PAGES

MISSING

THE O. A. C. REVIEW

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

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The New Year

"MAY the New Year be a Happy One to you, happy to many more whose happiness depends on you!"

And there we have life in a nutshell—to be happy ourselves, and to make others happy.

Perhaps the word has lost much of its meaning to us during the past three years. The sorrows and sadness about us, the strain of impending disasters, the unsettled and unsettling conditions of things, the high cost of living, and the scarcity of labor and other things has made so many people unhappy, yet why should we worry, "God's in his Heaven, all's right with the world."

DR. G. C. CREELMAN

Then, seriously, is there real cause for unhappiness in Canada today. Are we not under the stress of war finding our real strength and losing our false gods? Three years ago hundreds of thousand of our people opposed even Provincial Temperance Legislation. Today the Provinces are all "dry," but one, and the Federal Government even between Sessions of Parliament has the boldness to make the most stringent liquor laws this country has ever known. Not a word do we hear from the thousands who talked about "The curtailment of personal liberty" just a year or two ago. Already our gaols are getting into disrepair for the want of occupation and our gaolers are being forced to seek other means of livelihood. Aren't these results causes for rejoicing? Then the old political parties as such as are passing away. By an overwhelming majority, a real Union Government has been elected by the people, for the people. What, you say, Liberals and Conservatives voting for the same candidate? Certainly, why not? Why not indeed? But when you stop to think how impossible the mere idea would have been received two years ago, you must pause and consider the far-reaching effect such "coming together" is bound to have on the future life and legislation in Canada. Is not Union Government alone sufficient justification for real jubilation?

Then the record of our splendid men at the front: what sorrow and chagrin there would have been if our young Canadians had not shown themselves to have been real valiant defenders of

their home and their Empire. Let us rejoice and not grieve. What nobler occupation than their present work, what grander death can anyone die?

Our women, too, in the hospitals, in replacing men in so many occupations, and in the homes. Splendid! you say, so say we all. And the farmers, our brothers and fathers and uncles, there's the least conspicuous part of all—day by day and far into the night, without help, and with sudden climatic changes, the Canadian farmer has shown a wonderful spirit of tolerance to criticisms from uninformed sources. He has gone on his way increasing his output without guarantee of fair prices; has sown his fields to his utmost capacity, trusting in Providence for health and help to harvest the crop. He has listened to advice— good, bad and worse, without losing his temper, and he has set his face steadfastly to the goal; more food for the boys who are fighting for us, and sufficient food, in addition, for all of our people at home, for people of the cities and towns as well as residents in country places. Therefore, we all have cause for happiness on this Bright New Year.

But what about the latter half of our text—"those whose happiness depends on you."

Our advertisement for three years has read, "If you can't go to war, go to College." Now you are here, what are you doing to make others happy, and what are you preparing to do for those at home when you return in April? Youth is the time for joy, and youth must be served. Boys, you can give more joy and happiness to those at home next spring and summer by hard work, systematic effort and improved methods than in any other way.

Girls, by "cutting out" the non-essentials, by rising early every morning, and by applying your "college knowledge" to your household duties, you will surely help win the war, and at the same time bring untold happiness into your own homes, and perhaps into the whole neighborhood.

Saving and Using Skimmilk and Buttermilk as Human Food

By R. Finkelstein, B. S. in Agr.

TENNYSON wrote, "Old order changeth, yielding place to new." What was true in Tennyson's day is equally true today, and it is as applicable to public necessities, tastes and fancies as to the industries reflecting them. The milk-products industry, which is under consideration here, is no exception to this general proposition.

Wasteful Methods

Data furnished by S. C. Thompson of the Dairy Division, Bureau of Animal Industry, U. S. Dept. of Agr., indicate that in manufacturing butter only one-third of the total nutrients found in milk is utilized, the remaining two-thirds being usually wasted as skimmilk and buttermilk, and further, that in manufacturing cheese only about one-half of the total milk solids is used as human food. But there is another side to this story. The manufacturers of condensed milk and milk powder do not waste any of the food constituents present in the milk and so pay higher prices to the milk producers

and draw their patronage away from creameries and cheese factories.

Changed Market Values and Opportunities

On account of the changed conditions due to the war, the demand for casein, milk sugar, skimmilk-cheese, condensed skimmilk and milk powder increased greatly. As a natural consequence, the market value of these products also increased. The war forced up the prices of milk solids other than fat, so their commercial value is getting closer to their food value as compared with the butter-fat. Skimmilk powder was selling at 8 to 11 cents per pound wholesale before the war and is now selling at 14 to 20 cents, according to "The New York Produce Review." It follows from this, that skimmilk and buttermilk are particularly valuable products at this time from the financial as well as from the food value point of view and, further, that their full cash value must be realized by creamery operators who wish to meet the competition of the other branches of the dairy industry.

Food Value of Milk and Its Products

Nature itself prepared milk for the nourishment, growth and development of the young. It is a palatable and nutritious food-drink that has no substitute in the diet of infants and invalids. It is suitable for strong men as well. It has a recognized high food value, and this is not based on butter-fat alone, but also on the solids not fat. Milk contains carbohydrates and fat necessary for maintaining body heat and supplying energy; proteins for building new tissues and repairing old tissues; and, lastly, minerals for forming tissues, bones and body fluids, especially the blood. In this sense, then, milk is a perfect food because it contains all the nutritive constituents required by the body. Moreover, it is easily and thoroughly digested by the stomach and readily absorbed by the blood. For the sake of variety and a better balance of the diet it is best to use milk in a properly mixed diet. Whatever is said of the food value of milk is in a large measure true of its products, after allowances are made for their respective composition.

Dairy Products are Economical

In buying foods one must select those that furnish the most nourishment at a reasonable cost. This involves, of course, knowledge of the composition, digestibility and the market price of foods to be compared. These factors have been duly considered and the results obtained are graphically shown in chart on following page.

Study of these charts shows that even at the present prices, milk and its products are about the cheapest foods that can be purchased. Prof. Graham Lusk of the Medical College, City of New York, in an article in "Scientific Monthly," says: "Let no family of five persons buy meat until it has bought three quarts of milk daily."

Advocating the greater use of skimmilk, a recent circular from the United States Department of Agriculture, says. "Since, as a rule, the tissue-building materials are contained in the more expensive foods (meat, eggs, etc.) and the energy-yielding materials can be largely provided by cheaper foods (bread and other cereal foods, fats, potatoes, etc.) it seems doubly wasteful not to use skimmilk."

The Best Use for Skimmilk

If it had been proposed here that feeding of skimmilk to live stock should be discontinued and directly applied to human uses instead, it would be met with many objections on the part of the breeders. To disarm such criticism,

the following authoritative advice from the experts o the U. S. Department of Agriculture appearing in the dairy press ("The Butter, Cheese and Egg Journal," Dec. 5, 1917) is quoted at some length:

"All skimmilk should be used—none wasted. It should furnish the maximum of food to human beings, and does this better when used direct, as cottage cheese, prepared buttermilk, or other by-products, than when fed to animals and converted into meat. Surplus skimmilk may be used economically to feed hogs, yet 100 pounds of it, which will produce 15 pounds of cheese, produce only 4.8 pounds of dressed pork if fed with corn. Skimmilk if made into cottage cheese furnishes nearly seven times as much protein and nearly as much energy as the dressed pork it would produce. Of course the most nourishment is obtained when skimmilk is used direct, either for drinking or cooking. As far as possible, therefore, skimmilk should be used for human food and only the excess fed to live stock.

Buttermilk is equal to skimmilk for feeding hogs, while whey is half as valuable. Whey, being low in protein, is not well suited for young pigs, and should be fed to older animals.

Ordinary grass pasture, or green rye, oats, sorghum, rape, clover, alfalfa, peas, or beans can take the place of skimmilk after the little pigs get a start. Much green feed can be raised without greatly reducing the acreage of other crops.

"Calves and pigs do well when some skimmilk is fed, but they need it only for a short time and in limited quantities. Except when fed to very young animals, skimmilk is fed most economically when supplemented with grain. For dairy calves skimmilk may be substituted in part for whole milk on the tenth day. If the calves are vigorous, they should receive a little grain and hay at two weeks of age, and it is safe to discontinue the skimmilk five or six weeks later.

"By substituting grain, grain feed, buttermilk and whey for skimmilk in animal feeding, much skimmilk may be released for use in cooking, for condensing, or for making cottage cheese."

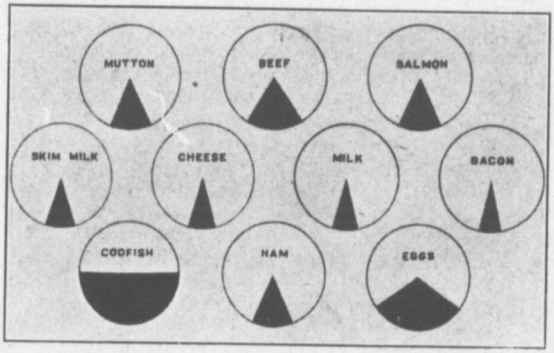


Chart showing the part of a dollar required to purchase as much food value as is contained in one quart of milk.

Dealing with the same subject, Prof. R. W. Washburn of the Minnesota College of Agriculture says: "One hundred pounds of skimmilk contain the food equivalent to twenty pounds of lean meat. Fresh meat is not fed to swine, why should milk be?" Later on, he concludes: "Dairy farmers could be properly advised to keep on the farm only as much skimmilk as needed adequately to raise the number of calves desirable to raise, and to give the young pigs a strong start, and to sell the remaining amount of skimmilk for food or industrial purposes."

The best way, perhaps, to dispose of skimmilk is to make it up into cottage cheese. Those interested in this proposition can obtain the necessary detailed information as to methods of making, packing, marketing, etc., from their agricultural college or experiment station. It must be remembered in this connection that cottage cheese is an appetizing, nutritious and inexpensive meat substitute. One pound of it furnishes as much protein as one pound of beef and as much as one and a half pounds of pork. Adding a little sweet or sour cream at the time of serving cottage cheese increases its palatability. Certain home economics specialists suggest to drop a bit of jelly into a nest made of cottage cheese in order to make the dish more attractive. They also suggest to pour preserved strawberries or cherries, etc., over the cottage cheese and to serve it with bread or crackers.

There are many other ways of using larger quantities of skimmilk in the home. It can be used to advantage as a substitute for water in cooking gravies, soups, cereals, potatoes and in bread-making, the resulting benefits being due to improved quality and increased food value. This is best shown by a striking illustration in which the authority states that "to cook a cupful of cereal in three cupfuls of skimmilk instead of three of water adds as much protein as that contained in three eggs." In treating the subject of "How to Use Skimmilk," the U. S. Department of Agriculture says in part as follows:

"There are many dishes which may be described as vegetable milk soups, usually made by combining milk and the juice and pulp of vegetables. This mixture is then thickened with flour and starch and enriched with butter or other fat. If a fire is kept all the time and the cost of fuel need not be taken into consideration, the following method is recommended as a means of utilizing skimmilk: Chop the raw vegetable or cut it into small pieces. Put it with the skimmilk into a double boiler and cook until the vegetable is tender. The mixture can then be thickened and enriched as described above. By this method no part of the vegetable is thrown away and the liquid of the soup, instead of being part milk and part water is all milk. A soup so made, therefore, usually has about twice as much protein as that made in the other way, and has the additional advantage of a particularly good combination of mineral substances, for milk is rich in calcium and phosphorus, and the vegetables are rich in iron."

Buttermilk and Its Uses

Buttermilk, often aptly referred to as "liquid meat," with its smooth, creamy body and delicate flavor, is a food-drink that cools, pleases, satisfies and invigorates. Churned butter-milk produced under sanitary conditions and properly handled is increasing in popularity. Physicians in many instances recommend buttermilk of good quality as a means of correcting certain intestinal disorders. It may be taken

with or between meals in quantities to be regulated by the appetite, although moderation is advisable even here.

A more reliable and uniform buttermilk can be made from a good quality of fresh skimmilk on a commercial scale by means of proper pasteurization of the raw material and subsequent ripening to a desired degree with a selected culture of lactic acid bacteria. This requires a bit of equipment, also more care and skill on the part of the operator, but pays well in the end.

As has already been said, buttermilk, whether churned or artificially prepared, is a pleasant, healthful food-drink. It may be served in its natural form or with certain modifications described below. The Iowa Station has developed what is known as the "buttermilk lemonade" consisting of one quart of buttermilk, juice from three lemons and sugar to taste. Another delightful combination is made of three parts of buttermilk and one part of grape-juice. A well-known operator of soda-fountain-stores suggests what he calls the "buttermilk flip" having in it equal parts of buttermilk and carbonated water, and which he claims to be most refreshing.

Buttermilk may be used in the home wherever sour milk is called for. Mrs. Marion Harland, a well-known expert in her line, claims that in cookery buttermilk produces better results than ordinary sour milk or other "ferment" and judiciously combined with baking soda may be substituted for sweet milk in muffins, biscuit and other breads and a variety of cakes, large and small. She offers many recipes for buttermilk-cooked table dainties from which the few following ones are taken:

BUTTERMILK BISCUITS:

Sift three times a quart of flour with a half teaspoonful of salt and two even teaspoonfuls of baking-soda. Work into this two tablespoonfuls of half lard and half butter. Chop it into the flour as you would in making pastry, but do not touch with the hands. Finally, wet to a soft dough with a pint of buttermilk. Roll out upon a floured kneading-board, cut into rounds and bake in a brisk oven, covering with thick paper when the biscuits are half done, then, before taking them up, browning them for a minute.

MINUTE BUTTERMILK GRIDDLE-CAKES:

Beat two eggs smooth, whites and yolks together; sift three times into a quart of flour a full teaspoonful of baking soda and half as much salt. Hollow the sifted flour and pour in a quart of buttermilk. When the mixture is wet through beat in the eggs and stir fast for one minute. If the batter is too soft put in a little more flour. Bake immediately upon a well-greased griddle. The secret of success with this recipe is to mix fast and thoroughly, bringing up the batter from the bottom of the bowl with each sweep of the beater.

BUTTERMILK GINGER COOKIES:

Soften half a cupful of butter and beat with one cupful of molasses. Dissolve one teaspoonful of baking soda in one teaspoonful of hot water and stir into half a cupful of butter-milk. Add one teaspoonful of ground ginger and enough flour to make a dough that can be handled. Roll out into a sheet a third of an inch in thickness. Cut into rounds and bake.

SUMMARY

From the facts presented in this paper, several observations may be made:

1st. That conservation of milk products or prevention of wastes is as important as increased production on account of the world-wide shortage of

food, and is more susceptible of telling results rapidly obtained.

2nd. That the greater use of dairy products offers an opportunity for real economy which will have to be considered even after the present conflict is over, for the problem of the high cost of living will still remain.

3rd. That the consuming public is just beginning to realize the real food value of milk, and

4th. That better methods of producing, handling and more complete utilization of the available dairy products are being developed by government and educational agencies, so it is up to the producer, manufacturer and consumer to keep up with the times for patriotic, economic and dietetic reasons.

Produce More Hogs

THE Food Controller says, it cannot too earnestly be urged that Canada's supply of pork products for export to the Allied nations must be increased almost without limit. Patriotism and good business combine to make the effort commendable. The need for animal foods by the Allied armies and civil populations is increasingly great: the need for bacon and pork products most of all, because they contain the largest quantity, weight for weight, of the animal fats needed for the soldiers. Bacon contains 2,930 calories as compared with 1,180 in the same weight of beef, and of only 670 in lean beef. Shrinkage, too, in a dressed product is only 25 per cent of the live weight of hog meat, while in beef, veal, mutton and lamb it is 50 per cent.

Canada's hog products in 1916 totalled 125,000,000 pounds. The Allies requirements in the same year were 1,260,000,000 pounds. In other words, the Allied markets alone could have taken ten times the total Canadian supply. Yet it is not only during wartime that the market is great. The export from Canada in a five-year period, which naturally covers at least two years of peace, averaged only six per cent of the British imports of hog products. The demand during the reconstruction period after the war may be assumed to be at least as great as it now is during the conflict.

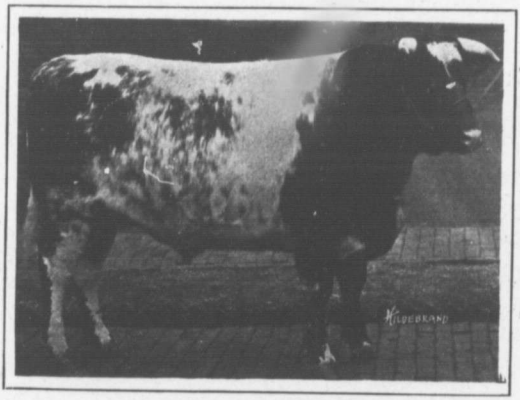
If municipal by-laws were relaxed, as a war measure, so as to permit suburban dwellers to keep pigs near their dwellings, such might be accomplished. Mr. Hoover has stated that properly-kept pigs are no more unsanitary than are dogs. By "back-yard" methods alone last year, Germany was able to raise 500,000 more pigs than Canada possessed from coast to coast.

If the imperative necessity of increased production of hogs is realized by the farmers of this country, and by others who could help, there is no doubt that the problem will be solved. But we cannot afford to delay, for the demand is very great and the situation in regard to food is one of the utmost gravity.

Shorthorn Cattle

By C. F. Mackenzie, '19

TRAVELERS in England visit many places that are famous the world over, to whose natural beauty is added a wealth of historical events that have become inseparable from them. Hence, to the Shorthorn enthusiast, the Teeswater valley and contiguous territory in York and Durham counties becomes the most interesting spot in England because this is the ancestral home of the Shorthorn breed which have gained world-wide fame, not only on account of their beef and milk producing qualities, but also because of their adaptation to widely varied conditions.



Merry Monarch, Champion Shorthorn, Chicago, 1917.
—*Courtesy "Canadian Countryman"*

The Shorthorn breed of cattle is thought to have originated from the native English stock crossed with the cattle brought into England by the Normans and Romans.

On many large estates cattle of the Shorthorn type were bred even prior to 1600.

Early in the eighteenth century the Teeswater type of cattle were in popular favor. Another type that gained popularity in Southeastern Yorkshire was the Holderness, which derived their name from the district of Holderness. These were noted for their milk production as well as for their heavy fleshing.

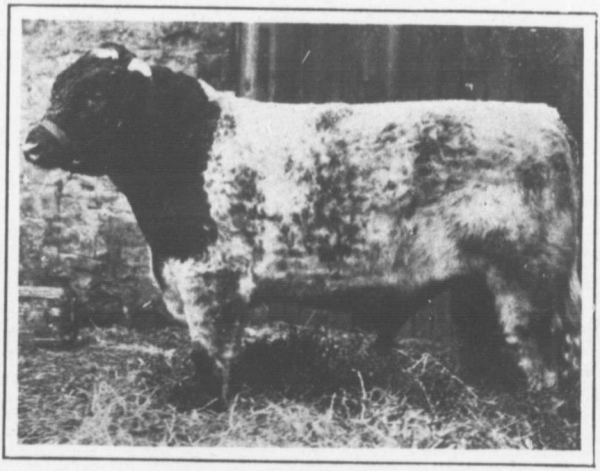
About the middle of the eighteenth century bulls were brought over from Holland and were used in the herds in Durham and Yorkshire.

In connection with the improvement of Shorthorn cattle we find many names, but the names of Calling Brothers, Thomas Bates, Thomas Booth and Sons, and Amos Cruickshank have become so interwoven with Shorthorn history that the world recognizes them as the outstanding founders of the breed. This is because of the fact that their work was laid on a solid foundation which has stood the test of time.

Colling Brothers endeavored to produce a type of Shorthorn that would be good feeders, have plenty of constitution, mature early and dress out well with a minimum waste. Their efforts were very successful; so much so that many refer to them as the real founders of the Shorthorn breed. Among many families they produced we might note the following; Phoenix, Wildair, Princess and Bright Eyes.

Thomas Bates sought to produce a type that would be dual purpose in nature, having good milk as well as beef producing qualities. His efforts were successful as he produced a type of cattle of splendid quality, having plenty of size and producing large quantities of milk. Some, however, criticised the Bates cattle as being shy breeders and lacking constitution. Duchess, Oxford, Waterloo and Wild-Eyes are a few of many families produced.

Teeswater cattle, crossed with individuals of Colling Brother's herd, were the foundation of the Booth cattle. The same methods as were used by Colling Brothers were used in the development of the Booth type. The Booth ideal was an early maturing, thick-fleshed animal, having good quality and plenty of heart girth. Booth cattle were more robust than those produced by Bates and they were very popular. Some well-known Booth families are Isabella, Moss Rose, Bracelet, Medora and Cherry Blossom.



Gainford Matchless, Champion Shorthorn, Guelph, 1917
—*Courtesy "Canadian Countryman"*

Amos Cruickshank was born in Aberdeen in Northeastern Scotland in 1808, and died in 1895 at Sittyton, Aberdeen. In his work he selected individuals from various sources, always endeavoring to select those possessing vigor and rapid flesh-forming tendencies. Thus, he developed a type of Shorthorn that was broad and thick of back; had deep, compact bodies, and short legs; matured early and were typical beef animals.

This type of Shorthorn is known as the Scotch type, being especially noted on account of being easy keepers, also possessing superior quality and vigor. The Scotch type was very popular and we find today that they are meeting with great favor among the breeders of Shorthorn cattle.

Numerous families were produced including Venus, Lancaster, Victoria, Lavender and Spicy.

The first Shorthorns imported into the United States were brought in by Gough and Miller in 1783. While the first brought into Canada were imported by Mr. Rowland Wingfield in 1833 and 1838. These first importations were followed by many others in succeeding years, and through all the changes that have taken place in the natural development of the North American continent the Shorthorn breed have steadily increased both in numbers and popular favor until today they are without doubt the most popular breed on this continent.

Shorthorn sires have done more to improve beef stock than any other beef breed. This is evidenced by the fact that we find first-class beef herds in America that have been graded up by the use of pure-bred Shorthorn sires. In the stock-yards of America we find the blood of the Shorthorn predominating. Well-finished Shorthorn steers are always at a premium with the butcher.

Again, we find that on the western ranges the Shorthorn sire has proven to be of invaluable service in improving the range herds. The disappearance of the old Texas type of steer is credited largely to the influence of the Shorthorn sires that were placed in western range herds.

From the standpoint of milk production the Shorthorn far outclasses any of the other beef breeds. Many of the dairy herds in England are composed of Shorthorns; while the last few years in America have witnessed a growing interest in the dairy Shorthorn. Breeders have begun to select and breed with a view to increasing milk production. Official records are being kept and official testing is being done in many herds. Numerous creditable records are being constantly reported. A Canadian cow owned by R. R. Wheaton, of Thorndale, holds the record in the four year old class, having produced 18,952 pounds of milk and 715 pounds of butter fat in one year.

In Ontario, Shorthorns have always been popular and our breeders have established a high reputation. This is evidenced by the fact that buyers come from all parts of the United States to purchase breeding stock.

The past year has seen greatly increased activity in the breeding of Shorthorns. This activity has not been confined to Canada and the United States alone, but even in Great Britain, despite the fact that she is engaged in a great war, there has been a greater activity among the breeders than there has been for many years.

The future of the Shorthorn never looked brighter. Record prices are being paid at all the sales. The completion of the war will only tend to increase their value still more, because many buyers will come to America for stock to replenish their depleted herds. The demand in Canada is increasing much more rapidly than the production, so that unless the breeders and those interested endeavor to speed up production, prices will go still higher. At the present rate of production the supply cannot begin to equal the demand.

The Seed Situation in Ontario

ADDRESS BY DR. C. A. ZAVITZ, O. A. C., GUELPH, AT THE MEETING OF THE SEED GROWERS ASSOCIATION, WINTER FAIR, DEC. 1917

WITHIN the last few months the expression "increased crop production" has been heard from one end of this land to the other, and the call has been growing louder and louder. There was probably never a time when the increased production of food materials was more urgent than it is at present. The work which has been accomplished by the farmers of Ontario in supplying essential food materials during the past year has been really marvellous when we take into consideration the adverse weather conditions and the scarcity of skilled labor. The response to the call has resulted in a large harvest of many classes of farm crops. The market value of the oat crop alone will probably be in the neighborhood of seventy-five million dollars which is a large increase over any previous year. This increase has been brought about by a normal acreage, a good yield and high prices. The total production of barley was one and one-half times as great, that of spring wheat was almost double and that of beans was nearly three times as great in this Province in 1917 as compared with the year previous.

It is probably safe to say that the value of good seed was never more appreciated than it is at the present time. If Ontario is to realize a large crop production in 1918 it is of the utmost importance that close attention be given to the securing of good seed and to the adoption of the most improved methods of cultivation.

SEED GRAIN

Ontario will require in the spring of 1918 for seed purposes approximately five and one-half million bushels of oats, one million bushels of barley and one-third of a million bushels of spring wheat. It should not be as difficult to secure good seed for the coming spring as it was for the spring of 1917. There is a danger, however, of being less careful in securing a high class of seed for the coming crop than there was for the crop of the past year. Owing to the abnormally light yield in 1916 many farmers secured their seed early either from their own crop or from that obtained through purchase. Where farmers have good varieties and obtained satisfactory crops of oats, barley and spring wheat in 1917 it would be wise to secure the very best of their home production for seed purposes providing they can secure good, plump, well-matured seed which is free from mixtures of weed seeds and all other kinds of grain. In this connection permit me to again emphasize the importance of securing only the very best of the grain for seed production. In experiments conducted in the Field Husbandry Department within the past twenty years it has been shown repeatedly that seed selection is of the utmost importance in the production of crops if large yields and high quality are to be secured. Although the results of these experiments have been published from time to time we realize that there is still room for great improvement in the quality of the seed grown which is sown on the farms throughout this Province. Fanning mills should be used extensively and where possible only the very choice seed should be secured for sowing, and the bulk of the grain from which the choice seed has been selected could then be used for

feeding to the farm stock. Many people seem to think that if they secure grain comparatively free from weed seeds they have done all that is necessary and apparently do not realize that there are marked differences in the quality of pure grain for seed purposes. In those instances where the home supply of seed is not adequate early purchase should be made of the best pure seed available of the most desirable varieties. This seed might be purchased to advantage from members of the Canadian Seed Growers' Association, from members of the Experimental Union, from farmers who took high prizes in the Field Crop Competitions and in the Provincial Seed Fairs, from farmers recommended by the District Representatives, and from other sources. In any case, whether from the home-grown supply or from purchase, seed should be secured comparatively early in the season so that there is no uncertainty in regard to this phase of the preparation for next season's crop production.

For general cultivation in Ontario it seems apparent, from experiments conducted at Guelph and throughout the Province and from the practical experience of farmers that the Marquis spring wheat, the O. A. C. No. 72 oats and the O. A. C. No. 21 barley are the three leading varieties when yield and quality of both grain and straw are taken into consideration.

Seed Beans

It is interesting to note that the acreage in field beans in Ontario in 1917 was more than double that of the previous year. According to the August report of the Bureau of Industries the estimated production of beans was about three times as great in 1917 as in 1916. In considering the seed bean situation it should be remembered that the past season has been very abnormal for bean production. In the months of June and July the rainfall was greater than in any other two consecutive months during the past eighteen years. The rainfall in August was also higher than usual and the early frosts which occurred in September injured the beans before they had reached maturity. It is quite probable that even though there were more beans than usual produced in Ontario the supply of first-class seed may be quite limited. It is, therefore, very important for those who expect to grow beans next year to make sure of an early supply of seed of good vitality. The weather conditions of the past season in both New York State and in Michigan were quite similar and we cannot expect to secure seed outside of Ontario which is of much higher quality than that which is available in our own Province. It is suggested that those farmers who have seed beans forward samples to the Official Seed Laboratory, Department of Agriculture, Ottawa, asking for reports on germination tests, which information will be forwarded free of cost.

Seed Corn

I have nothing special to offer at this time in regard to the Seed Corn question in Ontario as Mr. P. L. Fancher, Corn Specialist for the Province is to discuss that phase of the subject.

Seed Potatoes

In the results of experiments conducted at the Ontario Agricultural College it has been found that the yield of potatoes has been increased by the use of tubers grown in certain northern districts or by the use of home-grown seed potatoes which have not reached maturity. The real value of northern grown seed potatoes appears to be that they have been produced in a comparatively cool climate with no set-back in develop-

ment caused by droughts in July or August, and the vines are usually green when the potatoes are harvested. There are many illustrations of the value of northern grown seed as the result of experiments and as the experience of practical potato growers, both in America and in Europe. Whether or not fully as good results can be obtained from home grown seed which is protected by mulching or in some other way, and which is harvested when still immature, has not been definitely determined. At the present time it seems advisable to introduce into southern Ontario a fair proportion of seed potatoes from northern sections. In experiments conducted at Guelph over a series of years in testing potatoes obtained from New Brunswick and from Muskoka in comparison with home grown seed it has been ascertained that in each year the highest returns were obtained from the seed secured from Muskoka. In the past year seed potatoes obtained from north of Lake Superior gave very excellent results both at Ottawa and at Guelph.

It was the privilege of the speaker, in company with Mr. Justus Miller and Mr. W. A. McCubbin to visit in July and August of the present year the potato growing sections of nine districts in northern Ontario, and with Mr. Miller and Professor Howitt to visit in the latter part of August and in early September three of the sections in southern Ontario where potatoes are grown extensively for commercial purposes. As the results of experiments and investigations it seems quite evident that northern Ontario has very favorable conditions for the production of seed potatoes of high quality. At the present time the potato diseases are much less troublesome in the northern as compared with the southern part of the Province. It is interesting to note that in average annual yield of potatoes per acre 1912, 1913 and 1914 produced the highest and 1915, 1916 and 1917 perhaps the lowest of any period of three consecutive seasons in the last thirty-five years. As you are aware, the past three years have been abnormal seasons and have apparently furnished conditions favorable for the development of certain diseases in the potato crop. Professor J. E. Howitt, who is to follow in the discussion, will deal particularly with these diseases.

As the result of the various investigations made throughout Ontario in 1917, the Commissioner of Agriculture called a Potato conference which was held in the Parliament Buildings, Toronto, on the 30th and 31st of October. At this conference a committee of ten was appointed of which the speaker was Chairman, and the following recommendations were formulated:

1. That the Irish Cobbler be recommended as a standard early variety for commercial purposes, and the Early Ohio as an extra early variety for market gardeners to meet the requirements of special markets. The Green Mountain was recommended as a standard late variety, with certain other late varieties as Carman No. 1, Dooley, Rural New Yorker No. 2, etc., recognized as standard varieties and be recommended for those districts where conditions are peculiarly favorable to their growth. Where a variety was found especially suited to the conditions, farmers were advised to confine their attention to such variety.

2. That owing to the serious diseases known to have become established a staff of competent pathologists, consisting of eight or ten men who specialized in potato diseases, be appointed.

It was suggested that these specialists rogue the best potato fields in northern Ontario of impurity and disease, and to do everything in their power to give the individual potato growers all the information possible regarding the eradication of disease and the best methods of crop improvement.

3. That in regard to a supply of northern-grown seed, this should be secured at once to be used for experimental and demonstration purposes, and the committee suggested that plans be made by the Government to aid farmers and growers to locate a supply of the best northern-grown seed.

4. That a part of one or several government farms in northern Ontario be used for growing a supply of the highest quality seed.

5. That the Ontario Government initiate an educational campaign to the end that potato growers be fully informed of the seriousness of the disease prevalent in the Province, and the growers be made cognizant of the desirability of seed potatoes grown in northern Ontario.

6. That a committee be appointed to study grades and grading, not only for the Province, but for the Dominion.

7. That a potato specialist be appointed by the Ontario Government to have charge of all potato extension work in the Province; to organize the improvement scheme in its broader phases; to direct all publicity and educational campaigns, etc.

8. That an advisory council be appointed to enable the potato specialists to work efficiently and without friction, and that this council should represent every interest comprehended in this scheme and potato extension work.

Root Seed

Canada has depended on Europe for her supply of mangel seed. This supply is now practically exhausted. In ten years' experiments at Guelph home-grown seed has given excellent results. About 1,700 pounds of mangel seed were grown on one acre at the College in 1917. We suggest that each farmer plant a few mangel roots in the spring of 1918 to produce seed for his own use for the year following. The roots are usually planted thirty inches apart each way and produce from four ounces to one pound of seed per plant. Mr. A. McMeans, who has been connected with the Ontario Department of Agriculture in developing the production of roots and vegetables in Ontario, is expected to discuss with you the work which is being done in order to prevent a root seed famine in this country.

Conclusion

It is as true today as it has been in the past that good seed is at the very foundation of successful crop production. Many of the countries are now looking to Canada for an increasing supply of essential food materials. It is, therefore, of the utmost importance that the farmers of this Province do their utmost during the winter season to secure seed of the highest quality obtainable for the spring sowing. It is of world interest that every Ontario farmer shall do his duty at this particular crisis.

Co-operative Experiments in Weed Eradication

J. E. HOWITT, PROF. OF BOTANY, O. A. C.

THIS experimental work was commenced in 1912 and has been conducted now for six successive years. The object of this work is to have carried on by men on their own farms, experiments in the eradication of weeds, the results of which will furnish data from which definite information may be obtained regarding the best methods of controlling the various troublesome weeds of the Province. Before the results of these experiments began to accumulate there was little or no definite knowledge concerning the eradication of weeds.

When this work was started it was thought wise to confine our attention at first to four of our common troublesome weeds, and as the experiments progressed to add more bad weeds from year to year until exact information had been obtained about the eradication of most of the worst weeds of Ontario. Six experiments in all were outlined for the first year (1912), namely, "The Use of Rape in the Destruction of Perennial Sow Thistle;" "A System of Intensive Cropping for the Eradication of Perennial Sow Thistle;" "The Use of Rape in the Destruction of Twitch Grass;" "A Method of Cultivation and Cropping for the Extermination of Twitch Grass;" "A Method of Cultivation and Cropping for the Eradication of Bladder Campion;" "Spraying with Iron Sulphate to Destroy Mustard in Cereal Crops." In 1917 ten experiments in all were conducted, namely, "The Use of Rape in the Destruction of Perennial Sow Thistle;" "A System of Intensive Cropping and Cultivating, using Winter Rye Followed by Turnips, Rape or Buckwheat for Eradicating Perennial Sow Thistle;" "The Use of Rape in the Destruction of Twitch Grass;" "A Method of Cultivation for the Destruction of Twitch Grass;" "Method of Cultivation for the Eradication of Bladder Campion or Cow Bell;" "Spraying with Iron Sulphate to Destroy Mustard in Cereal Crops;" "A Method of Cultivation for the Destruction of Ox-eye Daisy;" "A Method of Cultivation and Cropping for the Suppression of Field Bindweed or Wild Morning Glory;" "A Method of Cultivation and Cropping for the Eradication of Wild Oats;" "A Method of Cultivation for the Destruction of Chess."

Each spring leaflets are sent out to numerous farmers of the Province, inviting all who have any of the troublesome weeds in our list of experiments on their farms to co-operate with us in this work and try the experiments outlined for the particular weed which is giving them trouble. Application forms for the experiments accompany the leaflets. To those who fill in these and return them, detailed directions for the carrying out of the experiment selected are sent, and in the fall they are supplied with blank forms on which to report the results of the experiment.

In the past six years (1912-17) over sixty farmers have co-operated in this work. Experiments No. 1 "The Use of Rape in the Destruction of Perennial Sow Thistle," No. 3 "The Use of Rape in the Destruction of Twitch Grass," No. 5 "Method of Cultivation for the Eradication of Bladder Campion or

Cow Bell," and No. 6, "Spraying with Iron Sulphate to Destroy Mustard in Cereal Crops," have been conducted for six successive years, and the results may be briefly summarized as follows:

Experiment No. 1. Total number of experimenters 11. Reporting complete success 8. Reporting partial success 2. Reporting failure 1.

Experiment No. 3. Total number of experimenters 11. Reporting complete success 8. Reporting partial success 3.

Experiment No. 5. Total number of experimenters 7. Reporting complete success 4. Reporting partial success 3.

Experiment No. 6. Total number of experimenters 22. Reporting complete success 17. Reporting partial success 2. Reporting failure 3.

The results of these six years' experiments show clearly that the following methods can be successfully employed on the farms of Ontario for the control of Perennial Sow Thistle, Twitch Grass, Bladder Campion and Wild Mustard.

The Use of Rape in the Destruction of Perennial Sow Thistle and Twitch Grass

Cultivate the field until about the middle of June, running over it frequently with the cultivator so as to keep the tops down and thus weaken the "roots." Then apply manure at the rate of about 20 tons per acre (12 good loads). Cultivate the manure in thoroughly, and with a double mould board plow slightly ridge up the land, making the ridges about 26 inches apart. On the ridges sow pasture rape at the rate of 1½ lbs. per acre. It is important that the right amount of rape should be sown, for if too little is sown the stand will not be thick enough to smother the weeds, and if on the other hand too much is sown the plants will be too crowded and not grow vigorously enough to keep ahead of the thistle or Twitch Grass. Sow the rape when the land is sufficiently moist to insure quick germination of the seed. If the rape is slow in starting the Sow Thistle or Twitch Grass may get a start in the row and thus necessitate hand cultivation there. Cultivate the rape every week or ten days until it occupies all the ground and makes further cultivation impossible. If, when the rape is cut or pastured any Sow Thistle or Twitch Grass remains, the field should be ridged up the last thing in the fall and put in with a hoed crop the following year. This should not be necessary if a good stand of rape is secured.

A Method of Cultivation for the Eradication of Bladder Campion or Cow Bell

Badly infested fields should be plowed deeply and then thoroughly cultivated and cross-cultivated with a broad-shared cultivator in order to break up and weaken the underground root-stocks. This cultivation should be given frequently enough to prevent the plants making any growth above ground until it is time to put in a hoed crop, which must be kept thoroughly clean in order to be effective. A well cared for crop of corn has been found to give excellent results. Special attention must be given to hoeing out any patches of Bladder Campion which may appear in the corn crop, and which are not destroyed by cultivation. If in the fall there is any Bladder Campion in the field, it will be necessary to plow fairly deeply and cultivate thoroughly and the following spring repeat the frequent cultivation until it is time to put in a hoed crop. This second hoed crop should not be necessary under ordinary conditions. One spring's thorough cultivation, followed by a well-cared for hoed crop should destroy practically all the Bladder Campion.

Spraying with Iron Sulphate to Prevent Mustard Seeding in Cereal Crops

Iron sulphate or Copper can be successfully used to prevent Mustard Seeding in standing grain without injury to the crop.

A 20% solution should be applied. This can be prepared by dissolving 80 pounds of Iron Sulphate in 40 gallons of water. Iron Sulphate is dissolved quite readily in cold water. The solution should be strained through a cheesecloth, as it is put into the spray pump tank. This will remove dirt and small particles that are apt to clog the nozzles.

Apply on a calm, clear day just as soon as the first few plants in the fields show flowers. IT IS VERY IMPORTANT TO SPRAY EARLY. If the plants are left too long the treatment is not nearly so effective. If a heavy rain comes within 24 hours after the solution is applied, it will be necessary to spray again.

An ordinary hand pump barrel sprayer, such as is employed to spray fruit trees may be used, or a potato sprayer can be rigged up to do the work. Many of the up-to-date potato sprayers have a special broadcast attachment for spraying weeds. These are excellent for large areas, as they cover a wide strip at each round. Care must be taken to see that every mustard plant is covered with the solution in the form of fine spray.

Iron sulphate may be obtained at any hardware store or from the Nichols Chemical Co., Toronto. In wholesale lots it is better purchased from this company, who can supply it much cheaper in large quantities than it can be purchased at local hardware stores.

These experiments will be conducted this year (1918). The weeds to be experimented with are Perennial Sow Thistle, Twitch Grass, Bladder Campion or Cow Bell, Wild Mustard, Oxeye Daisy, Field Bindweed, Wild Oats and Chess. All who have any of these weeds on their farms are invited to cooperate in this work and by so doing profit by ridding the field of the weed experimented with and demonstrating to their own satisfaction the effectiveness of the method tried, and at the same time furnishing practical information to others.

Easily Grown Flowers from Seed for the Farm Flower Garden

By W. Hunt, Lecturer in Floriculture, O. A. C.

THERE are a great many kinds of semi-hardy perennial plants that can be grown from seed and give good flowering returns the first summer.

MR. WM. HUNT
Lecturer in Floriculture, O. A. C.

Many of them are among the most effective summer flowering plants we have, and specially suited for the farm flower garden and lawn. To secure the best results, the seed should be sown early indoors in the greenhouse, hot bed or window. Unless the seed is sown earlier in the season than it can be sown out of doors, the plants do notflower until the season is well advanced, often not until the early frosts mar the beauty of the most tender kinds, so that it is very necessary to sow the seed early in the spring indoors.

Species and Varieties

Some of the best kinds that will help to make the border gay and bright, and that are easily grown from seed, are Petunias, Verbenas, Antirrhinums (Snapdragon), Pentstemons, Salvia, Ageratum, Golden Feather, Centaurea Gymnocarpa (Dusty Miller), and Lobelia. These are all suitable for planting in masses, rows, or groups in flower borders. Antirrhinums, Pentstemons and Salvia grow from 2 to 3 ft. in height. Salvia splendens will grow to a height of 3 ft. or more, while the variety "Zurich" or Bonfire grows to only about half that height. Petunias and Verbenas are lower growing, about 12 to 15 inches, while the four last-named are dwarfer growing, 6 to 8inches, and are more suitable as edging plants for the border. All of these plants named are also suited for Window or Verandah boxes or for hanging baskets, if they are not placed in a too shaded position in summer. Salvias

particularly like an open, sunny position to produce their long, brilliant, scarlet spikes in late summer and early fall. The Pentstemons are very attractive border plants, the gloxiniodes type having long spikes on which grow numerous, large bell-shaped flowers, beautifully marked in a variety of shades and tints varying from almost pure white to a deep purple. The beautiful flowers of the Pentstemons and their ease of culture fully warrant their being grown more extensively than they are at the present time. The improved types of Antirrhinums that have been introduced of recent years have also brought these old-fashioned plants into great prominence as bedding plants. These can be had in tall and dwarf growing kinds 1 ft. to nearly 3 ft. in height. The dwar kinds make a beautiful massed bed of themselves.

The large flowering "Giant of California" Petunias have beautifully marked flowers of immense size; the fringed type of Petunias are also very attractive. Some of the smaller flowering compact growing Petunias are also becoming very popular as bedding plants. There is probably no plant that will give a larger quantity of flowers and more continuous than the Petunias. The large flowering type of Verbenas make a very effective border plant. Their bright flowers can often be found late in the autumn, long after the other summer flowering plants have been blackened and killed by frosts. This makes the Verbena doubly acceptable as a summer bedding plant. The dwarf blue Ageratums like a rather sunny position, while the rich blue flowers of the Lobelia are produced best in a not too sunny position. The Tom Thumb or Crystal Palace type of Lobelia is the best for an edging plant, while the taller loose growing kinds are better for the front of window or verandah boxes.

Starting the Seed

Shallow boxes (flats) 3 to 4 inches deep and of any required size from 10 to 12 inches square, or 12 inches in width by 18 to 24 inches in length according to the number of plants wanted, are best to start the seeds in. The bottom of the box should have some half inch holes about six inches apart bored through the bottom to secure good drainage. Flower pots or seed pans may be used instead of shallow boxes, but they are not as good. Nearly an inch in depth of broken pieces of flower pot, gravel stones, or coal cinders should be placed in the bottom of the boxes to help the drainage. The seed may also be sown in soil in a hot bed without boxes, but I prefer using boxes or flats as they are usually termed.

Soil

The soil to sow the seed in need not be very rich in fertilizers, but should be of a light, friable nature. One part sand, one part black soil (leaf mould) from the bush, and seven or eight parts of light loamy soil with about one-fourth part of the whole of these of fertilizer added and well mixed, will make a good compost to sow seed in. The best fertilizer is dry pulverized cow manure from the pasture field, or dry pulverized sheep manure which can be bought at all seed stores. Dry, well rotted barnyard manure may also be used, or one lb. of bone meal well mixed with one bushel of the soil. Old hot bed soil with one-sixth part of sand mixed with it will make a good soil for sowing seeds in. Get the soil into the cellar in the fall ready for use in the spring.

Sowing the Seed

About the middle of March is a good time to sow the seed. The Salvia and

Pentstemon seed may be sown the end of February or early in March to advantage. A temperature of 60 degrees to 65 degrees will be sufficient for them. The Salvia and Verbena seed would be best sown in drills about one-quarter inch deep. The smaller seeds had better be sown broadcast and covered very lightly with soil barely one-eighth inch in depth. The top half inch of soil used should be fairly dry and sifted fine, also the soil for covering the seed. Press down the soil fairly firm and quite level before making the drills or sowing the seed. In sowing seed in drills, the bottom of the drill should be nearly covered with seed. In broadcast sowing, about one-third of the surface may be covered with seed. The depth to cover seed with soil must vary according to size of seed, about three times the diameter of the seed is usually about the depth to cover them.

Watering

This must be done carefully so as not to rinse the soil and wash the seed out. A fine sprinkling water-can, or a "Scollays Rubber Sprinkler" with angle nozzle, $1.25 at seed stores, is a good appliance for watering seeds, and for a plant sprinkler as well. To fill this sprinkler, take off the perforated top, put the bulb well under the surface of the water, press the air out of the bulb and allow it to fill by suction. Use clear water for this sprinkler. Or a piece of wet burlap (sacking) may be spread closely over the surface of the soil, and the water poured carefully from a cup or pitcher on it, to prevent washing the soil. This last method is one of the best and simplest methods for watering fine seeds. The soil seeds are sown in must be kept well moist, (not too wet) and the seed shaded from hot sun until the seedlings have developed two or three leaves. If in a hot bed, give all the ventilation possible early in the morning, and shade carefully from the very hot sun in the middle of the day. A too close, humid atmosphere will cause the plants to dampen off.

Transplanting Seedlings

When about four small leaves have developed, transplant the seedlings into other flat, shallow boxes. Set the plants about 1½ inches apart in these, or each seedling plant may be put into a small 2½ or 3 inch pot if only a few are wanted. The seedlings will usually stay in these until planted in the border. Use soil richer in fertilizer for transplanting purposes.

Hardening Plants

To harden the plants to outdoor conditions, give air to them as freely as possible at all times without injuring them. About the first or second week in May, if the weather is at all mild, the boxes or pots may be set out of doors where they can be given protection if the weather turns cold, or be brought indoors on cold nights. Shade the plants from the sun after setting them out for a few days. Hardening plants in this way before setting them out is very important.

Planting Out

All of the plants before named may be set out in the border about the end of May or early in June except the Salvia, Ageratum and Lobelia. These should not be planted until the second week in June not until all danger of frost is over. Salvias, Pentstemon, Petunia, Verbena and Snapdragons should be set about 15 inches apart. Ageratum and the other dwarf growing kinds about 10 inches apart. Set the plants out in dull, showery weather if possible.

All of the plants named can be grown from cuttings or offsets as well as from seed, but as they are all more or less difficult to winter over in a dwelling

house or greenhouse, the best results are usually obtained by sowing seed early indoors except, perhaps, in the case of the Salvia, Ageratum and Lobelia, which give good results from cuttings, if cuttings can be obtained in early spring.

It is customary to allow these perennial flowers named to be entered as "Annuals" at exhibitions. A rule, however, should be inserted in the Prize List stating that "Any plant that can be grown from seed and flower the same year shall be considered to be an Annual." This is advisable as it prevents any dispute as to the proper classification of these plants that are botanically classified as perennials. At the same time, they may be entered also in the competitions for perennials unless some rule, as stated, is inserted to the contrary, as some of them are hardy under special conditions and surroundings. From a practical viewpoint the plants named are usually grown as Annuals.

THE HOUR

By Ella Wheeler Wilcox.

This is the world's stupendous hour—
The supreme moment for the race
To see the emptiness of power,
The worthlessness of wealth and place,
To see the purpose and the plan
Conceived by God for growing man.

And they who see and comprehend
That ultimate and lofty aim
Will wait in patience for the end,
Knowing injustice cannot claim
One lasting victory, or control
Laws that bar progress for the whole.

This is an epoch-making time;
God thunders through the universe
A message glorious and sublime,
At once a blessing and a curse—
Blessings for those who seek His light,
Curses for those whose law is might.

Ephemeral as the sunset glow
Is human grandeur. Mortal life
Was given that souls might seek and know
Immortal truths; and through the strife
That shakes the earth from land to land,
The wise shall hear and understand.

Out of the awful holocaust,
Out of the whirlwind and the flood,
Out of old creeds to bedlam tossed
Shall rise a new earth washed in blood—
A new race filled with spirit-power.
This is the world's stupendous hour.

The Necessity for Increasing the Honey Crop

By W. F. Geddes, '18

THE present necessity for increasing and conserving the food resources of the country advocated by the Food Controller should be realized by every beekeeper, chiefly from patriotic motives, but also for his own interest. The rapidity with which last year's honey crop was sold and the high price obtained does not indicate danger from over-production, even in times of peace, and there is every reason to expect that 1918 will see a good honey market.

There need be no fear of over-production in view of the probable shortage of sugar. On this latter point the Secretary of Agriculture for the United States said: "Only about 20 percent of the supply of sugar normally consumed in the United States is produced domestically, and this amount cannot be increased appreciably during the coming season. Unless normal imports of sugars reach our shores, a shortage of this food is inevitable." The Secretary then added, "In many parts of the country honey production may be increased by closer attention to bee culture."

Beekeepers should do their utmost this year to increase production, not only by increasing the number of colonies insofar as it can be done without decreasing the crop, but especially by giving their bees the best of attention.

In the October issue of the "American Bee Journal," the following statements appeared, "Almost without exception, beekeepers report their intention of increasing their holdings all the way from 25 to 100 per cent. Many will increase by division, many more by buying in box hives and transferring, but by far the larger portion expect to take the pound package route."

Right here a word about the pound package business might not be out of place. The shipment of bees in combless packages is about the latest development of importance in commercial beekeeping. It consists in shipping bees from the south in wire screen cages, without combs, the bees being supplied with sufficient candy to provide them with food until they reach their destination. If these combless packages are received at the commencement of dandelion bloom in a normal year they build up into strong colonies in time for the main honey flow and yield a good surplus. They, therefore, provide the best means of increasing the number of colonies. The usual methods of artificial increase, such as division, or forming of nuclei to be built up, are made at the expense of weakening the colony to an appreciable extent. Should the season prove unfavorable after nuclei are formed it may be necessary to feed them for a considerable period of time or unite them again with the parent colony.

Beekeepers can greatly increase their present production without increasing the number of colonies by giving their bees the best attention possible. Those who have their bees in box hives are being urged to adopt the modern equipment and at the same time modern practices. Natural swarming should be curbed as much as possible, and the bees given plenty of room for storage. Because of neglect in wintering, honey crops of the following year are often

reduced one-half. Scarcely a winter passes that beekeepers all over Canada do not lose 10 percent of their colonies and usually fifteen percent of the remaining colonies are reduced so that they cannot do their best the following summer. The keynote to successful wintering consists in having the colony headed by a young and vigorous queen, a large number of young bees, together with plenty of good stores. For proper development in the spring a normal colony of bees needs plenty of protection from the cold and wind, and sufficcient stores. Lastly, the beekeepers should aim to save time and labor in all his manipulations.

The elimination of unnecessary operations is the one thing which will make it possible for the individual beekeeper to keep more bees without increasing his labor. Conservation is the watchword of the time and everything about the apiary should be planned with the idea of saving time.

In this regard many commercial beekeepers are not doing their best. Many can profitably increase the number of their colonies. The tendency at present is rightly to encourage the professional beekeeper who knows how to get the most from his bees. In establishing additional apiaries, care must be exercised not to overstock any one locality. Not more than one-tenth of the available nector in Canada is gathered at any time, so beekeepers can do a patriotic service and can at the same time bring profit to themselves by saving some of the wasted nectar.

In order that the beekeeper may obtain a fair price for his honey and that, at the same time, the consumer may obtain it at a reasonable price, the bulk of the honey crop should, as usual, be sold on the home markets. This will do much to prevent a glut on the markets. Beekeepers will do much toward correcting bad market conditions by distributing their sales over a longer period, for honey is no longer a seasonable food, and to dump all the season's crop on the market at once has invariably led to lower returns to the producer, but has not correspondingly decreased the price to the consumer.

This brief note will serve to indicate wherein the beekeeper can "do his bit" in this emergency. First, the beekeeper should produce all he possibly can, and second, to market it wisely and only after he has full information concerning the markets. He should realize that to assist in producing an important food is a patriotic act.

Shot Without Warning

(Prize Story—Review Contest)

BY CIMARON

TWO young men were walking rapidly along Aston street in the booming little city of Brownridge, Michigan. The hour was 2:00 a. m., and the young men were in a contented frame of mind, to judge by their conversation.

"Old Handspike knows how to blow in money on that daughter of his, eh, Dyke?" remarked the taller of the two whose name was Hyatt Roth.

'Oh, he's not stingy where she's concerned," returned Dyke. "Lucky boy, that Cobden, to pick up a queen like Dorothy, and a father-in-law in the clothing trade."

At this point in the conversation the young men turned to the right, mounted half a dozen concrete steps and paused before the doorway of a large red brick house. With the familiarity of long acquaintance they let themselves in, ascended one flight of stairs, and hesitated before a door above which gleamed a ribbon of light. 'Old Horning's up yet, let's drop in on him," suggested Roth, and without further words they opened the door and walked in.

"It's time you were in bed, you old hermit," announced Dyke.

"Good evening gentlemen," calmly responded Eldred, "has the party been a success?"

"Yes, very pleasant indeed," said Roth. "Cuthbert got that little blonde friend of Dorothy's into a cosy corner and spent most of the evening there. Dancing seemed to have no attractions for him."

'He hasn't told you that he had five dances in succession with Miss Statham," returned Dyke, flushing.

"Old Handspike was in great form tonight, though," said Hyatt, changing the subject. "You should have seen him flying around with the girls. He had us all shaded."

"By Jove!" exclaimed Dyke, "didn't he flare up when that boob, Melbourne, said he doubted the possibility of mating black and red foxes with any certainty of getting a constant percentage of blacks!"

"Well, of course, that's his hobby," said Eldred. "He has spent a pile of money on it and he probably knows more about the fox business than any other man in Michigan. Melbourne is a simple ass, anyhow."

"Yes, but that wasn't all," exclaimed Roth. 'He said that someone had stolen some of his valuable blacks with which he was working out an experiment, and that five years' work had gone for nothing!"

"The deuce you say!" broke in Eldred, thoroughly interested.

"He said, too, that hereafter anyone that was found in his runs at night would regret that fact for the rest of his life."

"That's quite a threat," smiled Eldred. "I don't suppose the old boy would do anything nasty."

"I believe he meant what he said," replied Roth stubbornly, "and I'll wager you two to one that you won't go across his runs after dark."

"You boys had better go to bed," said Eldred, pointing to the door. Good night!"

Safely between the sheets, however, Eldred's mind turned from thoughts of slumber to Handspike's challenging threat and his friend's proffered wager.

Shortly after dusk the following evening Eldred left his boarding-house, ostensibly for an evening stroll. He walked briskly out into the country along a well-travelled motor highway. After about half an hour's walking he turned to the left along a concession road. Turning again he entered a path which led back through the bush toward the city and passed across the lower end of the fox runs.

With a peculiar and unexplainable feeling of fear which he sternly repressed, he climbed the high, closely-woven wire fence and dropped lightly into the run. With a start at the noise which he himself had occasioned he peered cautiously around. Though Eldred was perfectly innocent of crime, perpetrated or planned, still a feeling of guilt and fear came over him as a vague premonition of impending danger flashed through his nerves. Almost furtively he stole across the meadow pausing at every sound. With a sigh of relief he realized that the dim shape, looming up before him, was a post in the boundary fence.

He climbed quickly to the top and was leaping to the ground on the outside when—Crash!! He was encircled with a volume of sound that seemed to come from everywhere and a violent shock contracted the muscles of his right leg. Eldred Horning crumpled to the ground.

Three days later in a comfortable ward in the Brownridge hospital, he recollected struggling to his feet and facing his assailant, only to hear a string of curses as the second shell jammed in the breach of the automatic shot-gun. Then the would-be murderer had fled. Horning recalled his own slow and painful progress to the road; the lift given him by a belated and intoxicated drayman; the hasty examination by the sleepy doctor and the three subsequent days of sleepless memory-destroying agony.

* * * * *

Skene Cobden turned over his morning mail and selected an envelope directed in a familiar scrawl. "Wonder what's struck Horning," he mused. "He hasn't called me up for ages." Then he caught his breath sharply as he noted the address, "Brownridge General Hospital." The words below, short and concise, seized his attention: "Call on me at your earliest convenience. E. Horning."

The fact that no explanation of his presence in the hospital was given, nor indication as to whether he was visitor or patient aroused Skene's wonder and apprehension to fever pitch. He rose, caught up coat and hat and ran from the house. A taxi was passing; he hailed it and was soon facing the young woman on duty in the office.

"Yes, you may see Mr. Horning," she said. "He is in room number 24 on the second floor. Turn to your left at the top of the stair."

As Skene entered the room Eldred looked up. "Ah, glad to see you old chap," he remarked casually.

"What the deuce is the matter?" burst out Skene. "Are you sick or crazy?"

"Neither," said Eldred. "Just shut that door, will you please, and we'll talk."

"The night of your betrothal party," commenced Eldred, "your future father-in-law made a wild threat concerning anyone found in his fox runs. Dyke and Roth called on me that night and told me of it. I said I didn't think Handspike would carry out his threat and Roth dared me to walk across the runs after dark. The next night I attempted to do so and was shot without warning. If my mother heard of it she would go crazy, so I

have tried to hush it up. I would hate to have her know anything about it. The watchman, whoever he was, tried to put another charge into me, but the shell jammed; then he ran and I got away."

"Holy Smoke!" ejaculated Cobden, who had been dumb with amazement. "Shot without warning!"

"So I thought the best thing I could do would be to tell you, seeing that you and Handspike are partners," finished Eldred.

"Look here, old man," broke in Skene. "Handspike has been spouting a lot about losing foxes lately. I never paid much attention to it, but now I believe he's right and I'm going to get to the bottom of it. We can't have this kind of thing continuing. Why, you might have been killed!"

"I suppose so," agreed Eldred wearily, sinking back on his pillows."

"Your time is up," said the nurse softly, appearing in the doorway."

"Well, bye-bye old chap, we'll straighten it up somehow," said Skene in farewell.

* * * * *

The following evening Skene walked from his office, out through the fox runs. He seemed to be looking for someone and his search was rewarded when the burly form of the watchman presently rose from behind a knoll with a civil, "Good evening, Sir," as he shifted the automatic shot-gun to his left hand.

'Good evening," answered Skene. "I hear there's quite a celebration in town tonight."

"Yes sir," replied the man, "it's the last night of license. Prohibition goes into effect tomorrow and the hotel men are treating all their old customers tonight."

"How is it that you aren't there?" asked Skene carelessly.

"Well, Mr. Handspike said for me to stay sharply on the job tonight, and to watch the east side of the meadow particular," returned the man, somewhat dejectedly.

"By Jove," said Skene, "I've a great notion to go on watch myself. It must be great sport. You go along and visit your friends."

"Alright sir," agreed the man, secretly delighted. "But Mr. Handspike said to watch the east side pretty close."

"Very well," replied Skene, "I'll watch.'

Until darkness had fallen Skene kept on the far eastern side of the meadow. Then he carefully and cautiously began to work his way back. He knew that at the western side was a small enclosure containing two beautiful silver foxes which had been sold and were awaiting shipment; and towards this he crept. When within a short distance of the pen he stopped and waited. He thought of Eldred Horning and the certainty of his disgrace if the thief were not caught; for as soon as Handspike should learn why Horning was in the hospital he would at once publish the story that he was the thief, even though he might refrain from prosecuting him. Then he tried to imagine what the real thief might be like, and had just pictured him as a burly, shabby, rough-looking man with a hare lip when he heard the gate of the enclosure click. He bounded to his feet and heard a low call. He advanced slowly towards the pen, holding forward the automatic. Then he perceived dimly the outline of a man dragging something limp, evidently a dead fox from the enclosure. He stepped forward presenting the automatic and challenged the red-handed culprit.

"What in blazes are you doing on this side of the run," asked a heavy voice.

"Didn't I tell you to stay on the east side?"

"Yes," said Skene, "but put up your hands—there. So you are the man who steals from your partner and victimizes an innocent young man to save your own miserable carcass. Your name is Hezikiah Handspike and you have 48 hours to settle up your business and leave Brownridge or I will blow this whistle and call a detective who is waiting a quarter of a mile down the road. Choose quickly."

Courcellette

No fairer vision met the gazer's eye
Than that fair land, that harbinger of wines,
The Hamlet Courcellette, its steeple high,
The sweeping sunlit stretch of tender vines,
The modest church and schoolhouse on the hill,
The yonder country road with poplars edged,
The pleasant convent and the ancient mill,
The sighing woods with slender bushes edged,
And placid lake and sparkling laughing rill.
Ah! Yes, those wide soft rolling fields of grain.
No, not one sign of death, nor fear, nor pain;
Not even cloudy thoughts to mar the scene.
All lay before the gaze in one vast sea
Of sweet God-given peace and Liberty.

But now! in lieu of transient joys sublime,
Results of patient labor, toils and time,
Sad smouldering mounds (once convent, church and mill)
Of shell shorn splinters, strips of sacred scroll;
All emblems of a hateful lust to kill.
Once leagues of living green before one swept
Whilst harmless Courcellette in beauty slept;
Now rolls in filthy undulations deep
Black shell-holes filled with remnants of the fray.
Where once the peaceful shepherd with his rod
Wandered o'er tender sward and even sod,
Now ploughs the plundering Prussian through that mud
That once was fair; now foul and stained with blood.
Oh! Courcellette how sad thy country's fate.

—S. N. Lord, '18

L'ERREUR

PRIZE POEM—REVIEW CONTEST

Did you ever see de girl, Marie,
Wit' all dat black, black hair;
An' eyes what sparkle like de lak
When moon, she's shinin' dere?
Well dat's de girl for long, long tam,
I've felt like mariée.
But den dat girl she's fader, he
Might have someting to say.

It's funny ting so hard I work,
I don't save much dollare;
An' go around like some beeg man
Wit shiny, stiff collare.
Dat's not suit Poleon Lemagne,
I'm not dat kin' me frien'.
But I've got fifty acre farm
Aroun' St. Maurice ben.

Dat's nicest place you ever see
When spring she's comin' dere;
An' de grass is green, an' small oisseau
Is singin' in de air.
De ting I like to do de bes'
When all ma work is done,
Is sit an' smoke ma ole' ca'bash
An' watch de fallin' sun.

But dat's not suit ma belle Marie!
Her fader, he's rich man.
Could have a place far better' me,
By many, many tam.
He's got a farm what most folks say
Is bes' in dis campagne,
An' wat he tink for son-in-law,
Of Poleon Lemagne?

So I tink de ver' bes' ting for me,
Is forget Marie an' say,
"Poleon don't spoil de chance dat girl
For gettin' mariée.
To some rich man wat's suit le père,
An' p'raps la mère also."
So I'll go an' work some more ma frien,
An' let dat fine girl go. —Poleon Lemagne,

The Khaki University

THE Educational Board appointed by General Turner for outlining and setting up a progressive educational programme in The Canadian Camps in the British Isles, has left for France to investigate the promotion of a similar programme among the Canadian troops there. The Board consists of Captain McKinnon, formerly Principal of Pine Hill Theological College, Halifax, representing the Chaplains; Captain George McDonald representing Military Headquarters; and Lieut-Colonel Gerald W. Birks, General Supervisor of the Canadian Y. M. C. A. President H. M. Tory of the University of Alberta has at the suggestion of the Y. M. C. A. been selected to take charge of the whole work, and will shortly join this Board as President of the new Khaki University.

The Educational Work in France will be carried on mostly in the reserve areas, though reading matter of an educational character will systematically reach the men right at the front. At the present time the Y. M. C. A. is supplying 10,000 men in the trenches with literature, besides libraries totalling over 8,000 volumes for their use on a loan basis. A strong demand has arisen in France for educational facilities, which augurs well for the success of the project under way.

At Bramshott, Witley, Seaford and Shorncliffe Camps, the Soldiers' Colleges organized are meeting with a wonderful reception at the hands of the soldiers, several thousands being enrolled in classes of all descriptions, taught by University Professors and teachers from the ranks.

The objective has to do with the profitable occupation of the men of the Canadian Army during the progress of the war, and during the period of demobolization, as well as a useful pastime for their off-hours.

The College idea grew out of some preliminary educational work conducted by the Y. M. C. A. in the Canadian Camps. Dr. H. M. Tory of the University of Alberta, Canada, was asked by the Y. M. C. A. to investigate the possibilities. With the co-operation of the Chaplains and the Military Authorities, the Khaki College of Witley, controlled by a Chancellor, Senate and Faculty, and arranged throughout as a University of the established, permanent type, was set up. Its marvelous success shortly resulted in the establishing of similar Colleges for the Canadian troops in Bramshott, Seaford and Shorncliffe areas, and in steps being taken as mentioned at the outset in providing similar educational facilities for the Canadian Army Corps at the Front.

In these Khaki Colleges Canadian soldiers, whose University careers have been interrupted by the war, may continue their studies in their spare hours in England or France. Canadian soldier youths whose opportunity for a University Education was apparently abruptly cut off by their response to the call to arms, may now realize their ambitions under conditions in which the opportunity for self-betterment had unfortunately been anything but bright.

The Universities of Canada are co-operating in the project in a way that gives rise to high hopes for its development and correspondingly increased service rendered the men, after the war. In any case thousands of Canadian boys are receiving academic in

structions of a high order that will be of great value to them in re-establishing their lives after the war.

Agriculture is receiving considerable attention in this new university and several O. A. C. graduates are members of the staff. W. H. Wright, B. S. A. formerly of the botany department here is lecturing on Agriculture. R. B. Hinman, B. S. A. is lecturing on Dairy, while E. R. Hall, B. S. A. and P. Stewart, B. S. A. are lecturing on other phases of Agriculture.

"CARRY ON!"

"Carry on!" 'Tis the cry from the winding trenches,
Where the red blood flows in the conflict grim,
And 'tis echoed afar o'er the fields of war
By the stout of heart and the strong of limb;
From billet and camp, can ye hear the call?
As the old year dies and the new is born,
From the heroes who sleep, from the women who weep,
From the comrades who stand firm, girt and sworn,
Down the far-flung lines the slogan is borne.
"Carry on, my sons, till the day be won.
Carry on!"

"Carry on!" 'Tis the call from our heroes dead,
Blood of our blood and bone of our bone;
And shall we make vain their good lives sped?
For the dark deeds done shall there none atone?
From the place of their rest comes the long, clear call—
"Ye must shatter the foe—the breed of Cain,
Though the road be long, ye must right the wrong,
And win to the goal through the gates of pain,
That the deaths we died shall not be in vain,
And in Britain's honor we live again.
Carry on!"

"Carry on!" To the pipe and the beat of drum,
That leads men forth to a goodly quest,
"Thy peace upon earth and Thy kingdom come"
To the aid of the weak and the sore oppressed,
From the sea and land can ye hear the call,
As we hail the dawn of the new-born year,
From our glorious kin, who will fight and win
Though the way lack cheer and the price be dear?
Who can vision the light through the darkness drear?
True to their trust, and without a fear?
Carry on!

—Hector Mackay, in Dundee Weekly News.

THE O.A.C. REVIEW

REVIEW STAFF

J. B. MUNRO, '19, *Editor-in-Chief*

R. W. MAXWELL, '18, *Agriculture*
F. L. FERGUSON, '18, *Experimental*
C. F. PATTERSON, '18, *Horticulture*
G. R. WILSON, '18, *Poultry*
R. A. BRINK, '19, *Query*
A. M. STEWART, '19, *Alumni*
A. H. MUSGRAVE, '19, *Athletics*
A. B. JACKSON, '19, *College Life*
C. MURDOCK, '20, *Locals*
G. H. SCOTT, '20, *Artist*
OLIVE LAWSON, '18, *Macdonald*
M. BARBARA SMITH, '19, *Mac.*

EDITORIAL

GREETINGS

With the present issue of the Review the new editor takes up his duties. Meekly and with trembling he enters upon his course, for well he knows the responsibilities connected with the office. During the past several years the Review has been passing through a metamorphosis which is still incomplete, and it is our duty to continue the process of improving until a perfect specimen of college paper is evolved. Many changes have already been wrought in our monthly by the students and their chiefs in recent years and many improvements are yet to be made. It will be our work to discover wherein these improvements can be instituted and to bring about as many as possible while carrying on the regular work of publication.

We look forward to continued assistance from those who have proved able contributors in the past and we expect to draw from the ranks of the timid and reticent members of our student body manuscripts which will delight the editor and entertain our readers. We know there is talent at O. A. C. that has not yet revealed itself and it will be a pleasure for us to discover and use the latent energy that lurks within the minds of our boys. As Agriculturists we are coming into our own and it is now our duty to show ourselves worthy of the respect of our fellows by demonstrating or imparting to others whatever useful knowledge we may have at our disposal. Don't say you can't write. You can! You must! Now is your opportunity to show yourself and others that the farm has produced thinkers and that you are one of them, and that your thoughts are worth giving to others.

It is our hope that our students will

appreciate the fact that we are passing through a very critical time in the existence of the Review. Our student body is small and the various calls on their time are numerous, but we anticipate a vigorous response from all who are in a position to assist. We must each do a part and hold the standard against all besieging difficulties till the conflict is over and normal times restore to us the forces that once stood behind us.

Mac Hall to the Front

We are realizing more than ever that women are capable of replacing men in many of the activities of life, and in the girls of Mac Hall we find ample proof of literary ability. The recent Review Competition showed that the girls are ready to contribute articles of worth and the spirit of co-operation that they are displaying in patronizing our rink and supply store, is gratifying to those of us who are behind the work. The present student body of Mac Hall are taking an active part in our college life and we look to them for assistance in making the coming year the most successful in the history of the Review.

The attendance at the Hall this year is as large as ever, and the spirit of helpfulness is evidenced by all the girls. Within that spacious structure we find a power which will go far toward making the coming year a success. There are ideas, and there is talent and ability possessed to a marked degree by a host of girls who are alive to the reality of life and the need of the hour. It is to these girls we appeal for assistance and we know that a hearty response awaits us

The fact that we have the support of Mac Hall in our college activities and the prospect of much help from individuals in attendance there gives us confidence in the future of our paper. We invite all Mac Girls to contribute whatever they may deem acceptable and we thank those who have already rendered valuable assistance.

Prof. Geo. E. Day is one of the first men in the live stock industry in Canada. Nor is the recognition of his worth in this branch of agriculture confined to the Dominion, for he is known and highly esteemed by many live stock men in the United States where he is acknowledged as an authority on swine.

On Jan. 1, 1918, Prof. Day resigned the position of Head of the Department of Animal Husbandry at the O. A. C., a position he has capably filled for many years, and became secretary and publicity man for the Dominion Shorthorn Breeder's Association.

The Review regrets very keenly this loss to the college of one who has come to be by virtue of his ability so prominent a figure in Agricultural circles. Not only will he be missed in the lecture room where his clear and emphatic manner, sound judgment and wide knowledge gained for him the sincere respect of every student, but also his absence will be felt in various other College activities to which he has given his unselfish and faithful support. He will ever be known by those who gained his acquaintance at the O. A. C. as a gentleman who performed his task honestly, firmly and good-humoredly. We extend to him our best wishes for unqualified success in his new position.

Live Stock

The need of an Animal Husbandry Club has long been felt at the College, but it needed unsettled times such as we have today to bring about its formation; times when the demands on Canada's live stock supplies are greater than they have ever been before;

when the cry of the Allies is food, food and more food; when everyone has to put forth a greater effort to help in the gigantic world struggle.

A glance at the college calendar shows that during our first year we received approximately 22 hours in lectures, and 42 hours in judging. In the second year we are more fortunate and get about 46 hours in lectures and 50 hours in judging. In the third year there is only 22 hours devoted to animal husbandry, which is not even enough to keep the subject clearly in mind. There are classes of live stock we never see, and when the senior year is reached much valuable time has to be taken in a review of fundamentals before we can get down to real work. In the fourth year, 45 hours are spent in lectures and 162 hours in judging.

Approximately 113 hours of lectures and 201 hours of judging during the whole four years of the college course, Very little more than the short course students get in their two weeks course. Yet we think the Animal Husbandry Department should take such raw material, and in the short time at their disposal turn out finished stockmen, able to direct Canada's live stock industry, capable of going to Chicago and winning from the best men from the American Colleges, despite the advantages they have in knowing the ground thoroughly and in understanding the breeds exhibited. If we want this we must exert ourselves, a little, at least.

Now the idea of the Club is not to work as a separate unit, but to work in connection with the Animal Husbandry Department, to supplement the course and give such training as will permit of more advanced work being taken in the final year and to try and fill in the gap between the second year and fourth year.

The Club aims to reach farther, and benefit the men from the other options. It is a common occurance to find men from the special options wanting to do work of a broader nature, at least for a time, but for lack of a proper knowledge of live stock they are unable to accept such positions when offered. Would the Club not be of great value in such cases if properly utilized?

Although no definite lines of procedure have yet been arranged, it might be well to state a few of the more important subjects the Club hope to deal with, in as far as time and money will permit.

1. Talks by the Presidents of the different Live Stock Associations on the history, development, merits and present day demands of their respective breeds.

2. Judging trips when possible.

3. Talks from practical feeders on exhibitors.

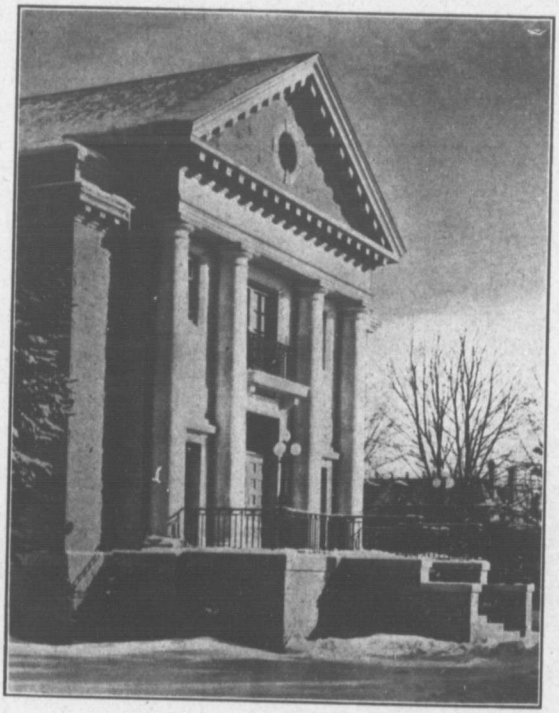
4 Recent research work in live stock diseases by government veterinarians.

5. Co-operative and other marketing.

6. Importing of live stock.

7. First hand information on important live stock questions of the day; for example the swine industry in Canada at the present time. Many of us are unable to read on the subject, but yet would find time to attend a meeting and have the whole problem placed before us in concise, complete form.

W. R. G.



COLLEGE DINING HALL

THE customary banquet of the Experimental Union was held at the O. A. C. at 6 o'clock on the evening of Tuesday, January 8. Four hundred and fifty covers were laid in the well-appointed dining-hall, which, by the way, is said to be the finest and best-equipped building of its kind in North America, and is certainly one of the architectural adornments of our campus.

The menu consisted of cold meats and potato puff with a pastry dessert of lemon fanchionettes followed by fruit. The tables were garnished with palms and ferns.

The tastefully decorated and well-arranged hall, the neat black and white uniforms of the waitresses, the bountiful repast and the large assembly of contented guests, made a deep impression on the minds of all, and led one to wonder whose is the guiding hand that so ably administers the affairs of this large household and provides so appetizingly for our wants without violating the regulations of the food controller. Miss Mary Mont-

gomery is the directing genius of the O. A. C. Dining Hall, and it is to her that we owe the invariable high quality of the plentiful meals that are served in the Dining Hall. To the average student, the name of Miss Montgomery is synonymous with perfection in the culinary art.

After ample justice had been done to the palatable viands, Dr. Creelman in a few well chosen remarks, introduced the speaker of the evening, Premier Hearst, who also has the portfolio of agriculture, and is thus closely connected with our college. The Premier expressed his interest in Agriculture in general and in the O. A. C. in particular and paid a tribute to the skill and ability of the Commissioner of Agriculture for Ontario, and gave the highest possible praise to him for the faithful services rendered during the past year.

Premier Hearst also spoke movingly of the Canadian soldiers who are serving our country and also of those who have already performed the greatest service. The great need of production and conservation was emphasized strongly, and Ontario farmers were alluded to as the troops in the second line trenches.

Dr. Creelman commented briefly on the Premier's address and some patriotic songs were sung, the students joining in the choruses.

The gathering dispersed after singing "God Save the King."

A. H. M.

THE CRUCIBLE OF GOD

Into the crucible of God is cast
The laboring earth and all that dwell therein—
Groaning and travailing in pain and sin,
Weighed down by heavy burden of the past—
There to be cleansed by sorrow's bitter tears,
Tried in the fire, purged of all the dross,
Humanity itself nailed to the cross
Until—regenerate—man reappears.

That Love Divine who maketh all things new,
Who out of winter's death unfolds the spring,
Can bring His children—broken, sorrowing—
Out of the crucible, with life endue,
Here in this new-made world new dawns to see
And taste again life's joy and ecstasy.

—Francis Annesley, in The Spectator.

As years come and go industries of our country will prosper and decline, fortunes will be made and lost, even government may change its form, but so long as the world stands agriculture will be the foundation of national wealth and prosperity.—Aaron Jones.

ALUMNI

CEDRIC HARROP, '18

The late Cedric Harrop of year '18 who paid the supreme sacrifice on October 28, 1917. All who were fortunate to be his friends knew him as an excellent student, a manly fellow and a brave soldier. The sympathy of the College is extended to his parents, brother and sisters.

ENLISTMENTS

G. Knowles, '19; J. McLean, '19; V. C. Lowell, '19 formerly of '18; Hugo Clark, B. S. A., '17; O. M. Mallory, '14 have enlisted with the 64th Depot-Battery C. F. A., C. E. F., at Guelph.

Ray Halsey, '18 has joined the American Navy, and is training for a wireless operator.

KILLED IN ACTION

Lieut. N. J. Harkness, '19, son of Mr. and Mrs. George Harkness of Sundridge, Ont.

Pte. Gordon Yule, '16 (14 Hogarth Avenue, Toronto) was killed on November 9, 1917. Pte. Yule enlisted early in the war in December, 1915.

Pte. J. H. Winslow, '15, has been killed in action. Pte. Winslow was originally with the 56th Battery; later transferred to the 55th Battery. Pte. Winslow was Editor of the College Review in his last year at College. He was a brilliant student, and very highly esteemed by his fellow students.

M. H. Fisher, '18 is reported killed in action.

KILLED IN ACTION

Word has been received from T. A. Dawson, Bronte, Ont., of the death of Hugh R. Kay, '13, who was killed in action on November 6, 1917. Kay came to the college from Scotland and after taking two years at the O. A. C. he worked on the Lakeview Farm, Bronte, Ont. Hugh was a general favorite at the college and wherever he was known. His parents reside at Bearsden, Scotland.

Pte. M. Kelleher, '14 reported wounded.

Lieut. N. Stanfield, '14, who had been wounded on active service, has recently returned to Canada. Lieut. Stanfield has not as yet recovered sufficient to return to the Front. He has accepted a position with the Sheep Department, Live Stock Yards, Toronto.

Lieut. Freeman W. Morse, '16, son of Mr. and Mrs. W. M. Morse, 861 Bathurst Street, Toronto is reported missing. He enlisted with the 95th Bn. in spring of 1916. He was transfered to the R. F. C. in England in the fall of 1916.

WOUNDED

Gunner W. J. Lanse, '16 has been wounded in the eye. He is now in London General Hospital, England, and reported doing favorably. He went overseas in May 1917 with the 64th Battery draft.

Pte. J. F. Nash, '14 has been awarded the Military Medal for distinguished bravery.

Pte. Nash enlisted early in the war, and has seen much hard fighting. He took the associate course at O. A. C., where he distinguished himself while there by winning the Governor General's Silver Medal for the second year student, who has ranked highest in general proficiency in first and second year work.

F. M. Logan, '05, B. S. A., who has been deputy dairy commissioner for Saskatchewan, has been appointed dairy commissioner; his predecessor as dairy commissioner, Mr. W. A. Wilson resigned his position in order to accept a position as general manager of the Saskatchewan Co-Operative Creameries, Limited.

Lance Corporal H. C. Huckett, '16, who went overseas with the P. P. C. L. I. was severely wounded in the right hand at the battle of Ypres. Corporal Huckett has recently returned to Guelph where he intends to complete his course at the Ontario Agricultural College.

Pte. C. Luckham, '18, who enlisted in the fall of 1916 has returned from England and is now convalescent at the Military Hospital, Guelph.

J. A. Neilson, '15 B. S. A. has received the appointment as lecturer in Horticulture at the Ontario Agricultural College as successor to H. S. Fry, B. S. A., who severed his connections with the College here last summer in order to accept the position as Editor-in-Chief of the Canadian Countryman, Toronto.

Mr. Neilson was a graduate of the College in 1915. He is well and favorably known to many of the students.

Capt. A. C. McClymont, '16, who enlisted with the First Battalion, has recently returned to Canada. Capt. McClymont was among the first to

answer the call to service. He has been overseas twenty-six months, during which time he has been through much hot fighting. The long time on service has affected his nerves and he is now home to Canada convalescent in the Guelph Military Hospital.

G. F. Kingsmill, '14 who enlisted last September with No. 2, C. A. S. training depot stationed in Toronto, has received a month's furlough to conduct a "Short Course" in Beekeeping at the Ontario Agricultural College. Corporal Kingsmill expects to return to military service by the first of February.

Pte. G. W. McCall, '14 has been seriously wounded in the leg. The wounds were so serious that amputation of his leg was necessary.

Pte. McCall returned to Canada in June last, and is at present in Toronto Convalescent Hospital.

Capt. Geo. Spencer, B. S. A., '14 and Lieut. J. P. Hales, '15 spent Christmas in England.

R. W. Winslow, B. S. A., who has for some time been fruit commissioner for the Province of British Columbia has resigned his position to become manager of a co-operative fruit exchange in Vancouver.

A. N. Booker, '16, is in California managing a fruit ranch.

R. W. Brown, '13 B. S. A. has resigned his position at Ames Agricultural College to accept the position as Professor of Dairying at Manitoba Agricultural College.

V. W. Jackson, '05, former lecturer at O. A. C. is now Professor of Botany at Manitoba Agricultural College, Winnipeg.

Lieut. J. C. Fuller, '17 (P. P. C. L. I., has returned from the Front, and is visiting at the College.

The Review is in receipt of a letter from Mr. H. G. Crawford, '15 B. S. A.

Mr. Crawford is at Champaign, Ill. attending college. Last year he received his M. Sc. and is this year studying for a Ph. D.

We wish Mr. Crawford added success, and we have every reason to believe that this year he will receive his Ph. D.

A. C. McCulloch, '12 B. S. A., who has been with the Poultry Department at Oregon Agricultural College, Cornwallace, has resigned his position there to accept an appointment as Poultry Commissioner for the Province of New Brunswick.

J. H. McGregor, '14 has joined the Army Medical Corps, Toronto.

No. 91057 Gr. R. D. Ure, '17,
"C" Battery, C. R. A.,
Witley, Dec. 12, '17.

Editor O. A. C. Review.

Dear Sir,—

I drifted into a "Y" reading-room a few minutes ago and happened to see an O. A. C. Review lying on the table. You can't imagine how glad I was to see it. It was just like a little glimpse of old times again to see the old familiar advertisements. Even the old street car time-table brought back many happy recollections. As I read the letters sent in by different fellows who are scattered around France and England I thought I'd scratch a line just to

fill in an odd corner in your paper some time.

I've been knocking around England from pillar to post since August 4th, and I have been having a good time, taking everything into consideration. We were in position at Hill 70 when I came away and, believe me, she was a hot spot for a while, but nothing compared to Passchendaele.

I've met several old O. A. C. men from time to time. I left Serg. Doug. Townsend, '16 at Epsom. He was Serg. of our headquarters in France and the best old scout I ever saw. I get a whizz-bang from J. M. Lawrence, '17 once in a while. He's still going strong.

Old Witley isn't what it used to be when we were here in the spring of '16. Now it's just a reinforcement depot and the casualties when they get back here are given a good healthy share of fatigues and guards. As a rule the fellows are anxious to get back to their old units in the field.

Just now I'm attending the School of Gunnery and expect to go out again shortly after Christmas. I'd like to connect with some of the old O. A. C. battery when I go.

The fellows are singing "Abide With Me," in the next room. They're whoopin' er up as though they meant it, too. The "Y's" are doing good work here, providing as they do, good refreshments and well stocked reading-rooms.

Well, so long and good luck,

As ever, R. D. Ure, '17.

Waterloo County Council has claimed exemption for Stanley Knapp, '14, B. S. A. Mr. Knapp is District Representative for Waterloo.

Herbert Butters, '20 has joined the Royal Navy. He is on patrol service in Canadian Pacific waters.

R. R. Penhale, '20 is now on active service in France.

C. I. Dunn, '20 has been drafted in U. S. A. as a reservist in the 11th Cavalry Brigade. He is stationed in a camp in Alabama.

J. F. Patterson, '20 who enlisted with the Army Medical Corps at London, Ont., is now on active service in France.

Gunner R. G. Beatty, '20, No. 2327466 has enlisted with the Cobourg Heavy Battery and is at present training in Cobourg, Ont.

C. C. Evans, '20 has returned home to work his father's farm in Chilliwack, B. C.

Marriages

Jackson-Ferguson:

A quiet wedding took place at the home of the bride's parents, Mr. and Mrs. John Ferguson, King Street, West, at high noon on Saturday, when their youngest daughter, Lillian Margaret was united in marriage to Mr. Walter Davidson Jackson, B. S. A., district representative of the Department of Agriculture at Carp, and son of Mr. David Jackson of Grimsby. They were unattended, the ceremony being performed by Rev. P. L. Gull of Lakefield, formerly of Carp. Mr. and Mrs. Jackson left on a trip to western points, and after spending a month in Ottawa will take up residence in Carp, Ont. The Review extends congratulations.

Born

To Lieut. and Mr. C. A. Good, '14, a daughter.

Lieut. and Mrs. Good are in England. Review and staff extends congratulations.

To Mr. and Mrs. Brown of Manitoba, a son.

Mr. Brown was a member of Class '13 at O. A. C. We send to Mr. and Mrs. Brown congratulations.

December 5, 1917.

Address: St. Vernon King R. M.,
No. 16 Squadron R. F. C.,
B. E. F.,
France.

Dear Mr. Caesar:

Here comes my annual budget of miscellaneous information, and I know I owe you a thousand apologies for leaving you so long without a word. I never forget any of you I can assure you, but simply save up any news to send along in one consignment, and I trust that you don't mind it issued in bulk as it were.

Was it last Christmas that I wrote to you or have I written since? Did I tell you I was contemplating transferring to the Royal Flying Corps? Well, if I did not I can tell you now that I am attached to it as an Observer on probation. At the beginning of last September I went home to England; got fifteen days leave and then went to Reading for ten days attending lectures; and from there to Winchester for more lectures and flying as well. After a month there I passed my exams and went home for five days holiday, and next went to Salisbury Plain for more flying for ten days, and once more went home and managed to get twelve days leave before coming to France where I am now. This squadron works with a Canadian Corps and many of the pilots and observers are Canadians and splendid men, they are, too. At present I am sharing a hut with three men from Canada and we often discuss people we have met over there and it is very much like old times.

You may wonder at my desire to fly since it is usually considered to be a very young man's job, but I have always insisted that I felt five years younger than my actual age, and I wanted to prove that I was so! Still, that was not my only reason for transferring, but I felt that my work in the transport was not strenuous enough for a "youngster" like me, and I was certain that a much older man could do my work. I had tried a year before to get into the Tanks, but my colonel would not let me go and he tried to stop me coming in to the R. F. C., not because I was so valuable, although that is what he pretended, but simply out of sheer cussedness in my opinion. Another reason was that aeroplanes always fascinated me and even now I am never tired of watching them. I believe there is a wonderful future for aviation, and if the war would only stop, our energies would be devoted to building weight-carrying machines and less of the fast little fighters. I am sure it won't be many years before you are receiving your mail from the air, and when you wish to deliver an entomological lecture at Grimsby for example, you will go over from Guelph after lunch and be back in time for tea.

I suppose you have spoken to many flying men by this time, but if you have not you might be interested to know the impression I got from my first flight. There are really so very few things in the world that we haven't some idea about even if we have never seen them, but of all the novel experiences; at least so far as I am concerned, I can safely say that my first flight was the most wonderful. Naturally, I wondered all sorts of things before I went up, chiefly whether I would like

it, how I would feel, whether I should be cold or nervous or giddy or experience any of those sensations which people often do when looking down from a great height.

(The corporal of the guard just reported to me that anti-aircraft were firing in a certain direction from this aerodrome, and that he would report again if the shells burst nearer, and as I am orderly officer for the moment, I can extinguish all the electric lights in the squadron by touching one switch. You see, there is a war on and we are only five miles from the line, and it wouldn't be difficult to drop a few bombs on us since it is dark.)

To resume then with my story. I got into the observer's seat in an aeroplane used for co-operating with the artillery and infantry, and my place was just behind the pilot. After the usual performance of swinging the propellor to get the engine started, and the signal had been given for the mechanics to pull the blocks of wood from the wheels, we "taxied" to one end of the aerodrome and turned the nose of the machine directly into the wind. Machines should always take off against the wind and land the same way. When the propellor had reached the necessary number of revolutions we sped along the grass at about forty miles an hour, and I looked over the side to see if we had risen. But no, we were still on the ground, and so I looked back again into the machine, and in a few moments raised my eyes again, rather shy I'll admit, because I thought that surely by this time we were off the ground. And then I lowered my eyes again and decided not to look for some time because I wanted to know whether I could feel when we first left the ground. All this time was only a matter of seconds although it seemed minutes to me. Then presently I raised my head slowly and peered over the side rather furtively as a wild animal does the first time he sees a human being. My feelings were a mixture of uncertainty, excitement, wonder and delight, and I was so pleased with myself that any little thrills of fear were unable to drive away the pleasure of the scene far below. You see I was really off the ground this time and had climbed to about six hundred feet. It was not long before I grew accustomed to the new situation and watched the wonderful panorama as the novels would say which stretched away far below me for mile upon mile. My confidence grew and I fairly chuckled with delight as we reached 5,600 feet which I could tell by the indicator over the pilot's shoulder. England is pretty from the ground as you know, but how beautiful it looks from the air on a clear, sunny day you can't imagine. It was like a huge patchwork quilt and the patches were of all shades of green according to the crop which grew in each field, or else the patches were of different shades of brown due to the soil in the plowed fields. The hedges, neat as they are on the ground, made clean, clear edges to the green and brown patches, and the roads stretched away in graceful curves or straight as an arrow, or wound around in elbows, or formed triangles and squares as the case may be. The most striking thing to me was the regularity of everything on the ground, for the outline of every object was so clearly defined that you might imagine that the houses and all buildings had been taken out of a toy Noah's Ark. In fact, the whole scene suggested Toyland with miniature trains puffing along tiny rails and sometimes disappearing into the ground down a mouse hole, and rivers winding away like strips of aluminum, and here and there a lake

more like a spot of aluminium paint than anything else I can think of. We flew along towards Southampton and over the Solent I watched the ships creeping along in the water, and I could tell they were moving because they left a slug-like slime behind them which we call the Wake when we are down on Mother Earth. At 5,000 feet although we were travelling between 70 and 80 miles an hour we seemed to be making very little progress, and instead of rushing past town and village the scenes changed as they would on a stereopticon by dissolving views. For example, a town would come slowly into sight and slowly disappear and a new scene would be spread below us. Big fluffy clouds and scraps of little ones like bits of raw cotton would float by in the sea of air which you could seem to see because there was so much of it. The engine and propellor made a terrific roar and yet as we looked at the town below I felt as if I were up in a huge silence. Then I took out my notebook and wrote a letter to a friend of mine just to show that it was possible in a plane.

Before I had finished that last page I heard some loud explosions not very far away and so the corporal of the guard didn't wait to warn me, but told the man in charge of the dynamo to put the lights out, and we waited for awhile till it was apparent that the raid was not intended for us, but probably another aerodrome got the benefit of the bombs. However, I hope no damage was done. It may be our turn to get a visit one of these fine evenings. Our own machines, I mean bombing machines from other squadrons, have been busy the last few nights, and they come humming overhead with two bright head-lights, and two more at the sides which also show red and green on the port and starboard sides, and one more on the tail, they look for all the world like giant bats or moths with big eyes. One can't help thinking of the pilot on his lonely mission, although it is not a very dangerous one so far as enemy shells or aeroplanes are concerned. Still I know how helpless one feels in the daytime when one has lost one's bearings, but what it must be at night with only the compass to steer by, I can well imagine. You can't very well stop and ask the way, nor can you even pause to think out where you may be.

If all goes well by next Spring I hope to go home to train to be a pilot, but all officers joining the R. F. C. from France have to be observers first, whereas if you have never been to the Front at all and join the R. F. C. in England you can start as a pilot. This is one of the queer things in the workings of the army. I am a stranger being than ever now because I was formerly a horse marine and now I am still a marine, but training to be a flying man. Don't you think I'm a very versatile creature!

Our work is extremely interesting for our machines go up every day it is possible to fly and "spot" for the Artillery. I mustn't go into too much detail else the Censor may object, although the Germans know almost as much about our work as we do ourselves, for our methods are very similar. However, the pilot or the observer gets into communication with the battery by wireless and the battery communicates with the aeroplane by means of certain signals. When the guns fire at the target the pilot or observer sends down by wireless the "correction." The gunner, of course, cannot see the target, but alters his shooting according to the information received from the aeroplane. While this is going on, Fritz is amusing himself by

firing shrapnel from his anti-aircraft gun at our aeroplane, and perhaps one of his scouts is attacking with his machine guns. My work will be chiefly to watch out for Huns and pot at them with my machine gun if they come too close. One of our chaps had a fight today and one of the Hun's bullets knocked the foresight off his gun.

We also patrol the lines and watch for gun flashes and in that way locate enemy batteries upon which fire from our artillery can be directed. And, too, when an advance is in progress we keep in touch with the infantry and find out by signals their exact position and anything they may desire such as water, ammunition or assistance of any kind. The pilot writes notes and flies back to certain spots and drops these messages so that the headquarters can take whatever steps are necessary. This is called Contact Patrol. Another phase of the work is reconnaissance which means watching for all kinds of enemy movements. Our work is not fighting, although we have to do it in self defense, but there are special machines for fighting and they do little else. Photography is done, too, very extensively.

Can you picture me sitting on a little piano stool high up in an aeroplane with a fur-lined cap on my head, goggles over my eyes, and a lovely pair of sheepskin boots with the fur, I mean wool, inside and all the way up to my thighs, and a leather coat over all, and a pair of fur-line gloves to keep my hands warm. In the machine is a telegraph key to send down messages by wireless and so it is quite a comfy place.

Now that is enough about aeroplanes and probably you are already tired wading through it all and so I will change the subject.

LIEUT. K. W. FORMAN,
American Expeditionary Force
"I dare do all that may become a man."

Kenneth W. Forman visited the College last autumn, when he was the guest of J. B. McCurry from December 8th to 12th, 1917. "Ken" was born in the Himalayas, the son of Rev. Dr. C. Forman, Medical Missionary, Kasur, India. Leaving India at the age of

nine, he spent some time in Europe whence he went to Scotland. There, in the land of his ancestors he received his preliminary education. After a short stay, he left for the U. S., and attended school in Philadelphia, later migrating west to Wooster, Ohio, where he attended the high school for several years. On leaving Wooster, he returned east to continue his studies at Mount Hermon School, East Northfield, Mass. After a brilliant athletic career at the above institutions, "Ken's" interest turned toward agriculture, and September 1914 found him located at the O. A. C. where he took the general course until Christmas 1915. He then took the Dairy Short Course, and at the same time filled most capably the position of physical instructor at the College.

In athletics his specialties were rugby, basketball and caring for the injured. In rugby he won his "O" in his first term, playing on the championship team of 1914. In basketball he was unquestionably the best player who attended the O. A. C. in the past decade. He played on the College team for two years, winning his "O" the second winter.

After spending a short time on the Dairy Department, he went to Silver Bay, N. Y., where he took the summer course for physical instructors. Returning to College in September 1916, he resumed his work as director of athletics, coached the rugby team which lost only one game of the series played and that only by one point. During the winter term of 1917 he coached the basketball team with great enthusiasm and efficiency. The athletic concert held under his direction was the most successful ever produced at the O. A. C., and one which will be difficult to eclipse. While carrying on the manifold duties which devolved upon him, he, at the same time attended classes with Year '19, and in 1916-17 was director of the Cosmopolitan Club.

He left the College in July 1917 to take further work in physical training at Harvard University. On the completion of this course he was granted an honorary commission in the U. S. Army, occupying the position of physical instructor and Y. M. C. A. Secretary at Camp Upton, Long Island. In December 1917 he enlisted for active service in the U. S. A. Ambulance Service, and is now stationed at Allantown, Pa.

Of "Ken" we can truly say that his friends were all those with whom he was acquainted. No student has been so universally popular with both fellows and faculty; no one has worked more faithfully or accomplished as much for athletics at the College. Though his time was fully occupied, he was never too busy to lend a helping hand, and many an injured football or hockey enthusiast has welcomed his faithful attention—"Never an idle moment, but thrifty and thoughtful of others." No man could be a truer friend.

We look forward to the time when "Ken" will return to the O. A. C. All join with us in extending to him our sincere appreciation of the work which he has done among us, and our heartiest wishes for his success in whatsoever he may attempt. We who know him are confident of it, and we are assured that in his new vocation he will live up to the motto of his corps—"In arduis fidelis!"

"Honor to those whose words and deeds
Thus help us in our daily needs."

ATHLETICS

ODELL

Student Body Meeting

Dec. 10, 1917

ON Monday evening, December 10, the Student Body met to consider the proposed addition to the constitution of the Athletic Association of clauses making it possible for the executive to award emblems under the existing conditions. Considering the fact that the three lower years had examinations all week, there was a large turnout. The original clauses and the sub-clauses which it was proposed to attach, had been posted for over a week, and the meeting showed clearly that a lively interest was taken in the matter by all.

A clause was proposed and adopted after practically no discussion, forbidding the removing of temporarily won trophies from the College. Then the business of the evening began.

The original constitution provided that a man to qualify for an emblem, had to play a certain number of league games. The proposed addition, which goes out of force automatically at the termination of the war, provides that a man may qualify by playing exhibition games.

President Michael put the matter before the meeting very fully and fairly. Messrs James, Wilson, O'Neill, Michael, Weston, McBeath and Flock spoke against the adoption of the clauses, mainly on the ground that the addition of them to the constitution would cheapen the "O" and insult the men, many of them now overseas, who had won emblems at O. A. C. in time past. It was affirmed that rugby men in particular had not worked as hard this year as in years before the war, and that no players now at the College are of the calibre of those of previous years.

Stillwell, Delong, Weber and Steckle spoke in favor of the adoption of the clauses. It was contended that this year's team had earned emblems as fairly as any team in the past, and represented the best rugby material in the College which was what the "O" was supposed to signify. It was pointed out that this year's team beat London in London, a feat which no College team has been able to perform for many years. Anyone who has read the constitution will realize that the standard is higher under the amendment than under the original clauses. Also, unless sports are to be discontinued, interest must be kept up, and the best way to do this is to offer an inducement, difficult to obtain but still available. This is what is done when scholarships are offered and prizes awarded for oratory, authorship and so on, and if inducements are necessary in the course of study, why not in the course of sport?

Though the change applies to hockey, basket-ball and track equally as much as to rugby, yet the speakers who opposed the change centered most of their remarks on that branch of sport, which was the more curious, inasmuch

as by their own confession they were totally ignorant of the game. In fact, the chief dissenters were making their first appearance in an athletic meeting.

After considerable discussion it was moved by Shaies, and seconded by Stewart that the clauses be adopted and that they take effect the beginning of the fall term of 1917. Mr. O'Neill remarked that last year's rugby men were the victims of circumstance in not being awarded emblems. Mr. Matheson agreed with him and explained that the matter had been brought before last year's executive and that it had refused to put the affair before the student body.

Messrs. James, Flock, O'dell and Matheson took the vote by ballot. The clauses were adopted by a vote of 83 to 24.

1918 Prospects

With the new year is brought in a change in College doings. Rugby, which was such a success last Fall has been set aside for another year. In all likelihood, a few of the mainstays will not be with us next year, and to these we wish the same measure of success in whatever sphere they are employed.

From the present outlook Hockey is likely to be the major sport for this winter and when one looks over the material we have trying out for a place, it is no wonder Hockey is coming to the fore. The team is trying to get their proper place in the inter-faculty hockey league—"The Jennings' Cup series"—but with what result is as yet unknown. We have no fears, however but that their interest will be well cared for under the direction of Manager R. C. Moffat and Capt. Harry Smallfield.

The basket-ball situation is taking on a brighter hue each day and there is keen competition for certain positions on the team. Our line-up will be practically all new material but with "Bill" Michael as the nucleus, and those who are trying for a place on the team, developing as they have in the last few practices, there is no need for feeling despondent.

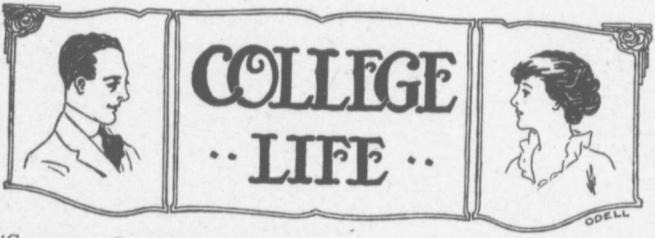
We are sorry to announce that owing to the coal shortage the gymnasium is not in as good condition for practice as is desirable but we must share these inconveniences with the other departments and not view them as impositions.

One of the main indoor sports which will have to be curtailed is the aquatic. The tank will not be in shape for practice so that it would be too much to expect it to be the success which would warrant its being held.

To offset this we hope that the indoor meet will be given a larger place, also the Freshmen indoor meet. In order that these should be what they ought to be, we must have the support of each individual in the student body. Just what form these two meets will take has not yet been decided upon but it may be along the line under which the summer school athletics are conducted.

In closing we would appeal for closer co-operation between the different executives, let us view them in their relation to the student body. Each organization is a branch of the main trunk, so that when the stronger organizations of the college render assistance to the weaker they are really benefitting the whole system.

D. J. M. '19



"CANADA IN PEACE AND IN WAR"

The attendance at Massey Hall on the occasion of Mr. Frank Yeigh's visit and lecture to the Union Literary Society on December 1, 1917 was very small. The number present in the audience was, to say the least, discouraging to a president who had fulfilled his office faithfully and well, and to an executive which had done its utmost to provide good, fruitful entertainment for the members. The executive, in securing Mr. Yeigh's valuable services, deemed that it was doing something which would be warmly appreciated by the student bodies at the O. A. C. and across the campus. As evidenced by the turn-out, the response was a weak one. We regret that so few availed themselves of the opportunity of hearing Mr. Yeigh's lecture on "Canada in Peace and in War," for there are few of us who, in these strenuous times and still enjoying comparative peace and comfort, can afford to miss a message so inspiring and duty commanding. And we notice that, although exams may be near, those who attend such entertainment are still among those of the highest standing in their years.

In the first part of his illustrated lecture Mr. Yeigh showed Canada in Peace." Beginning with the flourishing Pacific harbors he took us eastward; through the snow-capped Rockies, the wheat fields and elevators of the prairies, the industrial centers of Ontario and Quebec, then Canada's winter ports on the far eastern shore. Throughout the trip across the continent these splendid pictures were well supplemented by interesting descriptions and explanations from Mr. Yeigh's wide experience and travels in Canada.

The second part, 'Canada in War" pictured to us some of the activities and work of Canada's splendid fighting men. The departure of the first Canadian contingent was an impressive scene and Mr. Yeigh expressed the hope that Canada's drafted sons would receive the same enthusiastic send-off, for they were of the same material. Many scenes were shown of the Canadians in training, in sport, in the trenches, and behind the big guns. The Canadian army was shown as one of the most efficient fighting forces in the war; worthy and able for the honorable task set before it, and the pride and glory of their native land.

THE MISSIONARY CONFERENCE

The Student Missionary Conference was held in Toronto from the evening of Friday, November 30th to Sunday afternoon, December 2nd. Its theme was Christian Internationalism. Its purpose was to interest college students in religious work in the Orient, and to secure volunteers for this important and intensely interesting work.

The delegates from the O. A. C.

arrived in Toronto at 5:30 and went at once to the University "Y." We were taken to Knox College for supper. It may be of interest to state that their dining-hall and the service given does not at all compare with our splendid edifice and equipment at the O. A. C. Before attending the opening meeting of the conference we registered, and Mr. Maclaren assigned us our billets.

The chairman of the conference, Mr. Bishop opened the meeting by reading Matthew 24: 3-14 and explained its close connections with, and application to the Great War. He introduced to the delegates, Miss Snell of New York. She has had a wide and varied experience as travelling secretary of the Student Volunteer Movement. She spoke on "The Call of the World to College Men and Women." She gave a brief outline of the origin and influence of the Student Volunteer Movement in its early days, and traced it to the present conference. A pointed question for each one to answer, was: "How large is your world?" and she showed how wide our circle of interest ought to be. She told of the wonderful co-operation, heroism and self-sacrifice shown by those engaged in the present war and drew a parallel with the workers in foreign mission fields. She brought out a point to which all the speakers gave increasing emphasis, in saying that the war is destruction to save humanity, while mission work is construction to save humanity. In the scales on which world events are measured, the latter may be of more importance. Miss Snell closed with an appeal for closer individual study of the infinite riches contained in the bible.

Dr. Taylor, a returned missionary from China, spoke next and told of the wonderful opportunity for Christian work in China, as in that country people are being converted literally by provinces. The serious student class is wavering between Christianity or nothing. Thousands of converts are refused admission to the church because there are not enough missionaries to further instruct them. We greatly enjoyed Dr. Taylor's description of the methods used to secure converts, and of the rapid spread of western science, arts and civilization in China and Japan. He closed by charging the students with the tremendous responsibility and need of spreading their knowledge; "As Go the Colleges, so will Go the World."

On Saturday morning after we sang some hymns, Canon Gould was introduced. He told of the work in the Moslem world and explained reasons for the dissolution of the Pan Islamic movement which planned to set up one vast country of Mohammedans. Canon Gould made us appreciate the far-seeing British statesmanship and diplomacy which secured control of Egypt and aided the Arabs to free themselves from Islamic rule and incidentally, protected both countries from German aggression. He pointed out the new opening for missionaries and the urgent need of workers in this field.

Dr. McLaurin then gave us a superb word-picture of India and vividly described the great need of India. Old religions are being cast aside and the converts are only too eager to adopt a higher level of living. Dr. McLaurin made the O. A. C. delegates feel that here was a field white with harvest, needing not only the experience of the graduate in this, but in every phase of uplift and improved modern agricultural methods and rural improvement. It was emphasized that these people were also British subjects who were doing as much to win the war

as Canadians. But their conditions are so pitiful that no work would be of more value to the Empire than that which a graduate of the O. A. C. would be qualified to undertake. He also pointed out the danger of leaving them ignorant, as in time they will be granted the franchise and no one would desire a repetition of the scenes that followed in the Southern States when the negroes secured the right to vote.

In the afternoon we had group meetings, the men assembling at the University "Y." Dr. Balme gave a short address on Medical Work in China and then answered questions which were handed him.

In the evening, Dr. Waters showed us the humorous side of a medical missionary's work. He told of one young student, who was proud of his newly acquired knowledge of English language, coming to the missionary with a swollen cheek and stating his complaint thus, "Sir, fluctuation has invaded my countenance." Another patient was a Chinese lady of high rank who suffered from indigestion. She persisted on keeping her face veiled and on being asked to show her tongue, was perplexed. She asked the doctor to retire and on coming in, he found her tongue sticking through a hole in the newspaper that concealed her features.

Dr. Balme spoke again, and told of many of the cruel superstitions and prejudices that make miserable the lives of the common people. He, too, emphasized the interest one gets from this work, and its need of helpers, and closed with, Come on in, the water's fine!

In the morning before going to devotional exercises, we smiled at the feeble yell given by another group of delegates; so after the close of the evening session, we roared out "Allerebo!" in true O. A. C. style. It may be of interest to hear that our delegation was the largest present, being twenty-one in number.

On Sunday morning we assembled in Convocation Hall to hear the most noted speaker, Dr. R. E. Speer of New York. His text was found in Joshua 14:12. 'Give me now this mountain." He gave a character sketch of Caleb and held him as a fine type to follow, for he always chose the right, and the harder his task, the more determined he was to accomplish it. Dr. Speer said that our character is built up mainly by our ideals and ambitions, our work, our choice of friends and reading matter. We cannot choose our parentage nor often our environment, but we can tear down the false structure built for us by others, and rebuild it on permanent foundations.

In the closing session of the Conference, Dr. Speer again addressed us. He told of the deep tides of change in the East. There is the overthrow of old religions, customs and language, the entrance of western thought, science and commercialism. He explained the damage done by the Germans in spreading false ideals, religion and open vice. All the evils of the business world are present so we must send in increasing numbers Christian workers to counteract these evils and bring salvation to the awakened East.

The key-word of the Conference was Service. All the delegates left with a clear idea of our responsibility to answer the appeal of the East and of the unspeakably great danger to Christianity if we lose the unparalleled opportunities. We gained the proper conception of the value of mission work as a factor in world development. We returned with the intention of giving aid and study to mission work, and to each delegate the benefit of the conference cannot be expressed in words.

Christmas at O. A. C.

DUE to the fact that the Federal elections took place on December 17th, the Christmas exams were earlier this year, finishing at noon on the fifteenth. This permitted those students who so desired to get home in time to exercise their franchise. The change in the exam. time-table tended to make it extremely busy during the last week, but when the burden was finally rolled away, how free we did feel. Those of us who did not go home at once or were staying altogether celebrated our release from bondage by going skating that night at the "Royal City," and enjoyed ourselves without the nightmare of an exam. tomorrow.

This year a larger number remained at the College over the holiday than in nineteen sixteen, there being between twenty-five and thirty almost all the time. "The more, the merrier" proved to be very true in this case, albeit for those of us who had written exams. a certain anxiety obtained until the results were known and we found that we all had cleared the "Supp" line.

This anxiety, however, did not apply to those of the Fourth Year who remained on "Grub Alley." They were not worried by examinations and began the holidays by having a really "shocking" time. If you doubt this statement let me refer you to James or Timms, or better still, interview, Weston he never tires giving a lucid account of the incident.

In this earlier part of the vacation the weather was intermittently freezing and thawing until Christmas eve when Jack Frost got the upper hand with a vengeance, and accordingly provided excellent skating during the remainder of the holiday. Christmas was clear and cold, just the kind of weather to foster hearty appetites, and all that could be desired in the satiation of such was present when at one p. m. we sat down to, verily a Christmas dinner. The evergreen trimmings and Christmas trees in the dining-hall lent a truly festive atmosphere to the occasion.

The interim between Christmas and New Years was spent chiefly in skating during the afternoon in the College arena and on the down town rinks at night. The Friday succeeding Christmas brought back a number of students who had to appear before the Military Tribunals on the following day. Among these was "Mike" Stillwell and as "Mike" is always the center of activities he helped to accelerate doings for the remainder of the holidays.

On New Year's the cuisine, if possible, surpassed that of Christmas and on this occasion we had with us Walter Ziegler, a former member of Year '19. He is in the American Navy and was in sailor's garb. "Zig" is the same jolly chap we all know so well and as "Everybody loves a sailor," he proved quite a heart breaker.

The day following New Year's terminated our vacation and we spent a most enjoyable afternoon at the College rink. It was at this time that "Bill" Cass, while receiving an introduction to a young lady, was elevating his hand to his cap when he became stricken by charms and fell prostrate at her feet. "Bill" has a habit of falling for the fair ones and does it quite regularly.

It was thus our holidays passed, all too quickly forsooth, and work is once more the order of the day. However, we can look back with pleasure to the enjoyable time spent, which was in no small measure due to the good cheer and sumptuous festive "eats" provided by Miss Montgomery.

W. C. C.

PRESENTATION TO PROF. AND MRS. DAY

On Friday evening, December 14th, Prof. and Mrs. G. E. Day were the guests of the student body at the dining-hall for supper. It was known that Prof. Day was leaving the College and the students were taking this last opportunity of meeting him to present a parting token.

Every student has a warm feeling toward Prof. Day. We have all appreciated his careful and sound instruction in the class-room, and also felt his kind geniality, both in and out of class. He has always been one of the men to whom the students have looked for guidance and example, so that in losing him all have a sense of a real loss.

After partaking of supper Mr. James, President of the Student Council, rose and addressed Prof. and Mrs. Day. He spoke of the honor which the students felt in being the hosts of their present guests. He then briefly reviewed the early life of Mr. Day as a school teacher in Wellington County, followed by his College life and graduation in '93. Since that time he has been on the College staff for the past 25 years. Mr. James told how fortunate the O. A. C. had been in having a man of his calibre as head of the Animal Husbandry Department; that the loss to the College was the gain of the Shorthorn Breeders' Association of which Prof. Day is to be Secretary. He also expressed the hope of the students that Prof. and Mrs. Day would still be able to live near the College and that they would continue to often meet one another. On behalf of the students he asked them to accept a purse to be used in purchasing whatever article of remembrance they best saw fit.

After a very hearty applause Prof. Day replied in his usual sincere and genial way. He appreciated the gift very much, especially at this time when so many demands were being made and would be made upon the students. He stated that his reason for leaving was partly to allow the infusion of new blood into the College, with new ideas and methods; as a man who remains in the same position for a long period is liable to get into a rut; so a change might be for the better. He spoke of his happy experiences in meeting ex-students of the O. A. C. all over the Province, who are "making good" in their life tasks; the failures are the rare exceptions; and he set this as the standard to which the present students must "measure up" in the battle of life. On behalf of Mrs. Day and himself he again wished to thank the students most heartily for the purse and hoped to continue to associate with them for a few years as he expected to live in Guelph for a while.

The students then joined in singing, "For he's a jolly good fellow," followed by "See him smiling" and three rousing cheers. Then lest they should forget, there rang throughout the hall the familiar old challenge,

"Allerebo, alleribo, etc."

ELECTIONS

The following executives have been elected for the spring term:

THE PHILHARMONIC SOCIETY

Honorary President, Mr. G. H. Unwin, B. S. A.
President, R. C. Gowland
Vice-president, S. W. King
Treasurer, J. A. Munro
Secretary, W. Murdock
Choral Manager, W. C. Hopper
Orchestra Manager, O. Sippel
Dramatic Manager, J. B. Munro
Leader Rooters' Club, E. C. Stillwell

ATHLETIC EXECUTIVE

Honorary President, Prof. W. J. Squirrell
Honorary Vice-president, Mr. W. L. Iveson, M. A.
President, D. J. Matheson
Vice-president, C. Frey
Treasurer, H. A. Smallfield
Secretary, G. C. Lindala
Track Manager, Mr. S. Curzon, B.S.A.
Rugby Manager, Mr. S. H. Gandier, B. S. A.

UNION LITERARY EXECUTIVE

Honorary President, Dr. O. J. Stevenson
President, G. R. Wilson
Treasurer, T. H. Jones
Secretary, J. F. Patterson

Y. M. C. A. EXECUTIVE

Honorary President, Prof. L. Caesar
President R. D. Allan
Vice-president, C. H. Zavitz
Secretary, R. J. Welch
Treasurer, A. J. Williamson
Chairman of Bible Study, W. C. Caldwell
Member for Mission Study, G. S. Grant
Member for Service Bureau, J. McLean
Member for Religious Meeting, G. I. Arnold
Church Relations, H. J. Lindsay
Music, I. W. Taylor
Librarian, J. G. McCrimmon

PRESS REPRESENTATIVES

4th Year, T. Cooper
3rd Year, R. A. Brink

THE ANIMAL HUSBANDRY CLUB

Honorary President, Mr. J. P. Sackville, B. S. A.
President, L. E. O'Neill
Vice-president, W. R. Gunn
Secretary, S. W. King
Treasurer, F. C. Greening
4th Year Representative, A. D. Munro
3rd Year Representative, C. F. MacKenzie
2nd Year Representative, J. F. Patterson

Y. M. C. A.

One of the most successful campaigns in the history of O. A. C. has just been concluded. The College Y. M. C. A. entered on this campaign early in the New Year and on Jan. 17th, celebrated their triumph with a fete in the parlor. The object of the campaign was to raise $200.00 for the Overseas Y. M. C. A. fund and work in India. This sum seemed an enormous levy on the few students in attendance but they all "dug down and came across," with the result that instead of $200.00 being raised, the even sum of $500.00 was cheerfully given.

Much credit is due Mr. A. Maclaren and his assistants for the management of the campaign. They proved to all that "it pays to advertise."

QUERY

ENTOMOLOGY

Arsenate of Lime as a Poison

Ques.—"We understand that arsenate of lime is a cheaper poison than arsenate of lead or Paris green, and is just as efficient and safe. We should like your opinion upon this new poison and whether you would advise our using it this coming year.

Ans.—It is true that arsenate of lime is a cheaper poison than either arsenate of lead or Paris green. As a rule it should cost about one-third less per pound than arsenate of lead. It is sold chiefly in the powder form, but sometimes also in the paste form. The paste is about 50% moisture and therefore is only half the strength of the powder form. As a rule the powder form seems to be preferable. With Bordeaux mixture arsenate of lime can safely be substituted for either arsenate of lead or Paris green. With lime-sulphur it has been used instead of arsenate of lead for orchard purposes in Nova Scotia the last two years. It has also been used to some extent, especially this last year for the same purpose in Ontario and comparatively little damage to foliage or fruit has resulted from its use with this substance. Nevertheless, the writer does not yet feel sure that it will be as safe as arsenate of lead under all circumstances with lime-sulphur and for this reason does not feel justified in recommending its use with this mixture in orchards except in an experimental way. Of course, as said already, it may be safely used with Bordeaux either in orchards or on potatoes or other plants. When used alone with water it is not safe to foliage and will burn the leaves of fruit trees very severely, especially in wet weather. It has sometimes been used on potatoes with water alone and has done little or no damage, but this is not a safe practice. It is probable that if two or three pounds of freshly slaked lime were added to each 40 gallon barrel of water this would prevent injury to potatoes. The Oregon Experiment Station claims that thus used it is safe even on fruit trees. The quantities required for potatoes would be two pounds of the powder form of arsenate of lime or four pounds of the paste form to each forty gallons of water or of Bordeaux mixture. For fruit trees, the quantity is much less, only one pound of the powder or two pounds of the paste being required to forty gallons. In appearance arsenate of lime resembles closely arsenate of lead, being a white substance.

It should be remembered that arsenite of lime is a different substance from *arsenate* of lime and not nearly so safe. L. C.

DRAINAGE

Adjusting the Bubble on the Dumpy Level

Ques.—Describe the best way to adjust the bubble of a Dumpy Level.

Ans.—The best way to adjust the bubble is to screw the level into the base and fasten this to something solid, for instance, a window frame or a door frame.

Level the instrument as one would

when preparing to take levels in the field. It will be seen that the instrument can be levelled satisfactorily when pointing in two directions, but on reversing or pointing the barrel in the opposite directions it will be found that the bubble is out of order. Take a key or wire nail and adjust the tube so as to correct half the error in the bubble, then level the instrument again with adjusting screws and correct half the error once more. Repeat these operations until the bubble is in the centre no matter which way the instrument is pointed.

Most people make the mistake of correcting the error to the full amount on one side and this, of course, only transfers the error to the opposite side of the vial. The secret, if there be any, is to correct the error one-half the amount as stated above.

W. H. S.

Limestone Pebbles in Tile Clay

Ques.—Will a soil containing a few small limestone pebbles be suitable for the manufacture of clay tile?"

Ans.—If this soil be a clay from which tile may be manufactured satisfactorily it would be suitable provided the limestone pebbles be removed.

Clay tile which has been manufactured from soil containing some lime has proved unsatisfactory because the limestone has been converted into lime during the burning process.

When clay tile is placed in the soil, it takes up moisture. The lime in the tile also takes up moisture and swells and chips the wall of the tile in which it is situated. If there be several particles of lime in the wall of the tile these will all chip the wall when swelling and thereby weaken the drain tile.

The writer has seen some tiles which have been chipped in this way and the wall after the chipped pieces had been removed has been extremely thin. The weight of the soil on such a tile would easily crack it and render it useless. If such a tile as this were put in the soil it would be only a matter of a short time when the drainage system would be rendered useless or have to be repaired.

W. H. S.

FIELD HUSBANDRY

Field Pea Seed

Ques.—Where can I get good seed of field peas? What varieties would you recommend to grow?

Ans.—The northern part of Old Ontario grows very good seed of field peas, some of the very best peas on the market coming from Manitoulin Island. In the northern part of the Province, the pea weevil does not damage the crop as is the case in many parts of southern Ontario. Canadian Beauty of the large field peas and Golden Vine of the small field peas are excellent varieties. Good seed of either of these varieties could be obtained by writing to the District Representatives of Agriculture at Huntsville or Gore Bay.

W. J. S.

Red Clover Seed

Ques.—Do you know of anyone who has good seed of Common Red Clover?

Ans.—The supply of Red Clover seed this year is limited and the price high. Seed grown in the Kenora District carried off four of the five prizes awarded in this class at the Provincial Winter Fair in December last. Sylvester Richardson, Oxdrift, Ontario, won first prize and R. Latimer, Oxdrift, Ontario, second prize in Red Clover at Guelph. Both these men have small quantities for sale.

W. J. S.

HORTICULTURE

The Red Raspberry

Ques.—Owing to the need for greater

production we are bringing some of our spare ground under cultivation, and we have a bank on which we think we can grow raspberries and similar things to advantage.

We want to know what would be the best variety for a western slope and also whether the Logan berry is suitable for this climate. Do you advise growing raspberry vines on wires or stakes or is it better economy to let them grow in clumps.

C. C. W.

Ans.—The best variety of raspberry is no doubt the Cuthbert. At any rate, this variety will be satisfactory unless your soil is particularly heavy.

The Logan berry is not hardy in this climate, requiring to be laid down and thoroughly covered every winter. It is not grown commercially in Ontario

Red raspberries are grown in continuous rows, spaced six or eight feet apart. I have seldom seen raspberries grown in clumps; presume the idea is to allow cultivation both ways. Slow-growing varieties such as Marlboro are usually handled by this latter method. The Cuthbert is too strong growing to be confined to clumps or hills. Very few growers use wires or stakes, or supports of any kind, although I note that of recent years some growers are using wires to keep the canes erect. This means more work, but it is strongly recommended by some.

J. W. C.

Gensing Roots

Ques.—Could you tell the purpose for which Gensing Roots are used? Are they employed for medicinal uses? I would like some information on the growing and the care of this plant.

F. E. P.

Ans.—Gensing Roots are exported to China and are used by the superstitious Chinese for medicinal purposes, although they have no real medicinal value. Regret we have no special information on the handling of this crop, except that it is a difficult and risky crop to grow. My observation is that not one person in a thousand succeeds with Gensing and we have, consequently very little encouragement to offer prospective cultivators.

J. W. C.

Propogation of Walnut Trees

Ques.—I have a walnut tree that bears very large walnuts. I desire to reproduce individuals possessing the same quality. Will trees grown from large walnuts produce fruits similar to those on the parent plant? Please inform me regarding the above topic.

C. B.

Ans.—The chances of producing large sized nuts from seedlings of the present tree are very slender. The only practicable way of coming at the result you want is to take buds or grafts from the tree you have, budding or grafting them upon seedlings grown for the purpose. Budding walnuts is a difficult matter. Grafting by the Cleft method ordinarily used with fruit trees is the most reliable means. If you will plant nuts where you want the trees to stand, and top-graft the seedlings, you should get satisfactory results. Young walnut trees would probably not reach suitable size for grafting under eight or ten years.

If you are interested in Walnut culture, would suggest you write to the American Nut Journal, Rochester, N. Y., for a sample copy. I note that this magazine has a leaflet on grafting and budding walnuts, for sale, price ten cents. They have also a number of other leaflets on various other phases of nut culture, and would be glad to send you a list of the same on request.

J. W. C.

DAIRY

Churning Difficulties

Ques.—We are unable to get butter for two churnings and hence call on you for suggestions. The cream becomes frothy and increases to twice its quantity. We are milking four cows, none fresh, but none milking over long. They are salted weekly and are being fed cabbage leaves and corn stalks at present and plenty of water. The first churning we tried everything we heard of to make the butter come, after a seven hour trial, but we got no result. This second time, we have churned five hours and the cream is exactly like it was before, but we are still churning. Please let me know if you have any suggestions to offer. If necessary, will send sample of cream.

Ans.—The trouble which you are having is a common one in winter. The common cause of trouble in winter is too low a temperature in churning. We find it advisable to churn at 72 degrees to 74 degrees Fahrenheit in winter, but if this does not overcome the difficulty, then we recommend pasteurization of the cream. It is also advisable, if you are using a separator, to change the cream screw in order to give a very rich cream, taking not over one gallon or one and one-quarter gallons of cream from ten gallons of milk. If you set the milk in pans or cans, remove the cream carefully, taking as little skimmilk as possible. If using a barrel churn do not fill it over one-third full of cream, and have the churn warm when the cream is placed in it.

H. H. D.

Feeding Cotton-Seed Meal to Dairy Cows

Ques.—Would you please let me know how you feed cotton-seed meal ot dairy cattle? What quantity per feed? How many feeds per day? What is best feed for Dairy Cattle, and quantities and proportions?

Ans.—Cotton-seed meal is a very valuable feed for dairy cattle, but needs to be fed carefully, as it is strong feed. I would advise mixing not over one to two pounds per cow daily of the cotton-seed meal with bran, ground oats or molasses meal. Some men feed as much as three to five pounds of cotton-seed meal per cow daily, but there is more or less danger in such heavy feeding. As a rule, it is not necessary to feed cows more than twice a day, although they may be given at noon a light feed of hay, roots, or straw. The best combination of roughage feed for milk cows is corn silage—thirty-five to forty pounds per cow daily; thirty to forty pounds or about one-half bushel roots, preferably mangels, and about ten pounds of clover or alfalfa hay. The best meal combination is about three to four pounds each of bran and ground oats, and one to two pounds of linseed oil cake, cotton seed meal or gluten feed. I would advise giving about one-half of the foregoing in the morning and the other half in the evening.

H. H. D.

Bad Flavor in Butter

Ques.—We have been troubled with a taste in butter that has been in cold storage at a temperature of 5 degrees below zero Fahrenheit for a period of six months or longer, and we are at a loss to explain it. Some describe this taste as fishy, but to others it is more of an oily taste. It would appear that only certain batches of butter develop this taste. Some are inclined to believe it is the salt, but our chemist discredits this, and says it is due to a bacterial or micro-organism developing. Our creamery butter made with the same salt does not develop taste. Would it be possible that one farmer has his cream

infected with this particular bacteria which develops in the cold, or do you think the taste is due to a chemical reaction between the salt and some substance in the butter?

Ans.—The cause of fishy flavor in butter is not well understood. It is altogether likely that this peculiar flavor is caused by organisms which work only in salt butter as we have never observed it in saltless butter.

H. H. D.

ENGINEERING

Hydraulic Ram

I have a spring on my farm. I intend to install an hydraulic ram for pumping. The fall from the source of water to the box where the ram would be placed is 3 feet, 7 inches, the distance being about 290 feet. From the box to the house where I want the water to be pumped there is a rise of 36½ feet in a distance of 1000 feet. There is plenty of water to work the ram, I think. Will the standard ram work satisfactorily under these conditions?"

G. L. W.

Ans.—We have your recent enquiry re proposed installation of hydraulic ram in connection with your spring and beg to reply as follows: If the spring will supply at least 8 gallons per minute the No. A standard ram will work satisfactorily, and would deliver about 700 gallons per day at the buildings. It would be advisable though, to get more fall, say 5 or 6 feet if possible by sinking the ram below ground about 3 feet, but before doing this you should be sure that you can get good drainage from the bottom of the ram pit.

R. R. G.

It is impossible to measure, or even estimate, the importance of agriculture to a people. It is the foundation upon which civilization and society rest; the basis and source of the permanent wealth of a nation. No people in history have made substantial progress in civilization, the arts and sciences, and have remained long prosperous, if they neglected agriculture. It is the most universal of all arts, the parent of manufactures and commerce, and the basis of all other industries, and without which all others must decay and perish.—H. G. Davis.

Recollections and Prospects

WITH what fearful apprehensions of fore-coming ill did the students of Mac Hall hurriedly gather up pens and note-books and scurry over to Roll Call on the eventful morning of December 8th. Something was going to happen. That was a fact—not a rumor, for had not the Senior House-keepers said so?

Silence, extreme and strenuous, greeted the marking of the Roll. Then a breathless hush as the decree from the seat of authority was pronounced, "The examinations will begin tomorrow morning. The schedule will be posted, subject to further changes."

Then the storm broke; indignation ran riot; wails were most lamentable. Oh, for the missing week! What stupendous amounts of knowledge could have been obtained, had the usual week's preparation been given!

But stern dignity looked on the seething mob, and, "We will not have our usual hymn this morning," followed. The student body felt that, "Work for the night is coming," would have been most appropriate at this particular time.

Gradually the students recovered from the fright, their equilibriums were restored, and they "en masse" have survived the horrors of the catastrophe. The general farewell when the girls departed for their holiday was, "Shall I have one lone star on my report to guide my way, or shall I have a trailing galaxy to brighten my future days at Mac?"

But now the New Year is at hand. "Let the dead past bury its dead," and with the poet let us add, "Act, act in the living present," and go fearlessly onward to higher goals.

Y. W. C. A. Notes

The Y. W. C. A. has been meeting more or less regularly on Sunday evenings.

On September 23, the members assembled to hear a very sympathetic and helpful address from Dr. Ross.

Some days later at a mass meeting in the gymnasium, the following officers were elected: Honorary President, Miss Watson; President, Miss Day; Vice-president, Miss Todd; Treasurer, Miss Moffatt; Secretary, Miss Suttaby; Corresponding secretary, Miss I. Graham; Social convenor, Miss Gow; Musical convenor, Miss K. Hanna. Miss Gow subsequently resigned.

Mrs. Mitchener, who is a deaconess working in connection with the Brooklyn mission, was invited to speak on September 30. Mrs. Mitchener gave an account of her experiences in Northern Ontario which was highly appreciated.

A meeting was held on Sunday, October 14 at which Miss Day explained what had taken place at the last executive meeting.

On October 20, Miss Thomas, travelling secretary for the Y. W. C. A., was present at a meeting of the executive when the topic for the term, "Social

Service," was chosen. It was decided also that each class should take charge of one meeting, the address being on some phase of social service.

On Sunday, October 21, the Senior House-keepers being responsible for the arrangements, and Miss Day presiding, Miss Thomas spoke of the work of the Y. W. C. A. with special reference to what had been accomplished in the war zone.

Subsequent meetings were as follows:

October 28, Junior House-keeper, "Social problems in the west."

November 11, Senior normals, "Social service among children," the speaker being the Rev. Amos Tovell of the Children's Aid Society, Guelph.

November 18, Junior normals, "The Social problem of the rural church."

December 2, Junior associates, "The girl in industry."

December 9, Short course, Reports of the Y. W. C. A. Convention held in Toronto on December 1 and 2 by the delegates, Miss Todd and Miss Zavitz.

Vocal and instrumental musical numbers were given at all the meetings, adding greatly to the interest.

An Interview

"A gentleman to see you, Miss," said the maid.

Miss Zenobia Ibbetson looked in the mirror, patted her hair, glanced over her neat costume and said, "You may show him in, Jane."

A little grey man with spectacles entered the parlor and bowed politely. He held a note book and pencil.

"Miss Ibbetson, I believe?"

"Yes," said Zenobia.

"I understand you returned home yesterday?

"Yes," said Zenobia.

"I am a reporter for the Globe, and I shall be glad if you will tell me something about your journey and your experiences."

Zenobia blushed with pleasure.

"An interview?" she said! "But really, I don't think I have anything to tell you that would be of interest to the public!"

"Excuse me," said the reporter, "I cannot agree with you. You must have been through adventures that will appear most exciting to our readers, even if they seem tame and commonplace to you. "Of course you are glad to be at home again?"

"Oh! Yes," said Zenobia, "it seems ages since I went away! I have been counting the days!"

"Still, I suppose you find the work interesting?"

"Well, if you are going to put it in the paper, I had better say yes, though really we find it very tiresome," said Zenobia, with candor.

"You surprise me, Miss Ibbetson," said the little grey man;" your attitude s—er—rather unusual! Don't you find the men grateful for all you do for them?"

"Oh, I don't think I should call them ungrateful; they seemed to enjoy the entertainments we planned, and I had lots of invitations to picture shows, and several large boxes of chocolates."

"You had picture shows, then? The poor fellows would welcome such a distraction from the horrors they have to endure. But—chocolates! Is there not a scarcity of such luxuries?"

"Oh, of course, we could have eaten a great many more," said Zenobia, "but we could hardly complain of a scarcity."

"I suppose you found the diet very restricted?" continued the interviewer. "You will be glad to get good home food again?"

"Well, I should say!" replied Zenobia," I asked mother to have chicken

and lemon pie for dinner. I haven't tasted pie since I left home. We had to eat bread made of all sorts of queer brown stuff, and for breakfast we had mush and marmalade, and then the milk! I believe it was generally artificial!"

"Did the men complain of their food? Do you think they get enough?"

"I suppose they do. We have more interesting things to talk about than meals," replied the lady.

"No doubt your experience bears out all that we hear in praise of the doctors; their skill and devotion?"

"We have only one doctor, but she is charming and most popular."

"A lady doctor? Most interesting!" The reporter made a note in his book. "But she must be terribly overworked!"

"Yes, I suppose she is quite busy," said Zenobia, "I never thought much about it."

"No doubt you would see something of the magnificent work carried on by the Y.W.C.A.?" "I suppose you mean the Y. W.," said the young lady. "There's nothing magnificent about it! "I don't attend the meetings. I expect they are very dull."

"Tell me about the Red Cross work," said the reporter. "You must have been impressed by the marvellous organization—the devoted service!"

"Red Cross?" said Zenobia. "Oh! well, we knit at meals. I have nearly finished a sock, and we give our copper cents, and there's a meeting on Monday evenings to sew, but I always forget about it!"

The little man looked puzzled.

"But the actual nursing?" he asked.

"Oh, we don't take that the first term," said the lady.

"But surely you are a graduate?"

"Oh, no," explained Zenobia, "I am just at the beginning."

"I suppose you intend to go back? You have no intention of abandoning such a glorious and self-sacrificing career?"

Then Zenobia began to look puzzled.

"Well, of course, I don't know until I hear the result of the exams," she said. "But I am not very anxious about it. I shouldn't mind if I never saw those old blue uniforms and flat-heeled shoes again!"

"Blue?" said the little man with wide open eyes." I supposed that you wore white!"

"Only on Sunday when we are sewing," she said, "the Macdonald uniform is blue."

The reporter looked more mystified than ever.

"Macdonald?" he said. "Really, I think there must be some misunderstanding. Are you not Miss Mary Ibbetson, the Red Cross nurse who has just returned from the west Front?"

Zenobia looked amazed.

"No," she said, "what made you think that? I came home last night from my first term at the Macdonald Institute!"

The little grey man grew red with indignation.

"*Not* Miss Mary Ibbetson! Then I have been misinformed! I regret, Madam, that I have wasted my time and my sympathy upon you, and I regret still more that you cannot be transported for a time to the scene of action. If you were to suffer for a few weeks the dangers and privations of the trenches, you would be thankful to return to the safety and comfort of Macdonald! Good morning!"

Zenobia hung her head, and reddened a little at the implied rebuke.

"I wonder," she said softly,—"I wonder—.

Macdonald Locals

Overheard while Prof. Day was

explaining the principle of the working of pumps to the Senior House-keeper Class: "If you had water on the knee, would you wear pumps?"

Evidently the Mac Hall girls are taking the advice of their worthy Seniors of Class '17, and are following their example by getting "their skating off" this term.

First Freshette—"Who was that graceful dancer you had the last number with?"

Second Freshette—"Do you mean the tall one with auburn hair?"

First F.—"Yes, that is the one."

Second F.—"I didn't just get his name, but it was something like "Bang"

Hannah's at the window binding shoes.

Will Harley sell one

WHO SAID IT?

"Say fellows introduce me to some of the Mac girls."

"Oh! It's alright I didn't want to skate with you anyway."

"It's simply expedidilliumptious."

"I admire the girls' perspicacity—"

Visitor to Macdonald: "And do you give a course in hair-dressing?"

Hair dressing? No! Why do you ask?

Visitor: "Well some of the students seem to need it."

Miss Nixon in a cookery class: "How would you classify cheeses, Miss Boyd?

Doreen: "Active and inactive."

Mr. Kendall (to a perplexed manual-training student) "You seem to be having trouble with your joints, Miss —."

At the dining table—

S-b-l: "Whose big feet are those under the table?"

Velna: "Mine. Do you think I would have them on the table?"

A member of the Senior Normal Class was missing. "Where is Miss Y—— today?"

A small child: "I think she is in Miss Job's room being crucified."

Musgrave, (teaching a class at Mac Gym.)—"Gee! your Gym. is comfortable compared to ours."

Eloie C—"Why, is Cole that dear?"

Our Archie is a bonnie lad,
But, Oh! the queerest ever,
He loves to talk and walk and dance,
And "sometimes" (?) at a girl he'll glance,
But as for study—never!

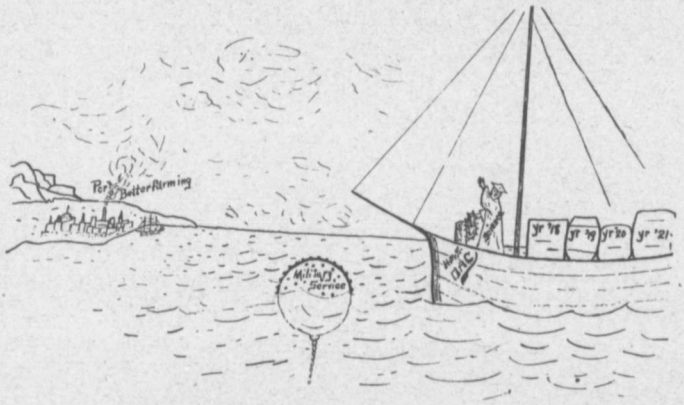
It is reported that W. T. Ziegler of Year '19 who is in the U. S. Navy paid a visit to the boys during the vacation. He arrived in Guelph and departed also, but he missed the boys. It seemed rather strange that he left the day before the term commenced, especially when it has become known that he enjoyed the visit. Can it be true that a sailor really has a girl in every port? We hope that next time he comes the boys will be here for every one of us looks forward to seeing him.

POETRY FOR ANIMAL HUSBANDRY STUDENTS

"Ye pigge, he is a pretty fowle,
And wondrous good to eat,
His hamme is good, likewise his jowle,
And eke his pretty feet.
But though ye try a thousand yeare,
I trow ye still will fayle
To make a silk purse from his eare,
Or a whissle from his taile."

Gowland (speaking on Bachelor Farming)—"Of course this refers to all male men between 20 and 34."

Our editor-in-chief has raised a very creditable moustache during the holidays. A number of O. A. C. men are now trying to learn just how "Munny" did it. Don't tell them, "Munny."



Will it reach her?

Mr. Jamieson was almost left behind at Guelph Junction on his way home. Be careful next time, Jamie. The band will now play, "The Girl I Left Behind Me" for his benefit.

White is dropping.
Out of what?
The Hat-race.

Currier would like to have seen Harris' face when he received his marks.

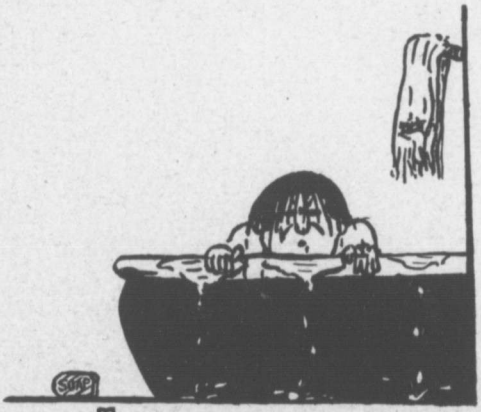
Scene—Geology class-room.
Time—Winter Term 1917.
King: "Do you believe that love makes the world go round, professor?"
Iveson: "Ahem! Of course not: the earth first acquired its rotary motion when thrown off from the sun in a nebulous form, its centrifugal force being counteracted to a certain extent by the superior attraction of the solar body from which it originally emanated."

Harris would like to have seen Currier's countenance when he received his marks.

Smallfield (cutting himself while shaving)—D—!! Blankety, blank!!
Fraser, without—"What ho, my lord?"
Smallfield—"What hoe? What hoe? You know I use a Gilette."

WE WANT TO KNOW

1. If the Paderewski style of hair-dressing has gone out or has Devitt changed his barber.
2. If Hopper could get less than eighty on an exam.
3. When the Freshmen are going to give their skating party.
4. Why some people have freckles and why some people have not.
5. What or who takes Fry down town so often.
6. Why the Second Year Christmas Exams were not "true to type" this year.



TURN OVER THE PAGE
I'M GETTING OUT.

During the past few weeks several of the Fourth Year men have been **taking** electricity from one of their class-mates who has proved himself an expert in the art of applying electric energy to a variety of uses. His methods are simple but effective and are of the short-course variety. Those who have taken his treatment have a peculiar aversion to dumping beds and fitting keys in strange locks. They have been well enough supplied with resistance that they will likely be able to resist temptations along those lines for some-time. The course is known as the "killor" cure.

Scene—King and Porter's room.
Time—10:00 P. M.
Subject under discussion—Matrimony.

White: "There have been some queer laws passed on matrimony."

Gunn: "Well, I suppose so, but I'm not interested in it."

King—"Well, you ought to be."

Currier: "Sure he should."

Murdoch: "Let me read you a law passed in the reign of the "merry Charles" in 1670."

Everybody: "Go to it."

Murdoch reads:

ACT OF PARLIAMENT, 1670

"That all women of whatever age, rank, profession or degree,, whether virgins, maids or widows, that shall, from after the passing of this act, impose upon and betray into matrimony any of His Majesty's male subjects, by scents, paints, cometics, washes, artificial teeth, false hair, Spanish wool, iron stays, hoops, high-heeled shoes, or bolstered hips, shall incur the penalty of the laws now in force against witchcraft, scorcery and such like misdemeanours, and that marriage upon conviction shall be rendered null and void."

Porter: "Has that law ever been taken off the statutes?"

King: "No. Not that I ever heard of."

White: "Well, then, let's enforce it."