earlier and the seeds separated, hulled, and cleaned, leaving the coarse fodder in better condition for stock feeding.

However, if no clover huller is available the seed may be threshed with the ordinary thresher with some small extra attachments. After the farmer has grown clover seed one or two seasons the regular clover machinery will soon the purchased, as there is money to be made by growing this valuable crop.



FRENCH-CANADIAN BULL, EXPERIMENTAL FARM OTTAWA.
From Bulletin 28, Dairy & Cold Storage Commisioner's Branch.

SALE OF PURE BRED STOCK IN MONTREAL.

The first of the sales of pure bred live stock arranged by the Provincial Association through the assistance of the Quebec and Dominion Governments was held in Montreal on Thursday, Oct. 12th. The sale was held at the East-end Stock Yards and the stock was housed in the large sheds. The accommodation and facilities could not have been better and from this standpoint Montreal is an attractive place for the sale. It may be argued that it is perhaps not sufficiently centrally located for the persons who are most likely to attend. However, the attendance at this year's sale would not suggest any objection on that score.

Taking the sale as a whole it was quite successful. The idea of distributing stock through the province in this way promises good results. A great deal of the stock sold will go to communities where a little good blood is much needed, and any such organized movement is always fairly effective in reaching the indifferent stockman. Farmers' Clubs also were well represented and to them went a number of the best individuals.

The stock was selected from various breeders in Quebec and Ontario, and while very little of it could rank as top-notch stuff, the general character of it was such as will materially improve the sheep and swine in the various communities to which it may have been sent.

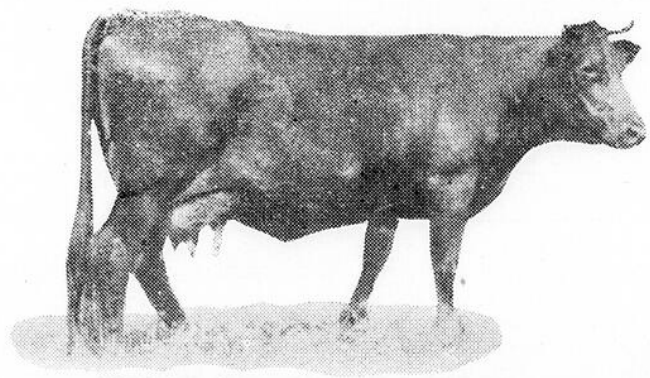
From year to year if these sales are held a gradually better class of stock should be offered for sale. The sheep were much superior to the pigs and certainly should do much to aid the sheep business in this province where the field is so attractive. All the sheep sold readily but the demand for the hogs was not nearly so keen, and in the end many of them were not sold.

A noticeable feature of the sale was the character of the bidding. Frequently a superior ram or ewe would sell for a comparatively low price while the next sale, that of a quite inferior type would probably go much higher. The fact at once suggests the need for a compaign of education if we are to expect the most from the stock so distributed. Many bought sheep with the intention of starting pure bred flocks, with little or no knowledge of the breed they chose and with perhaps less as to how the animals should be handled. It would seem that some direction in this regard would be a valuable addition to this work.

H. BARTON.

THE YOUNG COLT.

How often we hear the expression in the spring "a yearling colt is always thin". The statement so often holds that it has come to be among many an expected necessary condition. It must be admitted that at this stage in horse development, growth is rapid and the tendency is for the colt to carry less flesh. However, the explanation of the poor condition of so many otherwise good colts in the spring does



FRENCH CANADIAN COW CITERNE
From Bulletin 28, Dairy & Cold Storage Commissioner's Branch

not lie in their proportionately rapid growth but mainly in two other reasons.— the first being a set back to the colt after weaning, and the second, poor wintering in regard to both feed and management.

At the present time a great deal of valuable blood is being imported, and good stallions are being distributed through the country. All this will not count for much if the man with the colt fails in his part, and many of our best horsemen are prepared to testify that the most likely possibility for improvement lies in better development and better fitting when it comes to realizing profit.

The process should begin early, long before weaning time; but granting that the Colt has done well until weaning, for he usually gets through the first period fairly well, the aim should be to retain his good condition or "colt fat" as horsemen say. Before his mother's milk supply is cut off he should be accustomed to feed, in order that he may readily take his full rations without any delay. He will then have done better before weaning and will not feel the change. A very acceptable ration to start with is a small allowance of clean whole Oats with some Bran mixed with them. If skim milk is available at weaning time he will usually appreciate it and do well on it. Clover hay, not timothy as many would have us believe, fills the bill for roughage. He is more fond of it than timothy and it furnishes him with a great deal more of the material he requires. If his quarters are quite cool, yet not too uncomfortable, he will eat more and his allowance should be liberal. Some good oat straw, or better chaff, will cheapen the ration and prove good for the Colt. Some men practice feeding all the grain a Colt will take; with some the practice is all right but in many cases the Colt's appetite will justify regulation of the concentrated feed, and he will eventually do much better on a given amount. If we feed too liberally we accustom his system to a certain amount, and often establish what is called the factor of waste, which simply means that the Colt will get rid of the surplus amount of nutrients which his system is not able to assimilate and they will be discharged. Once this waste is set up it is apt to continue, consequently the surprisingly small growth and development which we often find when a Colt, or in fact a young animal of any kind, has been exceptionally well fed. One to two quarts of grain at a feed will usually be an abundance for a Colt during its first year. A few carrots once a day will prove valuable. Other concentrates as oil cake, wheat, etc, may be fed, but bran and oats rank first if variety is not easily obtained.

In the matter of housing a great many Colts are deprived of something very necessary for growth and very easily obtained, — fresh air. Feed will be thrown away if conditions are not right. Keep the quarters dry, clean and confortable, airy and cool. How many times the poor Colt is shut up in a dark stuffy steaming box and compelled to lie on a month's or winter's accumulation of manure ?

Have the box on the cold side and during day time give him the barn yard as much of the time as possible, when weather will permit. Good feed, judiciously administered, clean dry airy quarters, well lighted, and plenty of out-door exercise are the controlling factors.

H. BARTON,

Macdonald College.

RECORDS OF AYRSHIRE COWS AND HEIFERS THAT HAVE REGISTERED SINCE OUR LAST REPORT.

MATURE CLASS.

Name of Cow. Owner	P.C. Fat	Lbs. Milk.	Lbs. Fat	Days
Pet of Hickory Hill—21259 — N. Dyment, Clappison, Ont	4.10	13,191.00	542.18	354
Flora of Metcalfe—30257—A. S. Turner & Son, Ryckmans Corners, Ont...	3.59	11,908.85	427.34	365
Kirsty 3rd of Neidpath—14559—W. W. Ballantyne, Stratford, Ont	3.26	11,903.5	388.54	365
May Beauty—12400—Wm. Stewart & Son, Menie, Ont	3.88	9,580.	372.24	321
Flower of Metcalfe—30405— A. S. Turner & Son	4.02	9,157.45	368.70	276
Lizzie Glen of Ste. Annes—16147 — Macdonald College	4.00	9,116.	365.29	333
Lady Cairn — 14428— Wm. Thorn, Lynedoch, Ont.	3.55	9,051.55	322.25	307
Mabel—12768— Jas. Begg, St. Thomas, Ont.	3.86	8,872.75	342.90	365
White Craig 2nd of Auchenbrain——16717— Macdonald College	3.55	8,821.25	313.45	305
Brownie—13188— John McKee, Norwich, Ont.	4.15	8,730.6	362.31	330
FOUR YEAR OLD CLASS.				
Julia—23580 —Wooddissee Bros, Rothsay, Ont.	4.82	9,753.25	470.31	365
Maud of Hillview—23671— W. J. Carlyle, Chesterville, Ont.	3.69	9,028.	333.5	327
Daisy—23582— Woodissee Bros., ...	4.24	8.679.	367.93	300
THREE YEAR OLD CLASS.				
Dewdrop of Menie—125875— Wm. Stewart & Son, Menie, Ont.	4.10	9.783.	401.46	295
Ethel of Stockwell—29638— W. Owens, Montebello, Que.	4.00	8,861.25	355.18	338
Stony Croft Lady Helen—25225—Alex. Hume & Co., Menie, Ont	4.17	8,602.	358.96	302
Flavia 2nd of Ottawa—22197— Dir. Experimental Farm, Ottawa, Ont.	4.14	8.413.	348.53	331
Maud of Ste. Annes—25979— Macdonald College	3.66	7,828.75	286.84	342
Madge—27700—Wooddissee Bros., ...	4.58	7,271.	333.24	320
Lass O'Gowrie—25190— Wm. Stewart & Son	4.04	6,896.5	279.16	333
TWO YEAR OLD CLASS.				
Milkmaid 7th—28796— Wm. McRae, East Royalty, P. E. I.	4.22	11,673.5	492.75	365
Holehouse Flirt of Trout Run—27033 —Wm. Thorn, Lynedoch, Ont.	4.21	10,298.5	433.72	365
Ottawa Kate—29601—Dir. Experimental Farm, Ottawa, Ont.	3.76	9,017.	339.45	365
Burnside Lucky Girl—30847— R. R. Ness, Howick, Que.	3.63	8,408.75	305.28	365
Annie Laurie 3rd—27957— W. W. Ballantyne, Stratford, Ont.	3.68	7,728.6	284.93	365
Maud 2nd of Ste. Annes—27297— Macdonald College	4.02	7,019.5	282.53	320
Scottie's White Wings—24266— H. & J. McKee, Norwich, Ont	3.56	6,933.7	247.38	328
Neidpath Rose 13th—27620— W. W. Ballantyne, Stratford, Ont.	4.45	6,630.5	294.62	365

Since the commencement of the test 164 cows and heifers have registered, summarized as follows:—

Class.	Lbs Milk.		Lbs Fat
55 Mature cows with	10,213.05	and	397.82
17 Four year olds with ...	8,896.20	"	358.07
29 Three year olds with ...	8,273.79	"	337.63
65 Two year olds	7,222.89	"	294.54

W. F. STEPHEN,

Secretary, Canadian Ayrshire Breeders' Association.

Oct., 18th, 1911. Huntingdon, Que.

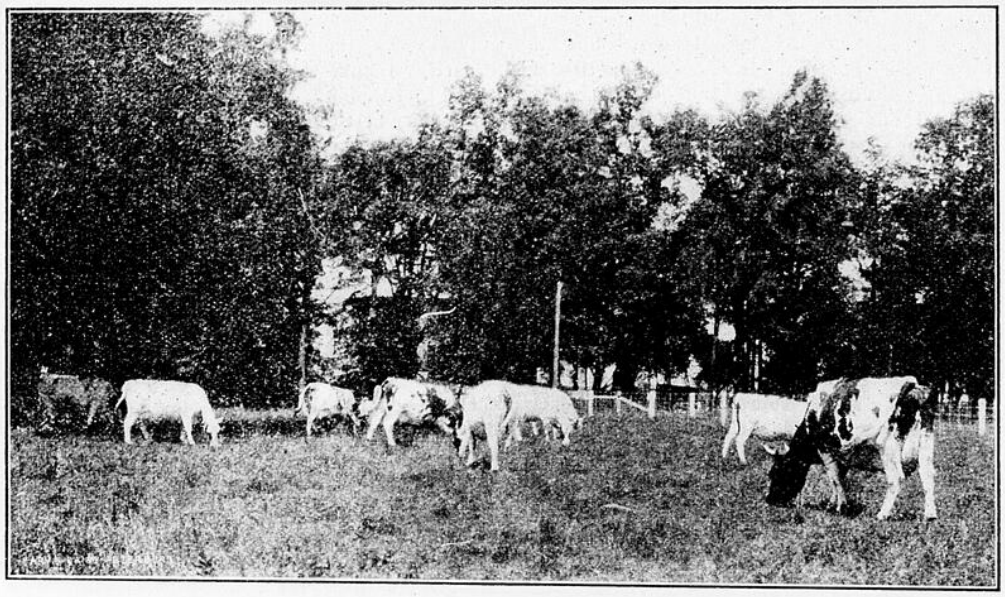
ONTARIO NOTES

Fruit yield less than anticipated but prices good. — The feed situation causes marketing of unfinished cattle. — Activity in the horse trade. — Alfalfa triumphant in drought.

Everything has not been smooth sailing for the Ontario fruit-grower this season, and this is more particularly true of the Niagara Peninsula man. There was not enough rain to suit him just when it was badly needed. This interfered with his profits on small fruits such as berries. Then came the hail storm of some weeks back, when a large portion of the fruit belt was severely hit. While all fruit suffered to some extent, the grape grower came in for a pretty severe scourging. This was before the grapes were ready for market, resulting in a great many of them being split by the hail, and rendered unfit for the highest class trade. The third disaster, if we may so term it and it is probably the last, was the big wind storm the first week of October. This brought fruit to the ground by the wholesale all over the country, and while the grower has been saved a little on the cost of packing, his profits have been materially reduced by injured fruit. The bulk of the fruit, excepting grapes and apples, had been marketed, or the loss would have been very severe. As it was, this storm following upon other unfavorable weather conditions has made the business of fruit-growing in some sections a rather precarious one.

There is, however, always a silver lining to every cloud, and what the grower has lost by depleted crops he has made up to a large extent by improved prices over those of a year ago; though some experts claim that the general prices for fruit today are lower than they were ten years ago. If this be true, then somebody who has to do with the handling of the fruit on the way from the producer to the consumer is getting a much larger rake-off than he once did, as the average consumer in the city is paying more for his fruit than he did a decade ago.

But let us hark back to prices. Grape growers have been getting from $15 to $20. a ton from the wine men, and in some cases as high as $28 a ton has been paid for this purpose. On the market in the fruit belt, notably at Hamilton, 20c. to 30c. per small basket has been realized. At Toronto from 15c. to 25c. wholesale



GROUP, OF AYRSHIRES ON BURNSIDE STOCK FARM, HOWICK, QUE. PROPERTY OF R. R. NESS, ESQ.

have been ruling prices, with choice varieties selling higher. The average price for October will go higher than these figures show. On the whole, therefore, the grape grower is faring better than he did for a couple of seasons back. In fact a couple of years ago, many grape growers seriously contemplated going out of the business, as the prices obtainable were not considered profitable.

The Ontario apple crop will not be a record one. The fall apple crop is averaging up pretty well, but there will be a shortage of choice winter fruit. The prices which growers are getting for the crop supply a pretty good indication of the quantity to be sold. Many growers have sold their output at from $1. to $1.50 per barrel on the tree, and in some cases as high as $2 has been paid on the tree. Some of the cooperative societies are holding for $2.50 to $3 f. o. b. for Kings, Baldwins, etc., and $2 to $2.50 a barrel for the less desirable kinds; while as high as $3 to $4 a barrel has been asked for Spys, picked, packed, and put on board cars. Spys will certainly be at a premium this year, and the consumer who has developed a taste for this fine-flavored juicy fruit will have to pay dearly to have his taste gratified.

The general farmer in many places in Ontario will enter upon the winter with a scarcity of rough feed. This condition is being reflected on the cattle markets just now. There is an over-supply of thin, unfinished cattle being marketed, and the supply of well-finished animals is below the requirements of the trade. The big runs of unfinished cattle are, however, finding a market, and are being got rid of in some way. The supply of cattle in the country is none too large, and the large marketing of so many cattle that should be kept for a few months more feeding will undoubtedly mean dearer beef before the winter is over.

Then again, the feed situation is reflected by the condition of the feeder and stocker trade. Up to the beginning of October there was very little demand from farmers for feeding stock. Having little feed, farmers have fought shy of the feeding business, though since the first of the month the demand has improved somewhat, thus indicating that some farmers have more than enough feed, and are willing to take advantage of the higher prices for beef later on by putting up some cattle to be finished for the winter trade. For the farmer who has the feed, cattle feeding should be a profitable investment during the next six months.

Ontario horse breeders have been as active as ever this season in the bringing in of imported stock. All the leading importers have brought in the usual strings, or have them on the way. There seems to be no let-up to this important trade. Each year sees new men entering the importing class, and bringing to the country a few horses - Clydesdales, of course, as they seem to be the breed the Ontario farmer has pinned his faith to. A gratifying feature of this important trade is the high average quality of the importations. The quality that would have passed muster a few years ago will not do to-day. The importer has learned that it does not pay to bring in inferior breeding stock, and he is bending his energies towards getting what the people want.

The defeat of reciprocity has settled the horse question. While the advocates of reciprocity believed that what would have been lost in Western demand for horses, through the agreement coming in force, would have been more than made up by an increased demand for Ontario horses from the Eastern states, there were not a few horsemen who were a bit afraid. Now that the question has been settled and the Western market is retained, breeders are settling down to the old order of things, and are preparing for the usual big western demand. That Western Canada will take all the good draft horses this country will produce for a few years is pretty well agreed. But the quality must be good. The past few years' trading with the west has taught the Ontario farmer that the man on the prairie wants quality, and is willing to pay the price to get it.

The Ontario farmers who had pinned their faith to alfalfa during the season just closed did not do so in vain. Reports from alfalfa growers indicate that this crop has made good in this year of drouth. While other grasses and clovers fell behind because of a scarcity of rain, alfalfa about held its own. Of course lack of rain lessened the yield, but to a very small extent as compared with other fodder crops. The number of alfalfa growers is being added to every year. The farmer who once learns how to grow alfalfa, and has had a crop or two, never gives it up. It is one of the cheapest fodder crops that can be grown, and if a farmer has corn and alfalfa to fall back upon his stock will be well fed, taking one year with another. Some growers complain of Alfalfa killing out more than usual last winter, but it has not lessened their faith in the crop as one every farmer should grow.

" ONTARIO".

EXPANSION OF WORK AT THE DOMINION EXPERIMENTAL FARMS.

Many Improvements to be made.

In the plans outlined in the policy of Mr. Grisdale, Director of Dominion experimental farms, an expansion of the work being carried on at every station is called for. Particular attention will be paid to live stock this coming winter. It is proposed to have live stock at every one of the experimental farms this year. A number of the stations have no stock at present, and have never had, since they were first established. It is proposed to make a specialty of some particular breed of cattle at each sub-station— that is, the breed best suited to the particular community. In districts where dairying is the chief industry a dairy breed will be kept, and in beef-raising districts beef breeds will be kept. At the Central Experimental Farm, both will be maintained. The Shorthorn herd, with the exception of about three animals, has been sent to Indian Head farm, Sask. Flocks of sheep have this year been established on the farm at Lethbridge, Alta., at Charlottetown, P.E.I., and at Nappan, N.S. At the latter place there is at present a herd of dairy cattle. It is proposed to have a herd of beef cattle and some swine there next year.

FRUIT ON VANCOUVER ISLAND.

Commenting on the newly established experimental farm near Sidney, on Vancouver Island, Prof. Grisdale stated that fruit growing would be made a specialty there. Owing to the beautiful situation it was possible, he said, to transform it into a very attractive place. The farm contains one hundred and twenty-five acres. General farming experiments will be carried on at this place, but the experiments will be chiefly in fruit growing.

NEW BUILDINGS AT OTTAWA

The Central Experimental Farm at Ottawa is undergoing a big transformation in the way of buildings and general improvements. The efficiency of every department is being increased in extensions of the buildings and in the numerical strength of the staff of officials and specialists. Since assuming his new office, Mr. Grisdale seems to have put new life into everything.

The water supply from the city has been very uncertain, owing to the high elevation of the farm site, and when the pressure became low the farm buildings were cut off from the water supply for hours at a time. To overcome this very serious drawback an immense steel tank is being put into place. The tank, which has a capacity of 25,000 gallons, will be mounted upon a steel tower eighty feet in height over and above the cement piers. The height over all will approximate one hundred feet. This is to occupy a position near the main barn and on the highest location on the entire farm.

In addition to this, a barn 70 feet by 40 feet with a cement foundation is well advanced in construction. It will be used specially for threshing the grains from the different plots as well as for storing, distributing and grinding. From this department samples of seed grain are each year mailed out to farmers all over Canada. The cereal department has been seriously handicapped for sufficient room and was obliged to " sponge " on the other departments for working space. The new building will contain three separate floors in addition to the cellar, which will be utilized for roots, etc. The barn is of plank frame construction.

The Dairy

NOTICE.

Butter and Cheese Factories.

The undersigned gives notice that every proprietor, or manager of every butter or cheese factory or factories for the manufacture of condensed or powdered milk is required to register his name in the Department of Agriculture, at Quebec, before the first of January next (1912). Any one who has not been supplied with the blank necessary for the declaration may obtain same by applying to the undersigned.

JOS.-ED. CARON,
Minister of Agriculture.

Quebec, October 17th 1911.

BUTTER AND CHEESE FROM THE PROVINCE OF QUEBEC.

Pasteurized Butter. — Chickens.

We have just seen several letters written by Vancouver and Winnipeg merchants to a Montreal exporter. They state that in the North-west there is a great demand for butter, cheese, and chickens from this province. Our products have a great reputation, and the good effect of the Quebec Co-operative Society of Cheese-Makers on our Provincial Dairy Industry is well known there. Two merchants ask for detailed information as to the working of this powerful organization, and one of these inquires what quantity of pasteurized butter this association could sell him next year.

These dealers wish to buy 8 to 10 waggon - loads of milk - fattened chicken this year. The breed preferred is Plymouth Rock. Farmers should keep to one breed, instead of raising several as they generally do ; and the best seems to be the Plymouth Rock. With cold poultry houses and care, poultry-keeping should be a monetary success in this province. The above shows, too, what a brilliant future there is for our dairy industry, reformed by the Quebec Society of Cheese-Makers.

There are among the members of this association many cheese-makers, but still very few butter-makers. The manufacture of pasteurized butter should be far more extensive. It is this pasteurization that probably helped more than anything else to build up the great reputation of Danish butter.

If we wish to develop this important agricultural industry we, too, must pasteurize. Therefore we must encourage the Co-operative Society of Cheese-Makers who this year won the highest prizes for best-quality butter and cheese.

J. C. CHAPAIS.
Assistant Dairy Commissioner.

J. A. RUDDICK, DAIRY AND COLD STORAGE COMMISSIONER.

The next in line is a tobacco curing barn of liberal dimensions. The work on this has also been started. It will be utilized for storing and curing all the tobacco grown by the Dominion experimental farms in Eastern Canada. The crop this year will be represented in the product of about six acres. At the Central farm one and one-half acres is under tobacco this year and the crop is exceedingly good. The balance will be from the farms at Essex, Ont., and at L'Assomption and Bagot, Que.

KEEPING QUALITIES OF BUTTER.

The changes taking place in stored butter can be classed under three different headings.

(1) Physical changes. Cold storage changes the texture of the stored butter.
(2) Chemical changes. Chemical changes are caused by light, heat or oxygen.
(3) Bacterial changes.

Chemical changes produced by light, heat, and oxygen, without bacterial assistance are of minor importance ; besides, butter stored under normal conditions (low temperature, no light, little air contact) will not show any chemical changes if the storage rooms are well looked after. If chemical changes take place they are characterized by a gradual discolouring of the outer layers, and the appearance of a greasy smell and taste.

The bacteria, however, are the real spoilers of the stored butter. The principal trouble in butter is rancidness, a change marked by the appearance of much volatile acid, and a special odour and taste. After all, it is only an exaggeration of the real butter aroma, and a decomposition of the fatty substance. Numerous species of bacteria can produce rancidity in a few hours. When such bacteria are present we ought to speak of butter defects.

All polluted water contains bacteria dangerous to the keeping qualities of the butter, and capable of producing rancidity in a short time.

INFLUENCE OF AIR. The most dangerous organisms need an abundance of fresh air. This is well known to the observant butter maker, who sees that rancidity starts on the surface and works towards the interior. It is therefore advisable to store butter in large masses which have a comparatively small surface.

IMPORTANCE OF THE REMAINING BUTTER MILK. Bacteria in order to grow need food. Butter fat is a very poor food, but the butter milk left in the butter after washing it contains all ingredients for an abundant bacterial development. Well washed butter will keep much longer than other butter, and the butter maker should give the washing his special attention.

TEMPERATURE. Below 48° Fahr. bacteria do not increase rapidly, and at a temperature of 37°-38° Fahr. the growth of micro-organisms is so far arrested that butter can be kept for

a fortnight without losing any of its qualities. Butter to be kept for several months should be stored at a temperature of 20° Fahr., and made from separator cream.

All butter stored at such low temperature becomes spotted in course of time. The poorer the quality of the butter the sooner it becomes spotted

Butter that has been in storage for a long time should be warmed gradually so as not to spoil its texture, and kneaded again before being put on the market.

LACTIC ACID AND LACTIC ACID BACTERIA. The lactic acid bacteria play an important part in the conservation of butter. Through their lactic acid they counteract the development of decomposing organisms. Unluckily, when the butter is washed the greater part of the useful lactic acid is washed away. It has been tried several times to give the butter a final washing with water to which 0.1 p.c. of lactic acid was added. To our mind that amount of lactic acid is much too small to make up for the loss, for butter contains seldom more than 16 p.c. water, so that the percentage of lactic acid goes down to 0.02, and it will be necessary to add much nore acid to make the test a fair one.

Another method is to give the remaining lactic acid bacteria more favorable conditions of development to enable them in that way to utilize the remaining milk sugar and change it into lactic acid. Casein is not easily digested by the lactic acid bacteria, but when we break down that casein the decomposed products furnish a splendid food.

We must therefore add to our butter a bacterial culture which does not hurt the quality of the butter, and which will peptonize the casein; then the lactic acid bacteria will be in much better condition to fight the dangerous organisms.

PASTEURIZED CREAM. Pasteurized cream is generally used for export butter, but the objection has been raised that butter made from that cream was lacking in aroma.

If farmers make butter for immediate use, they can dispense with pasteurization and make the more aromatic butter which will not keep. On the other hand, by using pasteurized cream they will get butter of less aroma, but this butter will not change in course of time. It is not sufficient, however, to pasteurize the cream and to use pure starter, but washing water also must be pure. The ordinary bacteriological control is of no use for the testing of such water, for the bacteria generally considered to be dangerous do not impair the keeping qualities of the butter. The best way to test the washing water is to sterilize some cream, add pure starter, and pour in a few drops of the water to be tested. After the cream is ripened it is made into butter, and these butter samples are carefully studied as to their qualities. If the butter does not keep well, or spoils easily, the washing water should be rejected or filtered.

A very suitable filtration bed is made of coke and charcoal, covered by old rails and fine sand. Such a filter can deliver the large quantities of water necessary for the washing of the butter, and is very cheap for its capacity.

Butter makers ought to get on friendly terms with bacteriologists for bacteriology will be of the greatest help in the detection of butter defects, as it can investigate the manufacturing process from the moment the milk is drawn until the butter is wrapped in parchment paper.

RANCIDITY in butter may be due to poor milk, insufficient cleansing of utensils and cream vat, or infection in the butter cellar.

Steam and boiling water should be used for cleaning in all cases, where it is possible. Wooden utensils should be scalded in boiling water, and churns washed with lime water. Cleanliness is of the highest importance to enable the butter maker to produce a good keeping product. After the butter maker has made sure that cleanliness prevails everywhere, and that his water is pure, then he can pasteurize the cream. Use pure starter, and add bacteria which intensify the action of the lactic acid ferments. But all the latter methods are useless when the butter is infected from dirty utensils or impure water.

J. VANDERLECK.

EXAMPLES OF IMPROVEMENTS MADE BY THE QUEBEC CO-OPERATIVE AGRICULTURAL CHEESE-MAKERS' SOCIETY.

M. B. J., in Rimouski County, had his first sale year through the Cooperative, and made soft and bad flavoured cheese all through the season. At the request of Mr. Bourbeau I went to investigate these defects, and try to remedy them.

I ascertained then that the milk taken to the factory was of bad quality. This was due to the rusty condition of the cans and the carelessness of the patrons. The night milk was not sufficiently cooled. On asking M. B. J. if he had never tried to improve matters he replied—"Before I dealt with the Cooperative I used to send my cheese direct to a buyer in Montreal, and got my payments without any remarks as to its quality. I thought I was all right, and I never dreamt until this year of insisting upon new cans and a good quality of milk from my patrons. That is the reason they were careless and negligent."

After examining the sale reports of last year I came to the conclusion that the cheese must be of bad quality because it hardly ever fetched the highest sale price. Then, too, there are certain defects in the making I am endeavoring to remedy.

L. T.

Inspector of Cheese Factories.

In a parish in the neighborhood of Quebec, a butter maker, a member of the Cooperative, sold his butter at 23 1-2c. the 28th of July. He paid his patrons 85c. per 100 lbs. of milk. In this same parish another maker, not a member of the Cooperative Society, sold his butter at 22 3-4c. the same date; and paid his patrons only 82c. per 100 lbs. of milk.

Results of cooperation are higher prices and improvement in the manufactured article. From every point of view it is in the interests of the farmers to join the Cooperative.

RAFFINE CHEESE

The people in Quebec are very fond of a small strong smelling cheese, called Raffiné cheese, which is exclusively sold in that old city. It is manufactured by the inhabitants of the Island of Orleans, situated in the St. Lawrence, a few miles below Quebec. The process of manufacture has recently been described in detail in the French language by Mr. J.-C. Chapais, whose essay on the subject has been published as a Bulletin of the Provincial Department of Agriculture. Mr. Chapais, who has made a thorough investigation of the manufacturing process of the raffine cheese, mentions that it was introduced from France in the beginning of the 18th century, and that at present a similar cheese is made in the valley of the Armance, under the name of Soumaintrain cheese.

The raffiné cheese is manufactured from whole milk, the rennet being added to it the moment it is drawn, so that the milk has a temperature of 90° Fahr. The rennet used for the coagulation is specially prepared by the Islanders in the following way. — The stomachs of calves, six weeks old, are washed with water, stretched over a board, and rubbed in with a mixture of salt and pepper. The stomachs thus treated are allowed to dry, and stored away. When the cheesemaker wants to make a new supply of rennet he mixes half a teaspoonful of molasses, a quart of water, a tablespoonful of coarse salt, and some pepper. This mixture is boiled together and poured into a bottle. As soon as it has become lukewarm the stomach, cut in small pieces, is added to it, and the bottle carefully corked. After 24 hours this rennet can be used. A tablespoonful added to a pail is sufficient to form the curd in half-an-hour. The curd is cut, and the

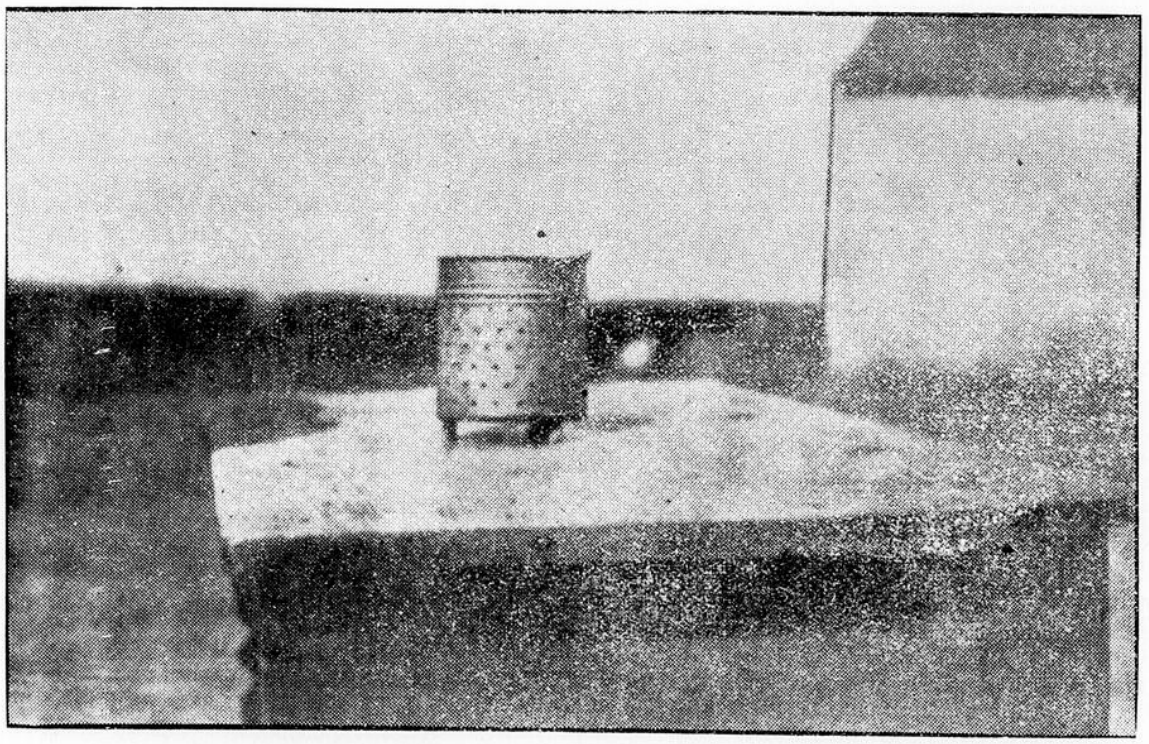


Figure I—MOULD (Fisselle)

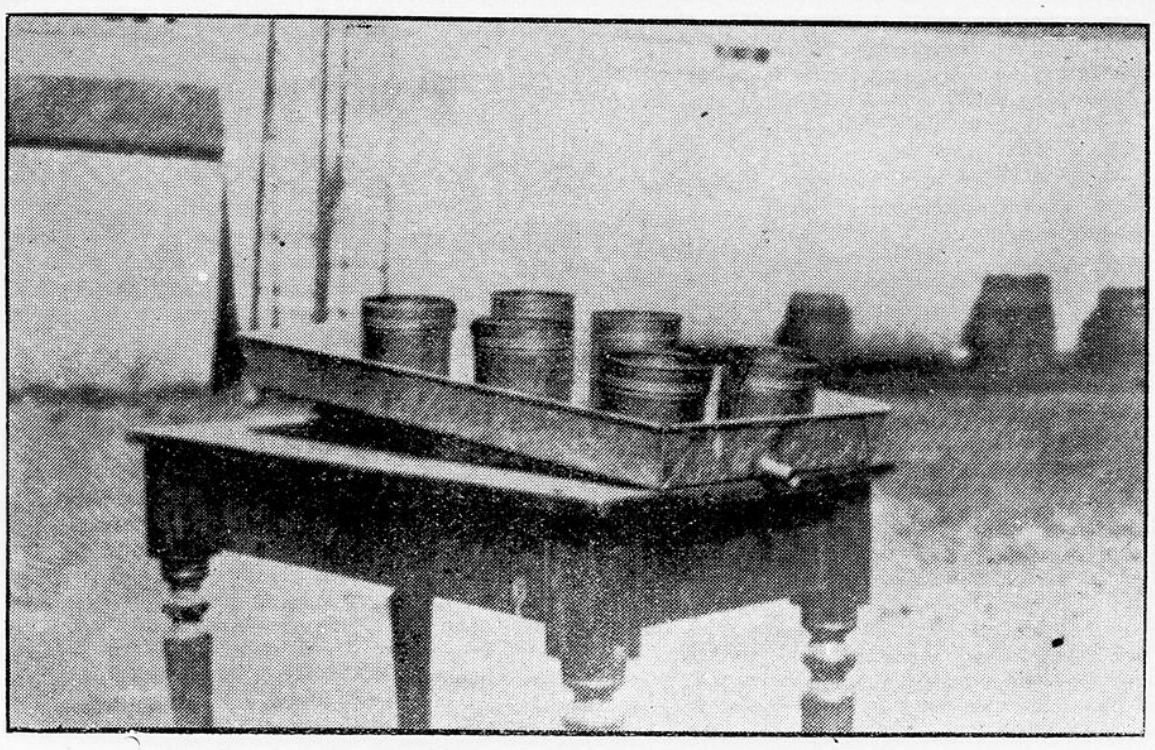


Figure II—TRAY WITH MOULDS

whey drained off. In about two hours the curd is dry enough to be ladled into perforated, galvanized iron moulds called fisselles in the Island vernacular. (see Fig. I) The moulds are 4 1-2 inches in diameter, six inches high, and provided with three small supports to improve the drainage of the curd. The curd put in these moulds is not pressed in any way, and some salt is spread over the surface. The filled moulds are placed in galvanized iron trays provided with an outlet at the lower end, in order not to spill the whey over the floor. (see Fig. II). The trays are placed near enough to the stove to have a uniform temperature of 70° Fahr.

As soon as the surface of the cheese in the mould appears to be dry the cheese is turned over in the mould and some salt spread over the new surface. The cheese is taken from the mould when it has sunk down to half its former height. Then the cheeses are placed on a lattice board, each cheese supported by a small mat of bulrushes (see Fig. III). This matting is made by the butter-makers themselves, and has rather a peculiar shape as all the heavy ends are joined at the same side. This is done to ensure a smooth surface, as otherwise the surface of the soft cheese would be spoiled. The lattice board is again supported by a galvanized iron tray to collect the drippings.

This tray filled with a layer of cheeses is suspended from the ceiling in the kitchen, and a temperature of 70° Fahr. again maintained. It is very important that the temperature should not get too high, or butter fat would leak out of the cheese.

The cheeses in the tray are turned over twice a day. The third day the cheeses are washed in a pickle made of fresh whey, to which two handfuls of salt are added to the gallon. Then the cheeses are placed on a clean linen cloth, covered by another cloth, and left for two hours before being placed back in the tray on new matting. The linen cloth takes up the surplus moisture left after the washing of the cheese. At first every other day, and later on every third or fourth day, this washing is repeated, the intention being to have the cheese ready for the curing process in about a fortnight.

It is advisable to cure at least 60 cheeses at the same time, and the cheese can be kept unchanged until such a number is reached by placing them in a cold dry room. As long as this room is kept free from frost the cheeses will keep indefinitely.

The cheese to be cured is put in a vat with cold salt water, and left in there to soak— not longer than 24 hours in the case of fresh cheese; 36 to 48 hours if the cheese has been stored for some time. Then the cheeses are wrapt in pieces of cloth which are first moistened in a pickle of whey and salt. The folds of the cloth come under the bottom part of the cheese so as not to spoil the smooth top. The cheeses are now placed in a large box, with some holes in the bottom. This box can contain twelve layers of 21 cheeses. The box or large tray is covered with a piece of linen, also moistened in the pickle, and is placed in a cellar kept at a temperature of 45° Fahr.

Every other day the cheeses are taken out and examined, and if everything is all right the cover-cloths are moistened anew in the pickle, and again wrapt round the cheeses. If the cloth is yellow it must be carefully washed in clean water, and dipped in the pickle before being used again. It is very important to keep away moulds, for moulds will spoil the taste of the cheese in a short time. As soon as a mould is discovered the cloth must be washed carefully. Moulds are liable to develop in cellars which are too moist, or kept too warm.

About three weeks after the cheeses are put in the cellar they are cured sufficiently to be marketed. All yellow parts are scraped off and the cheeses wrapt in cheese-cloth or paraffin paper. The cheeses are now about 5 inches in diameter by 1 inch high, and three cheeses go to the pound.

The whole manufacturing process lasts 37 days, and raffine cheese can be made at a profit in the Island of Orleans, where milk has only a value of 12c. a gallon. An outfit to make such cheese is within the reach of all, as it costs only $13; and a dozen cheeses cost only 59c. while they sell in Quebec at $1. a dozen. However, in places where milk is worth 25c. a gallon raffine cheese could only be made at a loss, but it might be profitable in out-of-the-way places. The Islanders make the raffine cheese between September and March. The taste of the cheese is pleasing, but unluckily people who have never tasted it are prejudiced against it on account of the disagreeable smell of ammonia.

Mr. F. L. Tourchot of St. Hyacinthe analyzed raffiné cheese and gives the following figures.—

Water	53.82 p.c.
Fat	25.35
Soluble casein . . .	5.02
Insoluble casein . .	15.81
Free ammonia . . .	0.701
Total nitrogen . . .	2.77
Salt	1.77

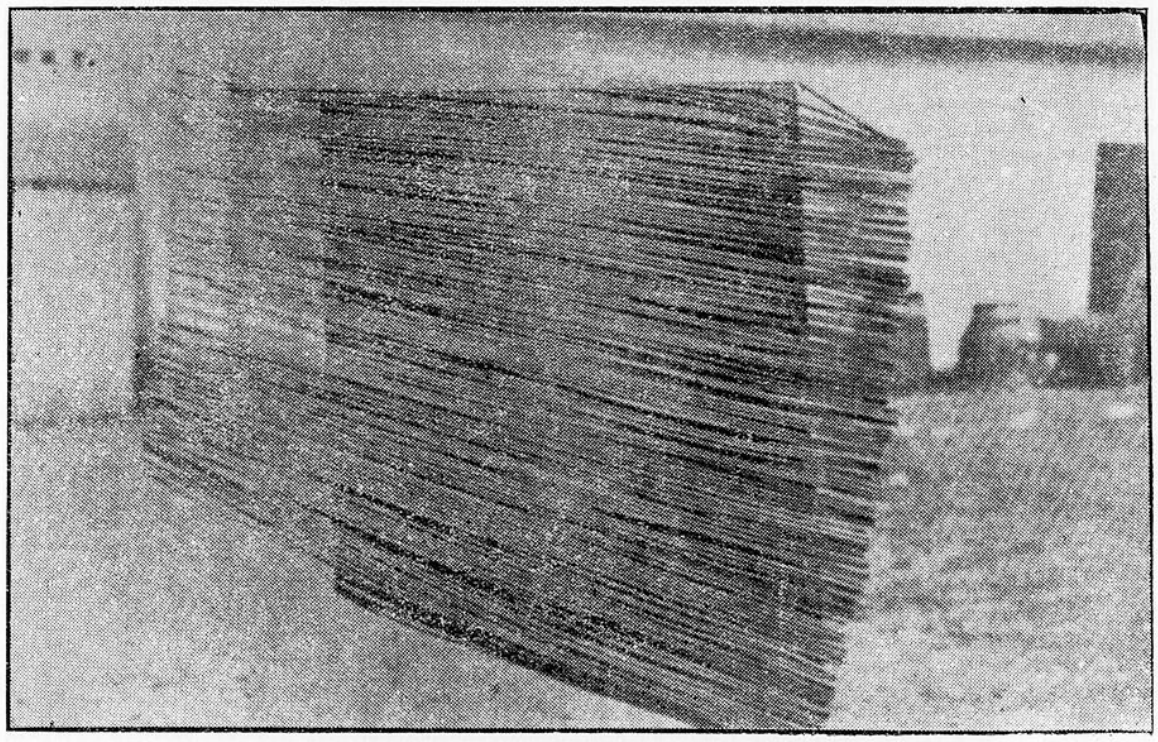


Figure III—BULRUSH MATTING

The consumption of raffiné cheese in Quebec is considerable, for they use the whole output of the Island of Orleans, amounting to 1300-1500 dozens per year.

We are sure that such cheese would find a good market in Montreal and other large towns.

J. VANDERLECK.

FOUR SYSTEMS OF DAIRY FARMING

An Extract of Illinois Agricultural Experiment Station Circular No. 151 By W. J. Fraser and R. E. Brand.

The amount of milk and butterfat produced per acre is, generally speaking, the final test of profitable dairying where all feed is raised on the farm. The final result depends not only on efficient cows but also on raising crops that contain a maximum amount of digestible nutrients, and especially protein, which is so essential for dairy cows. This circular explains and compares four different systems of cropping for dairy farms. The first will make 991 pounds; the second, 1475 pounds; the third, 2025 pounds; and the fourth, 3150 pounds of milk per acre. The poorest system of cropping returns $15.20 per acre in milk, and the best system returns $48.30 per acre. The first system will give an annual return of $2,632 from a 160-acre farm, and the last, $8,263, or more than three times the first.

But this is not all. The fertility of the farm is diminished by the first system, as there is an annual loss of 1900 pounds of nitrogen. The second system shows 110 pounds, the third, 2280 pounds and the fourth, 5830 pounds increase of nitrogen in the soil. These differences are due entirely to the kind of crops raised and their adaptability to the feeding of dairy cows, for the cows are figured as of the same natural efficiency and the soil equally productive, in each of the four systems. It is certainly worth while to consider crop plans that make such differences in the returns and in the maintenance of the soil.

The crops raised and the rotations practiced under each system are as follows:

System No. 1.— Corn, oats, corn, oats, timothy, pasture, pasture, pasture..

System No. 2.— Corn, corn, corn, oats, clover, clover and timothy, pasture, pasture.

System No. 3. — Corn, corn, corn, oats, clover, alfalfa, pasture, pasture.

System No. 4—Corn, corn, corn, corn, corn, alfalfa, alfalfa, alfalfa.

In order to put the systems of farming on the same basis, it is necessary to take a definite yield for each of the crops raised. This has been fixed as nearly as possible at the average production per acre for the different crops on the better class of farms in Illinois. The results show that the total digestible nutrients increase 77,177, 56,767 and 238,604 pounds respectively, from system to system, and that system No. 4 produces 80,237 pounds digestible protein, or over three times that of system No. 1.

Wonders of increased productions have been worked on many dairy farms by getting better cows; and it is here shown that amazing results may also be obtained by following a better system of cropping. It must be remembered that all results in this bulletin are comparative.

The marvellous difference in the profits derived from these four systems of cropping are best shown by a direct comparison of the profits left by each system. System No. 1 returns $2.43 ; System No. 2 returns $780, or 321 times the profit of No. 1; System No. 3, $1947, or 801 times that of No. 1; and System No. 4, $3928, or 1616 times the profit of System No. 1, besides adding 5830 pounds of nitrogen to the soil of the farm. These figures show that an intensive system of dairy farming will rapidly increase the profits and the producing power of the farm, even though all the milk is sold, if the system includes the liberal growing of legumes, the careful saving and applying of all manure, and the addition of a few cents' worth of mineral constituents per acre annually, thus making not only a permanent agriculture, but an accumulative agriculture, which at the same time is highly remunerative.

THE QUEBEC COOPERATIVE AGRICULTURAL CHEESE-MAKERS SOCIETY.

CHEESE SALES AT THE BOARD OF TRADE BY AUG. TRUDEL, MANAGER.

Sept. 22, 1911.

Number of boxes	Quality.	Buyer	Price.	
1064	Special	Lowell & Christmas Ltd,.	14 7-16c.	White
1098	No. 1	Lowell & Christmas Ltd,.	14 1-4 c.	"
262	No. 2	Hodgson Bros, & Rowson Ltd,.....	14 1-16c.	"
265	Special	Gunn, Langlois & Co. Ltd,.	14 1-4 c.	Colored
480	No. 1	Gunn, Langlois & Co. Ltd,.	14 1-8 c.	"
140	No. 2	Jas. Dalrymple & Sons Ltd	14 1-16c.	"
Sept. 28,				
1017	Special	Jas. Alexander Ltd, ...	14 3-16c.	White
1028	No. 1	Gunn, Langlois & Co. Ltd,.	14 1-8 c.	"
516	No. 2	G. D. Warrington, ...	13 7-8 c.	"
177	Special	Hodgson Bros. & Rowson Ltd,...	14 1-8 c.	Colored
360	No. 1	Hodgson Bros. & Rowson Ltd, ...	13 3-4 c.	"
288	No. 2	Gunn, Langlois & Co. Ltd.,	13 11-16c.	"
Oct. 12,				
1419	Special	Jas. Alexander Ltd, ...	13 9-16c.	White
1060	No. 1	G. D. Warrington, ...	13 1-2 c.	"
309	No. 2	Hodgson Bros. & Rowson Ltd, ...	13 1-4 c.	"
128	Choice	Lowell & Christmas Ltd,.	13 7-16c.	Colored
291	No. 1	G. D. Warrington, ...	13 3-8 c.	"
75	No. 2	Gunn, Langlois & Co. Ltd.,	13 1-8 c.	"

BUTTER SALE AT THE BOARD OF TRADE BY AUG. TRUDEL, MANAGER.

Sept. 22,

622	Special	Lowell Chritsmas Lud,. ..	25c	
578	No. 1	Jas. Dalrymple & Sons Ltd	24 1-2 c.	

Poultry

THE POULTRYMAN'S FALL WORK.

The fall season of the year will find the average poultryman a pretty busy personage. This is the time of the year when he must watch out, or his whole season's work is liable to be lost. In addition he usually has crops to gather, which only increases his burdens.

So, therefore, it is very essential that all that can be done in October be done, to give more time to the November work. A poultryman should carefully map out his work months before the actual work is done. He should then live up to this standard, and do his work at the proper time.

One of the most interesting subjects at this time is poultry house construction. The fall season is one of the most popular times of the year for commencing in the poultry business. At this time of the year, stock of good quality can be purchased at a reasonable price and the cost of labor is usually low.

As the house is very important, let us discuss that first. A poultry house should be minus all useless appliances and devices. These are usually expensive, useless and only provide a harbor for mites. Build your house as simply and cheaply as possible, but make it comfortable, for having comfortable quarters for your fowls is one of the keynotes to success.

The interior should contain nothing but the nests, dropboards, and dust bath. Have everything removable, so that your house may be cleaned readily. Be sure and have the front of your house partially covered with muslin. This insures perfect ventilation and healthier birds.

If you haven't a satisfactory floor in your house, put in a concrete floor before the frosts commence, then cover with litter. I have found this to be a good, substantial floor, containing all of the good qualities necessary. Board floors are a nuisance, while earth floors are liable to be damp; therefore, try a cement floor, covered with loam, and you have an ideal floor.

Now is just the time to lay in a good supply of earth for winter use. Select good sand where it will keep dry. Old barrels or boxes will come in handy for this use. There are so many uses that good, dry earth can be put to in the winter, that this feature of fall work should never be overlooked.

If your young birds are still roosting out in small colony coops, it is time that they should be moved to more comfortable quarters in the winter houses. Prompt attention to this very important work may save you the loss of some valuable birds by croup or colds. Get them in the roosting habit now, and you will have no more trouble.

Do not make the universal mistake of shutting all the windows and doors in your poultry house simply because of a possible frost. If there are cracks on the north side or east

RECENT PUBLICATIONS OF THE DAIRY AND COLD STORAGE COMMISSIONER'S BRANCH

Bulletin 28 of the Dairy and Cold Storage Series, entitled "An Historical and Descriptive Account of the Dairying Industry of Canada" is the work of the commissioner, Mr. J. A. Ruddick. It contains much matter of interest and is handsomely illustrated. Through the kindness of Mr. Ruddick we are able to reproduce some of the illustrations in our present number.

Bulletin 29 contains a number of useful "Notes for Factory Cheesemakers".

Bulletin 30, " Cream Cheese" by Miss G. Bagnall, N.D.D., contains the same matter as the article of this title published in our September issue, but has additional illustrations.

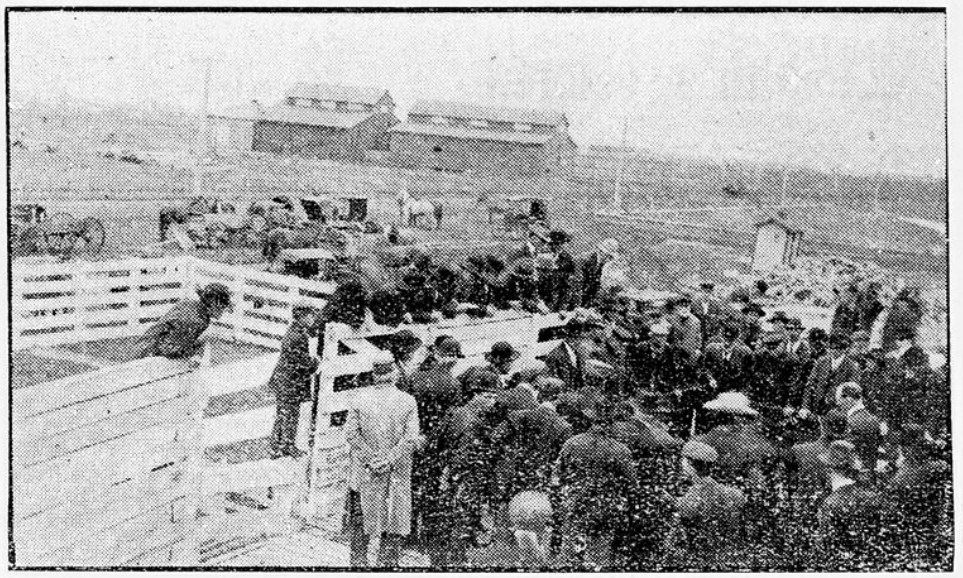
or west end, nail on the boards and cover the cracks with building paper ; but always remember to leave the south side practically open. A tightly closed poultry house is a very cold and unsanitary one.

Provide plenty of nests for the early-hatched pullets, for if they are compelled to lay in the corner, the habit of egg eating may be formed. This is a habit, that is a very difficult enemy to cope with. See that there is a good supply of grit in the hoppers.

When moving the young stock into winter quarters, be careful about crowding. There is but very little danger of growing chickens getting too fat; so, therefore, feed them all they will eat at this season. Corn can safely be fed to half-grown chicks at this time and will give good results.

This is a good time to lay your plans for next season's business. Plan your advertising campaign carefully. Keep your advertisements, and then by comparison you can easily tell which papers are doing the "pulling". Order the incubators, brooders, bone cutter, trap nests and what supplies are needed. You will then have no troublesome delays at the time when you need these articles.

In conclusion, let me urge all who read this article and are not keeping any fowls, to purchase a few and try it for a few months. You do not have to get very many. In fact, it is better to get a standard-bred trio than it is to purchase a whole houseful of mongrels. Start right and keep in mind quality instead of quantity. —Lynn C. Townsend.



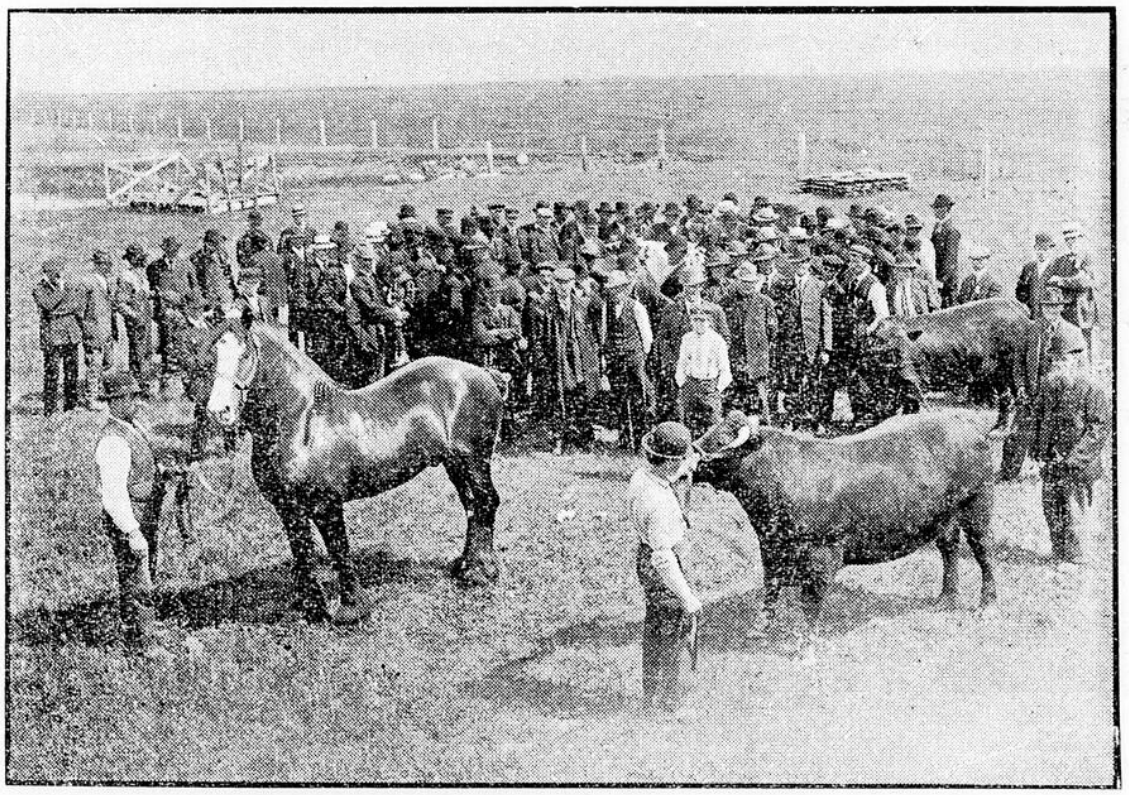
MANITOBA AGRICULTURAL SPECIAL.
Interested farmers hearing Prof. Peters talk on Sheep and Swine for Profit.

POULTRY FOR PROFIT FOR CANADIAN FARMERS.

Much has been said in reference to the feasibility of operating a large poultry plant so as to make it pay. So much stress has been laid upon this particular branch of the poultry industry and so much publicity has been given to the few very large plants which have made a failure, that the general public has learned to look upon the industry as a 'woman's job'. Notwithstanding this, the demand for poultry products has ever been on the inrrease, and prices have gone higher and higher, until we find today that when properly managed there is nothing on the farm that pays a better dividend than poultry, treated as a branch of general farming.

If this is true, why is the demand for the produce of the poultry-yard greater than the supply ? Several reasons may be given. One of the chief is the fact that the same attention is not paid to the poultry industry that is given to the other branches of our farm work. Thus we find dressed poultry placed upon the market in such an unsightly, unwholesome condition, that the farmer or poultry-raiser does not receive what he considers paying prices. Thus he is discouraged, and decides that the poultry branch of the farm is not a paying branch ; and eventually only keeps enough to supply the home demand. Another reason is the scarcity of help, for poultry, like everything else, requires time and attention. Especially are these things true of our Canadian farmers in the West, where the demand for poultry is so great; where so much could be raised at a profit ; and where the market would be within easy reach. One of the first things that must be discussed and thoroughly understood is the requirement of the best market within our reach. If a little more care were taken in the preparation of products for market it is a safe prediction that the farmers of Canada could secure thousands of dollars more annually for the same products that they raise today.

To some this may not seem correct. Let us take one instance that happened in Montreal, Christmas week of 1910. One of the best local butchers who caters to a high trade ran short of fresh-killed turkeys and the best he could do was to buy frozen stock which was guaranteed to him to be well fleshed, but not put up in an attractive way so as to have a good appearance. These turkeys were first brought in to a country store near Ottawa by a good farmer's wife, and paid for at so much per pound, in the usual way. They were then put away in a large pile to freeze before shipment to a wholesale market in Montreal. These turkeys were left to freeze in all shapes imaginable, and in this form they were delivered to the wholesaler, and by the wholesaler to this butcher to meet his high class trade. What was the result ? When the goods were opened up he refused them, saying it would ruin his trade to put them in his window. No other kind was available, so what was he to do? The wholesale man offered to take them back and give him drawn or trussed birds instead. What did this wholesale man do ? Took these very same birds, took the frost out in cold water, had the birds trussed, put on a shaping board and, when chilled into a rigid condition, packed into boxes wrapped nicely in parchment paper, 10 turkeys in a box graded according to size. In this form they were sent back to this same butcher who, when he saw how nice they looked, was quite offended because the wholesale provision house has tried to sell him the first turkeys when the last were in stock.



MANITOBA AGRICULTURAL SPECIAL.
Stock was carried on the train of different grades for demonstration purposes. In the front row we have a good type of a Clydesdale Colt and a good export Steer.

Woman's World

WOMEN'S INSTITUTES
Pontiac Co.

During the Fall Fair at Shawville an opportunity was given to converse with many of the women from the various districts of Pontiac County to find out what was the feeling in regard to establishing in that county a series of branch Institutes. There seemed to be a general feeling in favor of organizing, and many women expressed the hope that in the near future at least six centres might have branch organizations.

If this can be accomplished this fall, Pontiac will be the banner county for Quebec.

One of the good things the Institute could do would be to take a larger interest in the Fair, particularly the women's department, and extend and revise the list of things for which prizes are offered.

One Women's Institute this Fall is offering prizes as specials to young girls under sixteen for darning and bread making. This list could easily be extended to include branches of laundering and cooking, and our young housekeepers thus encouraged.

It is not unusual to find here and there young girls, almost children, who because of the death of a mother have had to assume the duties of housekeepers, and it would mean much to such a girl if she had access to a Women's Institute where every member would do her best to give good assistance to such brave little souls, who have had perhaps no instruction and little experience, and who are much in need of such advice and help. It is to be hoped that the efforts of the Pontiac women towards organization will be successful and that many other centres may soon follow.

J. M.

Now, then, what does this teach us? Simply this: We may do everything to secure good poultry products, and spoil all in the last move, possibly the most important one of all, viz. : " Putting it on the market." Any one can find fault, but no man should speak in criticism unless he has some better methods to recommend. How does this affect Quebec province? Do our farmers need to be more careful in any branch of their poultry work and, if so, what is the simplest and best way to accomplish the ends we have in view? It is true that as a province we have been the first to move on a large scale, but there still remains much to do. If it is a matter of education first, how can we best go about it? The accompanying cuts show a plan adopted by the Agricultural College of our sister province, Manitoba, viz.: an Agricultural College on wheels. Several articles have appeared in our columns in reference to this educational train, and in next month's issue will appear photographs of the different departments and the work they strove to do, as well as a cut of the Principal of the College, Prof. W. J. Black, a former Ontario boy. A summary will also be given of the wants of our great Canadian West, and how the East can supply the West with Poultry products. This is simply a matter of producer and consumer getting closer together; and as this is the day of observation for farmers we shall do well to read carefully from the producer's standpoint, and see how we, as farmers in Quebec, in supplying high class poultry products can maintain the high standard we have set for the personal gain of "those who will try."

JOHN I. BROWN.

FALL FAIRS. PRIZE LISTS

Early in the year the secretaries of Fall Fairs will begin to revise their lists, and there are many suggestions that occur to one who has judging to do, but which do not necessarily come under the notice of the ordinary observer. It would seem sometimes that the lists were copied from year to year with little variety, so that for exactly the same thing and in the same way prizes are offered. Following each Fair we hear complaints such as "that old thing has been here every year in the last ten, and the lists say it must be work done during the past year."

If the judges are changed each year, as they often are, they cannot be expected to know old or oft.-exhibited work, and so they go on giving prizes each year for the same thing. It would seem plain to almost any one that the only easy way to checkmate this is to so change the lists that such a thing could not occur, and that the lists could be so revised that the judges would be sure of what is required of them.

In one fair lately there were prizes offered for "displays" of various things. Now a display means a good showing and that is not essentially what is wanted. It is quality, not show, that ought to be looked for. If it is canned fruit, or pickles, to be shown, then the lists must be so arranged that we shall know that it is the quality that is to be tested. Then, too, the statement of amount should be specific. A display may have five samples or fifty and the judge may be at a loss to know what to do when such varying quantities are offered. One might suggest such a form as this :—

Canned fruit in quart jars — five varieties, or — Jelly in half pint jars — five varieties, or — Jam in pint sealers, three varieties, or—Pickles — home grown — four varieties, or— Chili Sauce— one pint sealer,— or— Salad dressing — oil, or — Salad dressing — boiled, or — Layer cake — iced, or — Fruit-cake — drak, or— Baking powder biscuits or — Buns — plain, or — Rolls — parker house, or — Laundered — blouse — cotton — white.

Sometimes we find buns, rolls, baking powder biscuits, all entered as rolls — and similar errors in other departments. Whatever is offered, let it be specific, and so definite that there can be no hesitation.

Then for the women's department there should be a woman director. and she should be a woman capable of promoting suitable arrangement of materials to be judged. We often find things out of their own class, and it is difficult to hunt up the different exhibitions so as not to miss any.

It would serve as a guide and facilitate matters if there was on the wall, back of the materials, exhibited in large type the number of the class and of the entries, as :—

Class 36, 6 entries — and the six entries should be directly below in plain view so that there can be no chance for discontent afterwards.

Sometimes the articles are placed in three layers as steps, so that it is quite impossible to reach the upper exhibits without climbing over the lower ones. No two should so overlap that they cannot be easily reached and easily seen by visitors.

If there is danger of theft, as there sometime is, a guard should be placed over valuable things, or they could be placed under glass. It costs a little more in money and effort but gives better results. A shelf two feet wide is none too wide for fancy work ; but exhibits of foods, preserves, pickles, etc., could be placed on shelved cupboards against the wall, and do not require the same space. If they are placed thus, a small table on castors should be ready for the judge to open the food on, and to do all necessary writing of entries, prizes, etc.

The ventilation is usually bad, especially upstairs, and this accounts largely for the tired look of those who have to remain long in the exhibiting rooms. I would like also to suggest for the women who do the managing a rest corner somewhere. I have known cases of women who became ill because of over exertion at Fairs when a half hour twice a day where they might lie down or go and get a refreshing cup of tea, would have prevented this strain from becoming too great.

It may be argued that there is no money for such luxuries. These are not luxuries, they are necessities, and the fact that many energetic women put up with such condition is no excuse for their continuance.

Our Women's Institutes could do much in such cases by co-operating with the directors.

Some effort could also be made to provide even rough benches here and there where a tired woman with a child in her arms could rest a while. These tired faces haunt me after I have been at a fair. They find no rest from their wanderings except it may be on the grand stand where they do not wish to go.

It is worth while spending a good deal of effort on our fairs, and extending the scope of our exhibits as widely as possible. It becomes an educational feature, and stimulates to increased efforts to do good work. The men's field is improving each year, it is now the work of the women to make their part of it as worthy as it can be made.

J. MULDREW.

THE INSTITUTES AND THE SCHOOLS.

One of the ways in which the Women's Institutes may serve the communities in which they are established is to help in creating better conditions in the public schools. This fact is being more and more brought to the notice of the different Institutes and this year not only have we had letters asking how this may be done, but we have had the satisfaction of seeing many things attempted here and there. One woman wrote asking for hints as to how the Institutes could help the teachers, and though in the cities or towns the teachers are comparatively well housed and are socially favored, it is sometimes not so favorable for the lone girl teaching in a rural community. By this I do not mean that she is less cared for. Indeed it is generally the opposite. But in any enterprise that demands as much as a teacher must give there is need of the stimulus of co-operation and the sympathy of those whose interests are one with theirs.

The members of the Institutes are the mothers or sisters of the children in the Public Schools, and it is with them that the first five or six years of the children's lives are wholly spent. Then comes the break from home and, whether we wish it or no, we must admit that the teacher becomes the dominant influence during the school days. The teacher cannot do effective work without the co-operation of parents, neither can the parents effectively influence their children of school age unless there is sympathy and assistance from the teacher with whom so large a portion of the child's time is spent.

As an example of what a little concerted action on the part of mothers can do to help the schools I want to give a brief account of what one Women's Institute did in Quebec. At a meeting, early this year, there was a discussion about the unsatisfactory condition of the rural schools of the Township. A list of questions was made out and sent to every teacher in order to secure

the necessary information about the condition of the schools.

When this list was complete a meeting was held of the Institute and a letter drafted by them and sent to the Commissioners asking four definite things.

1. Covered drinking-water tanks with taps in every school.
2. That schools be properly ventilated and the windows made to open both from top and bottom.
3. That all floors be scrubbed at least three times a year.
4. Separate closets for boys and girls with doors and proper fastenings, and that these be cleaned and earth renewed as often as necessary.

This letter was read by the Commissioners at their next meeting, and all suggestions adopted, and steps were taken to have all in readiness for the opening of school this term. The Dunham Women's Institute certainly deserves credit for trying to create a better and a more sanitary environment for the little children, and it ought to give to the teachers of the country schools more encouragement to do good work when they know that the mothers are really anxious to help them.

The element of sympathy and interest is needed, so that the teacher and the mother will feel that the work they are engaged upon is one and the same, and that all that helps the one helps the other. Mothers should just think of the kind of room in their own house that they would like the children to do their work in, and then as far as in them lies take steps to have just such conditions at the school for the long days of the week which the children must spend in the school room.

The condition of the school is the business of every woman who has a child in attendance there.

It is the privilege of the women of any community to try to make the teacher's life with them as happy and as useful as it can be made, and when this is done the result which is almost sure to follow is the increased interest of the teacher in her work, and hence a greater likelihood of useful service.

J. MULDREW.

WASHING OF WOOL AND SILK

Autumn's chill days are with us once more, soon will follow winter's cold, and our thoughts naturally turn to the putting on of warmer clothes. Among these will be our winter flannels, the dread of whose appearance brings horror to the small boy's mind, and secretly to the heart of many an older one. Why do we shrink from them and so dread the day of their appearance? One reason for this may be because they are often so badly washed, and as a result we have thick, shrunken flannels. Shrunken flannels ! What more uncomfortable clothing can we possibly wear, and can you blame the small boy for rebelling against them, or the young girl vowing never to wear them when she decides for herself. Nevertheless they are a necessity in our cold climate, and if we are to get all the comfort possible from them they must be well washed. If the following simple rules are carried out in the washing, all the discomfort of shrunken woollen underwear should be done away with.

Let us consider briefly the structure of the wool fibre, and we may then better realize the necessity for careful treatment in its washing. A

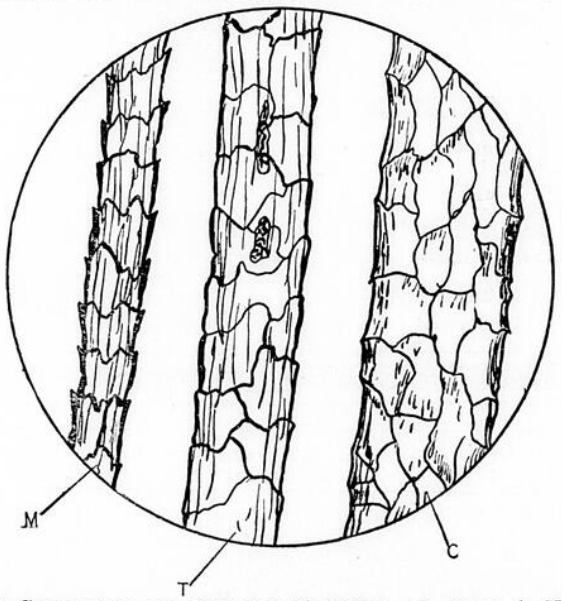


FIG 12—Comparison of Different Varieties of Wool. (X 50c.)
" M", merino wool with only a single scale in circumference of fibre ; "T", territory wool with two or more scales; "C", coarse wool with numerous scales.

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wool fibre is made up of a number of small parts known as cells. The edges of these cells form tooth-like projections along the fibre, giving it much the appearance of a pine cone. When the wool fibre becomes wet it expands, and the tooth-like edges of the cells become more prominent. As the edges dry they contract, and if not treated properly throughout the washing they are apt to interlock, producing that most undesirable of all results known to the housekeeper as "shrinking". This shrinking is caused by using extreme heat, as hotwater, drying close to the heat, or pressing with hot irons; also using a strong soap, rubbing soap on the woollen material, and even rubbing it at all. Strong alkalies such as washing soda and lye should never be used, for they are apt to destroy the fibre.

With the knowledge of the wool fibre now at our command, and following the rules for washing woollens now to be suggested, the most desirable results should be obtained.

Prepare a tub of soft lukewarm water, add sufficient melted soap to form a good lather on the top of the water. Put in the articles to be washed, and wash by kneading and squeezing them — never rubbing — until clean. Use "two" waters if necessary. Rinse thoroughly in lukewarm water, the same temperature as the washing water. This is most important, as nothing is more apt to cause wool to shrink than changing the temperature of the water. Wring well, shake well to loosen the edges of the cells, and stretch into shape. Hang out-of-doors to dry, shaking occasionally if possible. In washing blankets a little ammonia in the water — one tablespoon to two

gallons — proves a great help.

The sweater coat, so much worn now, is a woollen article which requires occasional washing, and is a task often dreaded lest the sweater be spoiled. The successful washing of a sweater depends largely on selecting a good windy day, and handling the sweater carefully when wet so as not to stretch it out of shape. Follow the rules given above for washing woollens, being specially careful not to stretch it when handling. If the wool is very soft, one-half cup of gum water added to the last rinsing water may prove useful in helping to give the wool its original texture. Now we come to one of the difficult points — the drying— as sweaters are often stretched out of shape at this stage. One of the best ways is to drop the sweater into a pillow slip, and pin the pillow slip to the linc. If the sweater is shaken occasionally and replaced in the pillow slip it will dry much better and more quickly.

WASHING OF SILK

We often find we have a silk garment, or some article of silk, which if laundered might claim further usefulness. Nevertheless the fact remains that unless care is exercised silk may be practically ruined in the washing.

To secure successful results it is necessary to avoid —

(1) hot water and hot irons as heat turns silk yellow;
(2) rubbing, as it destroys the evenness of the weave, giving it a pulled appearance ;
(3) strong alkali as it is injuriou to the fibre.

The rules to be followed are much the same as those for washing woollens. Prepare lukewarm water. Add enough melted soap to make a lather, wash gently by kneading and squeezing, and rinse in a similar manner. If a pure white silk, put through a pale blue water, but never blue a cream or ecru silk.

When silk is washed it seems to lose the natural stiffness which gives it a body, and it becomes soft and limp in appearance. If stiffened with starch it takes on a glazed appearance, something like paper, which look is most foreign to silk. This natural apperance can be well restored by using gum arabic water, made as directed below. Add from one to two tablespoons of gum water, — depending on the original stiffness of silk— to every pint of cold water. Dip the article in the gum water, wring carefully, wrap in a clean towel, and leave fifteen or twenty minutes. Iron with a warm — not hot — iron on the wrong side, and the article will look almost like new.

Soft muslins stiffened in this manner turn out most successfully. Use the gum water in proportion of two or three tablespoons of gum water to a cup of water. Wring the article out of this; leave rolled up twenty or thirty minutes, and iron.

MELTED SOAP

1 Bar Soap
Hot Water.

Shave the soap into a pan; cover with water and place on the stove, stirring occasionally until dissolved. Used for washing woollens, silks, muslins, colored materials, laces, etc.

GUM WATER

1-4 lb. crude Gum Arabic.
1 qt. boiling water.

Wash the Gum Arabic in cold water to free it from any small pieces of wood, leaves, etc. Put in a pan, cover with boiling water. Set on warm part of stove stirring occasionally until dissolved. Strain into a jar, cover, and label.

ANITA HILL,
Macdonald College.

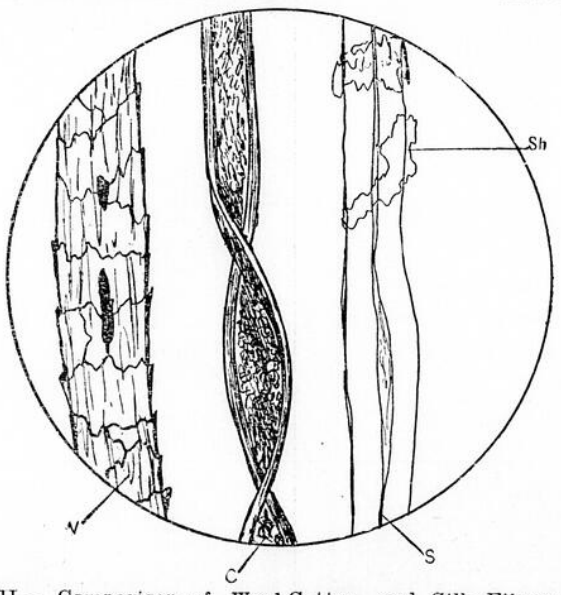

FIG. II.— Comparison of Wool,Cotton, and Silk Fibres. (X500.) "W", wool fibre, showing marking of scales; "C", cotton; "S", silk, showing irregular shreds of silk-glue at "Sh".

Synopsis of Canadian Northwest Land Regulations

ANY person who is the sole head of a family, or any male over 18 years old, may homestead a quarter-section of available Dominion land in Manitoba, Saskatchewan or Alberta. The applicant must appear in person at the Dominion Lands Agency or Sub-Agency for the district. Entry by proxy may be made at any agency, on certain conditions by father, mother, son, daughter, brother or sister of intending homesteader.

Duties. — Six months residence upon and cultivation of the land in each of three years. A homesteader may live within nine miles of his homestead on a farm of at least 80 acres solely owned and occupied by him or by his father, mother, son, daughter, brother or sister.

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W. W. CORY,
Deputy of the Minister of the Interior.

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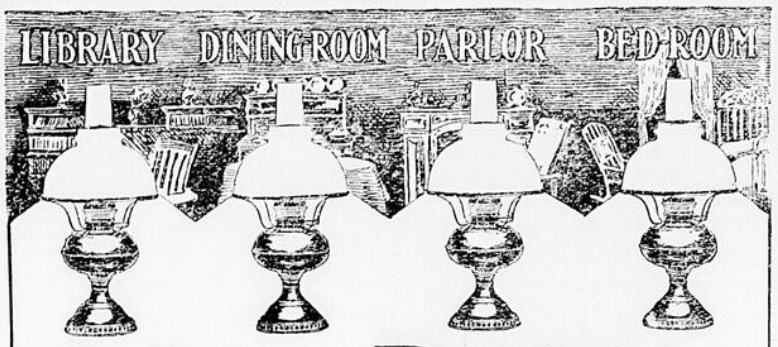

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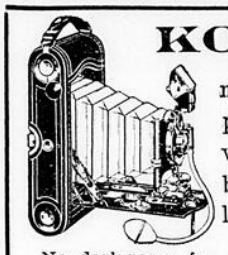

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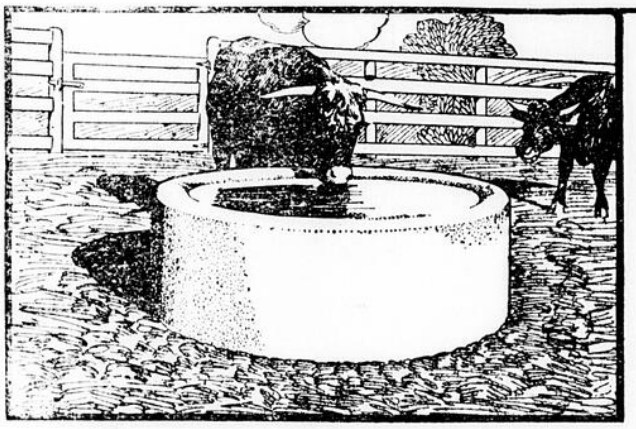

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