The JOURNAL of AGRICULTURE
AND HORTICULTURE

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"GATHERING SAP" IN THE MAPLE WOODS OF L. J. A. DUPUIS, NEAR STE. LOUISE, L'ISLET COUNTY

(Photo Supplied by Mr. C. Vaillancourt, Chief of the Beekeeping and Sugar Industry Service).

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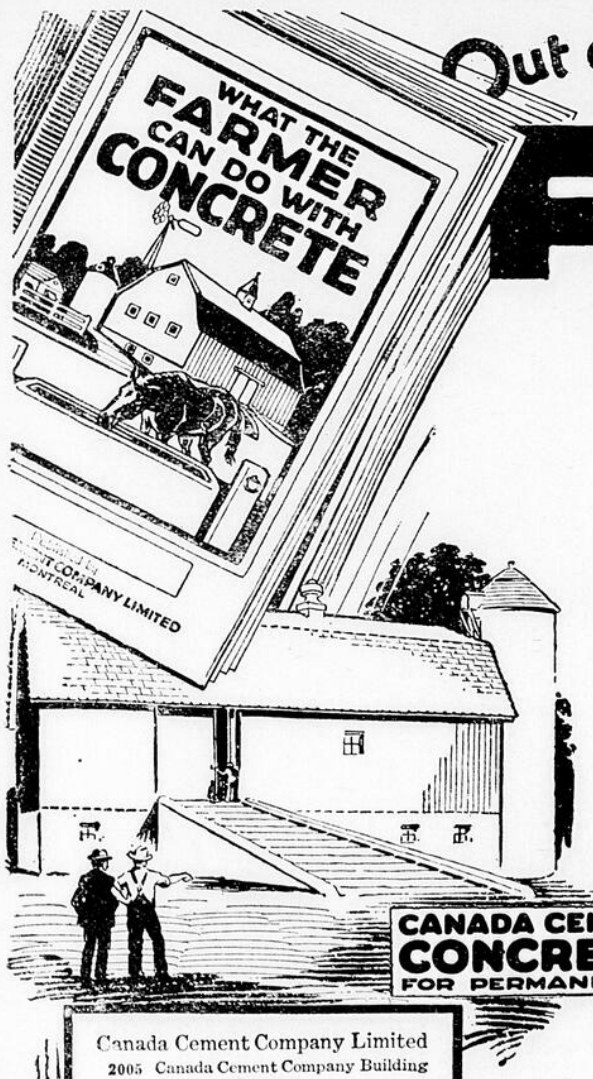
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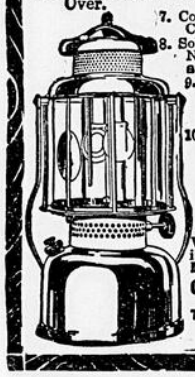
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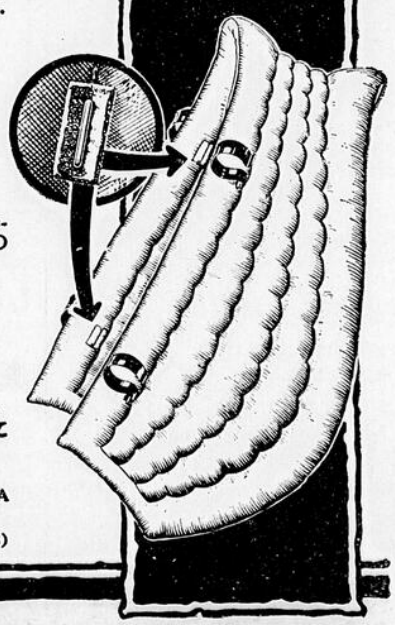
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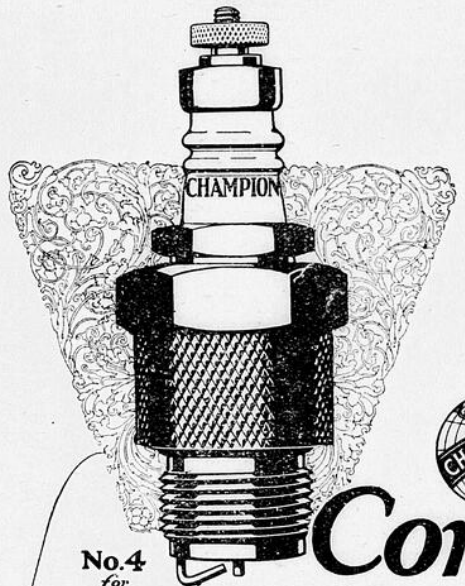
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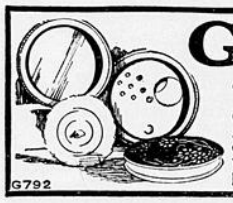
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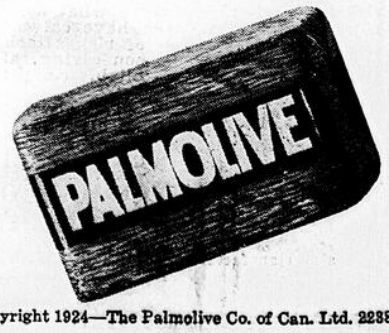
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Volume and efficiency produce 25c quality for only

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All maters relating to the reading columns must be addressed to S. R. N. Hodgins, Editor, Macdonald College P. O., P. Q.

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EDITORIAL COMMENT

Agricultural Education

THE recent pronouncement made by the Hon. J. E. Caron, Minister of Agriculture in connection with the debate on agricutural estimates, to the effect that in future the graduates of our agricultural colleges must in most cases find their life work on the farm, rather than in official positions since these later are now about filled up, has started considerable discussion upon agricultural education, its aims and its forms. There is no doubt whatever that absorption of Bachelors of Science in Agriculture into governmental service as fast as they could be turned out by our agricultural colleges has now pretty well ceased. And, since this has seemed, during the past decade or so to be the goal of the graduate in agriculture, it is fitting that we take stock at this time of the courses offered by our agricu'tural colleges, and of the fields of service in which graduates may find scope for their talents.

While it is true that the great demand for men trained in scientific agriculture by both federal and Provincial departments of agriculture is now fast ebbing, due to the fact that the organization of these departments is now pretty well completed, there will always be a demand for a small number of men to enter these fields of research and administration to replace other workers who are removed through various causes. Another field of usefu'ness for such graduates, as yet almost untouched, is that of industry and commerce — particularly in those institutions catering to or dealing directly with the agricultural community. Such industries as chemical companies selling fertilizers, insecticides, etc., commission companies handling the farmers' grain, fruits, livestock and other products, have, in a few cases, taken onto their staffs graduates in agriculture, and with satisfactory results. This, we think, might be carried much further, and with advantage to all concerned. The general training given in a four year course in agriculture shou'd be valuable to a man in commerce or industry, and the specific knowledge of farm operations and of the rural viewpoint that would be brought to his work by an agricultural college graduate should make him a useful man on the firm in many business enterprises at present untouched by such graduates.

But why, we are so often asked, should the agricultural college graduate look for a position either in a government office or in commerce? Why should he not "return to the farm"? Isn't an agricultural college an institution to train men to be better farmers? The answer to all of these questions is a simple one. After a young man has spent four years or so in attendance at an agricultural college, and has spent a couple of thousand dollars in addition to this time expenditure, he is rarely in a position to take up farming—which, as everyone knows who has tried it, is a business that requires capital in its f'oatation. So when the average student has finished his course in college he looks about for something in research, teaching, or commercial work that will give him a living.

Yet the cost to the state of his training in agriculture is not by any means to be counted as money wasted. If he be a conscientious worker his influence as a teacher or experimentalist will probably be much greater in agriculture as a whole than it could have been had he engaged in farming. The trouble is, however, that the end has been about reached of such opportunities. What now ?

After first throwing out the suggestion of industry and trade as potential employers of those graduates who are not now needed in governmental work, and who at the same time, are not in a position to undertake a farm enterprise, we go on to what we consider to be the greatest opportunity of the agricultural college at the present time—the shorter course, not aiming at a degree, designed to fit farm boys for more efficient service on their own farms and in their own communities.

If we cannot fit men for degrees in agriculture, without at the same time making it impossible for them to take up farming because of the fact that they have had to spend in time and money in securing such degrees, the capital necessary to set up in farming we *can* give increased attention to the training of young men who *have* farms, or who have farm prospects, in such a way as to make them better farmers, and evangelists of the gospel of better farming in their home districts —and at the same time provide this education in such a way as to interfere as little as possible with their farm duties and with their bank balances. This is what is being attemped at the present time in, for instance, the Winter Course in Agriculture given at Macdonald College, and this is what vocational schools in agriculture aim at. In the Winter Course, for instance, none but *practical* subjects are dealt with, and the course runs from November until March—the slack season on the farm.

Accredited Herds by Provinces

Up to September 1, 1923, the herds of pure-bred cattle that had been fully accredited by the Veterinary Director General as free from Bovine Tuberculosis, numbered by breed, in the different provinces is as follows :

Prince Edward Island—15 Ayrshire, 8 Holstein, 3 Jersey and one Shorthorn.

Nova Scotia—2 Jersey, 4 Shorthorn, and one each Ayrshire, Guernsey and Holstein.

New Brunswick—3 Ayrshire, 2 Shorthrn and one each Holstein and Jersey.

Quebec—92 Ayrshire, 9 French-Canadian, 2 Guernsey, 40 Holstein, 25 Jersey, 5 Shorthorn, and one each Aberdeen-Angus and Brown Swiss.

Ontario—61 Ayrshire, 141 Holstein, 28 Jersey, 41 Shorthorn and one Guernsey.

Manitoba—15 Aberdeen Angus, 3 Ayrshire, 9 Holstein, 45 Shorthorn, 3 Hereford, and one each Jersey and Polled Angus.

Saskatchewan — 8 Aberdeen Angus, 3 Ayrshire, 2 Hereford, 4 Holstein, 18 Shorthorn, and one Guernsey.

Alberta—2 Aberdeen Angus, 3 Ayrshire, 5 Holstein, 8 Shorthorn and one Hereford.

British Columbia—5 Ayrshire, 9 Holstein, 15 Jersey and one Shorthorn.

It may be that such courses are not as yet properly arranged to give best results. It may be that the ideal course for the farmer's son or for the young man desirous of taking up farming as a vocation is one that should extend over *two* winters. But we are convinced that the great opportunity for service in agricultural education, in the improvement of the methods of work carried on on the farms of this and other provinces is this shorter course for farmers. And if any type of agricultural education should be subsidized so as to make it possible for the man on the land to secure up-to-date information, it is this type of course that make its appeal direct to those who hope to make farming their life work.

It is this type of course that should be most widely patronized. It is, of course, difficult to lay down the law as to the proportionate division of students between degree courses and those courses primarily designed for farm workers, but it is our opinion that if the agricultural colleges of Canada were to turn out each year one hundred degreed graduates or so (such graduates being men of the highest calibre) to supply the current needs of the research and administrative departments, and from five to ten thousand men with one or two winters' work in up-to-date agriculture, they would not be coming far from fulfilling their highest function.

A Promising Move

ONE of the most promising schemes for the raising of the standard of dairy cattle production in general throughout the country was that outlined at the Dairy Conference held at Ottawa last month. In principle it is not exactly new—that is, it proposes to make use of something that we have had for some time in the "cow-testing" work and to enlarge greatly the scope of this work and to make it but one feature of a large move to increase the efficiency of dairy cattle generally.

The first move, which has paved the way for the working out of the whole scheme, was the transfer of the cow-testing work from the Dairy Branch of the Dominion Department of Agriculture, to the Live Stock Branch. For many years this work has been carried on by the former organization, and with considerable benefit to a large number of individual farmers who have taken advantage of the information placed at their disposal in regard to the production of the cows in their own herds by weeding out the "boarders". But it has been felt that the cow-testing work was not accomplishing the results it should. Our average herd production was not being raised as fast as it should be, because the work of cow-testing as carried on by the Dairy Branch was necessarily isolated. It could not be linked up with the other agencies for improvement, such as breeding, feeding, etc.—work that came under the administration of the Live Stock Branch.

The plan now brought forward provides for the carrying on, in certain areas in each province, of cow-testing demonstrations by competent supervisors, who will be thoroughly equipped with the requisite knowledge as to best feeding methods for dairy cattle under the conditions met with, and the elimination of unprofitable cattle from herds. In other words, the cow-tester will be a "tester"—and much more. He will be a worker for dairy cattle improvement in his district by whatever methods he finds most promising of results.

Nor is this all. It is hoped that something may be evolved in this cow-testing work, similar to the plan now being followed in several of the states and more recently in British Columbia, under which the ordinary dairy cattle tested will be given some sort of certified records, so that there may be made available information as to where those cattle are to be found, in each province, that give good milk yields.

The value of such work would be very great—particularly from the standpoint of putting buyers and sellers of milk cows into touch with one another. The West is today in the market for good milk cows. According to statements made at the recent Dairy Conference by western representatives, the West, with its increasing attention to live stock, could easily take all the surplus milk cows of the East for the next ten years or so—if they are proved producers. And in many cases eastern farmers could with advantage dispose of some of their milking females. What is needed is some scheme that would indicate those districts where good dairy cattle are to be found, and this is what is promised by the "record of performance" idea for farm cows.

Someone has said that we make progress by leaps and bounces. It would look as though we were at last in for a leap forward in the direction of higher average milk production, and through an agency that we have had with us for a long time, but of which we have not heretofore taken full advantage.

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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.

The Power of Persistence

THERE died recently in our neighbourhood an old man with silvery locks and a high forehead. His real name was Ulysses Persimmon Smithers, but he was much better known locally as Shakespeare, a name that had been given him by the unregenerate of the district because of his great learning. A farmer's son, Shakespeare in his youth had decided that he wanted to be a school master. A genteel profession, he thought, and one carrying a certain amount of ease withal—Saturdays and holidays spent in the open collecting specimens, Sundays passed in comfortable and dignified dissertations upon classical topics for the benefit of the abashed and admiring parents with whom he had elected to dine. What could be finer?

However, there remained one thing between the ambitious son of the soil and the fulfilment of his ambition—this was the matter of securing a diploma. At that time the procedure required of prospective school masters called for a presentation of themselves before the County Board of Examiners, who convened annually for the catechism of candidates at the County School.

So on a day in high spring Shakespeare shined his cowhide boots, donned a flowing cravat and a coat with broad lapels and took his way to the examination hall. With hopeful heart he wrote down answers to all the questions asked by the examiners. Nothing to it, he told his folks on his return. Anyone could answer those questions. But the examiners must have been biased or something. Anyway Shakespeare's answers didn't satisfy them. So they simply flunked him in Algebra, Latin, and Scripture—and failure in more than two subjects meant "nothing doing" for that year.

Nothing daunted Shakespeare turned up again next spring. If anything his shoes and his celluloid collar shone more brightly than they had done the year previous, and his cravat carried a more startling pattern. There seemed, indeed, to be nothing lacking in this candidate for schoolmastership honors, but again Shakespeare drew a blank. And, what is more, he continued to do so for the next twenty years in succession. Always three subjects stood between him and his scroll.

Not always the same three, mind you. If it had been simply a matter of Algebra, Latin and Scripture the problem would have been a simple one for Shakespeare—he could then have concentrated upon these the combined fire from his *cerebrum* and his *cerebellum* and so have pounded them into submission. But it was not. Each year he was defeated by a different combination. Once it was Scripture, Penmanship and Manual Training; another time it was Arithmetic, Latin and Ancient History; again it was French Grammar, Geography and Algebra. And so on. The result, however, was always the same.

Yet he never gave up hope. There's the point. Like Bruce's spider he kept on climbing a slippery strand when he might have been lying comfortably in bed with Bruce. And in the end he triumphed. For at his twenty-first trial the clerk, who was new to the job, erroneously entered Shakespeare's name on the pass list—and a pretty diploma, tied with lavender ribbon, was issued to one, Ulysses P. Smithers.

As luck would have it, the school system was changed that year, and within six months all such diplomas were called in. Thus Shakespeare never actually got around to teaching—but he had the satisfaction of knowing that he had qualified.

Moral—No power on earth can keep the plodder from plodding.

Norris Hodgins

GOVERNMENT

By Dr. H. D. Brunt

II A Real Democracy

IN one of our earlier articles on "Citizenship", the representative system of democratic government was explained; a system never attained by the Romans, masters though they were in the art of government; nor by the Athenians, whose government was the purest democracy the world has yet seen.

Representative government is the only form of democratic government possible for states with great geographical area or large population, or both. Ancient Athens was a pure democracy; but the Athenian Empire over which Athens ruled was as complete an autocracy as any eastern tyrant exercised, although a free city of free citizens played the role of tyrant to its dependent islands and cities.

The government of modern Switzerland is an interesting combination of direct rule by the people with the representative principle. It is a small, mountainous country, 15,976 square miles—it would take 41 Switzerlands to equal Quebec in size; its area just about equals the water-area of Quebec. Its population is about 3,880,000. Out of ten persons, about seven speak German, two speak French, one speaks Italian. There is no Swiss language. In religion, 57% are Protestants, 41% Roman Catholic, 2% are Jews.

Switzerland is divided into cantons, each of which has a long and honorable independent history. Like the provinces of Canada, they gave up much of their authority when they entered into the Swiss Confederation.

The central parliament consists of two chambers, a State Council (Standerat) and a National Council (Nationalrat). *Rat* is a German word meaning council: pronounce it *raht*.

The State council consists of 44 members, chosen and paid by the 22 Cantons, each sending two members. Each canton may elect or appoint its representatives in any way and for as long a time as it judges best, with its own standard of pay, varying from 15 to 30 francs per day.

The National Council consists of 189 members, representing the Cantons and elected by the people, at the rate of one deputy for every 20,000 persons. Deputies are elected for three years, the method of election being the same in all Cantons. Bern Canton has 32 deputies, Uri has one deputy. They are divided into Liberals, Social Democrats, Catholic, Agrarian, Liberal Democrats.

The two chambers together are called the Federal Assembly (Bundes-Versammlung).

1. *Legislation:* Any law passed by this Federal Assembly may be vetoed by a popular vote. A petition presented by 30,000 citizens demanding revision or annulment of any law passed by this assembly necessitates that this law be submitted to the direct vote of the people. A majority of both voters and Cantons against the measure secures its defeat. A demand by 8 out of the 22 Cantons can secure the same "Referendum", as it is called. Furthermore, the "popular initiative" is in force in Switzerland, by which a vote of the people can bring a measure before the Federal Assembly.

2. *Executive Power:* A Federal Council (Bundesrat) of seven members is elected for three years by the Federal Assembly not nessarily from their own body, since any citizen is eligible for this position. The members must not engage in any other business during their term of office, nor hold any other position in the Federal Government nor in the Cantons. This executive meets with the two legislative councils mentioned above and takes part in the proceedings, but its members have no vote. All measures discussed in those councils, however, must be introduced and prepared by this executive of seven. Each member of the executive acts as a minister in charge of one of these departments: Foreign Affairs, Justice and Police, Military, Finance and Customs, Interior, Agriculture and Industry, Post and Railways.

It will be noticed that this Executive represents no one particular political party, that it remains in power its full three years, and that its members are not necessarily chosen *from* the elected representatives. It is really much more like a Board of Directors of a Bank or other Joint Stock Company than like a Cabinet of politicians chosen from one political party, and dependent upon a favorable majority in an elected House of Commons.

3. *The President and the Vice President* are also elected by the Federal Assembly (which, you remember, consists of both the State Council and National Council), for one year. The V.P. usually is elected to succeed the President. After one year out of office, a retired President is eligible for re-election.

4. *The Central Government* thus described has full control over peace, war, treaties, army, railways, post, telegraphs, money, weights and measures, federal universities, public works, rivers, forest.

LOCAL GOVERNMENT

Each Canton has supreme power, in so far as it is not definitely restricted by the powers exercised by the central government. Each has its own local government, which differs much from Canton to Canton. In four of the smaller Cantons there is no Council at all: all citizens of full age meet in the open air, make laws, appoint their administrators, much as the Anglo-Saxon villages did many centuries ago. In each of the larger Cantons there is a "Great Council" elected by the people. In all Cantons the Referendum holds sway, legislation being subject to the veto of the people by direct vote. For instance, in Zurich even the chief matters of finance must be submitted to the people's vote. In most Cantons the popular Initiative may bring before the "Great Council" any measure the people wish passed.

All members of these councils and most magistrates serve either for nothing or for a merely nominal sum.

Each Canton is divided into a number of districts each presided over by a Prefect who represents the Canton. These districts are made up of Communes which vary greatly in size. These communes are doing much to foster industrial and agricultural progress of the people in that Commune. There were in 1915, 1047 savings banks of all kinds, with, in 1917, over 410 millions of dollars deposits from more than two million depositors. As these banks are not branch banks, the savings of the people in any one commune are usually lent out at interest by these banks to foster the industry and agriculture of the commune itself. The National Bank has the sole power to issue bank notes.

The Swiss coin is the franc, worth about 19 cents.

The central government owns the railways (3881 miles), which give cheap freight rates, excellent passenger service, pay as well as do most privately owned lines, and are now being gradually electrified.

Feeding Stuffs Act to be Enforced

Protests by feed manufacturers have been made against the interpretation and application of the amended Feeding Stuffs Act, which prohibits the registration and sale of commercial mixed feeds containing flour mill by-products. The purpose of the Act is to protect the interests of feeders of live stock and poultry who find it necessary to purchase feeds. In a statement issued to the public, the Dominion Seed Commissioner affirms that, while lenience has been shown to manufacturers, and to others affected, in extending the time allowed to dispose of stocks on hand, so that they may adjust themselves to the situation created, the Department of Agriculture must adhere to and secure compliance with the provisions of the law until and unless Parliament sanctions less restrictive legislation.

THE OTTAWA DAIRY CONFERENCE

A Resumé of an Important Meeting, and of the Policies Outlined as Giving Greatest Promise.

ON February 18th, and February 19th, a Dairy Cattle Conference was held at Ottawa at the call of the Dominion Live Stock Branch. The object of the conference was the consideration and discussion of ways and means applicable to the breeding of dairy cattle and the production and marketing of milk that might be adopted with a view to improving the dairy industry.

Representatives of the various interests concerned were present from Eastern Canada and a few representatives of the Western provinces attended but it was announced that a similar conference would be held in Western Canada at a later date.

The discussion centered in the replacement of poor cows by better ones, improved methods of feeding practice, the raising of pure bred bull standards and the marketing of milk and cream on a quality basis.

The whole question of poor cow elimination hinged on cow testing. It was announced that this work which in the past has been carried on by the Dairy and Cold Storage Branch at Ottawa, will from now on be undertaken by the Live Stock Branch.

Cow testing as applied to commercial dairy cows was considered from all angles and after a through discussion two resolutions were passed. The first recommended that a few areas be selected in which every cow could be tested with a view to making a demonstraton that would popularize this work. The plan included as supplemental to testing the replacement of poor cows by better cows, the encouragement of sound feeding practice, the elimination of the scrub bull, and the payment of a premium for a quality product all to be under the direction of a capable man and carried on in conjunction with the various local agencies available. The second resolution had to do with cow testing in general and urged that it be established on what is known as the co-operative plan, the Federal Government either by itself or in conjunction with the provincial government to finance the work for a period of two years after which the cost would be jointly shared by the governments and test association. Feeding practice and other aspects of dairy cow improvement would receive the same attention as testing. Certificates would be issued for cows completing tests and it was felt that a credential of this kind would be far reaching as an incentive to testing because it would enable the owner of the cows to capitalize the standing of his herd. A further recommendation was made that local shows be encouraged to recognize such tests and feature classes for grade record cows.

The raising of our pure bred bull standards was regarded as fundamental to dairy cattle improvement and as a logical requirement in the elimination of poor bulls, mongrel, grade or pure bred. Prof. Barton of Macdonald College presented a plan with a view to bringing this about. He argued that there were too many inferior pure bred bulls, that they were being multiplied and that they were a serious retarding factor. His plan provided for the official selection and identification of good bulls from among the masses of pure bred bulls such selection to be based on inspection of the bull and his record credentials. Three advanced classes for bulls were suggested and the claim was advanced that such a step would not only offer a measure of protection to the small breeder and dairyman, but that it would also redound to the benefit of pure bred breeders in general because it would stimulate the testing of pure bred cattle and centre interest in animals with the best credentials. The plan also provided for special emphasis and care in the showring judging of get of sire classes and the requirement of record credentials in showring bulls.

The various breed and dairymen representatives present emphasized the need for some such action and agreed that the plan submitted opened up a field of great possibility. It was evident from their remarks that the time was ripe to do something in the direction indicated. The conference endorsed the plan and recommended that it be referred to all the breed and dairymen's associations. The work now under way for the elimination of scrub bulls was supported in the discussion and a resolution which emphasized the importance of the census, personal canvass and assistance in the inspection and selection of pure bred bulls in connection with this work.

The marketing of milk proved a complex subject. Many ideas and opinions were expressed. The idea of selling and buying milk and cream on a quality or graded basis was strongly urged, and the importance of co-operation between producer and dealer on a basis of mutual interest seemed vital in the development of the principle of premium for quality.

The Conference was well worth while. It served as a clarifying process and resulted in focusing attention on a few fundamental ideas and suggesting some steps that should go a long way ultimately in elevating the general plane of dairying in this country.

A Chart --- And Its Interpretation

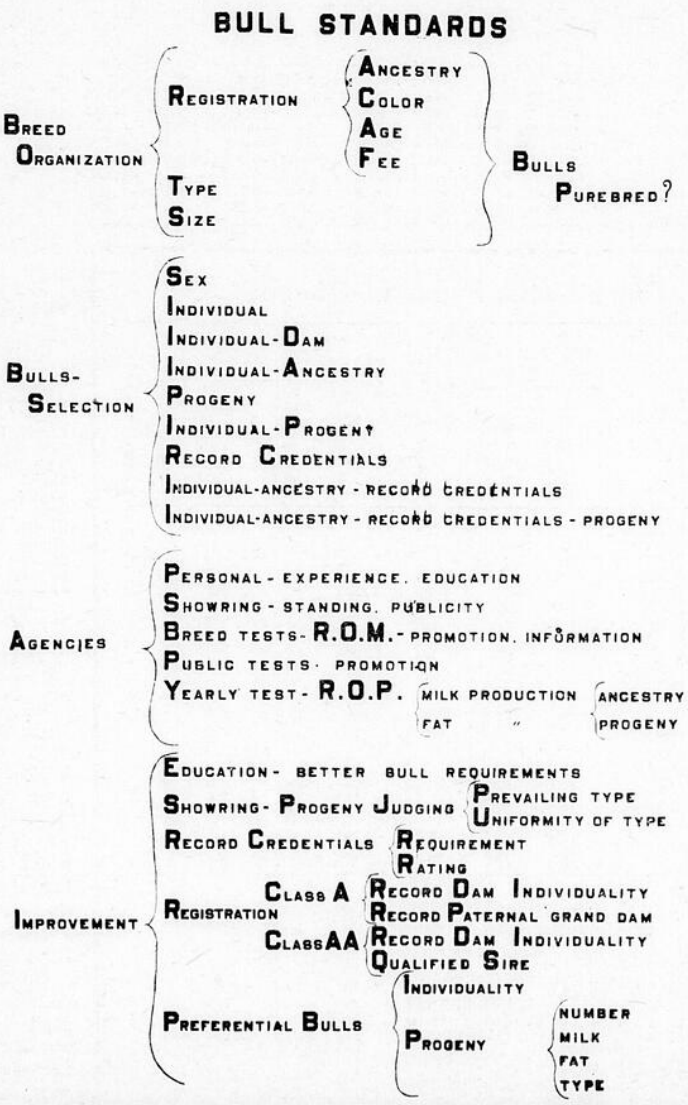
A Consideration of the Question:—What Measures can be Adopted to Raise the Standard and Increase the Distribution of Pure Bred Dairy Bulls

As presented at the recent Ottawa Dairy Conference, by Prof. H. Barton, Animal Husbandry Dept., Macdonald College.

THIS subject or rather its titles implies at least two considerations, first, that the standard of pure bred bulls is not high enough, second, that they are not being widely used as they should be. That there as is an abundance of evidence to justify these premises few will deny. That progress in dairy cattle improvement through the factor of breeding must hinge on the use of better bulls all will agree. The inferior bull be he mongrel, grade, or pure bred persists as a stumbling block, and while aggressive measures here and there are successfully attacking him and should be continued and extended, nothing should be left undone that can be undertaken if it will weaken his position.

The plan submitted herewith is based on the following beliefs: that there are too many inferior pure bred bulls; that these inferior pure breds have retarded the progress of good pure bred bulls and strengthened the position of the scrub by virtue of the fact that they have been so disappointing to the small breeder and commercial dairyman; that the time has come when something can and should be done to standardize pure bred bulls; that this can be done very largely through machinery already available; that action in the direction indicated will extend and strengthen the services of improvement agencies now at work and greatly enhance the position of pure bred dairy cattle in their true function of dairy cow improvement.

The first part of the chart presented herewith is intended to show the back ground of our present pure bred bull standards. They begin with the breed organization, its requirements for registration, and the regulation in regard to type and size which it is able to effect. Everything that meets these requirements is given the organization label, "purebred". The interrogation mark after "purebred" is intended to raise the question as to what pure bred means, purebred for what? With the development of our breeds we know that this term can be regarded as only a very general one, that it covers a wide range of qualities and does not set a very specific standard.



A photograph of the chart used by Prof. Barton in his discussion of pure bred bull standards at the recent Dairy Conference. In the accompanying article Prof. Barton explains this chart which caused so much discussion at the meeting.

However the "pure bred" as we have him is our starting point. We proceed to select these pure bred bulls in various ways as indicated. The first, which is not at all uncommon, takes the pure bred at an exaggerated face value—he is a registered bull. Any one who doubts this implicit faith need only ask himself now many times he has heard the testimonial, "I keep a registered bull', from dairymen. The next basis involves the selection of the individual, sometimes well done, more often not. The third pays attention to the mother, an important additional consideration, and so on down the chart as other things are included and combined, but it can be stated reasonably that the greatest number of bulls in use will not fall in the bottom combination or those close to it, and whatever enters into the standard depends very largely on the man making the selection.

The agencies that may contribute to the selection constitute the next division. They are all influencing our bull standards, and some indication is made of how they effect their influence.

In the consideration of an improvement plan the most simple and workable measures seemed to lie in making more telling use of our present machinery. The first suggestion is a general one but it aims to focus our educational efforts on the requirements of a good bull in which registration is only one factor, and to disabuse the minds of a lot of people of the idea that the pure bred credential will suffice.

The second suggestion has to do with the show ring. It is generally recognized that while the show ring has been an important agency in establishing bull standards and promoting the interests of better cattle, it has also been misleading; through it many animals have been given prominence and standing which they did not merit as breed assets. This fact has become so well known that both breeders and the farming public discount the show ring credential and consequently this agency is not making its full contribution to cattle improvement.

In this chart the "get of sire" class is regarded as fundamental in show ring rating of bulls and the suggestion is made that in judging this class the policy of emphasizing the prevailing type and uniformity of it be followed. Perhaps the age factor might well be included. At any rate the measure of a bull as a breeder as revealed in his progeny should depend upon the prevailing type in that progeny, and the extent to which one and all exhibited conform to that type. Prize animals often vary in type depending on the class, therefore the idea that one or more prize animals should govern a decision is not necessarily sound. Prevailing defects should have the same consideration as prevailing virtues.

Provision is also made for including record credentials as a further insurance of merit in show ring awards. Two methods are indicated; both have been used; but the first, which is simply a minimum requirement to be determined, is easier to apply. With so much of our progress in dairy cattle improvement depending upon the use of the yard stick, milk and fat production, it would appear that the bulls which parade our show rings might well be expected to possess some record credentials.

The last measure is a far reaching one. It aims to give fitting official recognition to the good bull with credentials and to focus attention on such bulls. Through registration and R. O. P. machinery it provides for discrimination in favor of such bulls. The first two classes called A and AA or Double A are intended to facilitate selection among the mass of pure bred bulls on the basis of individuality and yearly record credentials, but will not interfere with registration as such, except perhaps in course of time. This standard could not be required of all bulls at present for various reasons, chief among which is the fact that only a minority of the pure bred bulls could qualify, sufficient reason in itself to justify some measure that will develop the work necessary to qualify them. Some system of bull inspection is involved. This at first might seem difficult but it was suggested in one of the last breed annual meetings by the retiring president for all bulls. It therefore would appear practicable for the number of bulls otherwise qualified, and this should be a good basis to start it on; moreover it would seem necessary to insure merit in a bull officially endorsed, and the dairyman or breeder who buys an endorsed bull should be so protected.

The last division, Preferential bulls, which may again be divided as it is in some other countries, is for the purpose of establishing within the best bulls an elite class of superior stock. This must be a very exclusive class of proven bulls through which pure bred breeder operations would be expected to advance. A bull in this class would be placed in the limelight and it is right that this should be done. We probably have a number of such bulls in the different breeds to-day but the fact that a breeder claims to have the best bull does not always make him so and it might well be asked with the information now available, how many breeders, even among the well informed, could pick out the bulls in Canada in which general breed interest could be centred with advantage to the breed ?

The chart does not include full details. Alterations may be desirable, but the plan is submitted with the idea of developing some action that will have far reaching results in the cause of dairy cattle improvement as well as that of pure bred interests.

VALUING FARM FEEDS

The Third of a Series of Articles on Feeds and Feeding.

By L. H. Hamilton, Animal Husbandry Dept., Macdonald College.

A knowledge of the constituents of a feed and the part these constituents play in metabolism, as well as the ability to balance these to make an animal produce and reproduce is one thing. Valuing these feeds and their constituents or estimating their value in supplementing or taking the place of other feeds on the farm is an entirely different matter. For example, how often does the average man before going to town to make his purchases really analyze his feed situation, to find out what would supplement his feed bests. Very often we find people purchasing feeds which have little value from the standpoint of improving their present ration, or, in other words, they do not purchase the feed which will give the best results, perhaps because it is a little higher in price. The feed selling for the lowest price per ton is the one which has the biggest sale.

It is the purpose of this article to present in as simple form as possible just how feeds are valued and how a knowledge of their constituents is made use of. And because the dairy cow ho'ds such a large place in this province and because her ration includes all classes of feed such as dry roughage, succulent feed and concentrates, she has been chosen to illustrate our point.

Many questions no doubt will arise in the reader's mind about various points which may not appear quite logical. For instance we advise measuring out a certain amount of each nutrient to an animal and in the same breath we say that one cannot put a lo tof feeds togeher tnd say to oneself, "I have so much protein and total nutrients; my requirements are therefore satisfied and my cows should produce and reproduce satisfactorily." This is not enough. Many other factors must be taken into consideration, such as the variety and palatability of the feed, the inherent ability of the cow to produce, etc. These are usually given some consideration by the experienced feeder, though too often not what they warrant. Thus we must make use of all the knowledge we have to make our business as profitable as possible.

There are many illustrations of these points in evidence. The results obtained at Wisconsin Experiment station where cows were fed balanced rations made up entirely of the oat, wheat and corn plant fed separately to different groups of cows in the various forms in which they appear are striking illustrations. The results showed that the cows could not produce normal calves on a ration made up from the oat plant : very little better results were obtained from the wheat plant; while the corn plant was considerably better. These rations were all unsatisfactory. They lacked variety, which meant the inability of the cow to assimilate sufficient of each nutrient to develop her foetus. Similar results have been shown in milk production. We can often cheapen our ration and get greater milk production at the same time.

Before adopting any feed mixture we must know the requirements of the animal. The following table is the one adoped by most dairymen. It will be noted that the requirements are for a 1000 lb. cow. This was simply used for ease in figuring. A 1200 lb. cow would receive 12/10 that of a 1000 lb. cow.

MORRISON FEEDING STANDARDS FOR FARM ANIMALS

	Digestible Crude Protein Lbs.	Total Digestible nutrients Lbs.
1. DAIRY COWS.		
For maintenance of 1000 lb. cow	0.700	7.925
To allowance for maintenance add:		
For each lb. of 2.5 per ct. milk	0.045—0.053	0.230—0.256
For each lb. of 3.0 per ct. milk	0.047—0.057	0.257—0 286
For each lb. of 3.5 per ct. milk	0.049—0.061	0.284—0.316
For each lb. of 4.0 per ct. milk	0.054—0.065	0.311—0.346
For each lb. of 4.5 per ct. milk	0.057—0.069	0.338—0.376
For each lb. of 5.0 per ct. milk	0.060—0.073	0.362—0.402
For each lb. of 5.5 per ct. milk	0.064—0.077	0.385—0.428
For each lb. of 6.0 per ct. milk	0.067—0.081	0.409—0.454
For each lb. of 6.5 per ct. milk	0.072—0.085	0.434—0.482
For each lb. of 7.0 per ct. milk	0.074—0.089	0.454—0.505

Dairy Cattle Feeds of Quebec

Feed Stuff	Dig. Nutrients an 100 lbs. Dig. Crude Protein	Dig. Nutrients an 100 lbs. Total Dig. Nutrients	Present Market Price	Price per 100 lbs.	Cost per lb. Dig. Crude Protein	Cost per lb. Total Dig. Nuts	1 quart of feed weighs in pounds.
LOW PROTEIN CONCENTRATES	lbs.	lbs.					lbs.
Corn	7.5	85.7	98c	1.75	23.3c	2c	1.7
Wheat	9.2	80.1	98	1.63	17.7	2	1.9
Oats	9.7	70.4	42	1.23	12.7	1.74	1.0
Barley	9.0	79.4	67	1.40	15.5	1.76	1.5
Rye	9.9	81.0	74	1.32	13.3	1.63	1.7
Buckwheat	8.1	63.4	75	1.56	19.2	2.4	1.4
MEDIUM PROTEIN CONCENTRATES							
Wheat Bran	12.5	60.9	$28.25	1.41	11.29	2.3	0.5
Wheat Middlings	12.9	67.0	36.25	1.81	14.0	2.7	0.8
HIGH PROTEIN CONCENTRATES							
Corn Gluten Feed	21.6	80.7	48.25	2.41	11.1	2.9	1.3
Buckwheat Middlings	24.6	76.6	50.00	2.50	10.1	3.2	0.9
Cottonseed meal (Choice)	37.0	78.2	65.25	3.26	8.8	4.1	1.5
Linseed meal	30.2	77.9	55.25	2.76	9.1	3.5	1.1
Soybean meal	39.7	84.5	60.00	3.00	7.5	3.5	1.8
LEGUME HAYS							
Alfalfa hay	10.6	51.6	18.00	.90	8.49	1.74	
Clover hay	7.6	50.9	18.00	.90	11.8	1.76	
LOW PROTEIN ROUGHAGE							
Timothy hay	3.0	48.5	18.00	.90	30.0	1.85	
Oat feed hay	4.5	46.4	18.00	.90	20.0	1.94	
Corn Fodder	3.0	53.7	18.00	.90	30.0	1.67	
Oat Straw	1.0	45.6	5.00	.25	25.0	.54	
SUCCULENT ROUGHAGES							
Corn silage	1.1	17.1	5.00	.25	22.7	1.4	
Sunflower silage	1.0	12.6	5.00	.25	25.0	1.98	
Turnips	1.0	7.4	5.00	.25	25.0	3.37	

From the above table it is a very simple matter to figure out exactly what each cow should receive. Let us take one of the rations, submitted by readers since our last article appeared, as an example and see just where it falls down or fills the bill. This ration has been selected because it meets most of the requirements, and because from it the most information concerning the production, feed prices, etc., was secured. The following is the ration submitted. Clover hay 7 lbs., timothy hay 7 lbs., a little straw, turnips 25 lbs., and 1 lb. of meal for each 3 lbs. of milk, the meal mixtured consisting of the following: bran 100 lbs., mixed grain (consisting of 3 parts oats, 2 parts barley and 1 part wheat) 90 lbs., gluten feed 50 lbs., and oil cake meal 25 lbs. The prevailing prices in the locality are—hay $10 per ton, turnips 20 cents per bushel, bran $1.60 per cwt., mixed grain $2 per cwt., gluten $2.50 and oil cake $2.75. This is fed to cows approximately 1100 lbs. in weight and producing 24 lbs. of 3.5% milk. The minimum feeding requirements of these cows according to the standard are — Digestible Crude Protein 1.946, Total Digestible Nutrients 15.533. The following table shows the analysis of the above ration and what nutrients the cow is receiving.

ANALYSIS OF SUBMITTED RATION

Feedstuff.	Digestible Nut. in 100 lbs. Dig. Crude Protein.	Digestible Nut. in 100 lbs. Total Dig. Nutrients.	Amount of nutrients supplied in feed fed. Amount fed per day.	Dig. Crude Protein.	Tital Dig. Nutrients.	Cost per lb. at prices quoted. Cost.	Dig. Crude Protein.	Total Dig. Nutrients.
	lbs.	lbs.	lbs.	lbs.	lbs.	cts.	cts.	cts.
Clover hay	7.6	50.9	7	.532	3.563	3.5	6.57	.982
Timothy hay	3.0	48.5	7	.210	3.395	3.5	16.66	1.03
Turnips	1.0	7.4	25	.25	1.85	8.3	33.33	4.50
MEAL								
Bran	12.5	60.9	3.02	.378	1.84	4.8	12.8	2.63
Oats	9.7	70.4	1.358	.132	.956			
Barley	9.0	79.4	.905	.081	.709	5.43	21.5	2.61
Wheat	9.2	80.1	.454	.042	.364			
Gluten	21.6	80.7	1.509	.326	1.218	3.77	11.5	3.09
Oilcake	30.2	77.9	.754	.228	.433	2.07	9.1	3.5

Total, 2.179—14.328—31.3c feed cost of 24 lbs. milk.
The minimum requirements are: 1.946—15.533,

In analyzing this ration we may take it for granted that the average man has estimated what roughage he has on hand and is feeding so that it may last throughout the season. It may also be assumed that hay is relatively difficult to buy, due to the labor involved and its scarcity. This being true where a fair amount is fed there is no need for any change. It is well to observe, however, that clover hay supplies both protein and total nutrients much more cheaply than anything else fed. The timothy hay is more expensive at the same price, and is much less palatable for cows. Roots add succulence and are fed for this purpose rather than for the nutrients they supply.

Coming to the meal mixture our first observation is the variety included. This is sufficient for all feeding purposes. The protein should be of good quality in such a mixture. Its cost is the next point of importance. It will be observed that the cheapest source is that provided in oil cake. Besides being a cheap source of protein, oilcake is very palatable and has a fine effect in conditioning the animal.

Gluten feed is the second cheapest source and bran is third. The price of mixed grain is relatively too high and when checked up with the prevailing market price as quoted in our farm papers, it is higher than the market warrants. In other words if this feed is being purchased to feed cows it is too expensive, at the price quoted, and if it has been grown on the farm and being fed there it is valued too high.

In looking at the totals it will be observed that the ration is a little low in total nutrients. This is probably made up by the small amount of straw eaten, which was not taken into consideration. The total protein is slightly above the requirements. To suggest changes to such an already efficient ration would require more knowledge as to the other available feeds and the prevailing prices of them. This ration is already well balanced, has sufficient variety and palatability and should give fairly good results. For cows giving less than 20 lbs. of milk a day, 1 lb. of meal for each 3 lbs. of milk would be expensive feeling. A lessening of the meal mixture and increasing the roughage would not only lessen the cost of milk production but should also give satisfactory results.

In order that dairymen may know the composition of the feeds they are feeding and be able to estimate what the nutrients of each is costing the accompanying table has been prepared. This table includes practically all the dairy cattle feeds in Quebec. If there are any others not included about which anyone desires information, we will be glad to give this upon request. From this table each feed can be analyzed as to its composition and cost. It will be observed that alfalfa and clover hay provide a cheap source of both protein and nutrients at the prices quoted. Corn silage provides the cheapest source of nutrients. The value of these feeds apart from the nutrients they supply is unquestioned. They should therefore find a larger place among our feeds where they can be grown successfully. It must also be remembered that alfalfa and clover have a considerable amount of lime which is a very important addition to the cow's ration.

CEREAL SEED TREATMENTS

How Smuts in Grain Crops May Be Prevented—With Special Mention of the New and Simple Dust Treatment

By Dr. B. T. Dickson, Professor of Botany, Macdonald College.

THERE is no special need to-day to point out to progressive Quebec farmers the importance of smuts in their grain crops. Just as a reminder, however, it may be well to point out the two types of smut because of the essentially different methods of control.

First Type of Smut.

In the loose smut of wheat and loose smut of barley the fungus lives over *inside the grain.* No farmer or plant disease specialist can tell by looking at the outside of the grain that it is infected. The fungus has developed just enough inside the grain to live over without injuring the embryo plant. The same conditions of warmth and moisture which enable the grain to germinate also bring the fungus into an actively growing state. It then develops inside the plant without killing it — in fact it stimulates the infected plants to somewhat more rapid growth so that diseased plants are ready to head out about a week earlier than healthy plants. But instead of these plants flowering the fungus becomes extremely active, the flowering parts are destroyed and in their stead we find masses of maturing black smut spores. This gives the *loose smut* effect. By wonderful adaptation the spores are mature and ready for dispersal by wind just at the time the healthy plants are coming into flower. Spores alighting on the flower parts germinate, if sufficient moisture be present and grow down into the developing ovaries. The fungus grows enough to enable it to exist in the dormant condition without giving rise to any external symptoms. Hence this type is characterized by floral infection, by resting *mycelium,* and by the destruction of the grain the following harvest season.

Control of the first type. Since the fungus is inside, the only control method possible is one which will enable us to kill the fungus inside without also killing the embryo plant. Such a method is *the hot water treatment* first described by Jensen. It is recommended for use with a lot of grain to start a seed plot from which to obtain clean seed for ordinary sowing. It is too delicate an operation to be used at once for the quantities required for a main crop. The seed is first soaked for about five hours at 70° F. or near that temperature. This preliminary soaking activates the fungus and renders it susceptible to sudden heating. It also makes the seed coat more penetrable by heat. The soaked grain is then placed, (not more than a bushel at a time and less is preferable) in a coarse sack and plunged into a vat or barrel of water at a temperature which will kill the fungus. For barley this is 126° F. and for wheat 129° F. and the time required at this temperature is 15 minutes for barley and 10 minutes for wheat. Care must be taken here for above 129° F. is fatal for the barley germ and above 131° F. for the wheat germ. Below 124° F. there is no effect on the fungus. A good thermometer and care in reading it are therefore essentials.

Wheat, 126°—15 mins., 128°—12 mins., 129°—10 mins., 130°—7 mins.

Barley 125°—15 mins., 126°—12 mins., 127°—10 mins., 129°—5 mins.

The grain should be kept in constant motion while in the hot bath and it is then spread and dried quickly or plunged into a cold water bath and sown as soon as drained. It must not be allowed to sprout or mould owing to too long drying.

Naturally plunging a bushel of grain at 70° F. into a bath at 126° F. will at once cause a lowering of temperature in that bath and hence it is advisable to have two hot baths—one into which the grain is plunged for a minute to take the chill off, and the other the final hot bath as discussed above.

This is an operation requiring care, but *it is the only way in which the loose smut of wheat and the loose smut of barley can be controlled.*

Second type of smut.

Stinking smut or bunt of wheat, covered smut of barley and smuts of oats constitute the second group. In all these cases the fungus lives over on the outside of the grain as spores which are extremely hardy. Some of them are able to live several years under dry conditions. They infect the plants in the seedling stage, just after germination so that the control methods must either enable us to kill the spores on the grain before sowing or prevent their infecting the plant during germination. On this basis we have two methods of control.

Control by immediate killing of the spores.

This is the method that has been recommended up to the present, and the chief disinfectant used is formalin. There are three ways in which it may be used.

a. Soaking method.
b. Sprinkling method.
c. Spraying method.

Soaking method.

A coarse sack is half to three-quarters filled with grain and placed in a vat or barrel in which ½ pint of formalin has been mixed in 20 gals. of water. It is kept in this solution for five minutes, in the meantime being moved up and down to ensure that every grain is wetted thoroughly with the solution. It is then spread on a clean floor and covered with clean sacks for two hours. It is during this time that the spores are killed. The grain must not be left covered too long or injury to the embryos will occur. It is then dried and sown at once—the sooner after treatment the better. Twenty gallons of solution will treat about fifteen to twenty bushels of grain.

Sprinkling method.

The grain is placed in a heap on a clean floor and sprinkled from a watering can with a solution of formalin ½ pint in 20 gallons of water. While the sprinkling is being done the grain is shovelled over so that every grain is wetted, but not soaked. It is then covered for two to four hours with clean sacking as above. By the method about twenty to twenty-five bushels may be treated with twenty gallons of solution.

Spraying method.

This is only used for hulled oats and must not be used for wheat or hull-less oats.

The oats are placed on a clean floor and sprayed with a solution of one pint of formula in one pint of water. An ordinary quart sealer sprayer is used for the purpose. While the spraying is in process the grain is thoroughly shovelled and then covered with sacks which have also been sprayed. The grain remains covered for about four hours and is then ready for seeding.

There are disadvantages in these methods which render them unpopular, such as the possiblity of injury to the grain, the unpleasant fumes of formalin, the amount of solution and apparatus required in the soak method, the swelling of the grain, and so on. Yet carefully done these methods give excellent control of smuts.

Control by delayed killing of spores.

It is the aim of plant pathologists to develop control methods which are effective and at the same time economic and simple. Such a control was announced from Australia in 1917 as the result of work by Darnell-Smith in the case of wheat smut. He used copper carbonate as a fine dust and this substance is being investigated in Canada and the United States by pathologists in a large scale co-operative project.

The method is simplicity itself inasmuch as all that is required is to cover each grain thoroughly with the fine copper carbonate powder. It is used at the rate of 2 to 4 ounces of dust to each bushel of grain. Thorough covering is essential and this is obvious when one recalls that a grain of wheat may carry in its groove and hairs some 2000 smut spores only one of which is actually necessary to cause infection. In the experiments carried on at Macdonald College the grain and powder were well shaken together in a close-mesh bag or in a small closed box. For larger scale work an old tumbling churn is excellent and if one is not available any farmer can use a good box. Machines are coming on the market for the purpose, their cost ranging about $70, but the job can be done well with home made equipment.

After dusting the grain can be re-sacked and kept in a dry place or sown at once.

The action of the copper carbonate is protective. It dissolves slowly in the soil water and poisons the spores when they begin to germinate thus preventing infection of the seedling grain. Obviously it is likely to be most valuable with wheat and hull-less oats and not quite so effective with hulled oats and barley. This is the case, but even with the latter it gives fair control where the smut is not very severe. If smut is extremely prevalent in the crop then the formalin treatment should be given one year and the dust treatment in succeeding years.

A table showing some of the results in smut control is given below. It shows that even with heavily infected grain copper carbonate dust is effective in controlling smut.

		Percentage of smut.		
Station	Crop	Untreated	Formalin	Copper carbonate dust
Macdonald College	Hull—less oats	59.0	1 ‡	0.3
"	"	72.0	1.8 ‡	1.5
"	Banner	1.5	—	0
Saskatchewan	"	7.5	0	1.0
	Marquis Wheat	12.26	0	0.66
Michigan	Red Rock wheat	26.0	0	1.0
Minnesota	Marquis wheat	6.5	0	0

‡ Sprinkling method used. The soaking method would probably have eliminated smut.

The advantages of the dust treatment are such that it would be worth while trying out for a season by progressive farmers who wish to eliminate or reduce smut in their grain.

Briefly they are as follows:—

1. Simplicity of treatment and apparatus.
2. Absence of unpleasant fumes.
3. No need for hauling or pumping of large quantities of water.
4. Treatment may be done at any time and the grain re-sacked or sown at once.
5. No swelling of grain.
6. No injury to germination.
7. Efficient and not expensive.

Concerning the last point copper carbonate dust may be obtained from such firms as John Cowan Chemical Company, of Montreal, at about 22 cents per lb. so that at 2 ozs. per bushel, treatment would cost about 3 cents per bushels.

Certain other treatments are being tested out by the Dept. of Botany at Macdonald College, and these will be discussed after further work has been done on them. Meantime for simplicity of treatment, combined with efficiency in control, copper carbonate dust is outstanding in the case of stinking smut of wheat and smuts of hull-less oats, and fairly satisfactory with smuts of hulled oats and covered smut of barley.

DEPARTMENTAL NEWS *and* NOTES

Provincial Seed Fair

THE fourteenth annual Quebec Provincial Seed Fair will be held this year on March 18, 19 and 20 in the Drill Hall, Grande-Allée Street, Quebec City. This institution, which is held each year under the auspices of the Quebec Department of Agriculture in co-operation with the Federal Department of Agriculture, fulfils an increasingly important function in connection with the good seed movement that is now making such headway in the province. All who are interested in the production of good seed are therefore cordially invited to be present at these meetings and to take part in the discussions.

Two new features are being introduced this year. The first is the opening of a class in which those school boys may compete, who last year were supplied with seed grain by the Horticultural Branch, for growing under "home garden" conditions. (This innovation is fully discussed elsewhere in this issue of The Journal, by Mr. J. H. Lavoie). The second is the substitution of an afternoon of lectures, by prominent workers with field crops in the place of the judging contest formerly held. The complete programme follows:

TUESDAY, MARCH 18th

9 a.m. to 5 p.m.—Judging of exhibits under the direction of Messrs. Jules Simard, District-Inspector for the Ottawa Seed Branch, R. Summerby, Professor of Agronomy, Macdonald College, and L.-Ph. Roy, Chief of the Field Husbandry Branch, Quebec.

WEDNESDAY, MARCH 19th

9 a.m. to 12 a.m.—Judging of exhibits (continued).

2 p.m. to 5 p.m.—Lectures on Farm Seeds. These lectures are to be given under the auspices of the Canadian Seed Growers' Association.

8 p.m.—Official session. Addresses delivered by the Honourable J.-Ed. Caron and representatives of the Department of Agriculture of Ottawa. Remarks and comments on exhibits and the Fair in general by the judges, Mr. l'Abbé H. Bois from "L'Ecole d'Agriculture of Ste. Anne de la Pocatière", acting as chairman.

THURSDAY, MARCH 20th

10 a.m.—Auction sale of exhibits.

5 p.m.—Fair closes.

The Hall where the Fair is to be held will be opened every day from 9 a.m. to 5 p.m. and also on the evening of Wednesday the 19th, for the official Session.

The public is invited to visit the Exhibition.

Honey Pail Prices

THE prices for honey pails for the 1924 season have just been announced by the Quebec Federation of Beekeepers through the columns of their official organ *L'Abeille*. These pails this year are being made in Montreal (with the exception of the one pound size, which come from Levis), instead of in Toronto as in former years thus offering a considerable reduction in the freight to any point in the province.

It will also be noticed from the prices quoted that there is an appreciable saving to members of beekeepers' societies as compared with the prices charged non-members. For the former this year the prices are the same as those quoted by the Ontario Beekeepers' Association. Thy are given as follows:

PRICES TO MEMBERS OF BEEKEEPERS' SOCIETIES

	1 lb.	2½ lbs.	5 lbs.	10 lbs.	30 lbs.
By the dozen.	$0.72	$0.90	$1.45	$1.90	$4.20
Per hundred	5.00	5.80	9.60	13.95	30.00
" " (500 or over)	4.75				

Prices to non-members

	1 lb.	2½ lbs.	5 lbs.	10 lbs.	30 lbs.
By the dozen	$0.80	$1.00	$1.60	$2.20	$4.80
Per hundred	5.30	6.35	10.25	14.25	32.00
" " (500 or over)	5.05				

Orders should be addressed to :

C. VAILLANCOURT,
41 Begin Ave, Levis, Quebec.

Section for Young Folks at Provincial Seed Fair

$157 in Prizes : Three Classes : Twenty Prizes in Each Class. Open to Pupil Farmers Only

THANKS to the important changes which Mr. Louis-Philippe Roy, head of the Field Crops Service, has just made in the new rules for the Provincial Exhibition of Grain Seeds, which is held every winter in Quebec, the pupil farmers who have harvested wheat or oats or barley, for which we gave them the seed last spring, are now invited to take part in the next exhibition which is to be held in Quebec on the 18th, 19th and 20th of March in the Quebec Drill Hall. Thus our pupil farmers will now be able to exhibit their selected seed alongside that of the best farmers of the Province of Quebec. This will liven things up quite a bit for we are sure that our young boys are going to give the farmers a good run for their money.

Now, my young friends, we have not a minute to waste. Let those among you who have harvested good grain, get to work, and having first made sure that you have sufficient wheat or oats or barley, which you have raised yourself, to be able to select *by hand exactly ten pounds*, apply immediately to have your name entered as an exhibitor, making use of the accompanying coupon for the purpose.

The *first* of the conditions imposed is that the seed (wheat, barley or oats) must have been grown from the pure seed sent to the pupil farmer by the Department of Agriculture at Quebec;

The *second condition* is that the seed must be selected by hand and by the pupil himself;

The *third condition* is that the quantity of any one kind of seed thus selected by hand must weigh exactly ten pounds and be put in a linen bag, well closed, and containing inside a piece of paper upon which is written by the pupil farmer his own name, that of his father and his address.

The *fourth condition* provides that each pupil farmer can compete in only *one* of the following classes, that is to say :

Class 1. Wheat, 10 pounds;
" 2. Oats, 10 pounds;
" 3. Barley, 10 pounds;

For the *fifth condition*, the pupil farmer who desires to compete should make immediate application between now and the 10th of March at the very latest, by filling in the coupon published on this page and cutting it out and mailing it in an envelope to the following address: Mr. LOUIS-PHILIPPE ROY, HEAD OF THE FIELD CROPS SERVICE, DEPARTMENT OF AGRICULTURE, QUEBEC;

Finally as *sixth and last condition*, the bags of seed must be send by parcel post to Mr. Roy's address, so that they will reach him by the *15th of March* at the very latest;

Please bear in mind that the cost of sending these seeds to Quebec, by *parcel post*, is to be paid by the exhibitor, but for *sending* them only: the Department will pay the expenses of transport from Quebec to the home of the exhibitor, for the return of the seed after the exhibition.

As we have already said above, there will be three classes in this section for the young, which is SECTION IV. There are twenty prizes per class. These prizes are divided as follows: first: $5.00; second: $4.75; third: $4.50; fourth: $4.25; and so on down to the twentieth, which will consequently be 25 cents. The prizes in each class amount to the sum of $52.50, and as there are three classes the total amount granted in prizes for the young competitors of section IV is $157.50.

We have already said that we expect great things from our pupil farmers and may they hasten to fulfill our expectation !

J. H. LAVOIE,
Head of the Horticultural Service.

DETACHABLE COUPON

Entry form for Pupil-farmers who wish to participate in the Provincial Exhibition of Grain Seeds which will be held at Quebec on the 18th, 19th and 20th of March next, in the Drill Hall.

Mr. Ls.-Ph. Roy,

Head of the Field Crops Service,

Department of Agriculture, Quebec.

Sir,

I, the undersigned, pupil farmer, beg you to enter my name as an exhibitor in the class designated below by a cross:

1. Wheat
2. Oats
3. Barley

(The pupil will make a cross opposite the name of the class in which he has decided to exhibit).

Name of the exhibiting pupil.....
Name of his father.....
Postal address.....County.....

Quebec Breeders Annual Meetings

THE annual meetings of the various Quebec breeders' associations named hereinafter, including the annual meeting of the General Breeders Society, will be held this year in the City Hall of Quebec, on the 19th and 20th of March. Since the Quebec Seed Fair will be going on at the same time, provisions have been made for enabling the delegates to take in both events.

Members are requested on their arrival to give their names to the Secretary who will supply them with the Society's badge. All the members present at the meeting are cordially invited to the Society's banquet at 7 o'clock P.M. Thursday, the 20th of March.

The programmes for the annual meetings of the breeders of horses, Canadian cattle, sheep and swine have been arranged as follows:

WEDNESDAY MARCH 19th

9 a.m. — Meeting of French Canadian Horse Breeders.

1.30 p.m. — Meeting of Canadian Cattle Breeders.

THURSDAY, MARCH 20th

9 a.m.—Meeting of Swine Breeders,
11 a.m.—Meeting of Sheep Breeders,
2 p.m.—Meeting of General Breeders Society,
7 p.m.—Banquet for all taking part in these meetings.

ADRIEN MORIN, *Secretary,*
ARSENE DENIS, *president,*
General Stock Breeders' Association

Activities of County Agriculturists

THE county agriculturist service of the province of Quebec now numbers sixty-six county agents and one district sub-inspector (Mr. J. A. LeClerc of district No. 6). Recent changes in this service have included the transfer of J. P. Reddy from Missisquoi County to Pontiac, where he is now located with headquarters at Campbell's Bay, while his place has been filled by Lucien Therrien, a former assistant agriculturist; the division of Beauce County, with the placing of Armand Gelinas in charge of division No. 2, with headquarters at St. Ephrem; a similar division of Portneuf, J. A. Plante taking charge of Division No. 2, with an office at St. Basile; and a Division of Temiscouata County, with Philippe Lambert placed in charge of No. 2 Division, with an office at Notre Dame du Lac.

The past month has been "convention month" for the county agriculturists, the workers in the various districts of the province being brought together at a central point for each district for a few days conference on their various problems.

This is also "inventory year" with the county agriculturist service, since the first of these workers were appointed just ten years ago. And at these conferences they are trying to take stock of the work done during this period, and to plan a programme for the next period of ten years. The questions asked of the different county agriculturists include the following: What changes have been accomplished in the agriculture of your county since the office was first opened? What is the average state of agriculture in your county today—the average production of your dairy cows—of your hay and grain crops? In what state are your farm buildings—in relation to up-to-date systems of ventilation, etc? To arrive at some idea of the status of these a system of statistics is being organized this year, and at the 1925 conventions it is

hoped that it will be possible to draw up a complete programme for these men.

From the discussions at this year's conventions it is clear that the main line to be taken up will be dairying and its many problems—increased production per individual—better opportunities for marketing the product through the consolidation of cheese and butter factories, and the possibilities of keeping the larger factories open throughout the winter, and so providing an outlet for the milk produced in the longer milking season so frequently advocated.

Another thing coming in for a good deal of discussion is the bacon hog campaign. At these meetings a good deal of work is being done trying to arrive at some more feasible scheme for making apparent to the farmer the benefits to be derived from the production of hogs of select bacon type.

Federal Grading of Dairy Produce in 1923

THE following statement of Federal grading during 1923 shows quantities of butter and cheese graded, by provinces, and for Ontario and Quebec, quantities are shown by districts as well. The percentages of different grades from all provinces combined as well as from individual provinces and from district of Ontario and Quebec are also shown.

CHEESE — ALL CANADA

Province	No. Boxes	% Special	% First	% Second	% Third
Ontario	904,643	.9	83.0	14.2	1.9
Quebec	532,191	1.2	68.0	28.1	2.7
P. E. Island	16,751	...	62.4	37.1	.5
Total	1,452,585	.97	77.1	19.73	. 2.2
No. Boxes different grades	14,173	1,119,411	286,608	32,393	

ONTARIO CHEESE — BY DISTRICTS

District	No. Boxes	% Special	% First	% Second	% Third
Western	50,759	.3	32.4	16.8	.6
Central	205,718	3.0	82.6	13.1	1.3
Eastern	645,109	.2	83.0	14.7	2.1
Northern	3,057	...	70.4	25.6	4.0

QUEBEC CHEESE — BY DISTRICTS

District	No. Boxes	% Special	% First	% Second	% Third
Lac St-Jean					
Chicoutimi	105,013	4.1	77.7	16.8	1.4
North Shore	101,796	.8	72.1	24.1	3.0
South Shore	326,342	.3	63.7	32.8	3.2

BUTTER — ALL CANADA
PASTEURIZED

Province	No. Packages	% Special	% First	% Second	% Third
Alberta	39,074	17.3	68.9	12.8	1.0
Saskatchewan	50,961	6.1	49.3	38.6	6.0
Manitoba	12,403	...	78.0	21.8	.2
Ontario	15,479	4.8	66.1	24.1	5.0
Quebec	91,572	37.2	53.5	8.7	.6
Maritimes	1,044	...	96.3	3.7	...
Total..	210,533	21.2	57.8	18.7	2.2
No. Pkgs. different grades	44,582	121,856	39,239	4,856	

UNPASTEURIZED

Province	No. Packages	% Special	% First	% Second	% Third
Ontario	4,441	....	8.0	56.0	36.0
Quebec	263,786	....	64.0	33.7	2.3
Maritime	3,762	....	46.1	45.1	8.8
Total..	271,989	....	62.8	34.2	3.0
No. Pkgs. different grades		....	170,668	93,239	8,082

Canadian Butter Shows Marked Improvement

IN the News Letter for January, the Dominion Dairy Commissioner makes the following comment on the results of the Dominion Educational Butter Scoring Contest: "The result of five years' work cannot be described better than by stating that in the month of October, 1923, a fourteen-pound box of butter was sent from each of the nine provinces and every box was placed in special grade. This together with the fact that, in the 1923 contest, the number of special grade samples was 23.4 per cent greater than in 1922, and 50.65 per cent greater than in 1920, proves that the creamery butter-makers of Canada have improved their methods of making butter to a very remarkable extent during the years from 1919 to 1923."

Quebec's Standing in Cheese and Butter

First in Cheese, Third in Butter — This was her record for 1923 in Dominion - Wide Contest

WE have recently received the full report on the Dominion Educational Butter and Cheese Scoring Contests for the year 1923.

This report shows that our Province occupies a most satisfactory place. It has won first place for its cheese, and third place for its butter.

Before giving the results of this contest, we think for the benefit of our readers, that it is better that they should know the object of this organization.

This contest had for its object, better means of butter-making, better quality, and also uniformity of milk products.

To reach practical results the organization had in mind that each person who took part in the contest would send his name to the chief of the Dairy Branch Service, Ottawa, a detailed report of the condition of the milk and cream employed, also the system of fabrication for exhibition. It was an easy task when the products were classified to see the connection between condition in which cream and milk were received, the manner of fabrication followed, and points obtained on the same products.

These contests were under the personal direction of Mr. Geo. H. Barr, Chief of the Dairy Branch Service, Ottawa, and Messrs. Barr and Scott, graders of Dairy Products for the Province of Ontario, and Geo. Cayer, grader for the Province of Quebec. Mr. L. P. Lacoursiere acted as judge, in Mr. Cayer's absence.

I. BUTTER CONTEST

This butter contest lasted six months, from May till October, inclusive. It was the same programme followed as in the contest held in 1922. Provincial authorities detailed one butter factory every month to take part in the contest.

Forty-nine butter factories took part, and were in the following order :

British Columbia 5, Alberta 6, Saskatchewan 6, Manitoba 6, Ontario 6, Quebec 6, New Brunswick 5, Nova Scotia 6, Prince Edward Island 3.

In all the Provinces there were forty-nine (49) samples 36 of quality "SPECIAL", 11 of "FIRST QUALITY", 2 of "SECOND QUALITY". Out of this total the Province of Quebec supplied 6 samples, 5 of them were classified as "SPECIAL" the other one No. 2 quality. Respectively these butter factories have obtained for the flavour 41, 43, 38, 41.2, and 42.3 points out of a maximum of 45, the Province of Quebec winning fourth for flavour, with an average of 41.25. The butter factory that was allowed only 38 points for flavour is considered one of our best factories; this apparent failure was due to the fact that during the period of the contest this district was suffering from drouth.

The following scale was used for points :

Flavour	45	points
Texture..	15	"
Incorporation of water..	10	"
Colour..	10	"
Salting..	10	"
Packing..	10	"

Three of our factories obtained the maximum of points allowed for texture, and six factories had the maximum for incorporation of water colour, salting and packing.

For the good excution of work based on the points, the following points were obtained by the various provinces.

Provinces	Average points	Number of samples
Quebec..	54.85	6
Manitoba..	54.80	6
Nova-Scotia..	54.80	6
British olumbia..	54.68	5
New Brunswick..	54.50	5
Prince Edward Island..	54.46	3
Saskatchewan..	54.38	6
Alberta..	54.25	6
Ontario..	53.68	6

Out of 55 points allowed for the good execution of work the Province of Quebec led with an average of 54.85 points. This shows clearly the competence of our makers, also the methods of fabrication taught in our Province.

II CHEESE CONTEST

The same rules were followed for the cheese contest, the only exception being the number of factories that were chosen to take part monthly in the Contest. Ontario had 4, Quebec 4, New Brunswick 1. Prince Edward Island 1, Alberta 1.

In this contest, the Province occupied the first place, as shown in the following list :

NUMBER OF SAMPLES OF EACH QUALITY BY PROVINCE

Province	Total of samples	Special quality	First quality	Second quality
Ontario	22	4	17	1
Quebec	21	9	9	3
Alberta	3	—	1	2
New Brunswick	6	—	4	2
Prince Edward Island	4	—	4	—
TOTAL	56	13	35	8

PERCENTAGE OF SAMPLES OF EACH QUALITY BY PROVINCE

Percentage for the Dominion.		Percentage for Quebec.
23.22%	Quality Special..	42.85%
62.50%	First Quality..	42.85%
14.28%	Second Quality..	14.29%

SAMPLE THAT WON THE GREATEST AMOUNT OF POINTS EACH MONTH

Months	Name of Factory	Province	Flavour	Total points
May	Boulah	Ontario	40.0	95.0
June	Kinburn	"	41.5	96.0
July	Gananoque	"	41.0	95.8
August	Jos. Girard	Quebec	42.0	97.0
September	Ste. Croix Caron	"	43.0	98.0
October	Dalesville	"	41.5	96.5

AVERAGE POINTS FOR FLAVOUR AND TOTAL POINTS BY PROVINCE

Province	Number of samples	Average points for flavour	Average total points
Quebec..	21	40.25	94.66
Ontario..	22	40.07	94.27
Prince Edward Island	4	39.37	95.62
New Brunswick..	6	38.61	92.95
Alberta..	3	38.50	92.06

Order of factories by province for good execution of work, based on points for texture, compactness, colour and finish. Total 55 points.

	Average points	Number of samples
Quebec..	54.42	21
Prince Edward Island.. ..	54.25	4
Ontario..	54.21	22
Alberta..	53.57	3
New Brunswick..	54.33	6

Number of samples of each province that obtained the total of points for texture, compactness, colour and finish.

Province	Number of samples	Texture	Compactness	Colour	Finish
Ontario..	22	6	6	22	22
Quebec..	21	6	14	21	21
New Brunswick..	6	1	4	5	6
Alberta..	3	1	2	3	3
Prince Edward Island	4	1	—	4	4
	56	15	26	55	56

These lists need no comments. Just a glance will show that the Province of Quebec occupies the first place. Indeed it is Quebec cheese that has the most points for flavour, also for the total of points. The province ranks first, having won the highest average of points for the good execution of work, and for the total of points.

These results should be encouraging to all those who are interested in our dairy products, and we sincerely hope that this will help to destroy the prejudice of certain persons whose interests have led them to disparage the quality of our cheese.

It should also serve to reassure those who were under the impression that our province could not make cheese of just as good quality as our friends from Ontario.

This is the reward of our organization, and our law on Dairy Industries.

Quebec, January 24th, 1924.

E. BOURBEAU.

Agriculture in the School

What The Department of Agriculture is Doing for The Agricultural Instruction and Education of The Young

IN the series of articles which we have been publishing in this paper, we endeavored to emphasize the important influence which the teachers of our primary schools are able to exercise in properly directing the mind of our rural youth, in demonstrating the necessity and the urgency of instilling into it a love for agriculture, and in indicating the means to be taken to obtain these results.

A task of such vast importance does not rest only upon the shoulders of the teaching staff. Government intervention is necessary to insure its success. We shall therefore show today how this intervention is exercised at the present time, so that those teachers who are devoting their influence to the interests of agriculture may know upon what conditions their pupils may benefit from it.

❖ ❖ ❖

To group all the scattered initiatives which may be made to contribute to the popularizing of the agricultural education and instruction of the young, to lead them in the direction tending towards this same aim and to stimulate them by prizes: this is the Government's method of procedure, through the agency of the department of agriculture, and by the intervention of the horticultural service, which is a sub-division of the department.

Objective teaching or practical demonstration being recognized as most apt to produce the best results, we have recourse to it in order to develop in the child a taste for agriculture and to inculcate the fundamental ideas of the science.

In the first case we establish *school gardens* destined to facilitate the task of the teachers in giving to the scholar such lessons as will contribute to develop a habit of observation and to give him a love for the land. These school gardens are only established at schools possessing land suitable for that purpose and having teachers who are able to supervise the work of the pupils during the summer season.

The pupils who work in the school gardens are called garden pupils and may be recruited from both sexes, boys and girls of any age.

In the second case we establish *home gardens* for the purpose of permitting the pupil who has a liking for the land to complete the agricultural education which he received from the teacher by that which he will obtain from the official Agriculturist whose duty it is to visit the gardens.

Only farmers' sons at least eight years of age, can benefit from the establishment of a home garden and be called a pupil farmer.

All the official organization of school and home gardens, in each of the counties of the province is under the direction of the District Agriculturist, and it is for him to determine the localities and the schools at which the gardens are to be established; to make the choice and the registration of the pupils who are to share in the distribution of seeds; to organize competitions and exhibitions; to adjudge and to distribute the prizes.

Consequently, the teachers who desire, for the benefit of their pupils, to participate in this official organization should apply directly to the official Agriculturists of their respective districts

The material assistance given by the Department of Agriculture may be summarized as follows :

1st.—Free distribution of nine varieties of vegetable garden seeds and one kind of flower seed in a sufficient quantity for sowing ten linear feet of drill of each kind, to the garden pupils whose names appear on the list handed to us by the Official Agriculturist during the month of January in each year;

2nd.—Free distribution of four kinds of vegetable garden seed for sowing twenty linear feet of drill of each kind and seed for six varieties of field crops, to be chosen by the pupil, in sufficient quantity to sow a plot 20 by 22 feet, to each farm pupil whose name is sent us by the Official Agriculturist;

3rd.—Free annual distribution of forty settings of eggs of pure breed fowl in each agronomist district;

4th.—Grant of $100 for each district, to be used as prizes for competitions and exhibitions;

5th.—Special prize, in kind, given to the farm pupil of each district who obtains the greatest number of points over 85% at the time of the inspection of home gardens by the Agriculturist; (choice of a combined Planet Jr. hoe or 24 apple trees, or one young rooster and five pure bred pullets, or a hive of bees, or five bushels of pure cereal seed);

6th.—Free subscription for one year to an agricultural review to each of the three exhibiting pupils, boys or girls, who have won the largest number of points at a school exhibition, and a grant of $100 to be used for prizes for monthly competitions held during the school year;

7th.—Free distribution of printed circulars containing directions for the cultivation of crops, programmes of school exhibitions and diplomas for the most deserving pupils;

8th.—Annual distribution of three medals (gold, silver and bronze) and of prizes in kind of great value to the laureates of the Order of Agricultural Merit for the Young, which is supplementary to the Home Gardens, and the competitors for which are recruited from the most deserving of the pupil farmers;

9th.—Finally, the annual distribution of a prize to encourage the teachers who take part in the official organization of the School and Home Gardens, and a grant of $200 for prizes for the best collections in botany, entomology, mineralogy etc., which are to be used to form a museum for the teaching of natural history in the school.

This is a summary of what the Quebec Department of Agriculture is doing to popularize agricultural education and instruction among rural youth and to second and stimulate the initiative of the teachers who devote themselves to this work.

It is for those interested to appraise the efficacity of our method of intervention and assistance. Their suggestions in relation thereto will always be welcome.

J. H. LAVOIE,
Head of the Horticultural Service.

Rules and Conditions Concerning the Cleaning, the Classification, the Handling and the Sale of Grain and Seed in The Province of Quebec.

ACCORDING to a plan submitted by the Federal Seed Branch, and approved by the Department of Agriculture of Quebec and the Federated Co-operative Society of Quebec, the farmers of this Province may, from this date, have their clover, timothy and cereal seeds cleaned at the warehouses at Ste. Rosalie upon the following conditions.

1.—Each farmer must separate, weigh and number carefully the lots of seed of different qualities and send them to the Federal Co-operative, Ste. Rosalie. A label similar to that attached to each bag must be placed inside the bag.

2.—He must declare on a form which will be supplied to him for the purpose, if he wishes to have his seeds returned to him after being cleaned, or if he desires them to be sold at market prices, or if they are to be kept at the warehouse to be sold by him. In this latter case, the seed will be sent to the address supplied to the manager at Ste. Rosalie by the owner of the seed.

3.—The shipper may pay the cost of transportation from his home to Ste. Rosalie, or he may leave it to be paid by the Co-operative, but in the latter case, the amount will be charged to the owner in his bill from the Co-operative.

4.—When the Cooperative is required, upon request of the proprietor, to sell the seed itself, it will deduct. when making its return in money to the proprietor, first its commission for the sale and then the amount of the cost of cleaning, handling, etc., according to the tariff given herewith.

If the Co-operative is not called upon to sell the seeds itself, but only to clean them and have them classified, no commission for sale will be charged, but only the cost of cleaning and handling specified in the tariff.

5.—The seeds, after cleaning, must be classified by the Federal Seed Branch at Quebec, and they must be put in new bags which the farmers will pay the Co-operative for at cost price. The old bag will be returned to the shipper at his expense.

6.—Farmers who wish to do so may receive from the Co-operative, after the cleaning and classification of their seeds, an advance representing half the probable price of sale. If, however, after having received this advance, the farmers have not given the Co-operative instructions to sell by the 1st of April of each year, this latter may offer the seed in question for sale, may sell it at the best possible price, and return to the proprietor the amount due him.

7.—As soon as the cleaning is finished, the Co-operative will send the shipper a receipt from the elevator giving the quantity of seed of each class, the quantity of siftings and the percentage of invisible loss. This receipt will be negotiable or transferable by means of endorsement by the last proprietor.

THE FOOLOWING TARIFFS WILL BE CHARGED FOR ALL OPERATIONS

Reception, Discharging, Classification, Weighing, Warehousing and Insurance

Timothy and clover.. . . . . 0.09 per 100 lbs.
Seed grain.. . . . . 0.07 per 100 lbs.

BONDING AND INSURANCE AFTER 15 DAYS

Timothy and clover 1/3 of 1¢ per day per 100 lbs.
Seed grain.. . . . . 3/10 of 1¢ per day per 100 lbs.

FIRST CLEANING

Timothy and clover-500 lbs. or more 25 cts per 100 lbs
Timothy and clover-quantity less than 500 lbs. $1.00 minimum.
Seed grain-50 bushels or more 10 cts per 100 lbs.
Seed grain-quantity less than 500 bush. $1.50 minimum.

SECOND CLEANING

Timothy and clover-500 lbs or more 15 cts per 100 lbs
Timothy and clover-quantity less than 500 lbs. $1.00 minimum.
Seed grain-50 bush, or more 10 cts per 100 lbs.
Seed grain-quantity less than 50 bush. $1.50 minimum.

BAGS AND BAGGING

Timothy and clover, white cotton bags..cost price
Seed grain, jute bags.. . . . . " "
Wheat and Barley, 2 bushel bags.. . . . . " "
Oats, 3 bushel bags.. . . . . " "

SHIPPING FROM WAREHOUSE

Entire car.. . . . . 1 cents per 100 lbs.
Less than full car (minimum 25 cents)
. . . . . 2 cents per 100 lbs.

COMMISSION ON SALES

Cereals.. . . . . 0.95 per bushel
Clover, Timothy.. . . . . 0.01½ per lb.

Federated Co-operative of Quebec.
(Signed) A. G. LAMBERT,
Member of Executive Council.

Winter Care Of Farm Machinery

LAST summer I suppose was very much like many others which lie behind us in that we were hard pushed with the farm work at all times. When we were through haying the mowers, rakes, hayloaders and tedders were backed under an apple tree in the orchard until there was a lull in the harvest or until the binders were taken out when the haying tools were pushed into the driving shed. When the grain was all cut the binders were either put into the implement shed with the canvasses on or they were also backed under the apple tree with the canvasses taken off—perhaps. We may have been very busy in turnip hoeing time and left the scuffler lying in the fence corner at the end of the last row scuffled, or the corn cultivator may still be where it did its last work of the season. The harrows are just where dad left them when he finished harrowing after the drill putting in the fall wheat—all these were then gathered up just before the snow fell and hastily jammed into the implement shed for the winter. That is the way most of us,—yes, even some of our supposed to be good farmers, store away our implements for the winter.

There should be no reason why so many of us must make a final scramble every fall to get our machinery under cover. It should have been there, ready for winter to set in any time, all year. It is a habit which most of us have to leave implements all over the place; then, when the ground is frozen and the plough is stopped we store away the implements, heave a sigh of relief when the last plow is set up on its nose with its handle against the wall of the shed. We pat ourselves on the back and congratulate ourselves because there are no implements out to get snowed in, while in reality most of them are just as badly rusted as they could be if they had been left out for the winter. We are all too careless about storing our machinery.

The slam of satisfaction which we give the implement shed door when the last harrow has been crammed in would make one, who knows no better, believe that they had been put there forever; while the promptness with which we forget all about our implements and the state of repair, or unrepair, they were in when "cached" for the winter is not at

all suggestive of another season's use within a few short months. A farmer is not an efficient farm manager until he has made provision, in his mind at least for the making good of every deficient part of every implement in his whole implement shed. This is the idea we must have in mind when storing away our implements for winter.

MAKE PROVISION FOR REPAIRS DURING THE SLACK SEASON

When putting away our machines the thought which should be uppermost in our minds is. "What does that machine need to put it into shape for next year's work?" And "right then" is the time to pull out a note book and jot down the things that are apparently needed. Order them now and when they come let the hired man put the machine into shape. Plows need new shares, and if they are riding plows probably new wheel boxings will be in order, while a new sliding sole may also be needed. A coat of thick paint on all parts that should be bright will keep them so; a good coat of heavy grease will also answer this purpose. Some people seem to think that the only machinery that needs bright surfaces are plows, at least plows are the only ones that get any oil. We wish to add the following list which should be treated,—cultivator teeth, discs, scuffler points, disc drills, heo drills. In fact any implement which is used to cultivate the soil should have its polished surfaces coated with some kind of a grease or paint to prevent moisture and air from getting at it, thereby preventing the formation of rust.—L. G. H.

Seed Board for Quebec Province

New Plans for the Improvement of the Seed Supply

By Prof. R. Summerby, Agronomy Dept., Macdonald College.

GOOD seed has long been recognized as being of first importance in the successful production of farm crops. A second factor of equal importance is that of the choice of a suitable variety for the conditions under which the crop is to be grown. While these two factors have been generally acknowledged by good farmers, it is also true that a reliable source of supply of tried varieties has not often been available for the use of those attempting to put these facts into practice. Good seed, even of any variety has not always been available when needed.

Many forces have been at work in the past seeking to improve the seed supply. Through field crop competitions of various kinds the federal and provincial Departments of Agriculture have attempted to encourage the cultivation and better care of the seed crop. Through seed fairs attempts have been made to give a mark of approved to the final product of the best growers. Agricultural colleges and experimental Stations have carried on many tests to find out the best varieties and strains and extension workers have advocated the use of better varieties. Seed merchants through their catalogues have encouraged the use of the varieties which they have for sale. Finally the Canadian Seed Growers Association has attempted to encourage the growing of the best varieties only, and has sought to provide for a reliable supply by encouraging the growing of Registered Seed. The continued effect of all these organizations and efforts has still left the seed situation in an unsatisfactory state.

There are still many farmers who pay no attention to the variety that they grow. There are literally scores of varieties grown (many of which are probably unsuitable) about which little is known as to their actual value. There is not sufficient unanimity on the part of workers as to the best varieties for each section. No organized attempt has been made to get the workers together to discuss the various problems involved. And finally there is not a sufficient supply of reliable seed available of those varieties that are generally considered to be good.

Acting on the suggestions of the Quebec representatives of the Canadian Seed Growers Association, provision has recently been made for the appointment of a Seed Board by the provincial government. The purpose of this Board is to advance the state of the seed supply in the most practical and efficient manner, by all the means at its disposal. This board is composed of the representatives of the federal and provincial departments of agriculture and plant breeders, who are most interested and in closest touch with this work.

Since there are many workers in the province seeking to advance the interests of the farming population through good seed, an effort should first of all be made to get these men and the organizations they reprsent, working together on the problems that have to be solved. A frank discussion of these matters by men who are interested in serving the interest of farmers will be a starting point from which plans for their solution may be evolved.

Again, since all agree that far too little attention is given to the question of suitable varieties, and that there are now far too many varieties being grown, the board will, by a careful study of the information obtained from experimental stations, agricultural colleges, and from the experience of farmers, select those that seem best suited to the different conditions. The board's stamp of approval will thus be given to only a few tried and proved varieties, but its recommendations should not be limited so narrowly as to prevent all from getting the varieties that are most suited for their needs.

While the elimination of many inferior and untried varieties by this means, and the recommendation of only a few of the very best is the first step in the direction of a better supply of seed, there yet remain two important phases, the production of a supply, and its distribution. Thousands of bushels of each of the important classes of grain crops are needed each year for this purpose. This must be available in a pure state if growers are to have confidence in its genuineness.

The production of this supply involves two stages, first the foundation stock and secondly the multiplication of this in larger quantities. Foundation stock must be entirely pure, for unless this is ensured in some way, its product cannot be registered, and no means is then available for maintaining its identity. In some cases a supply of foundation stock may be available at experimental stations and colleges. Where such is not the case steps will have to be taken to provide for a supply of those varieties that seem desirable of introduction. The lack of this source of supply has in the past been one of the most serious factors in limiting the use of better varieties. On account of its purity the quantity produced of necessity must be limited. Further multiplication is necessary before it can be distributed at all generally.

The multiplication of the product of this foundation stock in a pure form must be in the hands of the growers. Its purity must be maintained in sufficient degree to allow it to be registered, for otherwise it loses its identity at once and is of no use for dissemination further than the grower who uses it that year. This means that especially careful growers must be chosen for this work, and some assistance may be necessary by way of instruction and help. The organization of a few well qualified growers located where facilities are the best for producing pure seed, seems a logical method of procedure. The proposition must however be one that is remunerative to the growers. The seed board can do much in the organization of growers for the production of this first generation seed.

There yet remains to be arranged provision for the dissemination of this seed to the growers as a whole. Combined field crop and seed competitions in which the crop is inspected in the field and later in the threshed condition in the bin have in the past served a very successful purpose in improving the supply of seed. This means can be even more effectively used in stimulating the further multiplication of seed of good varieties. In each county or section where such a competition is held there will thus be made available many centres of supply which may form the basis for further dissemination.

The size of the province, and the number of growers, and the slowness with which pure seed can be multiplied renders the introduction of a new variety a slow process. The Seed Board by enlisting the support of all the different organizations and by making provision for all the phases or stages necessary in the dissemination of a crop may accomplish efficiently, what has not been accomplished before.

By co-ordinating the work of the various organizations the obstacles that have been in the way in the past will be largely removed, as each will contribute by fulfilling the function for which it is best qualified. The experimenter is in the best position to produce new varieties and strains and to find out those that are most suitable. The Seed Board itself with the co-operation of the experimenters and growers can best select the varieties that are most suitable. The technical man only can, if given the facilities, ensure a supply of reliable seed. Especially qualified growers can grow the first generation seed. The Quebec Department, through its Field Crop branch can organize standing field crop and seed grain competitions. The Seed Branch by inspection of the fields and the seed, can provide means of registration. Seed merchants, seed centres, co-operative societies, and growers can each play a part in fulfilling the object which the Seed Board seeks to attain. The Seed Board will thus, it is hoped, have a very important influence in the betterment of agricultural conditions in the province by way of bettering the seed supply, and will make available seed of recognized and tested varieties that heretofore have remained in the background.



A GROUP OF HORTICULTURAL SHORT COURSE STUDENTS. — The short courses for farmers held this winter at Macdonald College in the Horticultural, Poultry and Farm Engineering Departments have been very well attended. This photo shows only part of the class in attendance at the Horticultural Short Course.

The Preparation of Grain for Seeding

IN preparing grain for seeding purposes a good fanning mill is practically necessary. The proper adjusting of this machine to do work required demands care and good judgment as regards the choice and arrangement of sieves for the kind of grain to be cleaned. The size of sieve will depend on the size of the grains to be cleaned and also on the make of the fanning mill used. However, if any difficulty is experienced in getting the right adjustment, the maker of the mill will help select the right size of sieve, if he is furnished with a one pound sample of the grain in question.

In cleaning grain it is desirable to use a top sieve with perforations just big enough to allow the kernels to pass through. The straw, chaff and other coarse material and seeds not wanted will be carried over the top and delivered separately. The air blast should be heavy enough to blow dirt, light kernels and many of the weed seeds clear of the

good grain. The lower sieve should be smaller than the top sieve and allow the weed seeds and broken kernels to pass through. The feed should be heavy enough to keep the top sieve thinly covered. This will tend to carry the rough material over the end. It is usually necessary to pass the seed grain through the mill at least twice before a thoroughly satisfactory sample is obtained. If oats and barley are present in large quantities when cleaning wheat, it will pay to let a fairly heavy flow cover the top sieve, even to the point of allowing some of the wheat to pass over in order to insure the removal of the greatest amount of oats and barley.

When the grain on the home farm is not suitable for seeding, seed should be purchased from a thoroughly reliable source and preferably registered material of a variety proven suitable to the district.

It is not economical to sow poorly graded seed or seed containing weed seeds. Weeds in a crop entail a direct loss as they take up space, moisture and plant food. They also add to the cost of harvesting, threshing and handling.

J. G. C. FRASER,
Cerealist,
Central Experimental Farm.

THE HOME LANDSCAPE

Detailed Studies of Tree, Shrub, and Flower Arrangement.

By M. H. Howitt, Horticultural Dept., Macdonald College.

IN this, the second article of the series, I propose to study the arrangement within the clump, group or boundary planting to supplement the remarks on the general placing of the planting material in last month's *Journal*.

Arrangement of Trees. Figure one gives a diagrammatic presentation of the planting of trees immediately about the house as explained in the previous article (see heading "Details of planting"). You will notice that their placing varies according to the direction in which the house is oriented. Those hatched vertically are especially for shade and the others are for the framing. If more than three or four trees are planted immediately about the house or closer than 20-25 ft., it will be too shaded and damp. Trees may abound in profusion of course some distance away, but not closer than 200 ft. Notice particularly the differing distances from the house. The exact placing and choice of varieties will of course depend on the architecture and size of the house.

A group of trees on the lawn should be planted in an irregularly staggered manner, with as few straight lines as possible. In small groups this is simple but becomes increasingly difficult in large plantings.

Figure 2 (A) shows a group of trees planted closely together with the object of getting a quick effect and thinning later. Those trees that are cross hatched are to remain and in the original planting the group should be so arranged that when the thinning is done the remaining trees will be properly spaced.

On streets and along drives, trees should be planted in rows, evenly spaced. They may be set in half the distance and thinned before they crowd. Proper distances for trees are :

	Close planting	Normal
Large—"Elm..	30 ft.	40 ft.
Medium—Sugar maple... ...	25	40
Small—Pin Oak..	25	35

Along highways, especially macadam roads, it is advisable to increase the distance, especially for the large trees, as elms, which should be 75 ft. apart. In groups, trees may be planted as close as 12-20 ft. for quick effect, but must be thinned early.

Arrangement of Shrubs, Shrubs are best grown in beds where they can be thoroughly cultivated. For natural grouping they also should never be planted in straight lines. Figure 2 (B.) shows the correct way to place the shrubs in a boundary planting, by working from the back to the front. This gives a more natural and irregular front line. C. shows a border improperly worked from the front. An attempt to arrange a natural line in front first, usually results in even spacing and a more regular outline.

Figure 3 (A.) shows the correct way to plant around the foundation or porch. (B.) shows a straight line arrangement which is stiff and not pleasing. Sometimes one sees shrubs arranged in a curve out from the wall which is even worse. Part C. illustrates the shape of the bed to be spaded up and how it may be staked at frequent intervals to get the proper curves. Within this dug area the shrubs are placed well forward or well back as the need may arise to avoid straight lines. The black dots represent the individual shrubs and show their placing. Note how they are staggered and farther away from the foundation at the steps and corners. Whether the front planting should be balanced or not will largely depend on the style of architecture and the placing of the entrance. Distances for shrubs are:—

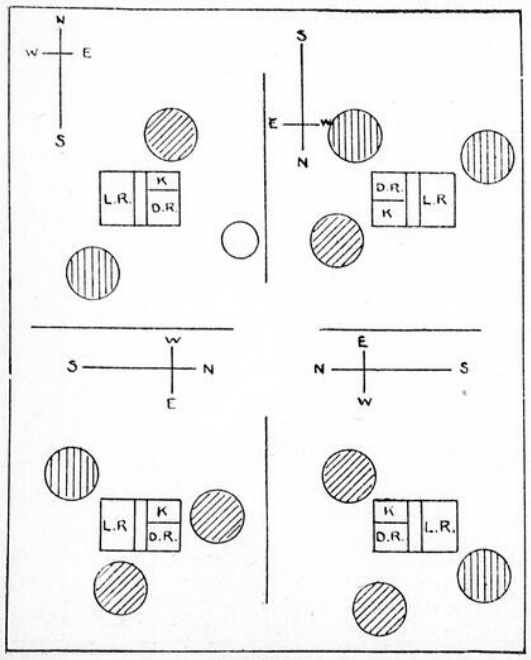


FIGURE 1

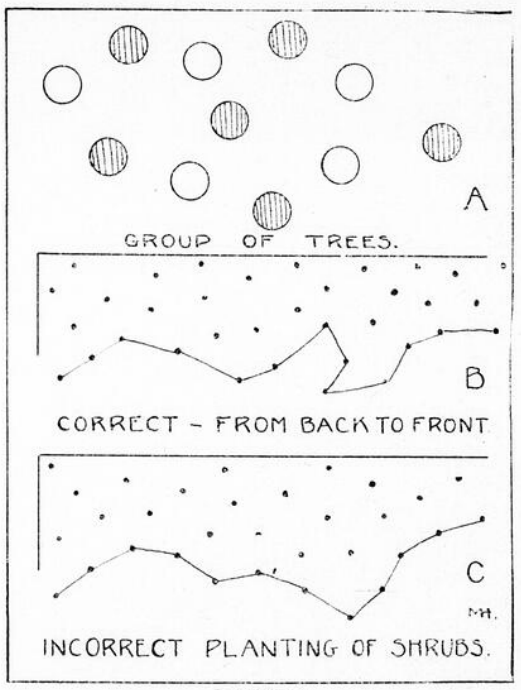


FIGURE 2

Large—Honeysuckle .. .. 5—6 ft.
Medium—Spirea Van Houteii.. .. .. .. 3—4 ft.
Smal'—Spirea Anthony Waterer.. .. .. 2—3 ft.

A rough rule for determining spacing is, that the average shrub will grow in width a distance equal to two-third of its height. Heights can usually be found in nursery catalogues and reference books.

For a quick effect, for screening, or for a dense mass planting, shrubs may be planted two-thirds to one-half this distance for each size. In the case, however, of planting half the distance and desiring an uncrowded final effect, the extra shrubs will have to come out before they crowd.

Arrangement of Vines. Large sized vines as the Engelmann's Virginia Creeper and the Dutchman's Pipe, should be used carefully and spaced well apart, as one or two at most will nearly cover a good sized building in time.

The smaller growing vines that are usually placed on trellisses or wire may be placed any distance at strategic points. Roses if trained fanwise on the wall or fence will occupy at least 15 ft.

Arrangement of Perennials. For a natural and bold effect perennials should be planted in good sized clumps; say about 3 ft. by 2 ft. The size will vary with the extent of the border. The larger and broader the border, the larger the clumps. The size and height of the plant will also influence the size of the clump. Within the clump the plants should be spaced naturally without straight lines although

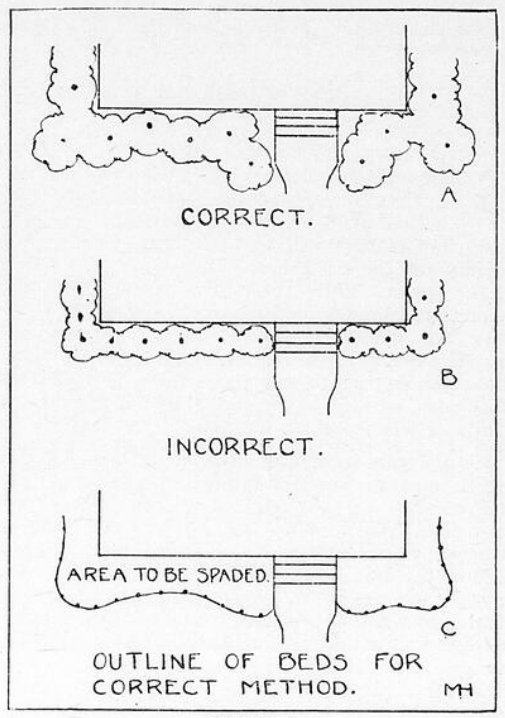


FIGURE 3

two or three years all individuality of specimens will be lost in the mass. In a comparatively narrow border, clumps decidedly narrower lengthwise of the border, will look well. Clumps should of course vary considerably in size and shape to suit conditions and give variety to the border.

Distances for
Perennials. Low—Phlox Subulata— 6 inches
Medium—Coreopsis —10—15 inches
Tall—Delphinium —1½ to 2 ft.

The spread of the plant in relation to its height should of course be taken into consideration as for instance, the peony, though medium in height is very broad and requires to be planted 3—4 ft. apart. Care should be taken to make the various clumps fit into one another irregularly. Do not give each clump a formal rounded outline.

Horticultural Short Course Popular

SEVENTY people attended the Horticultural Short Course at Macdonald College during the week of February 12th. A Series of thirty-six lectures and demonstrations embracing the more important phases of fruit, vegetable and flower culture were given, and many of these were illustrated with lantern slides photographs, drawings and plant materia'. Discussions were freely engaged in and many questions answered during the course. Bulletins of the Federal Department of Agriculture, together with many leaflets and outlines of lectures prepared at the College were distributed.

Floriculture and ornamental gardening was given special attention on the programme and a separate set of lectures arranged for those interested. These lectures were well attended and this programme will probably be extended and featured another year.

The opportunities in horticulture in this province are rapidly extending especia'ly in regard to the production, for the local and Montreal markets, of small fruits and vegetables. Also the field in floriculture, the production of nursery stock, and greenhouse cu'ture in both flowers and vegetables as well as orcharding offers great opportunities, particularly where products of high quality are produced and offered to the local markets. In some cases the markets in the small cities and towns for this class of produce would need development but in the hands of an energetic and enthusiastic horticulturist there is an almost unlimited field.

Planning the Vegetable Garden

By W. J. Tawse, Horticultural Dept., Macdonald College.

NO contractor would attempt to build a house without a plan. How can any gardener expect to have the right amount of kinds of seed if the garden is planned while planting. The wise gardener wishing to secure the maximum of satisfaction in both variety and quantity at the right season, makes a plan of his garden on paper long before the planting season.

To make a good plan use heavy paper and ink. Be sure and leave a large margin for entering notes which can be used to better next year's garden. A scale of ¼ to ½ inch to every foot in the garden is most convenient. The plan should show the location of each crop and how long the seed or plants should occupy the land.

WHEN MAKING THE PLAN

The farm garden should be situated close to the kitchen, not only as a convenience and saving of steps, but also from the standpoint of utilizing spare time labour in caring for the crops. Many spare moments, which otherwise would be wasted, can be spent in the garden to advantage.

1. Use every foot of your land. Idle patches only produce weeds. When one crop is harvested another should either require the space or be planted, to fill the vacancy. Warm season crops, like tomatoes and beans and late seeded crops like turnips, may follow early cool season crops such as lettuce, spinach, radishes and pepper grass.

2. Plan to give the long growing season crops the most favourable space. Short season crops, such as lettuce, spinach and radishes may be planted between the long season crop rows.

3. A rotation of the various crops over the land checks disease and insects and utilizes all the plant food available year after year. Shallow rooted crops, like onions, should follow deep rooted crops like cabbage.

4. Potatoes and corn and vine crops require too much space in small gardens, but if grown, the space between the rows can be used early in the season for quick maturing crops.

5. Salads and greens, such as lettuce and spinach, grow best when partially shaded by the tall growing crops, such as corn or staked tomatoes which require full sunlight. Shading can be reduced by having the rows run north and south.

6. Winter vegetable supplies should have a place on the plan as they will be appreciated when the snow blows.

7. A wide selection of vegetables afford an appetising, health-giving variety to the menu.

8. Plenty of tillage space between the rows ensures thorough cultivation and ample plant food for the growing plants.

9. Farm gardeners should plan long rows with ample space between to allow for horse cultivation. If you do not require a full row of one vegetable, fill in with others of the same class, as for instance, beets, carrots, parsnips and turnips.

10. Record your planting dates along the margin along with the date at which the crop is ready to use. Note any gaps in the supplies or wrong varieties for the season to be served.

11. Succession plantings keep the table supplied from the opening to the close of the season.

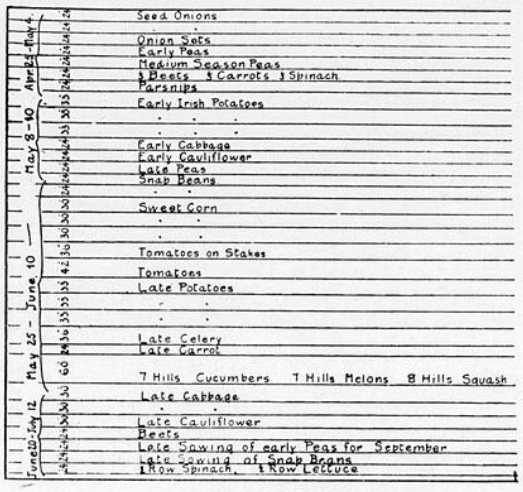
EARLY PLANTS

TO enjoy the earliest crops it is necessary to start part of them indoors early in March. Where one can buy plants at a reasonable price and secure the varieties desired, it is a much better way. When this opportunity is lacking or special varieties or crops are wanted, it is then necessary to produce your own plants, although it takes time and space, small quantities are not extremely difficult to raise.

Window boxes, pots, hotbeds and coldframes are most commonly used for starting early vegetable plants.

The small gardener will find the window box or pots the easiest way in which to start plants. The proper heating material for hotbed construction is very difficult to obtain and in the small garden is more of a nuisance than an asset, and for this reason many gardeners start their seedlings in the house and then grow them on in coldframes, which are simply boxes or frames covered with glass or sash. This requires less attention and is only slightly slower then a hotbed. Many crops, like lettuce, onions and radishes can be grown to maturity in the frame in addition to the other plants. Only a small frame is required to start enough plants for the first crop of lettuce, cabbage and tomatoes.

The large gardener will require a hotbed, as many choice vegetables will not mature before frost unless given an early start. The hotbed should be located on the south side of a building or board fence where it will receive the early sun and still



80 X 135 RURAL GARDEN.

be sheltered from the cold winds. Two loads of horse manure are required for a two sash hotbed, 6 ft. x 6 ft, if the bed is prepared in March. The manure should be obtained from grain fed animals and contain sufficient straw to prevent too rapid fermentation, thereby losing its heat before the warmer weather. Too much litter or straw makes it impossible to tramp it solid and it then contains too small a proportion of droppings to provide the necessary heat. This manure should be forked into a compact pile and allowed to heat about six to ten days. If it does not begin to steam a few pails of hot water will start fermentation. The pile, when steaming well in the centre, should be turned to thoroughly mix the cold outer layers with the hot central part. In about six days the pile will again be steaming and it is then ready for making up the bed.

The hotbed can be built on top of the ground, or a pit can be dug two feet deep the size of the frame. The manure is then placed in the pit and the frame set over it. The most convenient and successful way is to build the bed on the surface because the pits for the manure are hard to drain. It will require more manure, but unless the pits can be easily drained they become filled with water which destroys the heating manure.

The manure should be spread in six inch layers, taking pains to shake out thoroughly each forkful. This insures a very even layer and no cold spots. Each layer should be thoroughly tramped to make it compact and produce a uniform temperature throughout, otherwise the bed will settle unevenly and certain spots will be too hot.

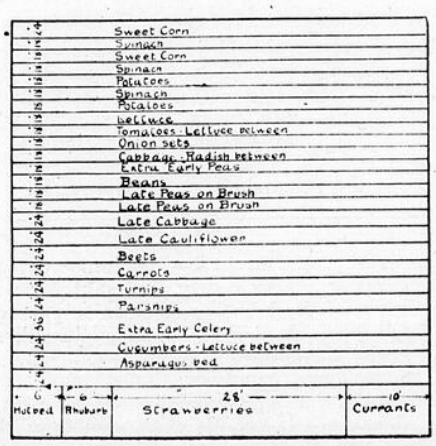
The bed of manure should be eight feet square to allow for banking one foot around the frames to maintain an even temperature on the outer edges of the bed. The beds should be 30 inches deep early in March and later 24 inches is sufficient, while for April, 15 to 18 inches will provide the necessary heat.

The frame is then put in place and banked up, especially on the cold sides, to the sash. Three or four inches of a rich fine loam to which has been added 1/5 part sand is then spread over the manure and levelled down. If the seedlings are grown in flats, about two inches of soil or cinders is sufficient over the manure to hold the heat and for the flats to rest on. An ordinary dairy or soil thermometer is then placed in the soil and the sash put on the bed. When the temperature falls to 80 F. the seed can be sown. Seeds or plants should never be planted at a higher temperature, as the excessive heat will destroy them.

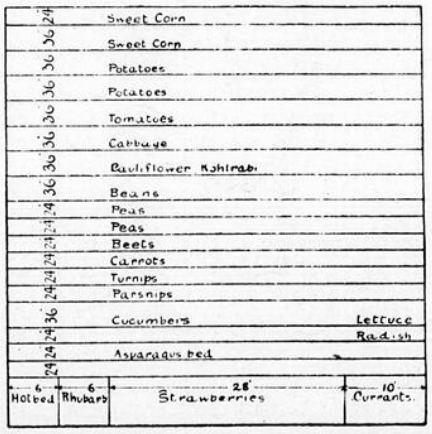
Selected Varieties of Vegetables for Home Use

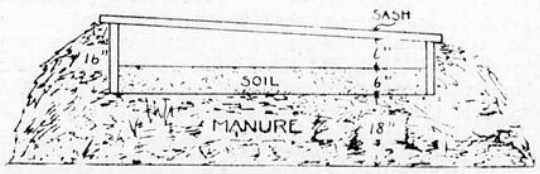
Asparagus	Mary Washington, Giant Argenteuil.
Beans (Yellow)	Sure Crop Stringless, Brittle Wax, Golden Wax.
" (Green)	Stringless Green Pod, Extra Early Red Valentine.
Beets	Crosby's Egyptian, Detroit Dark Red.
Brussels Sprouts	Paris Market, Amager Market.
Carrots	Early Scarlet Horn, Chantenay, Danvers Half-Long.
Cauliflower	Dwarf Erfurt, Snowball.
Cabbage	Early Jersey Wakefield, Copenhagen Market, Danish Ballhead.
Celery	Golden Self-Blanching, Easy Blanching, Winter Queen.
Corn	Pickaninny, Early Malcolm, Golden Bantam.
Cucumbers	Extra Early White Spine, Davis Perfect Improved.
Citron	Colorado Preserving.
Egg Plant	New York Improved, Black Beauty.
Lettuce (Leaf)	Grand Rapids, Black Seeded Simpson.
" (Head)	Big Boston, Nonpareil, Iceberg, Cos Trianon.
Musk Melon	Rocky Ford, Benders Surprise, Golden Pollock, Montreal.
Water Melon	Coles Early.
Onions	Red Globe, Yellow Globe Danvers, Red Wethersfield.
Onions (Transplanting)	Prizetaker, Ailsa Craig.
Parsnip	Hollow Crown.
Parsley	Champion Moss Curled.
Pepper	Chinese Giant, Ruby King, Long Red Cayenne.
Peas	Blue Bantam, Thomas Laxton, Stratagem, Telephone.
Potatoes	Irish Cobbler, Green Mountain.
Radish	Scarlet Turnip, White Tip, French Breakfast, Icicle.
Winter Radish	China Rose, Black Spanish.
Spinach	King of Denmark, Long Season.
Squash	Vegetable Marrow, Giant Crookneck, Green or Golden Hubbard.
Salsify	Sandwich Island.
Tomatoes	(Early) Earliana, (Mid Season) Benny Best, John Baer, Chalks Jewel, June Pink, (Late) Stone.
Turnip	White Globe, White Milan, Golden Ball.
Turnip (Swede)	Masterpiece, Bangholm.
Rhubarb	Improved Victoria, Linnesus.

50 X 50 URBAN GARDEN.



50 X 50 URBAN GARDEN.





How a hot-bed is made.

ASPARAGUS CULTURE

Complete Cultural Directions for Growing one of our Most Sought after Vegetables,

By W. J. Tawse, Lecturer in Horticulture, Macdonald College.

ASPARAGUS is one of the highest quality, early spring vegetables grown and shou'd have a place in every garden. No other vegetable at that season has the distinctive flavour, quality, tenderness and individuality found in fresh asparagus. It is not seriously injured by several years of neglect after it is once established as on being given good cultivation and fertilizer it quickly responds in greater yield.

The many so-called varieties as Argenteuil, Reading Giant and Palmetto cannot be distinguished one from another in the market. Their names are more properly associated with an asparagus growing region than with any fixed type. The new Washington varieties or strains are distinct in that they were selected and bred for rust resistance. The latest strain, Mary Washington, is very early and prolific. The high-branching habit of this strain makes it possible to cut longer shoots with good tight buds of a dark green colour with a medium purple over-tone, after the buds on other varieties have opened out and become unmarketable.

Soils and Fertilizers for Asparagus.

Asparagus can be grown on nearly all types of soil, but a deep sandy loam is preferred. A light soil is earlier and easier to cultivate. The soil should be well drained and if not deep it should be sub-soiled, or in a small garden trenched. The soil should be kept in a loose friable condition to obtain the best results. Barnyard manure is the most suitable fertilizer on light soils as it not only adds plant food, but also humus to bind the soil together and hold moisture. It should be applied at the rate of 20 to 40 tons per acre preferably in the fall. Where manure is not available it is a good plan to grow a leguminous crop the preceding season and plow it under. In addition to the manure or cover crop some commercial fertilizer should be used—for an average soil 150 to 400 lbs. nitrate of soda, 200 to 300 lbs. acid phosphate, and 150 to 260 lbs. of muriate of potash. Muriate or kainit is said to be superior to sulphate, as this plant uses chlorine; that is why old gardeners used 300 to 400 lbs of salt per acre. When poultry manure can be obtained it is one of the most valuable sources of fertilizer, and often the small gardener can obtain sufficient of it to meet his requirements.

Planting Asparagus seed. The small grower unfamiliar with the growing of asparagus seedlings will find it safer to buy selected one year old plants with which to set out his asparagus bed. If, however, you have a good, uniform, rich, well prepared piece of soil it is not difficult to grow excellent plants. Secure the best strain of seed available and soak in warm water for 24 hours before planting. The treatment softens the hard seed coat and results in earlier germination. To dry the seed before sowing throw over it a handful of hydrated lime which will not only take up all the surplus moisture, but the black seed will be coated white and is then very easily seen when sowing. Asparagus seed germinates so slowly that it should be mixed with about one ounce of turnip-shaped radish seed to every two or three ounces of asparagus. The radishes come up quickly and mark the rows, permitting earlier cultivation to control the weeds which otherwise would smother the fine fern-like plants of asparagus.

These can be bunched for sale and generally they are sold before the asparagus is more than through the ground. The seed should be sown in rows far enough apart for hand or horse cultivation and should be covered to a depth of 1½ to 2 inches. The growing plants should be cultivated throughout the season and as they become taller a little soil should be thrown up to the stalks to support the tops. Late in the fall, after the tops have begun to die down and before the ground freezes, the plants should be lifted and stored in the cellar in moist sand at 40° F. If there is no suitable storage available, the plants can be left in the soil and mulched with straw or strawy manure to prevent winter killing.

Digging the roots. The one year old crowns can be thrown out of the ground with a good two horse plow. Before plowing out the row of plants, turn one furrow about a foot out from the row to aid in freeing the roots. In light sandy soils a six tined manure fork is used to free the plants of the soil and throw them into windrows.

It is very important not to injure the buds or break off any more roots than is absolutely necessary. If the plants are not lifted in the fall they should be taken out before growth starts in the spring, otherwise the food stored in the roots will be lost, as the tender growth snaps off and the remaining buds are very much weaker.

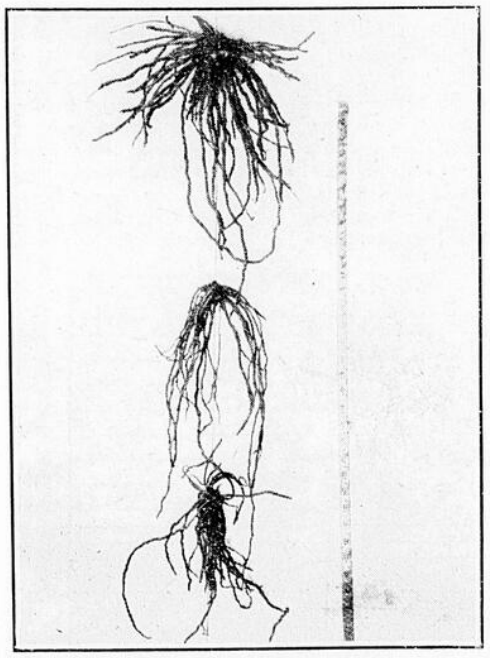
The plants lifted in the spring will keep in good condition if they are allowed slowly to dry or ripen down in the sun. They should then be graded and only the big plants with a single bud cluster of large buds saved for planting if you wish to produce giant asparagus. The large branching plants with several clusters of buds produce generally, smaller shoots and should be discarded. Experience shows that large one year old plants are easier to transplant and grow better than two year old roots of the same stock. To obtain the very highest producing roots the growing plants should be examined in the field and all those with dwarf bushy growth or twisted stems discarded as they will later continue to produce the same poor, unmarketable shoots.

Planting Asparagus Roots. Spring is the best time to plant in this part of Canada. The soil should be thoroughly prepared and a double furrow thrown out where the rows are to be planted. The crowns or roots should be set 18 to 24 inches apart in the rows and the rows 4 feet apart. On light warm soils the crowns or roots should be planted in a trench 6 to 8 inches deep, but fill in only 2 to 3 inches of soil at the time of planting. Then as they grow gradually level the soil off. In the colder clay loams the plants should not be set more than 4 to 5 inches deep as these soils do not warm up quickly in the spring and the crop is late. In any case do not cover the crowns or roots at planting time with more than 2 to 3 inches of soil as the full covering may smother the young shoots.

For the small home garden usually 60 to 80 plants set in one or two rows across the back of the garden will produce plenty of shoots for the table and afford a very pleasing hedge to hide a fence or some other part of the property.

Yearly Cultural Requirements. During the first season the plants will not require all the soil, and low growing, quick-maturing vegetables, such as early cabbage, lettuce, radishes and bush beans, may be planted between the rows of asparagus. The cultivation required for asparagus will be sufficient for the other crops and the returns from the intercrop will probably pay for the culture of both. Frequent shallow cultivations should be given throughout the season to keep down the weeds and conserve the soil moisture. Some hand hoeing may be necessary to keep the soil loose and to control the weeds between the asparagus plants in the row.

After the plantation is once established the soil should be plowed up over the rows in the fall to facilitate drainage and early drying in the spring. The soil should be thoroughly disced as early as it can be worked to warm up the soil and remove the surplus moisture. This may be repeated two or three times before the shoots are close enough to the surface to be injured. Then the cultivation will have to be confined to the space between the rows, and possibly some hand hoeing be necessary to keep down the weeds in the rows. Another system practised by successful growers is to straddle the row with a fine spade disc which cuts the weeds in the centre and throws a covering over the weeds in the row. The spudders or asparagus harvesters then remove, as they cut over the rows, any perennial weeds. This is a much better system than that practised by some of leaving all the weeds and then after the cutting is over about the 20th of June, discing the whole surface. Such a practice sacrifices a week's growth of shoots, which directly delays the top growth and the manufacture of a food supply for next season's shoots.



In this illustration of asparagus roots we have at the top a single large bud cluster, a No. 1. root. The centre one is a poor No. 2. And at the bottom we have the branching type of a bud cluster, which always results in small shoots. The top type of root is the one to choose.

During the second season some of the shoots may be cut, but it is better to wait until the third year before commencing to cut. At this time three to four weeks cutting may be made and then the following seasons will extend over a period of five to eight weeks. Generally the heaviest cutting period occurs in the latter part of May or the first two weeks of June.

Cutting and Marketing. Asparagus is usually cut with a chisel-like knife or spudder and when the growth is very rapid it is often necessary to cut twice a day but ordinarily once each day, early in the morning, is sufficient. Insert the knife close to the shoot and sever it with a diagonal downward thrust. It is not necessary to cut lower than one and a half inches below the surface of the soil, and care should be taken not to injure other shoots just below or coming through the surface. As the shoots are cut they should be placed with the tips all one way to facilitate bunching. It is much easier to grade and place them in the bunching machine if several can be taken up together. The shoots are then clamped in the bunching machine and tied 1½ inches from top and bottom with neat red tape or raffia. The butts are then sheared off with a strong knife and the clamp released. The bunches should be kept fresh and crisp by placing them butt end down in shallow trays of water.

Many growers are now putting up graded bunches, and all producers are recommended to try it if they are supplying or shipping to large markets. The shoots are sorted into three grades, fancy or extra, primes, and seconds. The fancy or extra grade consists of large straight shoots of good length; primes are smaller in size but may be just as long as the fancy grade; seconds consist of slightly deformed or shorter shoots. For a local trade it is an advantage to put up smaller bunches of asparagus to retail at five and ten cents.

The bunched asparagus should be packed for shipment as soon as possible after it is put up, as it looses its quality quickly. The local grower has a decided advantage over the long distance shipper in being able to meet the consumers demand for fresh well grown asparagus. The standard California crate is rapidly superseding all other shipping packages. The inside dimensions for the ordinary crate used for one dozen 8" bunches: height 10½" bottom 11 x 18½" top 9½" x 18½". These crates can be purchased from packing or box manufacturers. Where asparagus has to be held overnight it is a good plan to change the water in the pans in the morning and shave a thin slice off the butts, which removes the dead tissue, permitting the bunches to absorb fresh water.

Every grower should have his name or the name of his farm printed on the tape or have an attractive band fastened around each bunch. The crates should also carry a neat label with the variety and the grower's name to impress on the market the source of your high grade product and increase the demand for your asparagus.

Make Sure of Her first—The junior partner was interviewing a very pretty applicant for a job. In the course of the interview the senior partner came in, took one look at the girl, drew the other aside, and said, "I'd engage her, if I were you."

"I have," was the answer.

"Can she take shorthand?"

"I'll ask her later. We don't want any obstacles to crop up.'—*Ex.*

OUR YOUNG FOLKS

My Favourite Book

(First Prize Essay)

OF all the books I have ever read I like "The Girl of the Limberlost" best.

The reason why I like this book is because it is a good nature study book. There are many lessons to be read which are not found in books. As it says in the second reader "You may read many lessons there, from nature study very useful ones. which will help to remind you of what you ought to do."

It tells us how a poor girl wanted to be educated and her mother would'nt give her money to buy her clothes and pay for her schooling. So she had to catch bugs and sell them in order to get money to put her through school. Some kind neighbours of hers, who did'nt have any children of their own, took an interest in this poor girl who was trying so hard to educate herself and helped her out.

This book teaches us that you should'nt despise or look down upon any child although they are poorly dressed and shabby looking, when they are going to school and trying to do their best. The heroine of this book was not dressed as well as the others and they always made fun and passed remarks about her but still she continued to go on and paid no attention to the other scholar's remarks. She would generally come out at the head of her class.

I have read this book two or three times and I become more interested in it every time. It shows that people although poor may be just as good and clever as the wealthy ones. It is not the clothes that make the person.

This book is written by Gene Stratton Porter whom I consider to be a very good author.

ETHEL F. BARR, (Age 14)

Franklin Centre, Quebec.

(Second Prize Essay)

Black Beauty is my favourite book, written by Anna Sewell, I got a present of it for Christmas two years ago. My mother read it aloud the first time; then I read it over a number of times myself and never seem to tire of it.

I have a number of other books which I like. The Alger books and two others named Tom Sawyer, and Huckleberry Finn by Mark Twain, also another named Beautiful Joe.

But I always go back to Black Beauty. It tells all about his life from a colt to an old horse. About how he got into good homes, and bad ones, some masters treated him kindly, others cruelly, and every place he went he got another name. His last home was with some friends of his first master.

Joe Green was their groom, who was a stable boy in Black Beauty's first home. As soon as he saw the horse and looked him over, he know it was Black Beauty and gave him his old name.

My reasons for liking this book are :

It is written in such an interesting way.

Everything in it seems as if it might be true.

And Black Beauty is such a nice horse I can't help liking him.

ALLAN FISHER, (Age 12)

Barrington, Que.,

(Third Prize Essay)

Reading is one thing I do enjoy. I have read a number of books by good authors but I think my favourite is, "The Harvester", by Gene Stratton Porter.

There are a great many reasons why I like it. The Harvester was a very strong, healthy man and he was never idle. His mother had taught him to be kind to everybody and especially to animals and never to lose patience when things did not go just right. He owned a small lot which used to be part of the Limberlost and he had his log cabin built on the prettiest location he could find. On one side was a small lake called Loon Lake and on the other side was a little brook with a border of flowers. This was called singing water.

He loved the forest better than any other place. In the spring he would make syrup and sugar then he would harvest the herbs in the seasons. He had a dog whose name was Belshazzar. He was used the same as any human person and while the Harvester gathered herbs, bark, and different kinds of plants the dog would signal him if he came near a snake. He enjoyed going into the woods to pick out different kinds of plants and bark. He could almost see money in everything that he saw in the woods.

While I was reading, "The Harvester", I thought what a beautiful world it would be if all the lessons brought out in such a book would be put into practice. He was obedient, full of faith, and when he started anything he always made a success of it. Oh, that all the boys and girls could and would only follow his example, how much better it would be for so many of us.

NAOMI LIBBY, (Age 10 yr.)

Stanstead, Que.

(Fourth Prize Essay)

My favourite book is the Rosary and I think there is none like it. I have read quite a number of books and found none to equal it so far. I like a long, thrilling story full of incidents and miraculous endings. I think I could read all the time and not tire of it.

People who read can pass away long evenings and not get sleepy and cranky all the time.

Those who by the hand of fate find their station in life in remote places, if they like reading, their hardships can be greatly moderated by a few books for company, otherwise they would become moody and insubmissive.

Why I like it.

(1) Because it is a famous book by a famous person and affords good reading to one who likes reading.

(2) I consider it a good book with lots of thrilling incidents.

(3) Because it is a long story which every bookworm will appreciate and aught to read.

CHAS. A. W. PURSSELL,

Lake Megantic,

Co. Fron. (Age 15 years) Que.

(Fifth Prize Essay)

The book I like best is the Gorilla Hunters. I suppose why I like it is, that it tells all about hunting and I like to hunt.

It also tells and teaches you about the dangers of Africa, the negroes and the wild animals. It explains what a good shot you have to be and what a steady nerve you have to have to hunt big game.

—They tell you how strong the gorilla is as well as how dangerous it is to hunt it. The author explains the three men's characters fully.

In reading the book it is easy to see that it was founded on fact and not a novel. It tells also what an adventure was undertaken by these three men, what they did there, how they helped stop the slave-trade and how they helped fight against it.

I think every boy and girl should read to some extent, not to much because it is not good for children. They should play outdoors just as much.

GORDON SUTHERLAND,

Drummondville, Que. (Age 12 years).

Essay-Writing Competitions For Our Young Folks.

New Competition Each Month — Money Prizes Offered — Outline of Rules.

1. Each month a subject will be announced upon which rural pupils of fifteen years and under will be invited to write essays or compositions. These should be mailed to THE EDITOR, THE JOURNAL OF AGRICULTURE, MACDONALD COLLEGE, QUEBEC, before the fifteenth of the month for examination and judging.

2. Fives prizes will awarded each month: $3.00, $2.50, $2.00, $1.50 and $1. The prize winning essays will then be published on our Young Folks Page.

3. Essays should be accompanied by a letter from parent or guardian certifying as to child's age, and stating that the matter and work of composition embodied in the essay is work of child only... (Note: name and address of parent is always necessary for postal directions in case of prize winners.)

4. That our young folks may learn thrift, it is suggested that the money won in these competitions be used by them for starting bank accounts.

Subjects for next two months.

Essays to be mailed before March 15th., "The subject I like best at school."

Essays to be mailed before April 15th., "My Dog."

JUDGE'S REPORT

This month there were about thirty-five compositions sent in by the boys and girls and it has been an interesting but difficult task deciding on the prize winners.

In judging the compositions several points were considered, some of the more important being—clearness of description of the book chosen, reasons given for liking the book, choice of language, correctness of grammar and spelling, neatness and general appearance of essay.

Some of the competitors put too much effort into giving a summary of the book they liked and failed to provide enough convincing reasons for liking it. Others were careless in their spelling and punctuation while many failed to write neatly and also crowded their essays into too small a space.

Boys and girls should remember that very often they would run a much better chance of winning a prize if they would give more attention to some of these points. If two essays are nearly equal in merit, the one with neat writing, correct spelling, and good grammar must get a place over the careless one.

I have only given you this advice because I want to help you do better work next time. Several compositions might have won a prize if more attention had been paid to the points above mentioned.

I was glad to notice that the boys and girls seem to read good books by well known authors. Black Beauty seems very popular while many are great admirers of the works of Gene Stratton Porter.

Although none of the pupils from Kingsley school No. 18 received a prize this time I would like to congratulate them all upon the general neatness of their compositions and hope they will be among the prize winners in the next competition.

So many and various were the titles of favorite books that it has been found impossible to classify those letters not receiving prizes this time. So we are just making a list, higgelty-piggelty, as they lay, of the names of the other contestants and the titles of their favorite books, as follow :

Contestant	*Favourite Book*
Ormond W. Lowery	"The Erie Train Boy".
Florence B. Bishop	"Laddie".
Rose Stender	"A Girl Scout's Triumph".
Leslie Bates	"The Sky Pilot In No Man's Land".
Lillian E. Barr	"Around the Corner in Gay Street".
Enna Willett	"A Bunch of Cherries".
Evelyn Taylor	"Pollyanna".
Muriel Parkhill	"Alice Benson's Trials".
Francis Cotnam	"Tales From Shakespeare".
Ileana Lowry	"Rebecca of Sunnybrook Farm".
Lawrence Drew	"Robinson Crusoe".
Philip A. Drew	"Tales of Round Table".
Allan Graham	"Boy Knight".
Mary Cullen	"Palace Beautiful".
Marjorie Merrill	"Elsie Dinsmore".
Marion Jones	"The Bible".
Theron Bennett	"Deeds of Pluck and Daring".
Ruth Shuttleworth	"Daddy Long Legs".
Reta B. Martin	"Dick and Dolly".
Edmund Fisher	"Bedtime Stories".
Hazen A. Lowery	"Luke Walton".
Reginald C. Cooper	"Rolp in the Woods".
Theo. Jennings	"Black Beauty".
Irene B. Angalls	"The Bible".
Doris E. Waite	"Black Beauty".
Edna Martin	"Dick and Dolly".
Leila Ladd	"The Bible".
Audrie Demers	"Elsie Dinsmore".
Alex. Gilbert	"Jesse James' Battle for Freedom".

In closing I may say that I have tried very faithfully to give every essay careful consideration and have read most of them two or three times. I expect you found it hard to write on this subject and I can assure you that I found it difficult to judge your essays. I hope next month you will all try again and that everybody will try to follow the advice I have offered you.

J. E. McOUAT

Farmer—"Now come along, and I'll teach you to milk a cow."

Cockney Hand—"Seein' I'm so new to it, Mister, hadn't I better learn on the calf?—London Opinion.

Woman's World

Woman as a Consumer

Article No. 2 by Jeanette Babb, Household Science Dept., Macdonald College.

IN last month's article we tried to show you how to become a better consumer by offering some general suggestions. Let us look now more in detail at the channels through which we buy.

The first and best method of buying wherever possible is direct *from the producer*. This may be done by going direct to the producer's home, by dealing with him at the open market, by parcel post, express service, through neighborhood marketing clubs, through women's organization or by co-operation of groups of families. We can buy in this way either in small or large quantities. But to buy in large quantities one must consider storage facilties and the season of the year.

There are many advantages in this method. We get cheaper as well as fresher goods. There are no middleman's profits to pay. The producer also can get a better price for his goods and will be encouraged to produce what is demanded by the consumer. The rural mail and parcel post as well as the express service both by steam and electric lines have done much to bring the producer and the consumer into closer contact. Let us do all we can to encourage and develop this method. The farmer and his wife have not yet begun to realize the great possibilities which are open to them in this field.

In buying from the *retail merchant* there is also a great deal to be learned if we wish to become efficient buyers. In this case we have to allow for the middleman's profits. On the other hand we have the advantage of seeing what we are getting as well as the great convernience of being able to do our buying near at hand.

Here too we can have, if we seek it, a much more intelligent co-operation, which would be of mutual benefit to the merchant and the buyer. We can buy in quantities from the retail merchant by forming a group of several families, buying the larger quantity at a reduced price and thus obtaining for all the benefit of the lower price. An example of this would be in buying canned goods by the case, soap by the case, oranges by the case or half-case. This can be applied in buying many other staples in the household. This is an advantage to the merchant as he will buy only what will meet the demands of his customers thereby having less waste because of more frequent turnover of his stocks. There is less handling of good, and in making cash sales for large quantities the merchant can afford to give a very good price for many articles.

The mail order service is also an excellent channel and fills a great need. It too must not be abused. If using it, let us meet the firm's requirements by using their order blanks and carefully filling in order numbers, pages, etc., in every detail. If one has to use note paper use the same business like method in making out the order. Remember if errors are made in our orders and they are not filled to suit us we have the privilege of returning the goods, in most cases at the firm's expense. However, few of us realize what a tremendous amount of work is placed upon the Mail Order Department before that correction can be made. When the goods are returned they must pass through many hands before they can be returned into stock and the new order filled. The number of people concerned must be paid for their time by the emp'oyer and you as well as every other consumer (although their orders may be correct) must help pay for the error. This service may be abused by our inability to compare quality with price. The catalogues too frequently appeal to our wants rather than our needs.

Personal buying is best of all, because here we see what we are getting; we can frequently substitute something even better than what we had in mind in planning our original purchase. The source of supplies is seen and we can agitate for and demand better sanitary conditions and do our share in helping to better trade conditions. We frequently get better quality as well as the correct quantity. Greater variety may be offered. It is more thrifty as we have the advantage of comparison with quality and quantity as priced elsewhere. We also become acquainted with the merchant and gain more experience in wise buying. If at any time, owing to illness or any other cause we are unable to go ourselves and have to send a substitute we get just as excellent service because he knows what would suit from previous personal contact. Then and only then should we use the telephone for making our purchases.

We must not forget the ethics of shopping. Too frequently this is overlooked. Be considerate in your demands for service, always kind and courteous and you will usually receive this treatment from those who serve you. One case may be cited where a clerk one morning, tried twenty-five different dresses on a woman who after all the service rendered walked out of the store without as much as thanking her for patience and courtesy. Let us remember that clerks are human and that their ability is frequently judged by the number of sales they make in a day.

"Do unto others as ye would they should do unto you" can be put into practice in shopping. Avoid shopping at the luncheon hour, closing hour, or on Saturday afternoon if possible. Do not ask for repeated deliveries, carry small parcels or make one order do. Require no unnecessary time from clerks. Insist upon the weight and quality for which you are paying but do not be impossible and do not ask for favors. Do not misuse the C. O. D. plan but have the courage of your convictions, if you do not want the article thank the clerk and tell her you are sorry but it does not just suit you.

(To be continued)

SUPPER DISHES

May Chute Maw

"WHAT shall we have for supper?" This is the question asked by many housewives who have little or no trouble in planning breakfast and dinner menus. "Left overs" usually cause this problem,—they must be used, but how? Not all have the happy gift of making attractive and appetizing dishes, and especially from "left-overs". The first thing necessary is a vivid imagination plus the ability to form mental pictures; —then, even the despised hash can be made a most tempting dish. (Make hash as usual, season carefully, allow it to brown on the bottom, fold as an omelet, turn onto platter and garnish).

The correct use of "seasoning" is a most important point in all cookery. It has been said that the ability to use seasonings is an art that few people on this side of the Atlantic try to cultivate. Time and thought must be given to their use if correct flavors are to be obtained.

The following outline for supper dishes may prove helpful.—

1—Cream soups—Fresh Vegetable
—Canned Vegetable

Press cooked vegetables through a strainer, season. Make a sauce using from ½ to 2 tablespoons of flour to each cup of liquid, (milk, water in which vegetables were cooked, or a combination): Combine. The soup should be about the consistency of cream. (If tomatoes are used soda must be added in the correct proportion to neutralize the acid, otherwise when combined with sauce the soup will curdle).

2. Creamed vegetables, or fish, or meat on toast.

Cook vegetables, or fish, or meat. Cut vegetables and meat in cubes and flake fish; season. Make a sauce, using two tablespoons of flour to each cup of liquid. Combine, using equal parts of vegetables, etc., and sauce or ¾ vegetables to 1 of sauce. Serve on toast.

3. Chowders. Vegetable, as corn,
Fish, as cod fish.

Melt fat, (pork bacon, etc.), add a small amount of water, sliced onions, potatoes, sliced or cubed, and vegetable of fish (cut in about 2 inch pieces). Cook until tender, season, add milk.

4. Croquettes—Meat, fish, vegetables or a combination.

Chop meat and vegetables and flake fish, season. Make a sauce using 4 tablespoons of flour to each cup of liquid. Add to meat, etc; cool, shape, roll in crumbs, in egg and in crumbs. Fry in deep fat.

5 Dried Vegetables—Soup, as split pea
—Baked, as Baked beans or whole peas.

Soup—wash and soak vegetables over night. Drain, add cold water, sliced onion and fat (sliced bacon, fat pork or a ham bone). Simmer until vegetables are soft, rub through a sieve, season and serve.

Baked—Wash and soak vegetables over night. Drain cover with cold water and simmer until skins will burst. Drain and place in a bean crock or casserole with fat pork and seasoning (molasses, mustard, salt, pepper, etc.); cover with water. Bake slowly for several hours.

6. Eggs—Poached, Creamed, Soft Cooked, Omelet (plain or with creamed vegetables, chopped ham, tomato sauce, etc.), etc.

Eggs must be cooked below boiling point if the best texture and flavor are to be obtained.

7. Fish—Fresh, Canned or fried.

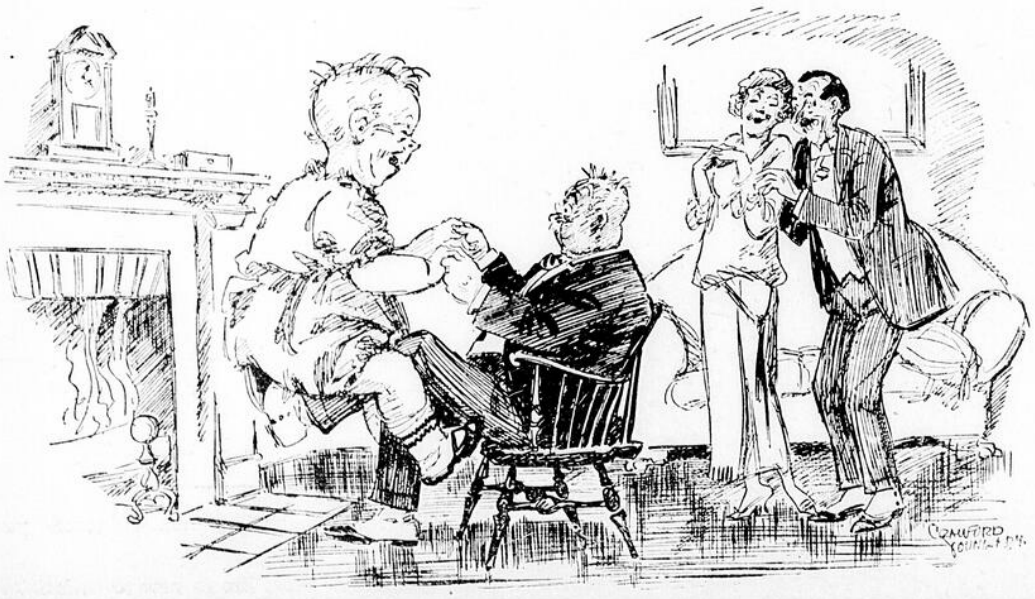
8. Macaroni, spaghetti, etc.—with cheese sauce
with tomato sauce.

Break macaroni in inch pieces; cook in a large amount of boiling salted water; when tender, pour into a colander and run cold water through. Make a sauce using 2 tablespoons of flour to each cup of liquid (milk, tomato juice, etc.); when cooked add cheese and stir until cheese is melted. Add macaroni, turn into buttered baking dish, cover with crumbs, and bake until brown in a hot oven.

9. Meat—chops, steaks, bacon, etc.
Cold meat, sliced.
Sweetsbreads, liver, kidneys,
tongue, heart or tripe.

10. Salads—Meat, fish, egg, vegetable or a combination.

The following essentials should be observed in salad making—a. Salad ingredients carefully prepared and cut,—vegetables, fruit and meat cut in cubes; fish flaked.



How the baby looks to you after about fifteen minutes of this.—(Judge).

Investigational Cookery

School of Household Science, Macdonald College. — Experiments with Marmalade.

Experiments were carried out to determine the preferable method of making marmalade; the "one day" method and the "three day" method were used. The texture, flavor, and cost were the determining factors.

Recipe—1 grape fruit
2/3 lemon

One Day Method

1. Weigh fruit
2. Wash and cut fruit in quarters.
3. Slice rind and pulp very thin, remove seeds.
4. To each 1 pound of fruit add 6 cups cold water.
5. Cook SLOWLY, uncovered, until rind is tender.
6. Cool and weigh.
7. To each 1 pound of fruit and juice add 1 pound sugar.
8. Cook SLOWLY until rind is clear and syrup will jell (220 to 228 F.)
9. Pour into jars, cook and seal with paro-wax.

Three Day Method

1. to 4. As in one day method.
4. Let stand 24 hours.
6. Cook SLOWLY, uncovered, until rind is tender.
7. Let stand 24 hours.
8. Weigh, and to each 1 pound of fruit and juice add 1 pound sugar.
9. Cook slowly, until rind is clear and syrup will jell.
10. Pour into jars, cool and seal with paro-wax.

Results — The "one day" method gave the best flavor, texture and the largest amount of marmalade.

b. Greens *crisp*. Wash carefully, put in cold water until cut, drain, wrap in a damp towel or plate in a covered container, and put in a cold place.

c. Ingredients in dressing carefully proportioned and blended.

d. The whole salad well mixed. Marinate, (mix with a French dressing or seasoned vinegar), fish, meat and solid vegetables one half hour before serving; fruits and crisp vegetables only five minutes before serving.

e. Artistically garnished.

f. Served *cold*.

11. Scallops—Meat, fish egg, vegetable or a combination.

Cook meat, fish, eggs or vegetables. Cut meat and vegetables in cubes, eggs in slices and flake fish. Season. Make a sauce using 2 tablespoons of flour to each cup of liquid (vegetable juice, milk, etc.). Combine, using from ¾ to 1 of solid ingredients to sauce.

12. Sandwiches—Often served alone or with the salad course.

a. Bread—Select loaf of good size and shape and at least 24 hours old. Brown, white, nut or any fancy may be used.

b. Butter — Fresh, of good flavor, and creamed until of consistency to spread easily.

c. Filling—Carefully prepared, *seasoned*, and of consistency to spread.

All dishes must be *carefully seasoned*, especially "left overs" as they have lost some of their own flavor in the first cooking.

Short Course at Lennoxville

JANUARY 8th, 9th and 10th were the dates of a Short Course in Agriculture for men and boys held in Lennoxville. This course proved a great success; boys were present from eight counties.

At the same time a course in Millinery conducted by Miss Roach, Supt. of W. I's., and her assistant, Miss Poole, was held for the girls. This class met in the Lennoxville W. I. room where members of the branch were always present and ready to lend assistance. Never has a brighter group of girls meet to receive instruction in Lennoxville ! — harmony prevailed throughout.

The girls were asked to bring becoming hat shapes, and materials to cover same; the trimmings in almost every case, were made by the girls. The work of the girls under the able instruction of Miss Roach and Miss Poole was a source of surprise and satisfaction to parents and friends who constantly visited the work room, and the result was a number of hats of pleasing style and design.

Lunch was served in the hall to all who took part in the Short Course, the first two days by the Lennoxville Women's Institute, and the third day by the Ascot Branch.

On Thursday the Women's Institutes held competitions in apple jelly, orange marmalade, bread, rolls, cake, doughnuts and various lines of sewing, knitting, etc.; and the girls in cake, bread, sewing, etc. A competition in judging bread and cake was held for the girls. These competitions were open to W. I. members and their daughters, and to wives and daughters of farmers taking part in the Short Course. The entries in all classes were numerous and the competition keen; the prizes generous enough to be gratifying to the winners. The entire event was financed by the Women's Institutes of the county.

On the evening of the third and last day a turkey banquet was provided by the Lennoxville branch at which about two hundred were present, and did full justice to the repast.

Elmside W. I's Tenth Anniversary Meeting

THE Elmside Women's Institute celebrated their tenth Anniversary by holding a banquet at the home of Mr. and Mrs. A. E. Wilson on the evening of December 12th.

The dining-room was prettily decorated for the occasion, the letters "E. W. I." were suspended from the archway and streamers of different colors from each corner of the room. The dining table was most attractive. A birthday cake decorated with ten lighted candles adorned the centerpiece.

The Programme was carried out as follows :

TOASTS

Our King

God Save our King

Mrs. W. D. Campbell

Our Country

The Maple Leaf

Mrs. Andrew Roy — Miss J. Armstrong

Our Institute

Our Club Will Shine Tonight

Mr. W. C. Young — Mrs. H. Ross

Our Men

There's Nae Luck about the Hoose
(How do you do Mr. Wilson)

Mr. A. E. Wilson

Our Women

He's a braw lad in Coxhill
(I love a lassie)

Mr. Geo. Coxhill — Mrs. J. C. Jamieson

Song-Round—Row, row, row your boat

Reading—"The Ten Commandments for Women" by Sandy Fraser

Song—It isn't any trouble just to S. M. I. L. E.

Reading—"The Ten commandments for Men" by Sandy Fraser

Song—"Are you Sleeping Brother John ?"

If You Want a Full Egg Basket—

Feed all scratch grain in deep litter, summer and winter. Keep the hens busy.

Keep a good dry mash in open hoppers every day in the year.

Always provide animal protein in some form, either milk to drink or meat scrap or tankage mixed in the mash. Many flocks that are fed grains freely are starved for animal feeds.

Provide succulent feed if the hens are not on green range.

Never use musty or moldy grain.

Change wet litter at once. There is danger in damp, moldy litter.

Begin gradually any changes in the ration or the method of feeding.

Watch the appetites of the fowls so that you will know how much to feed them.

Give light feedings of scratch grain in the morning to encourage mash consumption.

Supply fresh water at least once daily; from the hen's standpoint the oftener the better.

Keep oyster shell and grit where the hens can always get them.

Feed the flock regularly. Hens will soon learn to expect the feeder at a certain time each day.

One writer has summed up good feeding practice by saying, "Feed wholesome food; feed liberally; feed regularly; feed a variety. After that, the only secret in feeding is to feed 'activity' into the hen."

The Quiet Life

Happy the man, whose wish and care
A few paternal acres bound,
Content to breathe his native air
In his own ground.

Whose herds with milk, whose fields with bread,
Whose flocks supply him with attire;
Whose trees in summer yield him shade,
In winter, fire.

Blest, who can unconcern'dly find
Hours, days, and years, slide soft away
In health of body, peace of mind,
Quiet by day.

Sound sleep by night; study and ease
Together mix'd; sweet recreation,
And innocence, which most does please
With meditation.

Thus let me live, unseen, unknown;
Thus unlamented let me die;
Steal from the world, and not a stone
Till where I lie.

A. Pope

The programme closed by singing the "Southern Medley" and the Institute Yell.

Fe, fo, fi, fe, fo, fi
We are the Women of the E. W. I.
We can clean and we can sew
We can spend our husband's dough
We can sing and make good pie
We are the women of the E. W. I.

Report of the Quebec Women's Institutes

AN unusually large number of branch institutes have reported this month, and all tell of splendid accomplishments and a live interest in the work for "Home and Country".

ARGENTEUIL COUNTY

Argenteuil answered the roll call with "current events" in the Province of Quebec. The members are knitting squares for an afghan which will be disposed of as a moans of adding to their funds.

Jerusalem-Bethany, *Lakefield* and *Upper Lachute* are each making a quilt as a means of raising money for their needs. Roll call was answered by "a quotation from your favourite author" and "your favourite past time". Jerusalem-Bethany is planning to hold a concert and Lakefield a Valentine social. *Upper Lachute* had a demonstration in making the simpler varieties of candy.

BONAVENTURE COUNTY

Only two of the four branches in this county have reported. *Port Daniel* records one new member. The questionnaire sent out recently by the Superintendent, Miss Roach, was discussed and marked as requested. A demonstration was given by one of the members on candy and dessert making. One new member joined. *Cross Point* sent flowers to the sick, and are helping a poor family by sending money, clothing, etc. This branch arranged a most successful Christmas tree when one hundred and thirty-six children received gifts and candy. A card party is being planned. Two new members joined.

The following incident shows that the work of the Quebec Women's Institutes is not confined to their own province, but reaches out to help where necessary. Cross Point received a letter from a woman in Saskatchewan offering a silk quilt for sale. She needed the money to redeem her home. The quilt was bought, the money forwarded and the home saved. Now the members are looking for a way to dispose of their purchase.

BROME COUNTY

Foster has placed a phonograph in each of two schools. The girls' sewing class is still being carried on by the members, and is proving a source of great interest and profit to those taking advantage of it. Christmas boxes were sent to the sick and shut-ins, and a community social evening held on January 11th which was a great success. One new member joined. *South Bolton* is planning a post card shower for a sick neighbour. McNeil's Crossing,— the members are working in preparation for a sale of work to be held later. *Sutton Juniors* make their bow to the publicity department for the first time. We welcome them heartily. Two new members were

enrolled. Already they are planning to buy material and begin sewing for the school fair in September. No report from *Highwater* or *Mansonville*.

CHATEAUGUAY COUNTY

The two branches—*Howick and Aubrey-Riverfield* held a joint meeting and were treated to an instructive address by Mrs. John Scott of Montreal. At this meeting, Mrs. Jas. McKell, who has held the office of Secretary-Treasurer of Howick Institute since its organization in 1911, was presented with a life membership certificate and pin in recognition of her faithful services. Two new members joined the *Aubrey-Riverfield* branch.

COMPTON COUNTY

East Clifton held an interesting meeting when plans for entertaining the county convention were discussed. Flowers have been sent to the sick. *Sawyerville* had a paper by one of the members entitled. "Young Girl's Possibilities are Boundless." One new member was enrolled. A circulating library is being formed among the members. This branch is donating generous money prizes to successful pupils in their school. *Brookbury* institute is making rapid progress in clearing off the debt on their community hall. The generous gift of fifty dollars from Mr. A. B. Hunt, M. P., was gratefully received. A gift of money has been sent to the Childrens' Memorial Hospital in Montreal, and fruits, nuts and candy were furnished for the community Christmas tree. *Bury*—A paper was read on the "Early History of Bury". Hot cocoa is being served to the school children. A sale of work was held which netted $34.50. No reports from Cookshire, Milan, Canterbury and Canterbury Juniors.

DRUMMOND COUNTY

Union—Letters of sympathy have been sent to the family of members who have suffered sad bereavement. Six new books are being added to the library.

SUN LIFE ASSURANCE COMPANY OF CANADA

HEAD OFFICE - - MONTREAL

The Record of a Great Year Simply Told

AT DECEMBER 31st, 1923

The Company had **assets**, invested in the best classes of securities, of ..... (An increase for the year of $35,168,000)	**$209,257,000**
The **total liability** of the Company (including reserves and other liabilities to policyholders of $185,586,000) amounted to	**$187,885,000**
The Company has **set aside** for unforeseen contingencies the sum of	**$3,500,000**
Leaving a **surplus** over all liabilities and contingency funds of (An increase for the year of $3,603,000)	**$17,872,000**
The **cash income** for the year, from premiums, interest, rents, etc., was ..... (An increase for the year of $10,714,000)	**$46,965,000**
Total **payments to policy holders or their representatives** for death claims, maturing policies and other benefits, in 1923 amounted to	**$22,145,000**
New **paid assurances issued** during the year totalled ... (An increase for the year of $16,593,000)	**$107,391,000**
The Company had **assurances in force** (net) amounting to . (An increase for the year of $72,360,000)	**$703,765,000**

The 318,443 ordinary policies of the Company protect homes and businesses at home and abroad, while in addition 22,731 commercial and industrial employees are protected under Sun Life group assurance policies

Dividends to policyholders again materially increased

Every figure in this statement sets a

NEW HIGH RECORD

in Canadian Life Insurance history

HUNTINGDON COUNTY

Dundee "Egg production in Winter" was the subject of a paper read. Community parties are to be held in the hall. Lamps for the hall are being purchased. *Huntingdon* is a newly organized branch which begins work with a large membership. The Superintendent, Miss Roach was present at the January meeting, and gave much useful information and many helpful suggestions. Four new members joined. *Hemmingford,* another institute, is starting out with bright prospects and much enthusiasm. At the January meeting five new members joined.

MEGANTIC COUNTY

Inverness dealt with important matters (business) and planned a valentine social. *Leeds Village* is holding a sugar social. A paper war read on "History of Quebec". No reports from Lemesurier and Crawfordville.

MISSISQUOI COUNTY

Dunham is making quilts for the Girls' Industrial School at Sweetsburg. *Noyan* is planning an oyster supper. Five dollars was voted to the Macfarlane Scholarship. The Christmas tree in which three schools joined, was a great success. The proceeds $35 was donated to the Childrens' Memorial Hospital, Montreal.

Stanbridge East.—One of the members demonstrated making paper flowers. Methods are being used to raise money to pay for the new hall. At *Cowansville the* roll call formed a programme in itself. Each member responded by showing the picture of a Canadian Scene, and giving some description of it.

OTTAWA COUNTY

Alcove—Roll call was responded to by suggestions on making coffee. Music and recitation formed the programme. *Wakefield* held a social evening instead of the regular meeting. *West Templeton* — Fifty were present. Roll Call was responded to with selections from Burns. Community singing and games filled a social hour. No reports were received from Eardly and Breckenridge.

PONTIAC COUNTY

Radford Junior Institute is planning for their annual social gathering. We are sure to hear more from these girls. *Starks Corner* enrolled three new members. Roll call was responded to with seasonable hints. A paper on "Rest" was read. *Shawville* is organizing a membership campaign, and each member is expected to bring a new member. The annual social evening was held, the programme consisting of community singing, vocal and instrumental solos. *Elmside* reports the donation of $10 in gold to their school fair secretary as an appreciation of her services. A discussion was held on "Do we get enough pleasure out of life", and the roll call was responded to with new year resolutions. At *Wyman,* Miss Abbie Pritchard, County Secretary, was presented with a life membership from the county. *Fort Coulonge* reports holding a bean supper, proceeds amounting to $36. The January meeting took the form of a social gathering with vocal and instrumental music, etc. *Murrells* is planning a box social to be held in the near future. Music contributed to the pleasure of their January meeting.

RICHMOND COUNTY

Upper Melbourne is a new branch which is taking up the work for "Home and Country". They enrolled three new members at their January meeting. *Dennison's Mills,* also a new institute, held an oyster supper at St. Felix de Kingsey, January 18th., which proved a great success.

SHERBROOKE COUNTY

Orford sent letters of sympathy to their President who was in the hospital. Arrangements were discussed for holding a social evening. *Ascot Juniors* — a reading entitled "Culture by Conversation" was given. $10 was voted towards the building of a platform in the assembly room of the consolidated school. *Belvidere* sent flowers and fruit to sick members. An entertainment is being planned as a means of raising funds. *Ascot* sent a box of toys to the Childrens' ward at the Sherbrooke Hospital. Five dollars was donated to aid the Christmas tree and $28.34 for improvements in the school. This branch served lunch one day during the Short Course. *Montreal Road* money was voted to several objects and a profitable meeting held. *Lennoxville* held a busy session making plans for the short course which was held January 9, 10, and 11. A report of this event, and the part the Women's Institutes of Sherbrooke County took in it, has already been published. Each of the six branches bore their share of the financing of the institute's part, and Lennoxville arranged the banquet at the close of the Short Course.

SHEFFORD COUNTY

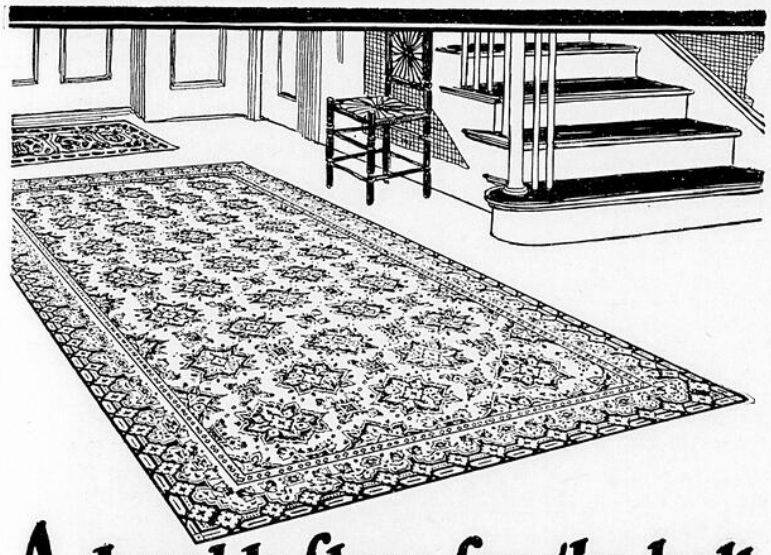
Shefford Mountain reports a most interesting meeting held at Granby Hill with prospects of organizing there. A sewing contest was held and a prize given for the best piece of work. One new member joined.

STANSTEAD COUNTY

Beebe Juniors are expecting a visit from Miss Poole, Demonstrator from Macdonald College. One new member joined. *North Hatley;* the meeting was along social service lines. A paper was read and a report of social service work done by this branch. *Way's Mills* held a bean dinner, and are planning other activities to secure money for the purpose of aiding the base ball club to procure their uniforms. *Tombifobia*—through the efforts of the convenor of Social Service has secured medical inspection for their school, and follow-up work is being carried on. *Hatley* is planning to have an old fashioned dance in the near future. One new member joined. *Ayer's Cliff* had a paper on the "Sunny Side of Life". This branch is having medical inspection in their school, the expense to be borne by the Institute. An old fashioned singing school is being held.

MRS. W. S. ARMITAGE,

Convenor, Publicity Committee, Quebec Women's Institutes.



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Finishing Hens and Broilers

DISPOSE of all hens that are not to be kept over for breeders just as soon as they stop laying. If this plan is fallowed the marketing will be extended over a considerable period. If you can get them all marketed before broilers become plentiful you are certain to obtain much better prices than if you market them later in the season.

After hens have been laying heavily they are likely to be thin in flesh and should not be marketed until put into good condition again. Even hens that have been loafing and are consequently fat are not in as good condition for killing as they should be. Ten days feeding in the crates will make a great difference in these birds, as the crate feeding and the inactivity softens the muscles and makes the fowl much more tender and juicy.

BROILERS

Many poultry growers do not consider that special feeding of broilers is necessary. They think that because the chickens are young that they will be tender and consequently they take them from the range and market them as they are. Such methods tend to retard the demand for poultry meats. A consumer who gets a broiler that is hard and stringy is not inclined to order another, but if he gets a broiler that has been properly fed in confinement for from ten days to two weeks the quality will be such that he will want more. To properly finish either fowls or broilers they should be crate fed. Nothing but soft feed should be used and to get the finish quality it is necessary to mix the mash with sour milk, in the proportion of about three pounds of milk to two pounds of grain. A mixture of equal parts of finely ground oats and corn-meal is one of the best feeds but other grains may be used if lower in price or more easily obtained.

A little salt added to the feed will make it more palatable and the fowl will eat more. Do not overfeed for the first day or two, as the birds will go off their feed and will loose weight instead of putting it on.

Only by marketing poultry of the highest quality, will an increased demand be created.

GEORGE ROBERTSON, Central
Experimental Farm, Ottawa.

The Storage of Fruit and Vegetables

THE storage of fruit and vegetables for home and market must receive greater attention than it has hitherto been accorded. The amount of waste annually is very great. As a first step towards eliminating this, every farmer or household with sufficient land to grow vegetables, and perhaps fruit trees, should understand more about storing the crop. Some crops keep in an atmosphere that has a high moisture content, whereas others require a low percentage of humidity. So it will be seen that there cannot be a condition to suit all vegetables and fruits in the same cellar or storage building. Apples, pears, potatoes, carrots, cabbage, soon deteriorate in very dry storage; while on other hand winter squash, pumpkins, marrows and other such crops like a dry atmosphere. Moulds and rots soon destroy them.

If you know your cellar is a very dry one and you wish to keep apples, etc., in it make provision for adding more moisture to the air by introducing wet sacks spread out or by sprinkling the floor, the idea being that a large surface must be wet and evaporation quick The atmospheric humidity can be tested with a wet and dry bulb thermometer. Take the readings and check up on the chart which is supplied with it. A humidity ranging from 75 to 85 is satisfactory.

In case of squash and pumpkins, etc., any frost proof place which is dry is suitable— the top shelf of the pantry for instance, or shelves in the passage. Quality is often lowered by poor ventilation. Where crops are stored in large quantities ventilators should be open as much as possible to carry off grass, and heat coming from a large bulk of any crop. When severe weather occurs close up the ventilators. Do not store a large volume of any crop while it is warm from the field unless you know that you can reduce the heat by proper ventilation More attention must be paid to this when commercial storage is being done in the fall and our growers must help when asked to do so.

R. H. HELMER,
Exp. Sta. Summerland, B.C.

What Are the Facts?

SINCE the deflation following the war, farm machine prices have been uppermost in the minds of manufacturer, agent and farmer. We know that the farmers have suffered severely. Many have said they can't buy or won't buy new farm machines and implements. To clear up this situation we are publishing the facts about farm machine prices. These facts prove that farm machine prices are actually low in comparison with other articles the farmer buys.

Here Is the Truth About a Few Much-Discussed Points

How about the price ?

The price of any commodity is high or low by comparison. The farmer believes the things he buys are high because some of the things he sells are low. It is but natural for him to complain about the price of implements which he needs in the operation of his farm, rather than about the many other commodities he purchases with the money earned by his farm machines.

If the average-size binder that harvests the crop was priced on a pound for pound basis, at Hamilton, with the average steel range, it wou'd cost a farmer $325—and that would not take into account the complexity of the binder and the service that goes with it. If it were priced like the world's cheapest car, the binder would cost the farmer $560. A 5-foot mower at lawn mower prices would cost $185. The field cultivator, priced pound for pound with the forge, would cost $127.

Farm implement manufacturers have suffered severely from losses during the past three years.

These government fgures show this. *The value of the implement manufacturer's production in 1922 was two-thirds less than in 1920, while the farmer's net revenue from all farm products in the year 1922 was only one-third less than in the year 1920.*

The present price of implement company stocks indicates the extent of the losses. If a man had purchased in August, 1919, one share of stock in some instances common, in others preferred, in each of the eleven leading companies doing business in Canada, the cost would have been $1,000. In the open market today these same stocks are worth only $400—a decline of sixty per cent in four years. This shows the losses which implement manufacturers have suffered with the farmer. It can never be otherwise—farming and farm machine building are inseparably linked — both prosper together — both suffer together.

Only a small part of the farmer's income goes to pay for his equipment.

Less than 4 cents of every dollar of the estimated net revenue from Canadian farm products in the year 1922 went to the farm implement industry. Even these few cents the industry did not keep. *Approximately 80 per cent of all money received by the manufacturer from the farmer for farm machines was paid to labor*—not to workers in the implement factories alone, but in the steel mills, the mines, the forests, and in the railroads. These workers and their families return much of this money to the farmer for his products.

Implement prices are not high.

Implement prices are low compared with prices asked for other commodities the farmer buys; low compared with the increased cost of materials and labor entering into them; and low considering the amount of money they save a farmer today as compared with pre-war days.

Oak lumber is twice as high as it was in 1914, pole stock is 2¼ times as high, pine crating 1¾ times as high, steel bars, soft center plow steel and cold rolled steel twice as high, pig iron 1¾ times, coke 2 1/5 times, cotton duck 2 1/5 times as high. *In addition, the very important item of labor has more than doubled since 1914.*

Over and above these increases, a considerable increase in freight rates has had to be added to the price the farmer pays, not only on the finished product that the agent delivers to him, but on the coal, the ore, the limestone, steel, lumber, etc., that enter into the finished machine.

The farmer cannot afford to put off buying necessary equipment.

As market conditions narrow the spread between selling price and producing cost, it becomes more essential than ever to save every cent possible in production expense. This, farm machines will do. *New and better implements will produce enough extra bushels, at a decided lower labor cost, not only to pay for their purchase but to turn loss into profit.* The farmer cannot afford *not* to buy, especially when you consider, in addition to the above, the all-important fact to the scarcity and high prices of labor.

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YOU know the comfortable feeling you have when the kindly old family physician steps into the sick-room.

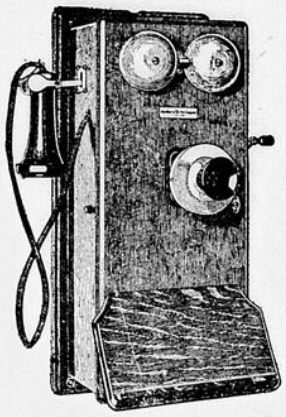
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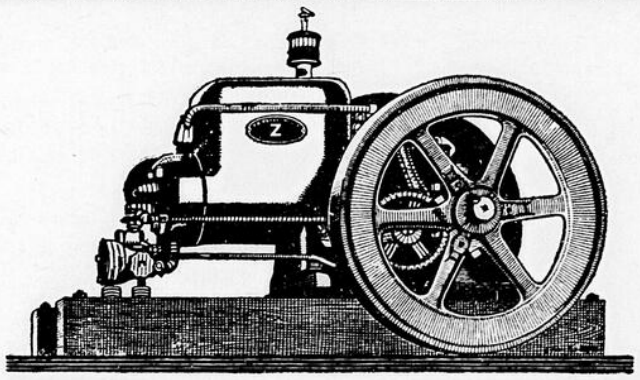
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Shorthorns and Herefords

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AYRSHIRE, Chester White, Yorkshire, registered stock, all ages. Five registered litters of young selected pigs farrowed in March, April. Moderate prices. GEORGES E. MORIN, St. Hyacinthe, R.R. No. 2.

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ONE 2-years old Ayrshire bull, 2 one-year old, few spring calves, all registered Ayrshires; few litters of Yorkshires and Chester White young pigs, farrowed in February and March at moderate prices. Apply to ADELARD MORIN, Auctioneer, St. Hyacinthe, Que.

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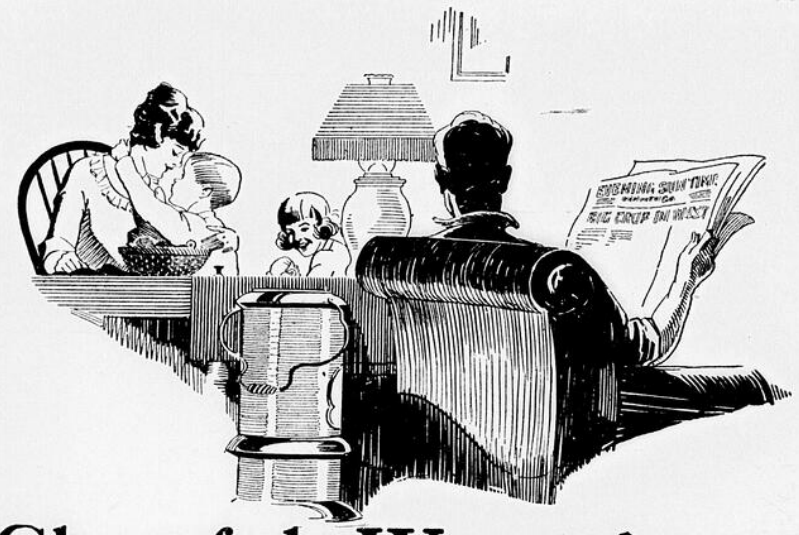
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