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MISSING

THE O. A. C. REVIEW

"THE PROFESSION WHICH I HAVE EMBRACED REQUIRES A KNOWLEDGE OF EVERYTHING."

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Finished Beef Cattle

BY PROF. G. E. DAY

IN normal times it is counted good business to give our beef cattle a good degree of finish before sending them to market. The higher price obtained for well-finished cattle has usually been profitable to the feeder.

At the present time, however, we are facing decidedly abnormal conditions. Statistics indicate that the world is facing a heavy shortage of wheat. If these statistics are correct it looks as though it might be necessary to use grains heretofore employed almost exclusively for the feeding of animals, to help out the supply of wheat. As a matter of fact, investigations are in progress to determine the extent to which wheat flour may be adulterated with the flour of other cereals and still retain its palatability for human consumption.

If it becomes necessary, therefore, to utilize the coarser cereals for human food it must mean a shortening up of concentrates for fattening animals, and the question arises whether under present prospects we should not make a special effort to use the smallest possible amount of concentrates, and utilize to the fullest extent bulky fodders in the fattening of our cattle.

Some years ago the Ontario Agricultural College secured a gain in weight of 2,180 lbs. in the case of fattening steers, from the use of 2,187 lbs. of ground barley and 729 lbs. of bran. This is very little more than one pound of concentrates used for each pound of gain in weight, the balance of the ration being made up of hay, corn silage, and roots, in the proportion of 1, 2 and 3 respectively. The steers used in this experiment were cheap, common cattle, and the gains they made were not large, being approximately 1½ lbs. per steer, per day, for a period of 165 days. The cattle were not well finished when marketed, and dressed a little less than 57% of their live weight, but the beef from these cattle was much superior to a great deal of the beef we are forced to consume in these days, and, as has been pointed out, it was produced with the use of a very small quantity of material which was fit for human consumption.

One thing is certain, we cannot produce the maximum amount of highly finished beef and, at the same time, produce the maximum amount of cereals for human consumption. It would seem, therefore, the part of wisdom to economize on the use of cereal grains in the feeding of beef cattle, and to utilize to the fullest extent bulky fodders, even though we have to be content with smaller gains in weight and a poorer quality of beef. As previously stated, these are abnormal times and methods which would have been severely condemned a few years ago may be the very best and safest methods we can follow at the present time. Our great effort must be to get human food from our bulky fodders by converting it into meat,

with a minimum reduction of cereals for human consumption.

An objection in the mind of many may be the fact that in the College experiment roots were used very liberally, whereas on many farms roots are not largely grown owing to the labor involved. This is a perfectly legitimate objection, but judging from experience, silage can be made to take the place of roots to a very large extent at least. In addition to this, the hay fed the College steers was mixed timothy and clover and contained too much timothy to be really satisfactory for cattle feeding. With a good quality of clover hay, or better still alfalfa hay, and a liberal allowance of silage there is every reason to believe that results quite equal to the College results can be obtained. The experiment emphasizes the great importance of clover, alfalfa and silage on the farms of this Province.

Bacon Production

At the present time a strong plea is being made for increased bacon production. There are several reasons why hogs are especially important in times like these, and the following may be noted:

(1) Hogs multiply rapidly, and mature quickly, so that they offer the quickest means of increasing the world's supply of meat.

(2) Hogs produce more meat from a given amount of food than any other domestic animal.

(3) Hogs give a greater weight of dressed carcass in comparison to live weight than any other animal.

(4) The carcass of the hog contains more edible meat in proportion to bone than that of any other animal.

(5) Pork and bacon contain a large proportion of edible fat, which is vitally needed in the rations of soldiers.

(6) Bacon is perhaps the most compact form in which meat can be shipped.

It will be seen, therefore, that the hog is bound to play a very important part in rationing our armies and those of our allies.

A point which counts against the hog in the eyes of the farmer is the fact that in order to finish it, it must be fed considerable quantities of concentrated feed, and when concentrates are high in price, as they are at present, the farmer is inclined to cut down on his hog production. Everything considered, therefore, it would seem that the present is an opportune time to study carefully the possibilities of reducing the amount of concentrates in the ration of the hog and still provide a fattening ration.

Roots are a somewhat expensive crop to handle, but the advisability of growing even a small patch of mangels or sugar beets for winter hog feeding is well worthy of consideration. Experience has demonstrated that roots can be used in such a way as to lessen very greatly the amount of meal necessary to fatten hogs. A plan which has been used successfully both at the College and on farms throughout the Province is to pulp the roots, moisten the pulped roots with hot water and mix them with about an equal bulk of dry meal. The moistened roots moisten the meal and cause it to adhere to the roots and the whole constitutes a palatable and satisfactory ration for winter feeding. Sugar beets are preferred by pigs but mangels are more easily grown and pigs take them quite readily. Turnips are not quite so palatable, but pigs can be taught to eat them if accustomed to them from the start. When practicable, boiling turnips makes them quite palatable and enables one to greatly reduce the consumption of meal. Boiled potatoes have a higher value than roots and when cheap fuel is available small

potatoes should never be allowed to go to waste. Breeding sows can be maintained throughout the winter with a very light meal ration if they are supplied with roots and some fine quality clover or alfalfa hay, alfalfa being the best. The hay may be fed dry in a rack similar to a sheep rack, and is very much relished by pigs. Even young pigs will take considerable hay of this kind, but they should not be expected to depend upon it to the same extent as older pigs.

For summer feeding, pasture crops seem to offer the most convenient means of reducing the meal ration. Alfalfa makes an ideal pasture when available, but red clover, especially young red clover, is greatly relished by pigs and can be utilized in reducing the meal ration.

A thickly seeded mixture of grains such as oats and barley, or oats, wheat and barley, together with about 8 lbs. of red clover per acre makes a capital pasture quite early in the season. If it is not desired to pasture the mixture during the early part of the season it can be cut for hay and the clover will then come along and form an ideal pasture for any class of pigs. Rape may also be used as a later pasture crop, and by changing the pigs from one field to another, crops such as rape and clover may be pastured and repastured several times.

Another plan which has been tried in some places, and which is worthy of consideration, is to plant a few acres of corn which will mature in the district in which we live. In this district, and in similar northern localities, a very early maturing variety would need to be used. A crop such as this, however, will supply a large amount of feed for hogs and the corn may be husked, feeding the corn to the pigs and utilizing the stalks for the cattle, or hogs may be turned in to harvest the crop for themselves. If it is intended to pasture the corn, it is a good plan to sow rape between the rows at the last cultivation. A combination of rape and corn such as this will fatten hogs fairly satisfactorily, and in any half favorable season an acre of such pasture should carry ten to twelve hogs at least thirty days.

Pigs weighing 100 lbs. and over are best suited for pasturing.

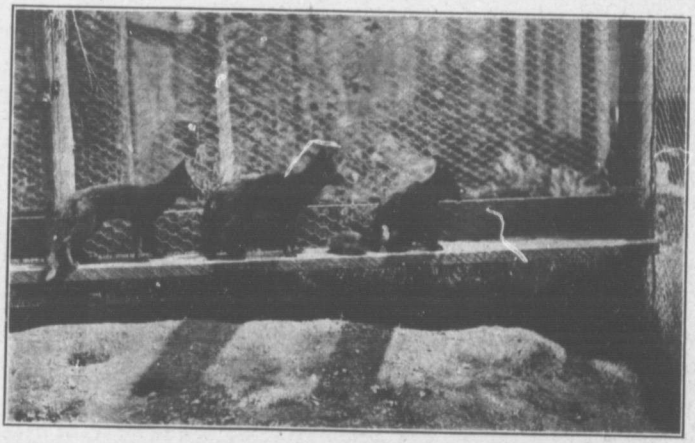
Any ingenious farmer will be able, in all probability to devise other means of economizing on the meal ration, and the present suggestions are thrown out as merely representative of steps which may be taken to keep down the cost of production.

The pleasures of the senses pass quickly; those of the heart become sorrows, but those of the mind are ever with us, even to the end of our journey.

The Silver-Black Fox in Captivity

By A. A. Scales, '18

THE decreasing supply and increasing demand for furs, together with the prevailing high prices has induced many persons to attempt the breeding of fur-bearing animals in captivity. compared with that of other fur-bearing animals has always been high priced. It then is not surprising that a strong attempt has been made to breed this animal.



Half-grown Silver-Black Foxes. It is Feeding Time and they are on the alert awaiting the arrival of the feeder.

Mink, racoon, marten, fisher, skunk and foxes have been ranched and bred in confinement with more or less success.

No fur-bearing animal appears to thrive and multiply in its wild state in a settled country as well as the fox. In such a country Reynard sometimes actually appears to increase in numbers until the time when the forests are quite cleared away. No animal shows as much skill in eluding the hunter and trapper as does the fox. On being chased his actions lead one to think that he may be gifted with a high degree of judgment.

The pelt of the silver black fox

The terms "silver fox," "black fox" and "silver black fox" are to a great extent interchangeable. All refer to a color phase of the common red fox (Vulpes fulva). The under fur or true fur is dull black. The overhairs or guan fur as they are often called, are a dull black next to the skin and a rich, clear, glossy black on the outer ends. Any red or rusty color detracts much from the value of the pelt and if such should be present to any extent, it will be classed as a cross or patch fox pelt.

Many of the overhairs, or long hairs which protrude through the under-fur have a silvery colored band about one-

half inch long and located about three-quarters of an inch from the outer ends. These silver banded hairs appear to be silvered throughout and it is only on close examination that the true color can be detected. There are usually more of them on the thighs and forehead than on other parts of the body. Some foxes are so black that it is with difficulty that any of these light-colored hairs can be found. It is characteristic of all foxes of this species (Vulpes fulva) to have a bunch of white hairs on the end of their tails.

The very dark foxes are often called "black foxes" and the lighter ones, or those with many silver banded hairs, "silver foxes." The one merges gradually into the other and, therefore, there is no clear distinguishing line. The large fur brokers call all of them "silver foxes," no matter how black. In the largest auction sales of furs the pelts of this class of fox are always advertised and sold as silver fox.

The ranches of Prince Edward Island, where about 85 per cent. of the foxes in captivity are owned, use the term "silver black fox" when they wish to refer to the silvers and blacks together.

The early breeders used red, cross and silver black foxes for their experimental work. The foundation stock was taken from the wild. On learning that breeding in captivity could be successfully carried on, the reds and crosses were destroyed and were replaced by silver blacks.

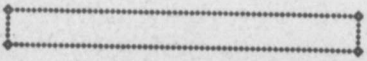
These did not breed true to color, but the rancher through careful selection has now established a variety which breeds true in this respect. The well-bred ranch raised fox will never produce a pup which will show any red or rusty color. The poorly bred ones may throw patches or reds. Among the ranches of Prince Edward Island are found strains of the silver black variety. One strain is characterized by having many silvery hairs—the silver fox—while another by having very few—the black fox. Both strains will reproduce true to color.

While selecting for color the rancher selected to develop a long dense fur of fine quality. Special attention has been given to the production of a dense and uniform growth of fine overhairs. It is largely these which give a fur its value.

At first thought one will think that foxes from the wild should be much superior in quality of fur, not considering color, to that of those in the captivity. One is liable to think this knowing that the wild fox has access to his natural foods and that he has plenty of exercise to produce perfect health.

Many excellent pelts are obtained from foxes of the wild, but the average pelt thus obtained is not as good as the average one from the ranch raised fox. This is readily understood when it is realized that the trapper or hunter takes the fox of the wild whenever he gets an opportunity; that he may take it too early or too late in the season for it to be prime; and that much damage is done to the pelt from the shooting or the trapping.

On the other hand the ranch-raised fox is carefully fed before it is pelted in order to develop a good fur and the pelt is taken without any damage whatever when it is in prime condition.



Tuberculosis of Cattle and the Tuberculin Test

By Prof. D. H. Jones

We occasionally get requests for information and help in connection with the tuberculin test of cattle for tuberculosis. This has led us to think that possibly if the question of tuberculin testing of cattle were brought a little more intimately to the notice of our farmers in general through the agency of the Experimental Union, the testing of cattle for tuberculosis would become more common, and so a step further would be made towards the eradication of the disease from the live stock of the Province. Accordingly, we propose instituting, through the Experimental Union, a propaganda for the spread of information regarding the nature and value of the test.

Nature and Purpose of the Tuberculin Test

The tuberculin test of cattle is for the purpose of determining whether or not an animal is suffering from tuberculosis. The test, when properly employed, while not absolutely infallible, has shown itself to be reliable in ninety-eight per cent. of cases in many thousands of tests in Europe, the United States, Canada and other countries. It is the only reliable means of determining whether or not an animal is tubercular unless the animal is very far gone with the disease or has only very recently become infected.

Tuberculin is a brown-colored liquid obtained by growing **Bacillus tuberculosis** in specially prepared beef broth. After the bacilli have grown in the broth for a sufficient length of time, they are killed by the application of heat. The broth is then filtered and condensed and a preservative is added. The product so obtained is tuberculin. This tuberculin has to be tested and established at a proper strength before being used.

As a result of the growth of the bacilli in the broth, there is produced in it a substance to which tubercular cattle, unless they are very far gone with the disease or only just recently infected, are very sensitive, whereas cattle that are not tubercular are not sensitive. This sensitiveness of tubercular cattle is shown by a temporary rise of their body temperature following a subcutaneous injection of a small quantity of the tuberculin.

Application of the Tuberculin Test

In order to tell whether or not the temperature of an animal rises following an injection of tuberculin it is necessary first of all to find out what is the normal temperature of the animal. In doing this it is necessary to have the cattle quiet in their stalls. If the cattle are feverish from any cause or have just calved or are just about to calve, the test should not be made.

The temperature is taken by inserting a clinical thermometer in the anus or vulva, allowing it to stay there for two or three minutes, and then taking the reading. At least three temperatures of each cow should be taken at intervals of two hours before injecting the tuberculin.

The tuberculin is then injected beneath the loose skin near the shoulder by means of a hypodermic syringe.

After about eight or nine hours from the time of injection it is necessary to begin taking temperatures again. These

should be taken about six times at intervals of two hours. If the animal is tubercular there will be a gradual rise of temperature of from two to five degrees above the highest temperature reached before the tuberculin was injected, then the temperature will gradually fall again to normal. If the animal is not tubercular the temperatures recorded after the injection of the tuberculin will be approximately the same as those recorded before the injection. The tuberculin has no effect either good or bad on cattle that are not tubercular.

REASONS FOR MAKING THE TEST

Tuberculosis is a disease that is widely spread in all civilized countries. It is common in cattle, swine, birds and human beings. The disease is usually slow in developing so that an animal may be infected for months or even years before showing any marked symptoms of the disease.

There are three recognized strains of tubercle bacilli; The **Bovine,** affecting most readily cattle and swine; the **Avian** affecting most readily birds, particularly domestic poultry, and the **Human,** affecting most readily human beings.

It was thought at one time that the bovine strain of the tubercle bacillus could not establish tuberculosis in human beings, and that the human strain could not affect cattle and that the avian strain could not affect either cattle or man. It has since been demonstrated, however, that the bovine strain **can** and **does** readily establish the disease in human beings, particularly in the case of infants whose diet, of course, is mainly milk. It has been proven that a considerable percentage of tuberculosis in children is due to infection from milk that has been obtained from tubercular cattle. One reason, then, for having cattle tested for tuberculosis is that we may prevent infants from contracting the dread disease that causes so much misery in our midst. Any town or city that wishes to control its milk supply so far as tuberculosis is concerned, can demand that those who supply it with milk shall have their cattle tested under government supervision and all tubercular animals excluded from the herds from which the milk is obtained. Any town or city wishing so to do should state its case to the Veterinary Director General at Ottawa and he will take steps to see that the request is attended to.

Another reason why farmers should have their cattle tested is the financial loss which they suffer by having tubercular animals in their herds. As the disease is at first slow in development and does not induce sudden death, like anthrax, black leg, or hog cholera, the farmer does not realize the loss that he endures by having tuberculosis in his herd until one or more animals develop the disease in an advanced degree and die or are slaughtered, when they are at once seen to be rotten with the disease. Such animals will have had the disease a long time without it being suspected and will have been giving off in their milk, saliva and droppings, large numbers of tuberculosis bacilli. In this way the bacilli are spread around the food, water and atmosphere in the stable get contaminated with them and other members of the herd contract the disease from these contaminated materials.

When the tubercle bacilli get lodged in the animal's body from contaminated food, water or atmosphere, they begin to multiply and produce a poison which acts locally, killing the tissue where they are located and causing the development of tubercles. These tuber-

cles may develop in any part of the body where the bacilli get located. When they develop in the lungs, the lungs are gradually destroyed, the animal gets a chronic cough and large numbers of the bacilli are coughed up into the mouth and are either drooled out with saliva or are swallowed and then either passed out with the droppings or they set up further infection in the intestines. When there is tuberculosis of the intestines the animal is likely to be affected with chronic scouring and so large numbers of the bacilli are thus thrown off. When tuberculosis gets established in the udder the udder will become lumpy and large numbers of tubercle bacilli will be given off in the milk. When the disease has developed to such an extent in the animal's body as to show any of the foregoing conditions, other parts of the body, such as the heart, liver, stomach, lymph glands, uterus and peritoneum are most likely affected, and by this time the animal is very much of a losing concern, either as a producer of milk or beef. But the loss to the farmer is not necessarily confined to this animal. For, long before the disease has reached this extent the animal has been a source of infection for the rest of the herd and in all probability a number of the herd have contracted the disease from it. The life of such cattle will be materially shortened, their milk flow will be reduced or their beef production lowered and the disease will spread from them to others in the herd before it is realized that they are affected.

The tuberculin test will indicate whether or not an animal is tubercular long before any clinical symptoms are visible, thus enabling one to deal with such an animal before it becomes a dangerous spreader of the disease.

When an animal is shown to be tubercular it should not be allowed to mix with the rest of the herd. If the disease is in an advanced stage the animal should be slaughtered. The internal organs of such an animal may be badly tubercular, but the muscle meat scarcely affected so that the value of the animal so far as butcher meat is concerned, could be recovered. If the disease is not in an advanced stage the animal should be separated from the rest of the herd and kept separate. Its milk should be pasteurized before use. After the cow calves, the calf should be at once removed and fed milk from healthy cows, or its own mother's milk after pasteurization. Thus removing the tubercular cow from the rest of the herd diminishes the danger of the disease spreading amongst the herd, and by removing the young calf from the tubercular mother and feeding it milk in which there are no living tubercle bacilli, the calf is prevented from gaining the disease unless of course, it should gain it from some other source.

It has been demonstrated again and again to be possible thus to gradually eradicate tuberculosis from a herd. Of course it means a little more work and the exercise of care, which may seem to be too much bother to some farmers. But we cannot get much good in this world without a reasonable amount of effort being put forth and to have a herd of cattle which are known to be free from tuberculosis is most certainly worth the trouble to detect and remove the disease.

When cattle are purchased to add to the herd it should be only when subject to the tuberculin test, as cattle may have every visible indication of good health and yet be tubercular, the disease not yet having developed to an advanced degree.

It is, therefore, strongly recommended that farmers:

1st—Have their herds tested for tuberculosis with the tuberculin test.

2nd—That they slaughter the animals that have the disease in an advanced degree.

3rd—That they separate the cattle that react to the test from those which do not react.

4th—That they remove the calves from tubercular mothers as soon as dropped and feed them on milk from healthy cows or on their mother's milk after it has been properly pasteurized, i. e., after it has been heated to 145° F. for half an hour.

5th—That they apply the tuberculin test to every new purchase of cattle that are to be placed in the clean herd.

6th—That the herd be tested with tuberculin annually.

The above recommendations are practically the same as those that were made by the International Commission for the Control of Bovine Tuberculosis.

OBTAINING TUBERCULIN FOR THE TEST

The manufacture and supply of tuberculin is kept under the Dominion Government control. It is required that a veterinarian be employed by the farmer to make the test. The tuberculin can be obtained free from the Veterinary Director-General at Ottawa on sending the name of the veterinary surgeon to be employed to make the test. The number of cattle to be tested should be stated when application is made for tuberculin.

THE FOOT-PATH TO PEACE

To be glad of life, because it gives you the chance to love and to work and to play and to look up at the stars; to be satisfied with your possessions, but not contented with yourself until you have made the best of them; to despise nothing in the world except falsehood and meanness, and to fear nothing except cowardice; to be governed by your admirations rather than by your disgusts; to covet nothing that is your neighbors except his kindness of heart and gentleness of manners; to think seldom of your enemies, often of your friends and every day of Christ; to spend as much time as you can with body and with spirit, in God's out-of-doors—these are little guide-posts on the foot-path of peace.—HENRY VAN DYKE.

What the Motion Picture Bureau Hopes To Do in Ontario Agriculture

By S. C. Johnston, B. S. A.

MOTION pictures have been used largely to please and entertain the dwellers in towns and cities by giving them the opportunity of seeing comedy, tragedy and romance pass rapidly before their eyes in the short space of perhaps one hour and a half. These motion pictures have not devoted any appreciable amount of attention to the development of what may be termed educational pictures. Pictures of scenes in foreign lands of strange people in peculiar surroundings and showing the habits of these people have to a large extent filled the demand for educational pictures.

Motion pictures, as an educator, have unlimited possibilities. In the past education has consisted of verbal instruction which some have stated, was designed to give the average school boy as much discomfort from 9 o'clock until 4, as it was possible to do. The instruction of an individual by oral teaching has been proven an inefficient method as compared with demonstration and we find at the present time that in the case of agricultural education, demonstrations by means of charts and working models have been used and finally to a great extent discarded in favor of what may be termed a field demonstration where actual objects of agricultural work are used to bring out certain points to those interested. While these field demonstrations are considered by the leading agricultural educators a very effective way of bringing home important truths, they too are limited by certain conditions which cannot be overcome. It is conceded by all that in order to provide a farmer with the reason why certain work should be done according to certain stereotyped rules, he must be shown how and this will largely explain the "why" of the operation. Field demonstrations of necessity have to be carried on during the summer months when the farmer is engaged in general farming operations and he has not the time to attend meetings which are held for the purpose of showing how these operations are carried on. During the winter months when many of the farmers of the province are not quite so busily engaged, they have the time to attend meetings, and the agricultural films which have been prepared under the direction of the leading agricultural experts of the province have been so constructed that they visualize field demonstrations in such a manner that the farmer may practically attend a meeting which was held during the summer previous, and may grasp the information and attempt to put it into practice during the following season's work. These films will enable those favoring field demonstrations to carry on this particular form of agricultural education during the winter months and in two or three localities at the same time. The added feature is the fact that the film may be stopped at any picture and a complete detailed talk or discussion may be given about some one operation which is included in this particular film. The motion picture fills the place which up to the present time has been quite vacant, in that it visualizes spoken or written text. A picture knowledge is understood at once and interpreted quickly by all.

For this reason many people have called motion pictures the universal language and some have gone even further and have stated that the motion picture will visualize education, agricultural or otherwise.

Some of the more scientific phases of agriculture are somewhat hard to explain to an audience who, through no fault of their own, are not quite as conversant with the technical language used as is the instructor. It has been found a difficult matter by many of our agricultural speakers to interest an audience by explaining certain phenomena which takes place in the growth and development of agricultural products. Oftentimes minute organisms so important in agricultural work of necessity have to be described in words which to the layman are simply so much Greek. The speaker is at a loss to know what language to use to explain those things which are so common to him through constant work with them, and the audience is at a loss to know what the speaker is trying to tell them through having never had the opportunity of seeing anything relating to what they are being told of. The motion picture will supplement the speaker's words and make clear to the audience just what has been told them and will relieve the speaker of much anxiety, and at the same time will help to create receptive mind in the individuals of the audience.

In Ontario the development of agricultural knowledge has been limited to a comparatively small quota of the population of the province. This is true in all other forms of technical work. Only a small number of people make a life study of certain work and as a result become authorities on their own particular subjects. The great number of us have to depend on these men or women to show us how the important truths they have proven to be right can be applied in the business of farming. We may be anxious to find the short cut in producing animals, grains or fruits with a little less labor and at less expense—one man in the province may have this information. Many more of us can see how this man performs this operation if we are given the privilege of seeing a motion picture of this man actually doing this particular piece of work. If ten men and women in each county in Ontario can have the opportunity of seeing this in a week or a month even that information is distributed in a vivid form far quicker than were this expert to attempt to personally show these audiences the point he wishes to bring to their attention. This work the Motion Picture Bureau hopes to accomplish.

It is generally conceded by those engaged in spreading agricultural information that the indifferent element in rural communities is not reached. The farmer who knows he needs expert knowledge and instruction, and yet makes no personal effort to avail himself of the agencies of the Department of Agriculture is more or less a detriment to this province, and he should be reached by some manner or means and given the help which he requires. It is quite apparent that this information cannot be forced upon him, neither can he be forced to make use of the information when it is given him. Wherever motion pictures have been used they have proven to have a certain attraction which draws people to see them. It is hoped that to some degree at least, the use of motion pictures in rural communities will tend to engage the attention of these farmers and their wives and families who can best be benefitted by the expert information and knowledge which is available for them.

At many agricultural meetings in recent years the fact has been brought forward that the rural population is gradually becoming less and less each year owing to the younger generations turning to the cities and towns. One of the reasons for this has been given by those who study this problem that the rural communities provide practically no entertainment as compared with that which may be found in the cities. It is hoped by the Bureau that the motion picture films will become an agency for the promotion of community social evenings, at which those living in the district will have an opportunity of meeting one another and having some form of entertainment, containing a certain amount of educational material which will be of a varied nature at each meeting, suitable to any or all of those present.

Each District Representative of the Department of Agriculture is being equipped with a motion picture machine. The Bureau of Motion Pictures will shortly commence to supply films for showing in all parts of the province. The films deal with Ontario subjects, and have been prepared with the assistance of the leading agricultural experts of the province. They deal with subjects of importance in the rural district such as the "Conformation of Dairy and Beef Animals," "The Heavy Draught Horse," "Growing Mangel Seed," "The O. A. C. 72 Oat.," "Potato Growing," "Incubation," "Rearing of Chickens," "Killing and Dressing of Poultry," "Pruning Apple Trees," "Box Packing Apples," "Making Butter," besides possibly some 40 more agricultural subjects. Films dealing with details of the most up-to-date road construction will also be made available for each county in the province, and an audience will be given the opportunity of spending evenings discussing the possibilities of road construction or improvement in their locality. A large number of films have been prepared to show the extent of Northern Ontario, to show the wonderful agricultural possibilities of the great Clay Belt in this part of the province. Pictures showing actual conditions of farmers in the settled districts have been prepared with a view to familiarize those of us living in Old Ontario with the conditions at present prevalent in Northern Ontario. These films will show that crops grown in Northern Ontario equal and in some cases surpass those grown in Old Ontario and many of the conflicting stories which have been heard in Old Ontario regarding the possibilities of this part of the province as an agricultural district will be given a quietus by motion picture films.

The mineral wealth and the forest wealth of the province will be more readily grasped in Old Ontario after having viewed the motion pictures prepared of them.

The Motion Picture Bureau hopes to become an agency for the betterment of agriculture by spreading the gospel of better agriculture through the use of the motion picture film. It hopes to create a feeling of pride among the members of the rural communities in the fact that each and everyone is carrying on his or her work, in the most efficient manner toward the cause of general good in the province.

Address before Experimental Union, January 9, 1918,

By—

S. C. Johnston,
Director of the Provincial Motion Picture Bureau,
Parliament Bldgs., Toronto

Quality as Well as Quantity

C. F. MacKenzie, '19

THE Canadian farmers are being continually urged to increase production in all the different departments of agriculture. Throughout the country they have responded nobly, notwithstanding the many difficulties and obstacles which they have had to face.

In the matter of increased live stock production there is, no doubt, another factor which should receive serious consideration, viz., that of an increase in quality. Too many farmers are content with the ordinary kind of nondescript animal. The same feed which is consumed by one of these inferior animals if fed to an animal of quality, would not only yield the owner greater returns but would give him a better reputation as a farmer and feeder.

One of the safest methods for the average farmer to follow, in the matter of live stock improvement, is that of grading up his herd by the use of a pure bred sire. This method involves no great outlay of money, but the reward is even a hundred-fold. Not only does he increase the value of his herd but he also finds a great deal of satisfaction in placing animals of superior excellence on the market.

In many localities farmers club together and purchase a sire for their own use. This method, known as community breeding is very commendable; one which has proven very satisfactory because of the small initial cost to the individual, also the fact that they are able to bring in animals of the highest quality and finest breeding.

The problem of marketing and selling is greatly simplified by this method of breeding on account of the fact that buyers are never scarce. Wherever there is a locality in which buyers are able to find a large number of high grade animals they are sure to go there first. Thus, the man who is isolated back among breeders of inferior stock is at a decided disadvantage.

In the grading-up process the farmer should bear in mind that he can ruin his herd, or at least start a retrograde movement by breeding his animals to a sire of his own raising. In doing this he runs up against the law of ancestral heredity and his work can very quickly be undone.

The scrub sire is without doubt one of the greatest evils prevalent among average breeders of live stock. The elimination of the scrub sire would certainly remove one of the most serious hindrances in the path of live stock improvement.

County councils would do well to pass by laws prohibiting the retention of scrub animals for public service. The farmer's time is too valuable to be spent in the useless endeavor of trying to put flesh on razor backed hogs or dairy type steers. At the present time we should strive not only for increased production but along with it we should see that the quality of Canadian live stock is brought to a higher and more uniform state of excellence.

Possibilities of the Honey Industry in Ontario

By J. B. Munro, '19

In almost every branch of Agriculture, production has been increased since the outbreak of the war. Many of our industries have reached their maximum capacity owing to the present labor conditions, but we have one industr in Ontario which has been left in the background. The honey industry has been neglected by those in authority and by others who might have advanced this branch of agriculture.

It is the duty of every loyal citizen to produce and conserve to the utmost of his ability. "Farm or Fight," is our motto, and it is time that beekeeping should receive recognition as a most consistent method of conserving and producing food of the highest value. Honey should not be regarded as a luxury. It is one of our purest and most wholesome foods, and when compared with other staple foods it is one of our cheapest forms of energy-producing nourishment.

Today we hear the call for increased production of pork, and the struggling farmer adds to his already onerous burdens the labor of feeding and tending more unprofitable hogs. We know that to produce a pound of pork requires that at least five pounds of grain be fed. This grain is expensive and could well be used for human food. Hogs do not utilize waste foods when being raised on a commercial scale. They rather waste wholesome foods, for any food that is not used to the very best advantage is wasted. The cereals and dairy by-products that are now being fed to hogs should be used directly as human food.

We are told that pork is an ideal food for our overseas forces because it is compact, has good keeping qualities, produces heat and energy, and is suited to the transportation facilities at the front. This is quite true, but wherein has it any advantage over honey. Honey has higher food values, pound for pound, than has pork. It contains more calories per pound than pork. It is a purer and more wholesome food; its keeping qualities cannot be equalled; it requires no preservatives; it is more digestible than meat; it is ideally suited to the present transportation situation on account of its concentrated nature and the fact that there is no waste in honey—every ounce is food. Honey is not produced at the expense of converting other forms of food, but is gathered from the flowers whose nectar would only be reabsorbed or washed out by rains if the bees did not harvest it.

In gathering honey no natural resources are depleted for the bees are simply fulfilling the work that nature planned for them. The nectar secreted by the plant functions as an attraction for the insects which pollenize the blossoms, and in gathering this nectar the bees are doubly benefitting mankind by assisting in the production of seed and providing honey. Thus we see that no matter how extensively we engage in beekeeping, detrimental exploitation is impossible.

Conditions are excellent for extensive honey production in Ontario. We have suitable climate, seasons and honey sources, and materials for apiary equipment are available in our forests. All that is needed to give beekeeping the

status it deserves is the encouragement and cooperation of our provincial and municipal authorities. Our food controller has recently suggested that, in view of the present crisis, municipal by-laws forbidding the keeping of hogs in suburban districts might be relaxed to permit of "back-yard" hog raising. He states that by this means alone Germany has produced 500,000 more hogs than Canada possesses from coast to coast. The suggestion is timely, but why is not such concession advocated for the keeping of bees? To increase the production of honey this scheme is doubly commendable, and yet during the past year certain Ontario cities have endeavored to exclude bees from certain suburban areas.

The following extract from the "American Bee Journal" of September 1917, gives evidence of the importance of beekeeping in the United States.

"The present crisis into which our country has been forced is a supreme test of the usefulness of your industry and is the greatest opportunity beekeeping has ever had to show its value to the nation. The annual production of three hundred million pounds of honey must be increased at once by at least one hundred million pounds to fill the demand, and to it five times as much as soon as facilities are available. Remember, in harmony with the general call made by the president, all beekeepers now owe it to the nation, in order that beekeeping may fulfil its highest obligation, to redouble their efforts to increase the importance of beekeeping as an agricultural industry which conserves a valuable national resource, and which produces a non-perishable, concentrated, wholesome food which plays a very important part in the endurance of any nation."

Ontario may be well advised to follow the suggestion, too, for here we have the raw materials and the necessary conditions to just as great a degree as the average states of America. The labor situation need offer no difficult problem because women are well qualified to learn the business of beekeeping; in fact, beekeeping is one industry in which women can become more proficient than men on account of their natural inclination to attend to detail. Attention to detail is one prime essential to successful beekeeping and conscientious application is another. Therefore we can recommend Ontario women for this vocation.

Every day that is born into the world comes like a burst of music, and rings itself all the day through; and thou shalt make of it a dance, a dirge, or a life march, as thou wilt.—CARLYLE.

Farm Power Course

By Mr. Walter Cooke

THE short course in Farm Power, the first of its kind in O. A. C. history, has proven a success beyond the most sanguine expectations of its promoters. About one hundred and fifty students were registered in this course, many of whom are from the West, where ideas on farm power are far past the experimental stage.

The opening days of the course were given to the fundamental principles most necessary for an intelligent understanding of the more practical work to follow.

In making these principles clear to the class Prof. Day was ably assisted by Mr. A. C. Campbell, a western gas engine specialist, lately connected with the Manitoba Agricultural College, Winnipeg, as well as practical experts furnished by firms making a specialty of gas engines and tractors.

As the course proceeded it was found necessary to divide the students into two main groups, A and B. Each group was subdivided into ten sections, with about seven students in each section. These were assigned practical exercises on the most important parts of the machines furnishing farm power, and to demonstrations in the outstanding points of the various tractors on exhibition. Each of the ten different tractors was demonstrated, by an expert furnished by the individual companies building the machine, who also taught the student groups the driving control of his special tractor. Owing to Prof. Day's executive ability these groups found their places from day to day without friction.

As sidelines many features were introduced which were of great interest to the students. Dep. minister of Agriculture, C. F. Bailey very ably addressed the students on "The Tractor Situation in Ontario." At this meeting excellent moving pictures of tractors in action were furnished by the Ontario Government Motion Picture Bureau, which claims for its chief an O. A. C. graduate of recent date, Mr. S. C. Johnston.

The oil industry, water power on the farm, and the Hydro Electric system were thoroughly explained to students who took an intelligent interest in these subjects, so vital to greater production and rural improvement.

The students in this short course expressed great satisfaction with the college for the splendid treatment they received, to Prof. Day for his pains-taking efforts in their behalf, and to Mr. Campbell for his heart to heart talks on power troubles throughout the course.

The general feeling of the students is that tractors throughout the country will give more efficient service during the coming season as a result of this course, and express the hope that the course will be continued next year that they may bring their accumulated troubles and have their nature and remedy explained at the O. A. C. Short Course in Farm Power.

The Ideal Kitchen

By Margaret Cockshutt, '18

THE kitchen is not, as is generally supposed, an attachment to the house, tacked on wherever it is convenient to the architect, and with little or no thought as to its relation to the rest of the structure, but in reality is a sort of hub, around which everything else must revolve when the building is completed and in running order. Therefore, in the plans presented for her approval, the housewife would do well to keep in view the importance of this room, and insist on a proper situation.

The views as to the location may vary. However, the ideal kitchen in question would face southeast and southwest, and be on the corner of the house. In this position the early morning sun and the sinking sun would lighten the room and brighten it, but during the day the cook would not be roasted along with the meals she is preparing.

The shape would be slightly oblong to allow for every opportunity of the convenient placing of stationary equipment. The size should be no larger than is required by the family for which it is to do service.

Ventilation is a point about which no woman can be too great a crank. At the outset it must be perfect. Doors and windows should be placed to allow for a free current of air. The windows must be built to open from the top, or if preferred, casement windows may be installed. Another idea for ventilating is a shaft drum placed about the stove, and besides all this, a ventilating shaft is a good addition. It is not desirable to have either one's friends or family eagerly greeted at the door and perhaps halfway down the path, by their meal in the form of even appetizing odors.

Pantries, although for so many years considered a necessity, are now betaking themselves into the limbo of lost souls, and their place is being very aptly taken by open shelves and nooks, on which one hangs things, placed near the various centers of industry as the stove, cabinet, etc.

Having now constructed a well-lighted, ventilated, shelved and conveniently shaped room, the thing is to get down the floor covering and attend to the walls and ceiling. Floors are such a trouble to keep clean, that some material which is smooth and crackless and does not collect dirt, is really a necessity. The new compositions bought in powder form and mixed with a liquid and then applied, seem to be just what housekeepers have been looking for. It is not slippery, and it does not give a cement-tile finish, so tiring to stand on. It will also stand cleaning of any kind, from the application of soap and water to the milder methods of a hair brush.

The wainscotting is most sanitary if tiled. This need not be done in any glaring white, or vivid contrast of white and blue, or some other startling shade, but perhaps could be done in green. The floors would be a one-toned dark green, the walls a pale green, finished smooth and painted, and the ceiling white; the window frames and such might be painted white, which would give the kitchen an air of coolness and cleanliness which is indispensable.

Then the furniture must be selected and placed. It is of the greatest importance to have this permanent equip-

ment of the right size, shape and height; and durability must also be a slogan. These furnishings must be so placed that the cook or house-wife, herself takes as few steps and wastes as little energy as possible in preparing her meals. To be able to follow a straight line around the room is a very good thing, that is, in preparing a meal one takes the supplies from the refrigerator and places them on the cabinet to prepare. The utensils are grouped about her for this work of preparation. When that is done one progresses along another chair as in Alice's Mad Tea Party—only in this it would be a stool. High three-legged stools placed before the furnishings where you do most work are wonderful energy savers, and no kitchen should be without two of these; one before the sink for dish-washing and vegetable paring, and the other, if possible, between the stove and cabinet. So to return, one progresses as far as the stove. Here the dishes reaching the climax, are whisked out in a glorious condition of perfection, carried a step farther to the serving-table to have the frills added, and despatched in a piping-hot condition to the dining-room and ravenous family, having a cool, calm and unfatigued cook-lady smirking at her success in the kitchen.

To further add to this triumph of planning, a wheeled-table which lives near the dining-room door is brought in after meals. The dirty dishes are stacked on it, wheeled-up to the sink at the right, washed, drained in racks on the left, and put away and the table wheeled into position again ready for the next action.

The finish of the furnishings might be considered, however, as all this conserved energy might otherwise be expended on keeping them neat and spotless. For the cabinet, porcelain is very satisfactory and easily cleaned. The serving table needs something which will stand heat better, so zinc may be used here to great advantage. The wheel-table may have any top which is easily wiped off. Oil cloth would probably answer as well as anything.

Then utensils—always get exactly what you require and the strongest and best that is to be had. It is not for one occasion, but for years for which you are preparing, and this thought must be uppermost when buying them. Do not be narrow-minded and feel that old-fashioned tools are best; it is most necessary to be up-to-date in everything, and in the kitchen most of all. When you have collected all that you need, and exactly what you need, and as many of it as you feel you will require, then group the collection. Have the things needed at the cabinet near this article, and those near the sink must be there. Then all you have to do is to extend your hand and help yourself.

A few warnings may be added here. Do not use one surface for preparing, serving, and stacking dishes on. It is too much for any mind to keep such a surface in an orderly condition. The result is sure to be chaotic.

Another don't! If the northeast and southwest corners happen to be the ones on which the stable and chicken-house is camped, then take the next best, for the beautiful situation will be rendered impossible with flies and atmosphere, if you build there.

The electric lighting should not be, in anything but the most minute kitchen, a center drop. Indirect lighting is a very good method, or lights at the corners which give a more diffused light, otherwise it is hard on the eyes, and shows dark shadows in which it is hard to get a proper perspective.

The Banana

By G. S. Grant,'19

THIS well-known fruit is a native of both old and new world tropics. Very few people need any introduction to the banana itself, but perhaps there are some who are not very familiar with the appearance of the plant, so a brief description may be of service.

The herbaceous "stem" is really composed of succulent leaf-stalks rolled one over the other and growing up to a height of from 10 to 20 feet. The real stalk is below the ground and the shoots or suckers spring up from it from time to time. At the top of the leaf-stalk and radiating from the center is a splendid crown of enormous light green leaves, from the middle of which issues the bunch of fruits weighing anywhere from 25 to 90 lbs.

Owing to its very extensive cultivation—on different soils, in different climates and under all kinds of conditions—there are naturally a great many different varieties. The one usually seen in America is large and yellow, and is known under several names, such as "Gros Michel," "Figue la rose," etc., mostly of French origin. In many of the countries in which they are produced, bananas, especially the smaller types, are called figs.

Not only is it one of the most appreciated of all fruits, as can readily be seen by the great quantities annually imported into America, but it is also one of the most nutritious. Its high feeding value is also enhanced by the fact that the plant is very prolific; calculations made several years ago showed that 4,000 lbs. of bananas can be produced on the same area on which 33 lbs. of wheat or 100 lbs. of potatoes can be grown. In spite of possible errors in the deductions the advantage rests decidedly with the fruit.

Though it is hardly the case that as a member of one of the senior years recently observed, bananas can be quoted as an example of something obtained without labor or other investment, yet it certainly gives profitable returns for the little work that is usually expended on it, and further experiments have shown that the results are in proportion to the amount of attention devoted. A few points about its propagation and culture may not be amiss.

The best soil for bananas is a rich, rather deep, moist loam, with a good proportion of humus; but it thrives well on practically any type of land that is not acid. It is naturally a wiser plan to cultivate the whole area, but frequently if the work needs to be rushed only those spots are worked up in which the new plants are to be put.

Seeds are not used in propagation, in fact the fruit only seeds under exceptional circumstances. "Suckers" grow up from the parent plant around the base of the fruiting "stem"; those about two feet high are carefully detached, placed in holes about fifteen to eighteen feet apart and the soil is well firmed around it. The land must be well-drained, the common method of insuring this being to have open drains between every third or fourth row; this also serves as a means of irrigation.

The setting out of plants is usually done at the commencement of the rainy season, so that they have a good start before dry weather begins. If the land

is kept free from weeds and occasionally broken up, the first crop will be borne in about twelve month's time. After this crops are produced at intervals of four to six months; as some trees are a little backward the banana may truly be said to be in season the whole year round.

Other suckers have meanwhile been coming up; all of these should be destroyed, except one to form the new fruiting "stem," for as soon as the bunches are harvested the shoots are cut down to about two feet from the ground and the suckers that were saved take their place.

Bananas are never allowed to ripen on the plant as they would then lose much of their flavor; the bunches are hung up or covered for a week, when they are ready to eat. The fruit is gathered even earlier if intended for export, and have to be handled quite carefully in order to reach their destination in proper condition.

In the many countries in which this plant is grown one comes across very different methods employed in its cultivation. Some of the methods adopted are very primitive, spades, hoes and cutlasses being the only implements available; in other cases the same means are utilized as one would expect to see on an up-to-date Ontario farm.

A description of most things, especially in the case of agricultural products, usually ends with an account of the uses to which they can be put. This can hardly be done in regard to the banana, for unless one is well acquainted with the tropics it is hardly possible to realize to what an extent every part of the plant is utilized by the inhabitants—perhaps it might be enough to mention the fact that banana flour is now taking the place of wheat flour to some extent, and that the manufacture of fibre and cloth from the stems is rapidly increasing.

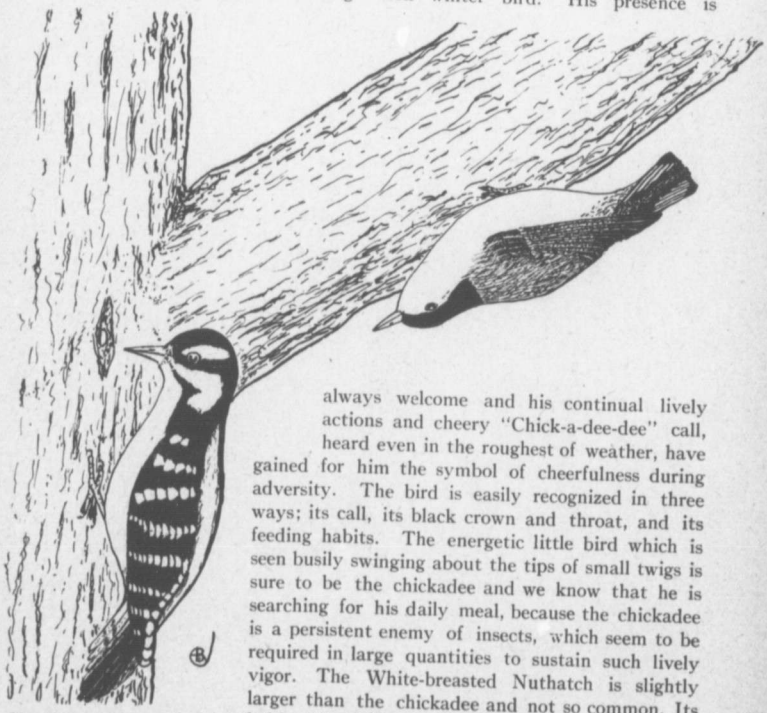
Let us learn to be content with what we have. Let us get rid of our false estimates, set up all the higher ideals—a quiet home; vines of our own planting; a few books full of the inspiration of genius; a few friends worthy of being loved and able to love us in turn; a hundred innocent pleasures that bring no pain or sorrow; a devotion to the right that will never swerve; a simple religion empty of all bigotry; full of trust and hope and love; and to such a philosophy this world will give up all the empty joy it has.—SEVING.

Winter Birds

By A. B. Jackson,'19

WINTER is the most convenient season in which to begin the study of birds, as at that time we have a relatively small number of different kinds and these are often driven by hunger and cold to visit places of shelter and food near the dwellings of man. A meat-bone or piece of suet hung in a tree where it can be easily watched from a window will attract these and furnish many interesting studies of bird life; and besides render assistance to them when they have difficulty in securing food during very stormy or severe weather. Having become well acquainted with our winter residents, the study of the spring visitors becomes easier and less confusing.

The Black-capped Chickadee is probably our widest known and most common winter bird. His presence is always welcome and his continual lively actions and cheery "Chick-a-dee-dee" call, heard even in the roughest of weather, have gained for him the symbol of cheerfulness during adversity. The bird is easily recognized in three ways; its call, its black crown and throat, and its feeding habits. The energetic little bird which is seen busily swinging about the tips of small twigs is sure to be the chickadee and we know that he is searching for his daily meal, because the chickadee is a persistent enemy of insects, which seem to be required in large quantities to sustain such lively vigor. The White-breasted Nuthatch is slightly larger than the chickadee and not so common. Its habitat is chiefly deciduous woods and orchards and has feeding habits peculiar only to itself. The

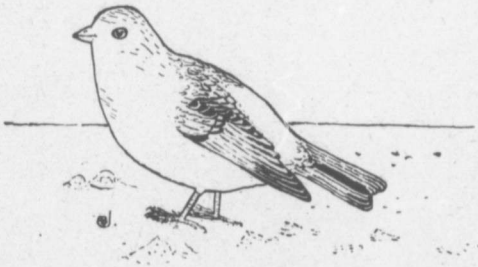


The White-breasted Nuthatch and Downy Woodpecker, showing relative feeding habits.

method by which it invariably attacks the insect pests of any tree is to begin near the top and search while coming down head foremost, at the same time giving special attention to the underside of the branches. The differences in their feeding habits is the easiest method of distinguishing this bird from the Chickadee. The Nuthatch also differs in having no black on the throat, while its call has a peculiar nasal whang.

The Downy Woodpecker is readily recognized by the many white spots on its wings and by the general black and white markings on the head and tail. The male has also a red spot on the back part of the crown, but this is lacking in the female. These birds are about the size of the Nuthatch and feed in true Woodpecker style by clinging to the bark with their toes (which are placed two forward and two backward) and by propping themselves with their stiff tails. This gives them a stable position whenever it becomes necessary to pound for any length of time in order to reach an insect, which they may hear working beneath the bark. Their stout, straight bills are also well adapted for this strenuous work and their long, sticky tongues come very useful in securing the prize after it has been uncovered. This woodpecker has exactly the same colors and habits as the Hairy Woodpecker, which is another common winter bird. The only distinction is in size the latter being as large as a robin, while the Downy is the size of the English Sparrow.

The above four birds seem to have reached a mutual agreement regarding their respective feeding grounds, for the two Woodpeckers look after the trunks and larger limbs, the Nuthatch pays special attention to the underside of the branches, while the Chickadee delights to search the swaying twigs. This arrangement certainly ensures that no part of the tree shall be overlooked.



The Snow-bird

The Snow-bird or Snow Bunting is a typical weed seed destroyer. These gleaners from the north visit us in large flocks during the winter, feeding chiefly upon seeds from the weed stalks which project above the snow. Their color is almost entirely white with a few black markings on the wings and tail and a brownish tinge on parts of the head and back. When in flocks the birds are very restless, starting up at the least interruption, but occasionally one is found alone and it is then quite tame.

Aside from the ubiquitous English Sparrow, the above are our most com-

mon winter birds, but some of the others though of less frequent occurrence are not by any means the least interesting. The Redpoll arrives from the north in very small flocks and is readily distinguished by its undulating canary-like flight and also canary-like call.

The Black-capped Chicadee.

It is a pretty little bird with two white wing-bars, a red crown and a pinkish breast. The Redpoll also combines the beautiful with the good or it lives almost entirely on weed seeds. The Blue Jay is also an admirable bird at this season since he cannot play his harmful tricks when there are no bird nests to rob; but displays his bright blue plumage and high crest to best advantage amid the snow-covered trees. Another very interesting bird is the Pine-Grosbeak, an inhabitant of evergreens, living upon the seeds which it extracts from the cones. The male is almost entirely of a uniform rose color with white wing markings, while the female is much duller. They are very tame and quite sociable, for, while feeding, they appear to be continually addressing one another in low, sweet, warbles. The little brown Screech Owl is one of our most useful birds, since any barn which he visits is soon depleted in its population of English Sparrows and this is no mean service.

Poultry and Egg Production for 1918

By Prof. W. R. Graham

POULTRY and eggs can be of material assistance in winning the war if used as a substitute of meats such as pork and beef which are so much in demand. We can each help a little by eating more eggs and more poultry. Last season we had a considerable number of eggs for export and there was not the usual demand for dressed poultry. I take it that it is our duty to conserve meat for export and as an egg never increases in food value from the time it is laid, we can not do better than eat them at home. It would, therefore, seem desirable that each and every one of us eat as many eggs and as much poultry as we can. To some this may not appear to be correct as eggs and poultry are high-priced. There appears to be a feeling that both eggs and and poultry are luxuries, and that during war time they should be avoided. No doubt by so doing you will assist in winning the war but not by us. As compared with meats the average householder will find the money spent on a dozen eggs will go about as far and prove to most people more appetizing than the same amount of money spent on any meat.

Poultry and eggs are good foods, are somewhat perishable, then why not consume them in large numbers at home? Again, if you will take the percentage increase in the price of

eggs, poultry, pork, mutton, beef, cheese and butter since the beginning of the war, either week by week or year by year, you will find that poultry products are as cheap or cheaper today relatively than they were at the beginning of the war.

To the producers of poultry there is every reason why you should carry on, at least maintain, production and in some cases increase production. It is true we may have to change our methods a little. We shall have to look after our supplies of wheat substitutes and not feed as much good wheat. Wheat has been easy to get and fair in price but hens will lay very well on a mixture of corn, barley and oats. There is always a little wheat that is not suitable for milling but try and forget wheat. Then we may be able with a little patience to get a substitute in the Terminal elevator screenings. While the birds do not take kindly to this now there is considerable hope that if they receive it when young they will eat it readily next winter. Many of us forget that the appetites of poultry vary largely with what they were fed when young. I have seen hens that would not eat corn or wheat, simply because they had never seen them before.

Many of us will have to learn to cull our flocks. In general it can be said that never was a good laying hen more profitable and it is equally true that never was a poor layer more unprofitable. Therefore cull your flocks. Good laying hens lose the yellow tinge; the hen's plumage does not appear in perfect condition. The good layer is usually a hustler; goes to bed late and gets up early. She very seldom when well fed developes a mass of internal fat. The body cavity or the space between the pin bones and end of the breast bone is soft and flexible in good hens. A little practice will assist one to pick out nearly ninety percent of the poor producers. A laying hen's pin bones are very seldom close together.

To those who have not been keeping poultry—get enough to supply your own needs. Do not depend on the other fellow but grow all you need of everything you can.

Hatch your chickens during April and early May. These are among the best winter egg producers. Market the surplus males and old hens when they are ready. Many keep the old hens and males months after they have outlived their profitable age.

Watch the leaks in your business. Study increased production and decrease the boarders. There is no place today for the non-producer.

Bran and Shorts for Farmers

As a result of the order in council placing mill feed stuffs under embargo for export, except under license from the Food Controller, no less than 6,640 tons of bran and shorts intended for the United States have been diverted for the use of Canadian farmers.

Binder Twine Available

An ample supply of binder twine for Canadian requirements next year at reasonable prices has been ensured, as the result of an agreement reached between the United States Food Administration and the Mexican sisal-growers of Yucatan.

Plant Breeding at the Horticultural Experiment Station, Vineland

By E. F. Palmer, Director

PLANT breeding, with the object of originating new and better varieties of fruits either by hybridizing or selection, is the most important of the various lines of work being carried on at the Experiment Station. The amount of work with each fruit is steadily growing. The scope is being gradually increased to include all our present commercial kinds of fruit; others, which on account of lack of hardiness or other limiting factors, are not yet of commercial importance, such as the Loganberry; and lastly, the many problems in hybridizing, germination of seed, etc., which confront the plant breeder.

In analyzing the past four seasons' work in breeding with stone fruits out-of-doors, the conclusion has been reached that out-of-door methods so militate against successful results as to make further continuation of this method discouraging, and in no way commensurate with the efforts put forth. Hybrids must be grown in large numbers to expect any reasonable progress in the improvement of varieties through plant breeding.

The Work with Apples

The first work on apples was done in 1915. An attempt was made to treat the various commercial varieties as pollenizers for the spy, but adverse weather conditions spoiled the results in most cases. The Spy was crossed with Wealthy, Duchess, McIntosh, Ben Davis, Fameuse and Greening. From the crosses, 143 good seeds were secured and planted; 44 seedlings have been transplanted to permanent quarters for fruiting.

No breeding work in apples was done in 1916, owing to the absence, for military reasons, of the Hybridist during the blooming season. However, the following seeds obtained from research work carried on at Macdonald College, were kindly sent to the Station by Prof. Bunting: Fameuse x Wealthy 78, McIntosh x Wealthy 27, McIntosh x Milwaukee 13, McIntosh x Fameuse 4.

For 1917 the following crosses have been made: Greening x Wagner, Wealthy, Duchess, McIntosh; King x Duchess; Wagner x Hyslop and Baldwin x Hyslop.

Cherries

Attempts have been made at different times to grow cherry seedlings in large numbers, but results have been very discouraging. The seedlings grown in 1915 were transferred in the spring of 1916 from the nursery row to a permanent plantation, but unfortunately most of them died. Many died in storage and many more never survived transplanting. At present, only 7 Elkhorn, 7 Late Duke, 5 Coe, 1 Windsor and 6 Cherry No. 5 seedlings are growing out of 1,252 seeds, which originally germinated, and which represented 11 varieties.

The 1916 germination from seed secured in 1915 was again exceedingly poor—191 seeds germinating from 18,300 seeds planted, representing five varieties; Windsor, Montmorency, Late Duke, English Morella and Black Tartarian. As in 1915, the Windsor gave the poorest germination.

During 1916, some 9,700 seeds, representing five varieties, were col-

lected and planted, and the best germination to date has been secured.

Peaches

The work with peaches began with the transplanting of 53 seedlings from pots in the green-house to the field in 1912. These have all fruited and have been described, several of those of Elberta parentage showing considerable promise. About one-third of a block of 1,000 Early Crawford seedlings also fruited this year, but nothing noteworthy has been yet found.

During 1913, considerable crossing work was done, using Greensboro, St. John, Early Crawford, Elberta and Sneed. From 1,121 pollinations made 200 fruits were gathered. Fourteen varieties also were self-fertilized; from them 871 fruits were gathered. In all, 155 trees are now growing from the 1913 work, and of this number about twenty-five per cent have fruited. In 1914, practically no work was done owing to the failure of the peach crop.

From pits collected in 1915, 5,300 seedlings of Elberta, Longhurst, New Prolific, Lemon Tree, St. John and Jacques Rareripe are now growing in nursery rows, and will be transplanted to permanent quarters next spring. They will be planted nine feet apart each way; this will allow them sufficient room to fruit for one or two years, when the undesirable ones will be removed, and the whole ground given over to the remainder.

The work with peaches is distinctly encouraging, judging by those seedlings which have fruited to date.

Pears

A large number of crosses, involving eight varieties, were made in 1914; 1,660 pollinations were made and 2,188 developed seeds secured from which 170 trees are now growing. There are also 303 seedlings of Kieffer, Flemish Beauty and Bartlett.

During 1915, work was done involving thirteen varieties; 2,062 pollinations were made and 681 good seeds secured; 7,200 seeds of Kieffer, Anjou and Clairgean were also secured and planted; of this number 141 germinated.

During 1916, over 14,800 pear seeds representing fifteen varieties, were secured and planted, and an excellent germination secured, using the cold frame treatment. No crossing was done in 1916. In 1917, a large number of crosses were made, but the set of fruit was poor, only 54 fruits were gathered from over 3,000 pollinations made.

Plums

The work with plums was started in 1913, but to date, results have been discouraging—only 21 fruits were secured the first year from 1,370 pollinations. Results for later years have been equally discouraging especially as most of the pits finally gathered failed to germinate. All of the commercial varieties have been used in the work.

Grapes

With the exception of strawberries, more attention has been given to grapes than to any other fruit. All of the commercial varieties and many others have been used in the work. Many of the hybrids and seedlings from the first year's work, 1913, fruited this year, and have been described. Many are very promising, a few exceptionally so.

The following figures will give some idea of the extent of the work. As a result of breeding work done in 1913, 850 hybrids and 2,440 seedlings representing twenty-four varieties, are now growing from crossing work done in 1914, 40,595 seeds from 56 crosses were secured; from these 4,431 germinated, and 1,993 plants are now growing in nursery rows. There are also 176,386 open fertilized seeds planted;

out of these 10,643 germinated, and 6,294 are now growing. In 1915, the work was equally as extensive. We obtained 10,314 crossed and self-fertilized seeds; from these 7,548 plants are now growing. Over 7,200 hybrid seeds have also been planted from the 1916 work and 5,700 from the 1917 crossing.

Strawberries

Only two selections have been finally retained from the original 3,000 seedlings which represented the first work here on strawberries. From the 1913 breeding, however, 7,600 plants were set out, 6,300 of which fruited in the summer o 1915. Of these, 280 selections have been retained. Selections from later year's breeding have not yet been made, owing to the fact that in 1916 many of them did not fruit, while in 1917 the season was so unfavorable that it was impossible to test the fruit as to quality, firmness, etc. As with raspberries, the later breeding work has been extended to include many of the more promising hybrids from the earlier breeding work.

The above paragraphs will give a fairly comprehensive idea of the extent of the breeding work being carried on at the station.

A Soliloquy

There was a time in younger, blissful days
When life to me was fair and unconfused.
In tranquil shades of verdant woods, I mused
In silence on life's mystic, hidden ways.
'Mid the unclosing flowers that dawn portrays,
I dreamed—o'er dewy fields that breath, sustained—
Of life, immaculate and unrestrained
To harmonize with Nature's simple lays.
The crowd, the gleaming lights—another life
I view, a transient world of restless strife
Of fleeting joys, of action bold and stern.
I would that I might understand and learn
To reconcile the unravelling truth
With thee, beloved vision of my youth.

R. Alex. Brink,'19.

DAIRY

Feeding Value of Skimmilk and Whey

QUESTION:

Will you be good enough to give me an expression as to how much you consider skimmilk and whey is worth at the present price of milk, pork and calves?

ANSWER:

Skimmilk and whey vary considerably in value according to the class of animals to which they are fed. As a rule, whey is not very satisfactory for feeding calves. For feeding pigs, we have found that one hundred pounds of whey is equal to from six to fifteen pounds of meal. The average of five experiments showed a saving of twelve pounds of meal by feeding one-hundred pounds of sweet, and eleven pounds, by feeding one hundred pounds of sour whey. At the present time, all kinds of meals are worth from 2c to 3c per pound. I doubt if the ordinary feeder would be able to get so high a value out of whey as is indicated in these experiments. Skimmilk is probably worth for feeding purposes from 25c to 35c per one hundred pounds. In a comparative test, we found that when separated whey was valued at one hundred, ordinary whey was worth one hundred and twenty-five; buttermilk, one hundred and sixty; and skimmilk, one hundred and sixty-three for feeding pigs.

H. H. D.

Tests of Butter, Cream and Buttermilk

QUESTION:

Please test these samples of butter, cream and buttermilk, and let me know what they are like.

ANSWER:

The butter contained 7 per cent. moisture and 3.07 per cent. salt. However, the paper was very dry and the probabilities are, that it absorbed considerable moisture from the sample during transit, therefore, both moisture and salt tests are too low.

If you send us another sample, please put it in a bottle, corking it tightly, and we will test it for moisture and salt.

Butter at this time of year should run from 12 to 15 per cent of moisture, and if the sample which you sent is fairly representative of what you are making, it is altogether too low.

The cream contained 30 per cent. fat and the buttermilk, .14 per cent. which are quite satisfactory.

H. H. D.

Devonshire Cream and Buttermilk Cheese

QUESTION:

Will you kindly let us know how Devonshire Cream is made; also is there anything that can be made out of buttermilk?

ANSWER:

Devonshire Cream is made by setting milk in common shallow pans, allowing the cream to rise for about twelve hours, then heat the pan of milk and cream to a temperature of about 160° to 170° F., preferably by setting in a hot water bath, but if this is not practicable, it may be heated by setting on a stove, afterwards cool to between 40° and

50° F., and allow to stand for another twelve hours, when the cream may be removed.

This is the old form of what we now call "pasteurizing," and practically the same results can be got by heating cream to a temperature of 140° to 150° F., either by stirring it in a common shot-gun can or by running it through a modern pasteurizer, and afterwards cooling.

Buttermilk may be made into a very good quality of cheese, as follows:

Buttermilk Cheese:—Heat the buttermilk to 130° F. or 140° F. Let stand from ½ to 1 hour.; then hang up in a cotton bag to drain or else place on a rack covered with cheese cloth.

When sufficiently drained salt at the rate of 1 oz. to 4 or 5 lbs. cheese. The addition of a small amount of cream is an improvement. H. H. D.

HORTICULTURE

Fumigation of Greenhouses with Hydrocyanic Gas

QUESTION:

Please outline the method for using hydrocyanic gas for fumigating greenhouses.

ANSWER:

The use of hydrocyanic gas, for the destruction of the white fly in greenhouses, requires careful attention to every detail. The cubic capacity of the house should be estimated, and all holes or openings closed. The fumigation should be done after dark and the house kept closed until the following morning. Choose a calm, dark night; have foliage dry and lower temperature to between 50° and 60° F. To make the gas, the following material is required for every 1000 cubic feet of space:

Cyanide of Potassium or Cyanide of Sodium.....¼ ounce
Sulphuric Acid (concentrated).....½ fluid ounce
Water.....1 fluid ounce

Allow one bowl or crock for every 3,000 or 4,000 cubic feet and place them at intervals on the floor. Pour the water into the bowl first. Add the acid slowly, allowing it to run down the side of the vessel. The potassium or sodium cyanide should be pulverized and the quantity for each vessel enclosed in tissue paper. When the vessels are in place and all is ready, drop the cyanide into each, beginning farthest from the door. Leave the house at once, and close up tight until morning. The gas will not destroy the eggs; therefore, it becomes necessary to fumigate three times at intervals of ten days to insure killing all of the flies.

The gas is deadly poison. Caution must be exercised in using it. A stronger mixture than advised may burn certain plants. Considerable success has been attained in combating the white fly by the use of Aphis Punk. This material is generally used for the Aphis, but if house is fumigated two nights in succession, the fly should be destroyed. A. H. M.

Storing Cabbages for Winter Use, and Potatoes for Seeds

QUESTION:

Describe briefly a couple of simple plans for the storage of cabbages on the farm for winter use, also method of storing potatoes for seed so that they will not throw long, spindling sprouts so often seen.

ANSWER:

The two commonest methods of storing cabbages are, first: putting up slanted shelves in cellars of houses or barns, about 18" apart, one above the other, setting the cabbages on these, two layers thick. This allows a good circulation of air. Second; putting

them up in an A-shaped pile starting the pile, five cabbages wide, then four, then three, then two, then one, the one being the apex of the pile. The pile can be as long the other way as desired. Cabbages should be stored in a temperature as near 32° as possible. Their freezing point is about 30°. The atmosphere should be just moist enough to prevent shrivelling or starting growth. I find that cabbages, which have not headed too hard will keep better and longer than those which are fit to market when put in storage.

We store our potatoes on shelves in rooms that are kept close to the freezing point, but have sufficient moisture to prevent shrivelling and light sufficient so that the potatoes will green. We turn them frequently so that they will green thoroughly on all sides.

A. H. M.

Green Aphids

QUESTION:

Will you describe a method of destroying green flies that are attacking my lettuce in the greenhouse.

ANSWER:

Tobacco is a very satisfactory thing to use but fumigation should start as soon as the crop is planted and must be kept up twice a week during the growing season. We use aphis punk, which is simply a commercial form of tobacco. Six sheets at a time should be used in a house 20′x70′. Tobacco stems if properly wetted will be just as serviceable and much less expensive. The stems are wetted down in the morning of the day on which they are to be used.

A. H. M.

ENTOMOLOGY

Dusting Fruit Trees

QUESTION:

We have heard a great deal about the new method of dusting fruit trees instead of spraying them with liquids. We should like information on this point.

ANSWER:

The dusting of fruit trees is a very rapid and comparatively easy and clean method of treating fruit trees to control fungus diseases and biting insects. One can dust an orchard of very large apple trees almost as rapidly as the horses can walk, so that it is nearly seven times as rapid as the ordinary method of spraying with a gasoline outfit. The difference of time between the two methods on small trees is not nearly so great. The cost of dusting large trees when everything is considered is about the same as for spraying them, but for small trees is greater. The substance used in dusting is as a rule finely ground sulphur, 85 or 90% mixed with 10 to 15% of arsenate of lime powder. There is usually a little finely ground talc added. For applications where there are no specially important biting insects to combat, the poison may be left out, thus reducing the cost by 50%.

Whether dusting will ever take the place of liquid spraying is still doubtful. I have myself in 1916 and 1917 obtained almost as good results from it in large apple orchards as from spraying. Both years the dusted part gave over 95% free from Scab and as good control of worms as the liquid sprayed part. Yet in spite of this I believe that under weather conditions very favorable to Scab the liquid method will give better results than the dust. There are now some new types of nozzles that make liquid spraying much easier and less unpleasant than the old method.

L. C.

ANIMAL HUSBANDRY

Producing Pork on Seven Acres of Land

QUESTION:

We have seven acres of land and a

barn, about $250 in cash and could lay out $35 per month for feed. In consequence of the campaign for the greater production of pork we have decided to devote this capital and our time to hog-raising.

Shall we sow the land to permanent pasture and turn the hogs out the latter end of May and feed grain morning and night? If so, what do you advise for a good pasture. Can we run 25 or 30 pigs on that land in safety during the summer and what are the best and cheapest feeds to buy at present.

ANSWER:

From your description of the conditions on the farm, I would say that it would be quite possible for you to keep five or six sows on your seven acres of land, with a monthly feed bill of about $35.00.

As for the handling of your land, I would advise you to sow about three acres of it as soon as possible in the spring with a mixture of one bushel each of wheat, oats and barley and 7 lbs. of good red clover seed per acre. I would advise that you put another acre in rape, seeded in drills 27″ apart, about June 1st. On the balance of your land, I would advise the raising of mangels or sugar-beets, and, if you consider it necessary, a few potatoes for your own use, as you have slightly more land than is necessary for pasture for the number of hogs which you are able to purchase with the limited supply of capital.

The pasture which I recommend could be used as soon as the growth is 6″ or 7″ high, and later on in the summer when your pigs are larger you will have the rape, in addition for pasture, while your mangels will supply you with some feed for next winter.

At present prices I would suggest that you purchase wheat middlings, oats, barley and enough tankage to make up about 10% of your mixture. The mixture of middlings, barley and oats would best be fed in the proportion of two, one and one.

A. L.

FARM MANAGEMENT

Rental Problem

QUESTION:

I wish to rent my farm, but do not wish to let the direction of affairs pass entirely out of my hands as I consider my experience worth considerable. I am past the age for active work and the shortage of labor compels me to rent, but solicit your aid in arranging a satisfactory agreement.

ANSWER:

It is very difficult to suggest a proper basis for rental of a farm in a case where the owner wishes to keep a considerable interest in the management of the farm. It would appear to me to be difficult to procure a good tenant if the landlord's wishes were to be consulted in all the details of the management of the farm. It is also very difficult without knowing local conditions and local customs in the rental of land, to make any suggestions. I would, therefore, hesitate to give further advice along this subject unless I knew more of the character of your farm and the character of the business in which your farm is now established.

A. L.

Wooden Silo Leaking

QUESTION:

Some time ago we installed a wooden silo in our barn and after being filled with corn it began to leak very badly and continued leaking for several weeks. Would you kindly advise me if the silo should be air tight, also would stock show as good results from ensilage fed from a leaking silo as from a perfectly air tight one. If ensilage deteriorates from such leakage, what is lost?

ANSWER:

I might say that it is very common to find considerable leakage from wooden silos that have just been filled with very green or very wet corn, the excess water in the silage being forced out by the tremendous pressure on the lower layers of the feed. There is considerable loss of feeding material from this leakage, but it is no indication that the silo is not sufficiently tight to keep the silage. I would suggest that, in future years, you let your corn dry in the field for two or three days before putting it in the silo, and further, that you let it mature as much as possible before cutting it.

A. L.

Lease Forms

QUESTION:

Are there any recognized forms of agreement to be made between a farmholder and one who intends to rent this property to be run on shares, also what are the customary agreements between parties operating live stock on a partnership basis?

ANSWER:

So far as I know, there are no recognized forms for agreements of this kind, except the usual forms of leases such as are in the hands of attorneys and notaries. There are so many different varieties of agreements depending on local conditions and local beliefs that it is impossible to give you any uniform set of these forms that would be of any practical application in individual cases.

A. L.

BOTANY

Standards of Purity for Clover and Grass Seeds

QUESTION:

What are the standards in regard to purity for the different grades of clover and grass seed?

ANSWER:

The Seed Control Act requires that:

(a) Extra "No. 1" shall be pure as to kind, clean, sound, plump, of good color, free from the seeds of any noxious weeds, and contain not more than thirty seeds of all kinds of weeds including other useless or harmful plants per ounce of seed so marked.

(b) "No. 1" shall be clean, sound, reasonably plump, of good color, contain not more than five noxious weed seeds per ounce of timothy, red clover or alfalfa, or ten of them per ounce of alsike seed and not more than one hundred seeds of all kind of weeds including other useless or harmful plants per ounce of seed so marked.

(c) "No. 2" shall be reasonably clean, sound, and contain not more than twenty noxious weed seeds per ounce of timothy, red clover or alfalfa or forty of them per ounce of alsike seed and not more than two hundred seeds of all kinds of weeds including other useless or harmful plants per ounce of the seed so marked.

(d) "No. 3" shall contain not more than eighty seeds of noxious weeds per ounce of timothy, red clover, or alfalfa, or one hundred and sixty of them per ounce of alsike seed and not more than four hundred seeds of all kinds of weeds including other useless or harmful plants per ounce of seed so marked.

The purchaser should also realize that in buying "No. 1" seed he secures not only seed that is comparatively free from weed seeds but that this seed has a high germinative capacity and will produce more strong, vigorous plants than will seed of lower grades. Any farmer can have his seed tested by sending a one ounce sample to the Seed Commissioner, Department of Agriculture, Ottawa or to the Botanical Department, O. A. C., Guelph.

J. E. H.

THE OAC REVIEW

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F. L. FERGUSON, '18, *Experimental*
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EDITORIAL

THE DIGNITY OF OUR CALLING

Past and Present

NEVER in the history of the world has the dignity of the agriculturist been so clearly inculcated into our minds as at the present time. This may be due to one of two reasons, or to both of them. Firstly, the world's shortage of food has impressed us very strikingly as never before what an important and necessary profession agriculture is. Secondly, the rural populations have emphasized with considerable publicity recently their unique importance in winning the war.

Dignity may be defined as elevation of thought, nobility of rank; and agriculture, as tillage of the soil. The dignity of our calling is a well-established fact and has been through all ages, but for a few, who through no fault of their own, but rather through mistaken ideas and ideals have branded our profession among the minor, and undignified occupations. In the past century agriculture had not a few ups and downs, but out of it all has arisen a deep discontent—an honorable discontent bred in us by devotion, not by capriciousness, or hostility—or by an unreasonable impatience to change our life work for any other. We are neither cynics nor pessimists, but honest seekers of higher ideals, of nobility of rank among our fellow-men. At this critical moment in the world's crisis, we would fain keep one of the finest instrumentalities of our national life from falling short of its best, and I believe by a little care and candor we can do so.

We play a unique part in life today so long as our aims have definite ideals, governed by incomparable morale, and have a capacity beyond that of individual concern.

Our calling gives opportunity for the

ambitious mind. It gives scope for individuality. Agriculture as a vocation allows man to exercise the power of choice, the greatest privilege in existence; and yet with it is associated greater responsibilities. Our conduct and intelligence rests upon the power of choice. We choose higher or lower thoughts, better or worse aims, noble or base friends, good or bad methods of farming, and upon our choice, and the prosecution of that choice rests the dignity of our calling.

The privileges and possibilities of agriculture must not be measured by what has been, but rather by what well-informed, educated men and women of high Christian character can make them. Agriculture today requires more brains than law, more technical knowledge than does medicine, as much uprightness as theology.

If any man were to ask me, "Shall I become a farmer?" I would say as Jas. Parton once said when asked that question, "Are you man enough?" Recall with me if you will the days when farming was crude in form, yet by directed intelligence and individual sacrifice sustained by capital has evolved farming as a profession, ranking not among the minor professions, but rather as one of paramount importance.

Agriculture not only offers freedom of choice, but calls for the most careful discrimination which develops initiative in us. The dignity of our calling in the future will demand more of the agriculturists. We shall require keener faculties, and better-trained, incisive discriminations to hear and heed the laws of nature about us.

Agriculture has always been carried on and always will be so long as man exists upon the earth. In this we have a permanant profession with possibilities clustering about it as no other profession can offer today.

The idea that things are material, conditions solitary and monotonous on the farm is a perverted idea, and need not be so. Truly, it is possible to allow the accumulation of wealth and property, "both of which are worthy and indispensable incentives" to so overrule our dignity and pride as to ignore womanhood and manhood. But why need it be so? It rests with the individual.

The very nature of our calling, its associations with life, the free open air, the bright sun, the emerald plains and tinted woods made more cheery by the diffusion of all God's living creatures, the sweet singing of birds, the study of the living, growing things that abound in nature must needs inspire us to lofty ideals. It affords real joy in life to make two blades of grass grow where only one grew before. To work among living plants, to observe their growing, daily changing forms as varied as the mind of man, to feel we are co-workers with God in replenishing the earth, calls forth as much inspired patience and loving enthusiasm as the tinted canvas of Millet; the music of Wagner; or the drama of Shakespeare. A little song of Shakespeare or of Goethe is pure art; it is exquisitely beautiful, although its intellectual content may be nothing. A series of pictures are made to pass before our mind by the meaning of words, and the effect is a melody of ideas.

In agriculture we have around us and mutually associated with us, elements of nature; pure in form, real and life-like; enjoyed by the intellectual culture of the person whose dignity of mind enables him to associate with its finer art. Let us then dignify our calling in agriculture by making it the abode of intelligence and refinement. Let us aim high our ideals if we would preserve our dignity.

The center of agricultural life today is the farm home. The farmer alone of all men has a "home" where a free and

easy atmosphere makes the occupants happy and contented.

I cannot conclude this article without paying due tribute to the part woman has in the dignity of our calling. Their refining influence will tend to bring out the best that is in us, to polish off the rough places and to lift us to higher ideals. Many of the world's greatest men have testified their indebtedness to women, not only for practical help, but for those higher spiritua qualities that transform men into nobility of rank.

No man should live unto himself. Silence and solitude if long protracted have a depressing effect upon all the noblest elements in a man.

The family, that great institution ordained by the Father, should find nowhere else such congenial conditions for its development as on the farm. The center of the home is the mother of whom a word of well-deserved praise should be given, or permit me to pay a delicate compliment without descending to flattery; in that I trust we shall always have with us in our rural homes to dignify them

"A per ect woman nobly planned
To warn, to comfort and command.
Yet still, and bright,
With something of an angel's light."

A. M. S.

Look Ahead

We wish to remind our readers and contributors that in publishing our monthly college magazine we must ever look ahead at least one month and forecast the suitable themes for our next number. On this account we are suggesting that our contributors with poetic inclinations will always anticipate events one month ahead and be ready with timely verses. Just bear in mind that February 14th is St. Valentines day, March 17th is the day sacred to the heart of every true Celt; and the whole month of May is ideal for effusions of Spring poetry. Do not procrastinate, but write as soon as the idea and the impulse enter your brain. They will not remain there forever, so be ready to seize and "pen" them while you may.

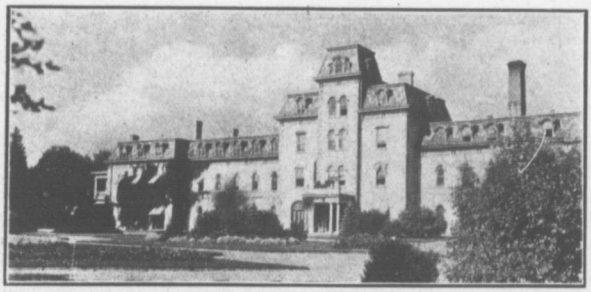
Our Next Number

In view of the critical seed situation that farmers are facing we have planned to make the March issue of the Review a special SEED number. Good seed is scarce and high-priced. Poor seed is dear at any price. It is our intention to place such information before our readers that they may be able to fully grasp the seriousness of the situation and be advised how and where to obtain sufficient seed for the spring planting. We will also outline methods for producing home-grown seed so that there may be an effort made to grow in Canada more seed and better seed of varieties suited to our soil and climate. Owing to the present conditions in Europe the seed problem is one to be seriously considered, and it is for us to prepare for the inevitable shortage by growing at home whatever seeds we can.

Our Literary Critics

At a recent meeting of the Union Literary Society, Mr. G. H. Unwin acting in the capacity of critic for the evening, made the suggestion that outside men be selected to act as judges and critic at future meetings. In the past it has been the custom to have members of the Faculty weigh up the "pros" and "cons" of the debates, pass sentence and offer criticism. This has proved entirely satisfactory, but as Mr. Unwin pointed out, a change in the regular practice might be quite advisable. Students in preparing their arguments are always seeking special assistance from members of the faculty who are very ready to give what suggestions they can, and yet they are somewhat diffident about soliciting this

aid as they never know but what the man whom they interview may be a judge when the debate is given. This not only makes the position embarrassing for the student but for the judge. It is also a fact that students who are well-known to their judges cannot be as fairly dealt with on the merits of their efforts on the platform as would be the case if they were heard and judged by strangers. From a general consideration of the suggestion we are of the opinion that the Executive of the Literary Society should take the suggestion seriously and give it a trial. Guelph has plenty of competent men who would willingly act in the capacity above stated and we are confident that both Faculty and students of O. A. C. would be suited with the innovation of outside judges and critics for our entertainments. We are always ready to consider timely suggestions, and think this will be a very good means of importing new ideas that will benefit our Literary meetings.



THE COLLEGE RESIDENCE

Doesn't it look natural. The old, grey residence will always bring to our minds sweet memories of days gone by. Great changes in the world about us have been wrought, but the old structure remains unaltered. The truth is that we would not want to have it other than it is. It has individuality, no matter how deficient it may be in style. Styles change, but individuality is constant.

Many hundreds of students attend the Ontario Agricultural College every year. Some take the Regular Course; some the Manual Training Course; others, the Dairy Course and many, many more take the various short courses that are put on in the winter months. These short courses are growing in popularity every year and the attendance shows that Ontario farmers are anxious to improve their education by availing themselves of the opportunities of studying during their few slack winter weeks. It is most gratifying to note the ambition of our rural boys who attend these courses. They must have ambition or they would not put forth the effort to come and learn. They are eager to get the latest and most accurate information regarding agricultural work and therefore spend their time very profitably at the college.

This year there are courses in Factory and Farm Dairy, Poultry, Horticulture, Stock and Seed Judging, Apiculture, Farm Drainage and Farm Power. The attendance at these classes aggregates over 400 men from our rural communities. They are all here for business and are being warmly welcomed by both the faculty and our regular students who are glad to assist in any way to make the short stay pleasant and profitable.

We regret the omission of a few names from the Honor Roll in the Christmas number of the Review. We had not received intimation of their enlistment. We would be very pleased to receive the name of any O. A. C. boy who has enlisted, and whose name did not appear in the Honor Roll of the Christmas Review.

Pte. Raymond F. Halsey,'18 enlisted in the U. S. Navy in October of 1917. Pte. Halsey is at present studying wireless telegraphy at the U. S. N. Radio School, Harvard University, Cambridge Mass.

Shorey J. Neville of Class '10, enlisted about eighteen months ago. Pte. Neville spent most of the summer in Flanders. His address is: Pte. S. J. Neville No. 235006, 8th Battalion, C. E. F., France.

J. R. Almey,'19 has enlisted with the R. F. C. at Toronto.

The following letter of interest was received by Mr. Neilson, B. S. A. of the Horticulture Department from Pte. Richard Sands, '15 now on active service in France.

France, Nov. 31, 1917

Dear Jim,

Your interesting letter of October 19th arrived the other night. Glad to hear from you indeed and to hear of the "whereabouts" of so many of the fellows.

I suppose you will soon be directing your steps towards the O. A. C. However, I shall send this on to Winnipeg as I do not suppose you will change over before Christmas at any rate.

Since last writing you both A. H. Cowan,'17 and I have been transferred from the base hospital to No. 2 Can. Field Amb. That is our address now. Four of us came up to this unit and four other fellows went back in our place. We gave in our names the day we arrived at the hospital, but it was nine months before we "made the grade" as the saying is, and we were much surprised on arrival here to find so many fellows that we knew. There are two other O. A. C. boys here besides ourselves, R. Donaldson of '16 and C. W. Duff,'18. All of us are in the same section. A great many think that the field ambulance is more or less of a bomb-proof job, but that idea is gradually wearing out. In fact, according to figures published not long ago, relating to the percentage of casualties of the Can. troops, since the beginning of the war, the first on the list comes medical and sanitary services; second, engineers, miners and sappers; third, infantry; fourth, artillery, and fifth,

aviators. You see we are not always in some shell-proof dugout, but often have a long distance to carry stretcher cases before we can reach a place where they can be loaded on ambulances. In one place we were, we must have had nearly three miles to carry back from the line to the ambulances, with only one place of safety on the way. So when shells start to drop along the road in front and behind you it is not one of the most pleasant of places to be. Needless to say that those who started for the front did not all return.

Saw Bert Foyston,'15 not very long ago. He is in the 3rd Can. D. A. C. I have a brother in the same unit. I also saw "Cyclone" Ferguson who is still with Princess Pats. I have also seen Jim Creelman, Bob Skelton, I. B. Martin and "Art" White, all of whom are in the 1st Can. D. A. C. or at least were then. I have been to the 55th and 66th battery horse lines, and I have seen most of the fellows we knew in the two batteries. No doubt you knew that MacLennan,'16 had been killed not long after coming over here, and also Winslow about two weeks ago. He was wounded one day and died the next. I hear from N. A. D. Wiles,'15 at times. He and Lieut. Rierstead,'17 both seem to be doing good work in the R. N. A. S. Both, I think are attached to the R. F. C.

A short time ago we were close to the 1st field ambulance and I saw Bob Sutton,'17 several times, in fact, they were working right with us; also the 3rd. Hockey of '17 is in it, so I saw him then. Well, I shall have to drop anchor for this time. Kindest regards to any of the O. A. C. boys.

Your old pal,
"Dick" Sands,'15.

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interesting letter was
. S. B. McCready,

B. S. A. from Miss Laura E. Arnold, a former teacher-student of the O. A. C., who is at present teaching in a Mission School at Cape Palmas, Liberia, West Africa.

Miss Arnold tells of some interesting experiences in her missionary work with the people of Africa.

Cape Palmas, Liberia,
West Africa.

Prof. S. B. McCready,
Guelph, Ont.

Dear Mr. McCready,

Since giving up school-work in Ontario, I have been engaged in missionary work in the interior of Liberia. I came out here over a year and a half ago with Miss Hisey who had been home on furlough, after a term of over five years here, and Miss Bingeman, formerly a teacher from near Berlin, Ont. Since coming here, I have found the course which I received at the O. A. C. of practical value. It is necessary that we have an interest in, and some knowledge of farm work, gardening, poultry-raising, buildings, etc. As the children describe to me the trees, birds, insects, fish, etc., my mind so often goes back to Guelph that I just felt I should write and tell you a little about it; feeling sure you would be interested in this work, though so far from Ontario.

This interior mission consisting of six stations, all but one of which are in the bush country, was begun in 1909 by Mr. Harrow, formerly a Methodist Missionary on the Coast. There are at present eighteen of us in all. All have come from different denominations. The Mission is on the same basis as Ramabai's work in India and is not under any church or other organization in the home-land. In all our schools the day is divided so that a part is spent for prayer and Bible study, then a time

on the farm, the regular school period, farm or garden work, and then the evening prayer service, with recreation and time for meals between, of course.

This being a girl's school we have not so far had a rice farm as they do at the other stations, but the girls know how to plant and grow cassada, eddoes sweet potatoes, corn, beans and some fruit such as bananas, oranges, pine-apples, etc. Then each girl is allowed to have a little plot for herself in which she usually grows peppers, egg-plant, butter-balls and sometimes, some of the farm vegetables. The farm produce goes toward supplying provisions for the food of the whole mission. The individual plots usually are best attended. We have not so far grown successfully much of our home vegetables or fruit. We sometimes manage to grow some onions, lettuce, cucumbers and a little corn, but little else.

We have a splendid fowl-house and have some good English fowl. Today I have a Buff Orpington hen coming off with some fine chicks. The country fowl are very small, and they are poor layers.

I have charge of the school work. The people want the English language and since they have not a written language, and are totally ignorant of books, we find it works alright to teach them English when they come to school. Though we have a very simple equipment, yet school teaching in Africa is very interesting. The children seem to know so much about the birds, plants, animals and insects, of which there are myriads. I often wish I had come prepared to make collections, but I did not. We are not having school indoors at present on account of the girls helping to build a house for themselves. They carry the necessary timber for the house on their heads. You see we have no roads here, no horses; so everything, including our cargo from the Cape and ourselves (in hammocks) has to be carried by the natives. As a result we often wait very long for mail and provisions from England, we being at this station about seventy-five miles from Cape Palmas.

There are many things perhaps more interesting to me than to you, so lest I tire you I shall close, and I would be very glad to hear from you, if at any-time you have time to write.

Yours very truly,

LAURA E. ARNOLD.

France, December 29,1917

Dear Mr. Hunt,—

I received your very kind Christmas box the night before last and I am very thankful to you for remembering me among your many friends at this season, though I'm so very far away.

We have had quite a spell of winter here during all December, and could have had a good skate for the past three weeks if we desired, as far as ice is concerned, but of course we lacked the skates. I understand it isn't usual to have such a long spell of cold weather and this morning I traveled one road where the snow took me over the knees, but of course it all drifted in.

I spent my first Christmas in France at the guns and up there it was just the same as any other day except for the extra eats. A few chickens, hams, apples, pickles, etc., with plum pudding to finish up with had been issued extra, so I guess we fared as well, if not better than many of the poorer people at home.

We have met quite a number of the old College boys over here and it is good to see them all again. I don't think the war is much nearer a termination now than last year, but you people know as much about the war as we do because we know only what the paper

says outside of our own immediate vicinity.

Jack Shaw,'18, H. U. Western,'19 and all the rest of the boys are fine, but for a few colds which stick like tar to us over here.

I must close for now as it's so cold here that I can hardly write. I receive papers quite often, which are always welcome, and interesting. Thank you very much for sending them.

Yours very sincerely,
C. F. SHAW,'18.

The following interesting letter was received by Mr. Harley Selwyn,'18 from Lieut. Rolf Holmden,'17. Lieut. Holmden writes from Bramshott, England.

20 Res. Bn. R. H. C.,
Bramshott, Hants.,
November 21, 1917.

Dear Selwyn,—

Compliments of the season to you and yours!

You will have realized by now that I am a very excellent correspondent. I rarely bother anybody with letters. It is a commendable quality which undoubtedly you fully appreciate. After all, dear old Har., there is so little to write about to you folks at home. The incidents (personal) of a year in Flanders and France can be summed up in a few brief notes. My diary proves useful at this point. Here are the outstanding items:

Sept. 10, 1916. Nearly went West. A Fritz sniped me with bullet through right ear and base of skull and out through top of shrapnell helmet, gave me seven week's rest at Boulogne hospital. I needed it. Had not been to bed for five days and nights; too busy wiring at night and building parapets, sort of endless occupation, building up for Fritz to knock down This was in the Ypres salient, right at Dickiebush—Messines sector.

Nov. 1916 (no date, happened too often). Regina trench, right at Pys. Blown up twice this trip; seven bullet holes in tunic, sleeves and shoulders, one in helmet and four dents from shrapnell, quite exciting. Sat on dead Hun for twenty-four hours, thought he constituted fire step, but he began to prove his identity at end of second day. He smelt aloud Rather disgusting! Tried to give him decent burial. Went to get a shovel; returned to find his friends had wafted him away with shell. Trench here full of dead Huns—frequently three deep.

Nov. 1916. Same place. Went out tonight in "No Man's Land" alone, wanted to find German wire. Imagined I had found a lone German on patrol. Saw dim figure of man at edge of shell hole, quite still. Figured if I crept up quite close on my stomach and then jumped for him I could get him with bayonet. I did and got very close and then took flying leap right on top of him driving bayonet clean home. He didn't utter a sound. He was dead. I felt horribly sold; had keyed myself up for a devil of a fight if I didn't stick him before he saw me. Found Fritz wire by walking into it. Beat a hasty and undignified retreat.

Nov. 1916. Second trip in. Same old story. Blown up again—stretcher party and two walking cases, nine men in all. One killed. Six wounded. Got help and all wounded out. Everybody gets blown up here at some time or other, but it is rather hard to get used to. Don't think I ever will! Feel rather sick and generally shaky, head rather queer this trip. Tired, I guess.

Christmas 1916. Vimy Ridge. In reserves here doing working parties. Fritz is great on celebrating. Gave us a warm hour just at midnight last night.

Opened his whole box of tricks. It is his idea of humor. Think he has his "wind up" for he keeps the fire works going all night. Interesting sector. Lens to our north, Arras south and west; usual quota of ruined villages. And so it runs on, all bringing back to me as I read it a thousand thoughts and crowded emotions. The notes themselves carry no interest to others, but to me they are the finger posts of an experience full of intense thought, of pathos and humor, of terrible tragedy, sacrifice, of love and inspiring memories of brave men's deeds, lives and companionship; but to you or any other far away from the scene of conflict what can such items have of interest?

I know that you and many a man like you are in heart whole sympathy with us, would be with us long ago if you could, that you like to know what we are doing, and what we experience and think; but what we experience you find every day in the papers even more clearly than we would ever be allowed to write it. The horror, the filth, the tragedy and weariness of it all has become an accepted routine with us, the adventure and thrills have not altogether lost their charm but they are daily tasks, the nerves are a little more evident, the glory? well, there is no glamor about war! But glory there is in the deeds of utter, unselfish valour and comradeship that animates the rank and file to "carry on" bravely, patiently, nobly, for their motherland. What does one think as he lives it all? More than I can ever tell you, but there have been times when I have watched our men, that I have felt and loved them beyond everything else in Creation, and felt a clearer conception of the meaning of God and hope than I could ever have found in the humdrum life at home! They never fail in noble deeds, they never fail in the time of need, they lay down their lives to save comrades wounded with smiles on their faces. They curse and grumble and growl at the little things of life, but in the things that count they never fail. It is not what men say that counts, it is what they do, and these men by their acts have preached greater sermons in the beauty of honor, love, fidelity and true virtue than all the greatest preachers since the Church was. "Nuf Sed."

England! Yes I have been here some time. It is a beautiful country. Its homes breathe homeliness and comfort; its beautiful landscape is full of charm and ever seems to call to one to linger here. Its people are very fine, a charming, rather exclusive folk, not so much from coldness as courtesy; a solid respect for individual privacy. They are solidly conservative, yet far from insular. Indeed they are very well informed as a rule on all things and points of interest connected with the outer world. Rather more so than on points affecting their own country and social life. I love England, but I am a Canadian. Give me Canada first, last and all the time!

There old comrade, is a bit of gossip. Now I must shut up—rather an inelegant way of putting it, yet expressive.

Again, a Merry Christmas and a Happy New Year to you and yours,

Sincerely, your friend,
(Sgd.) Rolf Holmden, Lt.'17.

E. A. Howes, B. S. A. of Alberta Agricultural College, Edmonton visited the O. A. C. recently.

Mr. Howes is a graduate of the O. A. C. in the spring of 1911. He is at present "dean of agriculture," at the Alberta Agricultural College, Edmonton.

Spr. J. H. Kezar,'19 who enlisted in the early fall of 1917, has safely arrived

in England. Spr. Kezar's address is:

Spr. J. H. Kezar,
No. 2265983, C. E. F.
Care of Army P. O.,
London, England.
Engineers' Camp, Seaford.

Pte. G. Whittingham,'15 who enlisted with the Western University Battalion has recently been reported wounded.

Capt. J. G. Spencer, B. S. A.,'14 has received the D. S. O.

LATE LIEUT. CLIFFORD STOKES

whose death was reported in a previous number of the Review. He was well-known to all the boys of his year at the College.

MARRIAGES

EVANS—TAIT

The marriage of Mr. Oliver C. Evans, '17, son of Rev. J. A. and Mrs. Evans, and Miss Marjorie Margaret Tait, ward of Mr. and Mrs. H. Stade of Chilliwack took place quietly at Vancouver on Friday, December 21st. Rev. A. E. Roberts, formerly of Chilliwack, performed the ceremony at the Methodist parsonage, 474 Pender street, east.

After spending a short honeymoon in Vancouver and Victoria, Mr. and Mrs. Evans have returned to Chilliwack and will take up their residence on the Evans' homestead.

Mrs. Evans for the past three years had been attending Ladies' College in Iowa and Wisconsin. Mr. Evans is a graduate of the O. A. C. and is well and favorably known to us all.

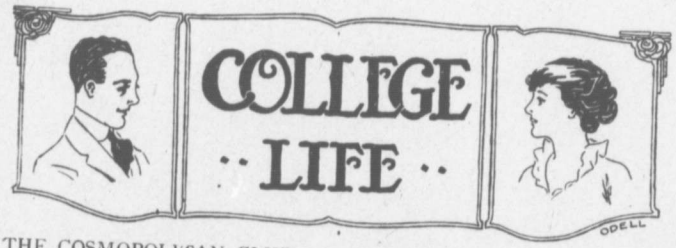
"Husky" as he is known to us, had many achievements at the College here. In athletics he was the year star. He was a member of the track team that won the Inter-Faculty Track Meet two years in succession. In his second, and again in his third year he was grand champion of the Indoor Meet; and in his senior year he tied for grand champion of "Field Day." He holds two college records. He played the game hard and clean, and won the reputation of being a true sport, an honorable opponent, and a gentleman both on and off the field of battle.

"Husky's" name always appeared well up when the examination results were published. Although a great athlete, he never allowed sports to interfere with his studies.

"Husky" is a genuine, modest, whole-souled man without cant or seeming. We have every reason to believe that more will be heard of him anon.

The Review and students send their hearty congratulations to Mr. and Mrs. Evans.

Mr. and Mrs. John J. McGavin announce the marriage of their daughter Jennie to Mr. Wilbur E. Turnbull on Wednesday, January the ninth, nineteen hundred and eighteen, at Walton, Ontario.



THE COSMOPOLITAN CLUB.

"Above all Nations is Humanity"

Since the depletion of the student body owing to enlistments, the past few years have been the hardest in the history of the club. Despite this fact, the year of 1917-1918 has proved very successful. The total membership is seventy-one, fifteen of these being members of the faculty. The club fills a place in college life which no other organization can fill. Its object is to promote a better understanding of the political, economic and literary problems of the different countries, also to cultivate social intercourse among the students here at the college. Many a lasting friendship has thus been made over a friendly chat, a cup of tea, or a game of billiards. It is a place where all may meet on common ground, have a friendly chat, a smoke, or light refreshments after the turmoil of a day's lectures.

The club endeavors to have entertainments for its members whenever possible. This year for the first time in its history, afternoon teas have been served in the club rooms. Their popularity is evident by the large attendance of students and faculty alike.

We are all brothers in this world, so why not get acquainted. Drop in and see us anytime.

W. F. G.

THE LIVE STOCK CLUB.

For some time past there has been felt a need for a means of supplementing the work in Animal Husbandry in the regular course as given at the college. With the view of meeting this need the Ontario Agricultural Live Stock Club was formed in December, 1917.

The main objects of the club are: to help its members become better acquainted with the science and principles of Live Stock Breeding and Raising; to keep the members, as much as possible, in touch with all government work in the development and aid of the live stock industry; to gain a comprehensive knowledge of the leading breeds of live stock both by judging and lecture work; and to uphold the importance of the live stock industry in its relation to other branches of agriculture.

The club has been favored with the united support of the staff members of the Animal Husbandry department and the student body. A series of meetings to be addressed by leading men of the business is being arranged and much benefit will no doubt be received by the club members from these lectures and the open discussions following.

L. E. O'N.

THE APICULTURE CLUB.

The O. A. C. Apiculture Club was formed in 1910 by a number of students who were interested in the advanced study of bees and wished to get a more complete knowledge of the science of beekeeping than was possible in the regular course of lectures. Ever since

the organization of the club Mr. Morley Pettit has been our honorary president and has spared no pains to make his subject interesting. His work has been much appreciated by all the members and many successful beekeepers now look back to the pleasant evenings spent at the Apiculture Club.

During the present year the club has reached its maximum membership and is doing its utmost to encourage the students to take up with the practical work of beekeeping. Among the speakers this year special mention might be made of Mr. J. F. Dunn, Ridgeway, Ont., whose address on "Beginning With Bees" was most instructive and interesting. Mr. Dunn is a practical beekeeper and a man who will never grow old. He loves his bees and makes everyone else love them; even the stings are a satisfaction to him. Never was a pleasanter evening spent than that on which we were entertained by our venerable friend from Ridgeway.

J. B. M.

THE HORTICULTURE CLUB. 1917-18

The Horticulture Club was started in 1908 for the purpose of discussing both practical and scientific problems of vegetable and fruit-growing. The object of the club is not only to help those intending to take the Horticulture option, but also to arouse the interest of others and generally promote Horticulture within the college.

During the fall term the meetings were devoted to competition in fruit and vegetable judging. A keen interest was taken in these competitions, as they provided very good experience along this line.

The spring term has been given over to lectures by prominent Horticulturists, both from Experimental and Commercial farms, and we are very grateful to them for this interest in the club.

The club is grateful to Professor J. W. Crow and the members of his staff, who have shown such enthusiastic interest in the meetings; and takes this opportunity of thanking them for the trouble they have taken.

R. W. O.

THE POULTRY CLUB.

Since its organization in 1908 it has been the aim of the Poultry Club at the college to supplement the Poultry Course as directed by the college curriculum. Its aim has ever been to make poultrydom a business, both practical and scientific by the dissemination of the best poultry literature, by keeping on hand the most up-to-date magazines to which students may have access at all times, and by conducting practical judging classes among the students, thereby enabling them to get a more thorough knowledge of the different breeds and to enable them to distinguish vigor and utility characteristics.

Toward that end a room in the Poultry Administration Building has been set aside where magazines pertaining to poultry in all its branches may be read. During the fall term weekly judging classes were held and practical work with the breeds was conducted by Prof. W. R. Graham and Mr. F. N. Marcellus. The club has also been fortunate in having practical poultry-men lead in discussion on everyday poultry questions among them being Mr. Lewis Clark, now head of the Poultry Investigation Department of the Food Controller's Office. Before this article appears in print a practical demonstration on Egg Candling will be held where each member of the club will have an opportunity of candling eggs from incubators in both the ninth and fourteenth day stage of

hatching as well as candling and dividing fresh eggs into the different grades of the market classification.

G. R. W.

THE BIOLOGY CLUB.

The Biology Club does not attempt to secure a large membership. There are no president, secretary or other officers and what is best of all there are no fees in connection with the club. The members meet about every two weeks, usually at the home of a faculty member, where a paper is read by some member of the club. The man presenting the paper has full charge of the meeting for that particular evening. The aim of the club is to promote an interest in biological topics which may not be discussed in the regular way in the class-room. This year a series of papers on the life and works of some of the great scientists is being presented. If anyone is really interested in the work we are doing we shall welcome him heartily.

A. V. M.

UNION LITERARY MEETING

On Saturday evening, January 19th, the Union Literary Society entered upon the term's work with a very successful meeting. The honorary president, Dr. O. J. Stevenson, occupied the chair. The opening numbers were a vocal solo by Miss M. Sussex and a piano solo by Miss E. Martin, both of which were much appreciated.

"Resolved that the Natural Advantages of Ontario are greater than those of the British Isles," was the subject of a very interesting and instructive debate; E. C. Stillwell and T. H. Jones, Junior year, upholding the affirmative and B. Maxwell with G. J. Arnold extolling the British Isles, proved themselves speakers of no mean calibre.

Mr. Stillwell plead the merits of Ontario's more bracing climate in its effect on the stamina of the people, as well as on the soil, greater variety of sport, physical features as affecting drainage, unsurpassed scenery, and possibilities along agricultural lines when the clay belt is developed.

The negative divided the natural advantages of the British Isles under the following headings, geographical position, topography, climate and resources. Maxwell discussed them as they affected agriculture, emphasizing the favorable conditions for producing good size and quality in horses' feet, fisheries and the physical development of man.

Mr. Jones followed, considered the fish of Ontario (fresh?), and turned to her forests, minerals, fur-bearing animals and waterways as they affect the generation of electricity, Ontario's white coal. He also remarked that though we must wear more clothes to keep warm, we have an abundance of fresh water to keep the body clean and the pores o the skin open. His arguments were the more convincing because of his frequent reference to the volumes at his elbow.

Mr. Arnold dealt with the natural advantages of the British Isles as they affected world politics, her commerce and industries. He laid stress on the value of her great iron and coal deposits which accompany each other.

Dr. O. J. Stevenson then gave a short lantern talk on the development of the Gothic style of architecture, which should help those who heard it to view with greater interest the beauty of our own and European cathedrals, educational and public buildings.

The decision of the judges of the debate, Messrs. T. H. Lund, B. S. A., S. Curzon, B. S. A., and G. H. Unwin, B. S. A., was then given by the latter in favor of the negative. He dispensed

with the usual critic's remarks, but suggested that a critic from outside the faculty might be obtained with benefit to the students.

C. A. C.

O. A. C. Carnival a Great Success

The Annual Carnival was held on January 25 in the new steel arena. A large crowd from the city was in attendance with the students from Macdonald Hall and the O. A. C. The ice was keen and the music copious and delightful. The tastefully decorated lights threw a soft glow over the skaters, gayly bedecked in many-colored costumes. Year pennants and a large Union Jack were suspended over the ice adding much to the attractiveness of the scene.

The first three bands were reserved for those in costume and drew forth a large number, the general excellence of whose dress occasioned much approval from the crowd of interested spectators. Competition was very keen for the six coveted prizes offered by the rink management. The judges, Mr. S. R. Curzon, Mr. Hooper and Mrs. Doughty finally made their awards as follows:

Lady's best fancy costume, Miss H. English.

Gent's best fancy costume, Mr. B. Maxwell.

Best fancy lady skater, Miss M. Heffernan.

Best fancy gent skater, Mr. W. R. Gum.

Best lady's hard luck costume, Miss M. Creelman.

Best gent's hard luck costume, Mr. W. Geddes.

The rink manager, Mr. E. G. Minielly, is to be congratulated on his successful efforts to provide such splendid ice, excellent music and agreeable social conditions for his patrons.

Alpha Literary Executive

The following executive has been elected for the spring term:

President, A. M. Stewart.

Vice-president, T. H. Jones.

Secretary, H. G. Whillans.

4th Year Representative, P. M. Overholt.

2nd Year Representative, A. F. Hansuld.

THE WONDERFUL, BEAUTIFUL, INTERESTING EARTH

"If one has drained his land, and plowed it, and fertilized it, and planted it, and harvested it—even though it be only a few acres—how he comes to know and to love every rod of it. He knows the wet spots and the dry spots, the warmest and most fertile spots, until his acres have all the qualities of a personality, whose every characteristic he knows .. .. Of all the places in the world where life can be lived to its fullest and freest, where it can be met in its greatest variety and beauty, I am convinced that there is none to equal the open country, or the country town. For all country people in these days may have the city, some city or town not too far away; but there are millions of men and women in America who have no country and no sense of the country. What do they not lose out of life."—DAVID GRAYSON, in American Magazine.

ATHLETICS

ODELL

HOCKEY

O. A. C. vs PAGE-HERSEY

The game was played in the college arena on Friday evening, January 25th, before a fair-sized crowd who made up in enthusiasm whatever they lacked in numbers.

It was undoubtedly the fastest game of the season to date; both teams were in the game strenuously from start to finish, and in consequence, there was at times some rather severe checking.

On the whole the visitors appeared to have a margin in speed. This was especially evident at the beginning of each period. Right at the start, the munition workers rushed the play and scored two goals in five minutes. The college team seemed dazed, but soon settled down and showed better condition than their opponents. Shoemaker, the fast college center, scored the first on a pass from Stillwell. Then the visitors scored their third goal from a mix-up in front of the nets. Immediately afterwards, Shoemaker took the puck from center, went through the whole Page-Hersey team, drew the goal-keeper out, and netted the puck in professional style. The visitors scored once more, the period ending 4—2 in their favor.

Soon after the commencement of the second period, Allan, who had been playing a very strong game, was fouled and was unable to continue. Alexander was substituted, and put up a sterling defence. Page-Hersey counted one unearned goal when the puck bounced in off Musgrave's foot while he was trying to clear. Shoemaker scored the third goal on a pass from Shales and soon after pushed another past the visiting goalie.

In the third period there was no score, the visitors were exhausted and merely stalled for time. The college team pressed the play, but were unable to score.

Smallfield played his usual star game, handling all kinds of shots in masterly style.

Shoemaker made the prettiest play of the evening when he scored his second goal in the first period. Incidentally, this player did all the scoring for the college. He is certainly a comer. The line-up:

Goal, Smallfield (Capt.)
Defence, Allan, Musgrave.
Center, Shoemaker.
Right Wing, Shales.
Left Wing, Stillwell.
Spare, Alexander.

W. Cooke of Cataraqui handled the game with perfect fairness.

HOCKEY

The inter-year hockey series opened at the college arena on Tuesday, January 22nd, when the Sophomores and Freshmen clashed in the opening game of the series. The game resulted in a decisive win for the Freshmen, the score being 11—0. A large number of enthusiastic rooters were present to cheer the opposing players.

The Freshmen outclassed the Sophomores and had it not been for the excellent work of Smallfield in goal,

they would have piled up a record score. The stickhandling and shooting of Shoemaker was the outstanding feature of the game. Alexander, Taylor and Sirrs also played a strong game for the winners.

Currier and Frey appeared best for the Sophomores. Frey was slightly injured and was replaced by Murdoch. The Sophomores showed lack of shooting ability and lost many chances to score when opportunity offered. The Freshmen will bear careful watching in the finals for the inter-year championship.

R. C. Moffat refereed the game, giving entire satisfaction. The following is the lineup:

Sophomores		Freshmen
Smallfield	Goal	Rice
Quirie		Alexander
Currier	Defence	Stirrett
Frey	Center	Shoemaker
Whillans	Right Wing	Sirrs
White	Left Wing	Taylor
Murdoch	Spare	Barber

O. A. C. vs McMaster

The opening game of hockey for the college was played in the college rink on Friday, January 18th. It was witnessed by a large crowd of both McDonald Hall and O. A. C. students, whose kindly support was much appreciated by our own players and their sportsmanlike conduct on the side lines by the visiting team.

At the commencement of the first period, the McMaster boys put up a stiff fight, but due to lack of condition slowed down considerably as the game advanced, and were glad when the whistle blew for the close of the last period. The game was clean throughout and few players were penalized.

Frome, the left wing for McMaster showed considerable speed and was an adept stick-handler; while Matthews, their goal-minder, played a consistent game, considering the number of shots which he had to handle. The college boys showed lack of combination, but the individual playing was of such a style as to cover up this defect. Stillwell showed remarkable speed, his back-checking being the feature of the game. Smallfield in goal played his usual cool game, stopping and cleaning in professional style.

Referee Smith of Guelph handled the game to the satisfaction of all, and the boys are looking forward to a clean, fast game when they play the return in Toronto.

Score 12—1. Favor of O. A. C.

The college was represented by:

Goal, Smallfield.
Defence, Musgrave, Alexander (1), Allan (2).
Center, Higgins.
Right, Shales.
Left, Stillwell.

BASKETBALL

G. C. I. vs O. A. C.

The first practice game of the season was played in the O. A. C. gym on Wednesday, January 23. The collegiate boys came up and though the gymnasium was cold, both teams managed to warm up thoroughly. The college boys were superior in height, reach and shooting ability, but the collegiate team had the better combination and their forwards covered the floor better. They worked the ball down the floor with short fast passes taken at full speed. On account of the superiority in size and the very fair shooting of the forwards the O. A. C. team won, 38—8. Mr. Hooper of the G. C. I. refereed to the satisfaction of all. O. A. C. lined up: Center, Michael; Forwards, Odell and Matheson; Guards, Weber and Musgrave; Spares, Sirrs and Pegg.

AN ANSWER TO HIS VALENTINE

Dear George, your Valentine, a charming notion,
I read with some surprize;
It quite assures me of your true devotion,
But I must criticize.
Quite out of date, I find your queer allusions
To Cupid's bow and dart,
And obsolete, though wreathed with sweet effusions
The offer of your heart.

This offer (so polite and quaintly formal
As Valentines should be)
Though of an organ healthy, strong and normal,
Is of no use to me.
Though indispensable to circulation,
As Coleman's pages tell,
An auto of the latest fabrication
Would suit me just as well.

I know it pumps each moment in the hour.
But yet I am afraid
That I would rather have electric power
To be my daily aid.
Its auricles, their fillings and their clearings,
Are marvelous to trace.
But, George, I would prefer a pair of earrings
My little ears to grace.

A cone-shaped organ, so the pictures show it,
That works the vital stream.
The only cones I care about—you know it,—
Are cones of rich ice cream!

Of semi-lunar valves the contemplation
Would bore me very soon;
I'd rather have a walk, with conversation,
Beneath the crescent moon.
Yet, George, do not assume, in deep dejection,
That we must dwell apart.
I'll take yourself, your home and your affection,
But not—oh! not your heart!

"FRESHIES" INITIATION—MAC HALL

"All things come," etc.

With trepid fear in the hearts of some thirty-six new girls, an assemblage for the purpose of an introduction to their initiation was held in the laundry at precisely 6:15 on Thursday evening, January the seventeenth.

All victims wore dago-like earrings suspended by colored ribbons on their ears and the display of costumes (?) was gaudy if not specializing in harmony. The prominent families collected were the Katzenjammers, Newlyweds, Kuggles and several domestic animals including cats, dogs, a mouse and a cow. The "Homemaker" class officiated in outfits of somewhat ghostly appearance; and others of a slim nature and more daring character impersonated his Satanic Majesty of the lower regions, with unlooked for success.

All parts were thoroughly played and the giggling was due (we observed) to nervousness—'cause just who wouldn't be scared on such an occasion?

"Snookums" was a perfect "lamb;" his doting parents as realistic as McManus has painted them, the Kuggles family were apparently raised in picturesque harmony and Mr. O. A. C. and Miss Mac Original (?) carried on a telephone conversation which was almost intellectual!

The animals were splendid. Dutch Cleanser was loved by the on-lookers and the Macaroni consumers enlisted the sympathy of everybody. Mary Jane, Tige, and Buster Brown are distinctively worthy of mention and the cheese and bone seemed to contain a great amount of carbo-hydrate!!!

Enough———

Time was limited so conclusions were finally arrived at when "eight bells" announced the commencement of study hour.

.. .. Oh! A slight diversion in the way of ice cream cones (3 per) was mutually agreed upon to put the finishing touch to the proceedings.

P.S. The "Homemakers" are nervous wrecks.

Libys Ecyob.

THE PROMENADE

Had a stranger entered MacDonald Hall on a certain Saturday morning in January (the 12th to be exact) however unobservant, he would have read the unmistakable symptoms of a coming event. Kimono-clad figures filled the corridors, while from all directions came requests for curling tongs, cold cream, etc.—all indications of the world-famous "prom." By eight o'clock the second corridor was a mass of struggling humanity, rushing to claim pre-arranged proms and seeking the acquaintance of the new arrivals—very "fetching" in their vampire-like earrings.

It seems that even scarcity of coal can have its advantages for to the surprise of everyone it was announced that there would be dancing in the gymnasium. In spite of the fallen mercury, the thoughtfully-arranged chairs in the corridors were not vacant and the well-known haunts were filled as usual. The musical program consisted of a violin duet by Hattie English and Dorothy Bishop; vocal solos by Mizpah Sussex and Bert Hopper.

Between the fifth and seventh dances, hot coffee and cake appeared and disappeared with surprising swiftness, greatly livening the spirits of the crowd in general. Even the most inventive were not able to find a plausible excuse for lengthening the program and at the usual hour the hall was in darkness.

SONG OF A SHORT COURSE GIRL

Tinkle, tinkle, little ring;
What a pretty song you sing!
Dangling from my ear so spry;
Dazzling everybody's eye.

When the dreadful night arrives,
Then we'll risk our precious lives;
Grovelling down upon the ground,
While the old girls stand around.

But the time will come at last
When our ear-rings will be past,
Oh! how happy will we be,
Not to hear their melody!

Not to see the ribbons bright—
Of Homemakers, the delight!
Not to have it plainly seen
That we are so very—green!

M. F. M.

MACDONALD HALL ATHLETIC NEWS

With the opening of the winter term the interest in the athletic life at Mac-

Donald Hall was renewed with increased keenness and the new girls are beginning to take an active part in all sports.

At present the game receiving the most favoritism is hockey, which is more popular than in former years. Six teams have been organized the members of which are chiefly beginners and among these are some very enthusiastic and promising players.

The first match of the season was played against the Sophomore Year of the O. A. C. on Monday, January 14th. The boys were handicapped by having to play with their left hands with their right hands in their pockets. The game proved to be very close and exciting for the spectators to watch. At the close of the first half the boys led with the score 2—1 goals, but at the finish the girls in the lead with 5—3 goals. The MacDonald Hall team was as follows:

H. Graham, goal.
E. Casselman (captain) left defence.
E. Nicoll, right defence.
M. Frost, center.
H. English, left wing.
O. Moffat, right wing.
R. Sinclair, center.

The Junior Faculty challenged this team for Monday, January 21st. The play was very even all through the game, but the men finally won, 5—3. The girls will be glad if challenges are received from the other years as matches are always looked forward to with interest.

Whenever the rink is open for general skating it is crowded with keen participants of the sport especially on Wednesday nights and Saturday afternoons when a band is in attendance.

Skating is not the only pastime in which the "inmates" of the Hall indulge. The Athletic Society have invested in a tobaggan which is free for the use of the girls and is taken out on every possible occasion.

A good number of girls are taking advantage of the shooting practices and several promise to become very expert marksmen.

"LOST IN TRANSIT"

MacDonald Hall,
Feb. 9, 1918.

My dear Aunt,

I like MacDonald immensely and we are learning a tremendous lot of things; horticulture, shooting, cooking, baseball, chemistry, dancing, physiology, poultrykeeping, skating, singing, hockey laundry and some more things that I don't remember just now. You will be very much pleased to see how much I can do when we meet again. I will try to explain some of the things I have learnt.

You can tell when the hens need water by tapping them with your knuckles; if they sound hollow, you must give them water. A hen can only hold on a certain amount of feathers, and that is called its valance. When preparing the hens for cooking, you must cut off their feet just below the node, quite horizontally. If the hen is young, the leg will feel like a young carrot when you cut it. It should not have any fibres sticking out or it will be tough. When you have cut off the feet, you must remove a corresponding portion at the other end, to balance. You must remove all the old corns from the interior. You can also tell an old hen from a young one by rubbing your thumb on it. If it sounds like D sharp it will be more crisp than if it sounds like B natural. In plunging the hen into water, or other dissociating liquid, be sure not to forget the cloth.

To make cranberry sauce, you put the cranberries in an iron frying pan and stir them with a wooden spoon

until they turn brown. A few drops of turpentine will keep them from sticking.

Did you know that we have white cells in our blood? They do the most wonderful things. They seem to go round with string mops and flannelette dusters, cleaning up all the drain pipes in the body. One of the most important is the sailors' hornpipe, which is the organ that is affected when you are seasick. When too many of them get together in one place, the skin turns white, and that is what happens when your face is frost-bitten. They need to be frequently sprayed with soapy water, or bleaching solution, especially in a dry, overheated atmosphere. They are usually most abundant on the backs of the hands.

We have gymnastics twice a week. They develop sarcolactic acid which makes the muscle fibre tender so that it doesn't have to be simmered such a long time. This saves fuel which is very important now that coal is so scarce. We also have the steam heat turned off in our bedrooms during class hours which ought to help quite a bit.

Today we learned how to salt bacon. I thought it was rather foolish because bacon is quite salt enough already, but I suppose it makes it go farther so that the boys in the trenches will get some. I was going to put away a big jar of pepper, and the top was loose and I spilt about a pound of it on the floor. I scraped it up and all might have been well if the entire class had not begun sneezing, so my misfortune was discovered and I got a lecture on the sinfulness of wasting pepper in wartime. I think it was lucky that it wasn't eggs.

I am going to make a milking stool soon. Last Saturday all I made was a lot of shavings. I have bought a paint box with the three primary colors. They seem to be something like the elements, you can make everything else out of them. I might paint the milking stool when it is finished. After that I shall learn to milk. I don't think it's worth while learning to make butter because it's getting so dear that nobody will want to buy it. I shall ask if I can learn to make oleo-margarine instead. My contingency money is all gone because I dropped a tray full of china when I was in the apartment. I know now that you mustn't bake a junket, and I shall know a whole lot more before the vacation. You spend much more than you would expect here.

I hope your rheumatism is better, and I remain,

Your affectionate niece,
BETTY BUNGLE.

"MAC HALL" LOCALS

Why did Denneau make such good marks in Apiculture?

He was coached by a Bee-man.

SOME BARGAIN

New Girl—What are you going into the Co-op for?

2nd Girl—To buy a feller (filler).

New Girl—How much do they cost?

2nd Girl—15 cents straight, or two for a quarter.

Her arm encircled his neck. She stood on tip-toe to make the warmth of her embrace more complete. His arm was round her waist, and he held her to him with forceful tenderness. They seemed oblivious of spectators. Her brother back from the front? Not at all. They were introduced ten minutes ago! ? ? ? ? Merely the modern style of dancing.

AT THE PROM

She—It's very cold, isn't it?

He—Yes. Seven below zero, I believe.

She—Why, I had no idea it was so cold in the Hall.

Mary E.—Mrs. Fuller has just told me that I could not use my electric tongs any more.

New Girl—And will she not even let me use kid curlers?

Will we forget the day that M. K. first wore—a smile? Since then, we see that others have joined the smiling class. And the bright lights are so hard on the eyes.

Miss Job—"Why, whatever have you been doing with yourself, Miss B?"

B.—"Oh, I'm covered with boils, just like poor old Job."

We wonder why Archie Porter had such trouble in skating one particular evening. Evidently he had mistaken his right foot for his left.

OVERHEARD AT THE RINK

Fair one—"Why have you not been at church lately, Mr. Patterson?"

Pat—"I really was unavoidably absent," etc.

We wonder why Baptist friends are so deeply interested in some of their church attendance?

(For reason apply to the editor.)

Was it purely accidental that two heads were discovered so close together during the Lantern Talk at Lit one particular evening? Perhaps some thoughtless person ahead, had failed to remove her hat—a charitable friend suggests. Perhaps because two heads are better than one—you remark. But let this suffice, Girls, as a timely warning. You are under the surveil ance of the convenor of the love-lorn committee.

Place—a corridor in Mac Hall.

Time—3:30 a. m.

Scene—a Junior Normal sitting in a rocking-chair, comfortably surrounded with quilts.

Night rover—"Why, not in bed, Evelyn?"

Evelyn—"Oh, I found it rather crowded, so I left the mouse comfortably in bed."

Might we suggest that a list of Mac-ites holding season-tickets for the rink be posted in the O. A. C. phone booth for the special benefit of P. and H.

Has Macdonald dispensed with the rainbow hues in his socks yet?

The Freshmen wonder when the Dean goes to bed. Keep them wondering, Dean.

Who was the boy in Year '21 who was warned by the Police Constable not to be going home in "the wee' sma' hours?"

Who is the Freshman who allied himself with a "Soph" to disturb the early morning peace of Middle Hunt? Has he insurance?

ED. NOTE—We refer you to "Webster's" dictionary.

When is Gibbard going to stop mentioning Mac Hall girls in his sleep? His neighbors are complaining. Don't mention names, Gibbard. It might be embarrassing ——?!——.

How is it that H. Clarke changed his mind when he heard that the basketball practice was to be held in "Mac" gymn.

Lathey (at phone) "Is Miss M— in?"
Mac Voice—"Which Miss M—?"
Lathey—"Search me."

"Christy" 21, went down town on Sunday carrying a cane.—Poor Canada!

Has Eidt the mumps or toboganitis?