

PAGES

MISSING

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

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Root Room.

By H. G. BELL, B. S. A.

ON his broad acres the Baron of the fields is not troubled for elbow room. He realizes the disadvantage of crowds when he comes to Farmers' Club or attends other meetings with his fellow men. He looks at his relative in the city and declares that to be cooped up in a small house in such thickly populated streets is anything but pleasing to his tastes. "Not on your life," he declares, "I wouldn't be cooped up in your city residence or live in your fashionable apartments."

What is it our hero desires?

It is room to live and move so that, while dwelling among his fellows, he can advance to the best of his ability.

The same principle applies to his crops, although some corn-growers, potato men and wheat producers do not always recognize the fact.

"Root Room," is a term that comes from English agriculture. It is very expressive. In hundreds of cases the lack of root room has been one important reason for low yields. Plants, like people, must reach out to live—but the animals have the advantage of the plants. Animals may shift from place to place, but plants are relatively stationary. If anything formidable gets in the way of the expanding root, its possibility to reach out is seriously handicapped. Many things may get in the way.

In some soils, water stands so near the surface that air is shut out.

Strange as it may seem, the tiny plant roots require air very much the same as does the human being. Changes that take place in the soil, breaking it down and rendering it into such condition that soil waters may dissolve it, are dependent to no small extent upon the amount of air which can reach the mineral or organic matter of the soil. Moreover, the millions of microscopic forms of soil life are depending upon air so that they may thrive and carry on their work in making over the soil material for plant-food. Hence, lack of air is the first great stumbling block to root expansion. The cure is obvious. Soil drainage is not only a paying proposition, but it is an absolutely essential practice if the soil is to be brought into its best yielding capacity.

Some soils are underlaid with a hard impervious clay which is so stiff and close-in its nature that the tiny rootlets—even though they are thread-like cannot find a crevice in which to expand, in their search for food. The only cure for soils underlaid by an impervious subsoil is found in breaking up the subsoil. Explosives are being used, to good effect in some places. In others, deep subsoiling is giving profitable returns. The application of air-slaked lime tends to draw the particles of hard impervious clay into coarser crumbs, thereby helping air circulation.

The third stumbling block to root development is found in soil toxins.

Investigations have shown that certain weeds and crops give off injurious substances. Bad results are seen, especially where there is an attempt to grow the same crop year after year on a piece of ground. Again, the cure here is obvious. Rotation of crops possibly renders its greatest help in this respect.

The last stumbling block to the progress of root development is in judicious cultivation. This applies only to such crops as are cultivated in their growing season. Many a corn and potato crop has been cut down 20% to 40% in yield by continuous and deep cultivation, close to the growing crop. When one realizes that the roots are the carriers of soil waters, containing plantfood, the injurious nature of deep cultivation is clear. Numerous experiments show that best practical results are obtained by confining deep cultivation to the early part of the season and keeping further and further away from the growing crop as the season advances.

With the foregoing hindrances to the rooting of farm crops evidence clearly points to the necessity of greater attention to root room. Investigations have shown that many an orchard crop is reduced by attempting to grow a heavy coating of grass at the same time that the trees are supposed to produce fruit. The grass roots crowd the thread-like roots of the growing trees, with the results that the crops compromise in an inferior yield of both fruit and grass. If care has been taken to control soil-moisture, however, the compromise as to yields is determined by the ability of the growing crops to send their roots afield sufficiently far to lay hold of the plantfood which the soil contains.

Now certain practices have been found to greatly increase the crop's

ability to produce roots. For instance, the use of fertilizers high in phosphoric acid are reported by all soil investigators to have a distinctly favorable effect in strengthening root production. This strengthening of roots is exceedingly important in fall-sown grain since if the root system has been well developed, winter killing of the crop is less likely. If, on the other hand, the crop has not been fertilized in the autumn, and its root system is not strongly and fully developed, a great deal of help can be rendered by spring top-dressing, either with manure or fertilizers, which give available plantfood for the hungry wheat crop as soon as warm weather starts plant growth.

Another contributing factor is the nature of the growing season. As a rule growth is at its height toward the end of June. Early in July the sun's rays become so hot that they dry up much of the soil moisture. Now if by the use of strong seed and proper balance of plantfood strength can be given to growing crops so that they send out their rootlets early in the season and make a strong start, they will have accumulated more of the essentials to crop maturity before the climatic conditions of early summer interfere so seriously with their progress. Moreover, the usual feeding of roots will have given them strength to dive deeper and farther into soil areas so that they will have laid hold upon the stores of food which to weaker crops would be unattainable.

Then, the very best interests of the crop are served by providing a well-stored mellow soil where crop roots can freely stretch out as the growing season advances and by providing an abundance of suitable plantfood so that a strong and vigorous root-growth can be made. This means largest yields of best quality.

Winter Injury to Fruit Trees.

By J. A. NEILSON, B.S.A., Horticultural Department, O.A.C.

WINTER Injury to Fruit Trees is not an unusual occurrence in Ontario and other countries having low winter temperatures. Fortunately for the Fruit Growers the losses due to low temperatures are usually not heavy. The winter of 1917-18, however, proved an exception and great losses to our fruit plantations occurred in every part of Ontario. It is quite safe to say that thousands of trees were killed outright and hundreds of thousands were damaged more or less. The full extent will not be known until after next summer as many which were not killed outright last winter will likely die before the close of the next season. Nearly all kinds of fruit trees were injured, the extent of the injury varying with the locality, the kinds and varieties grown. From Toronto Eastward to Belleville the loss was heavy—in some cases as many as 50 per cent. of the trees in some apple orchards being killed. In other cases the loss was lighter. As a general statement one could say that the loss in apple orchards in this section averaged 20 per cent. From Toronto westward and southward, the damage in apple orchards was not so heavy as in the east but, nevertheless, it was heavy enough to cause appreciable loss to growers. In the warmer parts of the Province the chief loss to apples occurred in young orchards which had been cultivated late in the season. In the Northern apple sections, e.g., Simcoe County, considerable loss was experienced, excepting in orchards which were very well protected.

European and Japanese plum trees

were quite badly killed in the Ottawa district. The American varieties, however, came through in good condition. In the Niagara district, plums were not badly damaged, although in other sections some loss occurred.

The crop of sweet cherries was light in 1918 and this may have been due to the killing of fruit buds. Sour cherries were also damaged more or less, the degree depending upon the latitude. In the colder sections of the Province sour cherries were killed outright. At Craighurst, in Simcoe County, Mr. Caston reports that even the hardier Russian varieties were killed. In the warmer sections less injury was noticed. As with sweet cherries the crop was light, the reason for which has been previously noted.

Peach trees in the Niagara District and other peach growing sections were more or less injured. In some sections the loss was quite heavy in young peach orchards—one Grower in Essex County losing twenty acres of young trees. In the peach growing area of Lambton the damage was quite heavy, many trees were being killed outright and the remainder badly killed back.

Pears where grown were injured considerably in the colder sections, and even in the pear growing districts some damage occurred, especially on varieties which had been top worked on Keiffer stocks.

FORMS OF WINTER INJURY.

Nearly all the forms of Winter Injury noted by those who have studied this

question, were seen by the writer during the past summer. These vary in degree from complete killing of the tree to bud killing and include root killing, collar rot, bark splitting, sunscald, black-heart, killing of bark on the trunk, crotch injury, killing of bark on large and small limbs, killing of fruit spurs, killing of fruit buds, and killing back of terminal growth.

ROOT KILLING.

The roots of young fruit trees are sometimes killed in winter, while the trunk and branches are uninjured. Trees injured in this manner usually come out in leaf in the Spring, but in a short time the leaves wither and die. If the roots are examined the bark will be found to be dead and brown. Root killing is caused by deep freezing and is induced by the following factors: Tender root stocks used in propagation, absence of snow or other protective coverings, exposure to strong cold winds, late fall plowing and poor soil drainage. This form of winter killing is generally worse on light sandy or gravelly soils, especially on ridges of the same soil types. Professor Macoun states that very little root killing has occurred at the Central Experimental Farm since the roots of the Siberian crab have been used as stocks for grafting.

COLLAR OR CROWN ROT.

Collar or crown rot is so called because the bark near the collar or crown appears to be dead and brown. The injury may be found on a small area of the bark or it may extend all the way round the tree and for some distance above the ground. Certain varieties of apples such as the King, Ontario, Pewaukee, Duchess, Gravenstein, are susceptible to this form of injury. Cherry and peach trees are also occasionally affected by this form of winter killing.

BARK SPLITTING.

Bark splitting may be noticed on Sweet Cherry Trees and on some varieties of apples. The bark is often split vertically from the ground up for several inches; in some cases almost up to the limbs. One or several splits may occur and in extreme cases the bark will split away from the trunk laterally as well as vertically. A few trees were seen on which the bark could be pulled entirely away from the trunk by taking hold of one of the exposed edges. In apples the Stark and Ontario are quite susceptible to this form of injury.

CROTCH INJURY.

Trees affected with crotch injury showed an area of dead bark in the crotch. This might be confined to the crotch or it might extend clear around the base of the limbs and in some cases, also the trunk just below the crotch. Several trees were observed on which the dead area of bark extended down the trunk in a long V shape or in an irregular form. The varieties most affected were Young Northern Spy, Cranberry Pippin, Baldwin, Gravenstein and Scarlet Pippin.

KILLING OF BARK ON TRUNK.

On many trees the bark on the trunk was found to be dead and discolored. The dead area might be confined to large patches or as was frequently noticed nearly all the bark on the trunk above the snow line was dead.

BLACK-HEART.

This is common trouble on young Baldwin trees in many parts of Ontario and is especially prevalent on trees growing in areas exposed to cold winds. One grower in Norfolk has lost several hundred Baldwins from Black-Heart. Black-Heart may sometimes appear in the nursery but will also attack older and

large trees. It is generally worse in trees exposed to strong cold winds. The injury is thought to be due to freezing of the sap-wood, this causes a dark discoloration; hence the name Black-Heart. The cambium layer, however, is not injured and continues to form new layers of sap-wood. In course of time, if the injury is repeated, the injured sap-wood may decay and this often weakens the trunk or branches to such an extent that they break down or die.

KILLING OF BARK ON BRANCHES.

The bark on the larger branches was often found to be affected very much the same as that on the trunks.

KILLING OF FRUIT SPURS.

The fruit spurs on many apple and some pear trees in the colder sections were frequently killed back to the branch on which they were borne. Some pear trees were observed where the spurs were killed as described and from near the base of the spur strong vigorous shoots had started to grow, when seen in June.

KILLING OF FRUIT BUDS.

This form of injury is not uncommon, especially on peaches and cherries. The buds are killed by extreme cold or through starting into growth in mild weather and being subsequently frozen in cold snaps.

KILLING BACK.

The terminal growths on young and old trees are occasionally killed by severe freezing. Injury of this kind is generally confined to the previous season's growth but during the past winter it often extended into the older wood. Peaches and some varieties of apples trees are quite susceptible to this form of injury.

FACTORS WHICH PRE-DISPOSE FRUIT

TREES TO WINTER INJURY.

The question may properly be asked, what are the factors which pre-dispose our tree fruits to damage by low temperatures. As is well known the primary cause of winter killing is a very low temperature but along with this there are several factors which may directly or indirectly increase the degree of injury. These are given herewith:

1. COLD RESISTANCE OF VARIETIES.

It is a well known fact that there is a great difference in the hardiness of varieties, when grown in the same soil and under the same conditions. The past winter has shown more clearly than ever before, that certain varieties are more resistant than others. In Ontario the hardiest varieties are mostly those which originated in either Russia, Canada or the Northern States. The unfortunate thing in connection with those of Russian origin, is that while they are very hardy there are really no first-class apples amongst them. The good varieties of Canadian Origin while hardy enough for most winters are not sufficiently hardy to stand exceptional winters such as the past one.

2. EXPOSURE TO STRONG COLD WINDS.

Trees growing on the sites exposed to strong cold winds were invariably injured to a greater extent than those growing in well protected areas. Examples were seen in Norfolk, Prince Edward, and in York Counties.

3. LATE CULTIVATION.

Orchards which were cultivated late in the season were generally more severely injured than other orchards in the same localities where cultivation was discontinued early or where but very little cultivation was given. Late cultivation causes the trees to grow late in the season. In such cases the wood does not ripen

properly and hence may be injured by very cold weather. Killing back and bark splitting may be induced by late cultivation. I do not wish to depreciate the value of orchard cultivation by any means, as I think that judicious cultivation will produce good results, but I do think, however, a mistake has been made by cultivating too late in the season. Plowing the soil away from the base of the trees late in the Fall is not advisable as it may pre-dispose the trees to collar rot. If fall plowing is done do not plow the soil away, close up to the trees. If the orchard is plowed in the fall, plow so that the soil is thrown toward the trees, not away from it.

4. POOR SOIL DRAINAGE.

Trees on poorly drained soils were invariably injured more than those on well drained soils. This fact was noticeable in all sections but especially so in the peach growing areas.

5. LACK OF SOIL FERTILITY.

Bearing trees growing on soils deficient in fertility were more severely injured than those growing on moderately fertile soils. Of course it is possible to make some soils too rich especially in nitrogen, but this seldom occurs. My own observations and the observations of others who have studied winter injury justify me in stating that many of our bearing fruit trees are pre-disposed to winter killing by lack of food.

6. HEAVY PRODUCTION OF FRUIT DURING PRECEDING SEASON.

Trees which bore a heavy crop of fruit in 1917 were more severely damaged than trees of the same variety or of the same hardiness which bore a light crop or no fruit during 1917. In Prince Edward County the writer saw what appeared to be an example of the relationship of heavy fruiting to Winter Injury.

A Pewaukee tree had the unusual habit of producing a crop of fruit on a central leader branch in one year and the next year the lower lateral branches bore fruit. On this tree the central leader limb bore no fruit in 1917 and in consequence thereof appeared to be quite healthy while the lower lateral branches which bore a heavy crop in 1917 were nearly all dead. In Northumberland County a Northern Spy orchard, which bore a heavy crop of fruit in 1917, was badly injured during last winter, while another Spy orchard nearby on practically the same kind of soil escaped almost uninjured, due largely to that fact that but little fruit was produced in 1917. Prof. Macoun of the Central Experimental Farm gives some interesting data on this question. Accurate records kept annually for twenty years show that the heavy bearing trees are much more susceptible to winter killing than those which produce a light yield or no fruit at all.

7. INSECT PESTS AND PLANT DISEASES.

Insect pests and plant diseases which attack the foliage of fruit trees often weaken the trees considerably by interfering with the growth processes, which are necessary for the proper maturity of wood and thus pre-dispose the trees to winter injury.

HOW CAN WE PREVENT A RECURRENCE OF THESE LOSSES?

1. PLANT BREEDING.

Fruit Growers everywhere are asking the question,—What can we do to prevent a recurrence of the losses of the past winter. This problem is not easy to solve as we have no reasonable assurance that similar climatic conditions may not return and cause further losses. Until we can produce by plant breeding and

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*What the Farmer Heard.**A Timely Satire.*

BY A FARMER.

“FARMER and pirate mean exactly the same thing,” declared I. Will. Soakum, the town lawyer, to his bosom pals Phillip Sand, the grocer, and Shorty Waite, the grain buyer. “These farmers are getting altogether too Bolsheviki in their methods. It used to be that we had some influence over these highway men, but the last few years they have actually been guilty of organizing co-operative societies, breeders clubs and various other things. We must change our mode of dealing with this type of hold-up men. The time is ripe for action and we must not lose our opportunity.

They have compiled figures, at the Model Farm, which show that in some parts of this province the farmers have actually made nearly two cents profit on every hundred pounds of milk produced. Furthermore, these figures reveal that some thirty-three per cent. of our country gentlemen have been drawing as high as six hundred dollars of a labor income in a single year. Out of this fabulous fortune, they merely have to provide their family with clothes, pay the household expenses, doctor bills, and any other unnecessary expenditures. We have to pay our share of all these enormous profits that go to swell the farmer's bank account.

The farmer and his family only work about fifteen hours per day, for three hundred and sixty-five days in the year. They have a grand, glorious life; a life of ease, enjoyment and health; milking the lowing herds, feeding the bellowing calves, chasing the skipping lambs and

innocent sheep, swilling the short-snouted swine, and up-rooting the modest ox-eye daisies. Still, further, they are not content to enjoy the entrancing charms of rural life. They are clamoring for recognition in Parliament. They are sticking together and disregarding the fact that our town people always said, that the farmers couldn't stick. We know of course that they have allied themselves with the whiskey dealers and anarchists. Back in 1911 some men would have betrayed our country to our southern cousins across the line. It was only by bringing in some of our noblest statesmen that we were able to turn these ignorant people. This put our country back ten years, but we saved the day and remained loyal to the motherland.

We must do something in order to get in on the profits that these traitors are accumulating. I am willing to go out on the farm myself. I shall gambol gaily for twelve hours per day after a plough or harrow. At dark I'll come in and milk fourteen cows, alone, whistling a Hawain fox-trot as I turn the separator. It will be with reluctant steps that I'll seek my bed, about eleven o'clock. I'll even lie awake and wish for four o'clock so that I can rise and enjoy life. Really, the thoughts of these pleasures made me more firm in my convictions that the farmer's life is a paradise.”

As he finished they were startled by the sound of something falling. They searched carefully and discovered a farmer lying unconscious. He had

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FARM POWER

The Farm Tractor as a Business Proposition.

BY L. G. HEIMPRIL, B. S. A.

THERE will be more tractors sold in Ontario this year than were sold in any year since the advent of this machine. The fact that scores of manufacturers have invested large sums of money in tractor-building concerns proves to us that they have great faith in the future of the tractor industry. The farmer, who is always of a conservative nature, is not so readily convinced of the tractor's paying qualities. He has seen demonstration machines with one man plow as much ground in an hour as he could plow in a day; he has also seen tractors give a very creditable showing on the belt. Then again he has seen machines which for some reason or other did not give satisfaction; he has also seen instances where machines were tied up for weeks for want of a spare part to replace a broken one. The result is that they are not "falling over each other" to buy tractors. A tractor costs a lot of money, and he is afraid to make the plunge, not being so certain that it will pay for itself.

What a Tractor Must Do to Pay for Itself.

An old saw-miller once said to the writer: "Every second that saw is not actually cutting lumber she is a bill of expense." Manufacturers tell us

that the factory which can be kept going twenty-four hours a day is the factory which gives the biggest returns. The same is true of the farm tractor; the most profitable machine is the one which is kept at it for three hundred days of the year. This means that if we have not enough work to keep the machine going for a certain length of time each year we will be losing money.

The debt which a tractor must wipe out when it sets foot upon a farm is a two-fold one. First it must more than repay operating expenses, and second it must pay what the manufacturer calls "overhead expenses." The machine has no reason to fear the former obligation when it is properly handled. We know that the cost of plowing with a tractor costs only from \$1.25 to \$2.00 an acre, while horse-plowing will come to anywhere between \$3.50 and \$6.00 per acre, while other work shows an equally favorable comparison for the tractor. Besides the draw-bar work the tractor offers itself as a source of belt power which work horses have long since ceased to perform.

The "overhead" expenses which the tractor must face consist mainly of interest on money invested, together with a reasonable allowance for depreciation on the price of itself, plus the price of any machinery bought expressly for use

with the tractor. The price of a three-plow tractor is somewhere near \$1,400; the plows cost \$200. To this we must add say \$500 for part ownership of a thresher and silo-filler. This makes \$2,100 in all. The interest on this at 7 per cent. is equal to \$147.00, and the depreciation of 10 per cent. per annum is equal to \$210, or a total of \$357, which our tractor must face, no matter how much or how little work it does. If the machine does only ten days of work per year the cost of the overhead per day would be \$35.70; if, however, the machine is used for one hundred days the overhead drops to \$3.75 per day. So that the greater the number of days in which the tractor is employed per year the more profitable will the machine prove.

Work Must Be Arranged so that the Tractor Can Do It.

There is plenty of work for a tractor on most Ontario farms, but the work is not in such shape that the tractor can do it satisfactorily. A tractor cannot do good work in small fields. Turning around, even with a small tractor, is laborious work for both the operator and the machine, and is not conducive to the maximum amount of work per day nor to the best quality of work.

Most Ontario farms have too many fences for profitable horse-farming, to

say nothing of using a tractor. Fences mean waste land; they harbor weeds, and it costs more to keep the usual quota of fences in repair than it does to build a temporary fence when needed and roll it up when not needed. Removing some fences is the first step toward fair play for the tractor. It is hard work to cultivate among stumps and boulders with horses. With a tractor it is impossible to do good work in such conditions. The second step in arranging our work for the tractor is to remove all obstructions. Give the tractor a fair chance at its work and it will not disappoint you.

In summing up the tractor's case as a business proposition we must consider the following points:—

1. That the tractor will do farm work more cheaply than horses can do it, if the work is properly arranged for the tractor.
2. The personal factor in tractor operation is so great that it alone may cause success or failure.
3. When a tractor is kept busy enough, its upkeep and overhead cost per year is far less than the same on the horses, which it is able to substitute for.
4. Belt work constitutes a large portion of the tractor's usefulness. In order to make it a paying proposition, it must do the farmer's belt work.



"At the head of all sciences and arts, at the head of civilization and progress, stands—not militarism, the science which kills; not commerce, the art which accumulates wealth—but agriculture, the mother of all industry, and the maintainer of human life."—James A. Garfield.

Don't Sow Weed Seeds this Spring.

Thoroughly Clean your Seed Grain and Grass Seed Now—Some Useful Hints on Operating the Mill—Other Points to Remember.

BY C. LAMONT, '19.

IT is difficult to estimate the loss that is annually incurred by Canadian farmers through weeds, but it easily runs into hundreds of thousands of dollars. One man may have his farm practically free of weeds and then, through the carelessness and poor tillage of some new neighbor, may, in a very short time, have to change his entire method of farming in order to eradicate the encroaching pests, thereby sustaining a loss of hundreds of dollars.

Weeds rob the soil of plant food and moisture, thus increasing the effect of drought by taking the moisture from the soil and wasting it in evaporation. They crowd out the more useful plants, as they are as a rule harder and more prolific; they increase the cost of every farm operation and cause depreciation in the market value of the crops because of their presence in the grain or hay that is sold. No seedsman wishes to purchase seed that is full of noxious seeds and no stockman wants to feed hay to his stock which has its feeding value lowered by weeds, some of which may be actually poisonous to animals. Once weeds become firmly established in the soil their eradication is costly in labor, time and machinery and frequently prevent one from following the best crop rotation or from growing the most profitable crops.

If weeds have not become too firmly established they can as a rule be kept in check by proper rotation of crops and after-harvest cultivation. A short rotation should be adopted when weeds

are bad, so that a hoed crop will be introduced as often as possible. The cultivation should be frequent and deep until the crop has grown so high that there is danger of cutting the roots which interlock between the rows. There is no advantage in deep cultivation then, quite the reverse in fact, as repeated experiments have shown that deep cultivation, when the crop has attained a certain growth, not only lowers the yield, but does not result in any better cleaning of the land.

After the crop is off, the land should be ploughed shallow and then harrowed and cultivated to germinate and kill the weeds. The cultivation should be continued right up until the freeze-up, and the last thing in the fall the land should be ridged up. This will not only help to kill more of the weeds by exposing a greater surface of the soil to the frost, but permit of the land being worked from a week to ten days earlier in the spring.

If screenings or other feed which is known to contain weed seeds is fed, it should be ground so fine that all the weed seeds will be destroyed. If the feed cannot be ground for some reason or other, the manure made from it should be placed in a pile by itself and allowed to heat, and not spread on the land until it has become thoroughly rotted and decomposed.

One of the chief reasons for the prevalence of weeds is that the seed grain used is not properly cleaned before sowing. The long winter days, when

work is slack, and there is little to do but sit around the fire can be very profitably used by putting the fanning mill in motion and thoroughly cleaning weed seed out of all seed grain. By so doing, not only will the weeds be prevented from being distributed on the land, but the shrunken grains will be blown out and the crop increased accordingly.

In cleaning grain some of the weed seeds are difficult to separate, but most of them can be removed with care and a little patience. Any make of mill which has sufficient shake, angle or slope of sieves and wind supply, will do the work if provided with suitable sieves. The sieves in the upper shoe should be just coarse enough to let the grain run through. They also require sufficient slope to run coarse impurities over the tail of the mill. The lower screens should have openings of the size required for grading out the small kernels and removing the weed seeds.

For wheat, the grade is made over an 8-64 inch perforated zinc screen. The grade for oats is made over a screen with slots 5-64 by 1-2 inch. Barley requires the same type with slots larger, depending on the average size of the seed. Flax requires a woven wire sieve 3 by 16 inch mesh (3 spaces to the inch one way and 16 the other) in the upper shoe and 1-12 inch perforated screen below.

Cleaning Small Seeds

The chief difficulty usually met with in cleaning grass and clover seed is in not having the necessary riddles and sieves or in the mill not being properly regulated. Any good fanning mill in which thorough control over the air current is obtained and which has a series of four or more riddles and sieves that may be adjusted at will,

may be fitted and operated to do good work. It is impossible to give instructions for fitting and operating a mill which will apply in all cases, as different samples of the same kind of seed may require quite different treatment, but there are general principles which should be observed.

It is most important to have a full equipment of both wire and perforated zinc riddles and screens of all sizes made for small seeds. The want of any one of these may entail a waste of good seed or other loss, many times greater than the total cost of the full equipment of screens. Before fitting the mill for cleaning, trials by hand should be made with the screens, arranged in series one over the other, to determine what screens should be used to produce the best possible results with the least possible waste of good seed.

The riddle or top screen should be just large enough to let the seed through and hold back the larger weed seeds. The seeds of many weeds are so similar in size to the seed in which they occur that their separation cannot be satisfactorily accomplished, especially when they are very prevalent.

In cleaning such seeds regulate the slant of the riddle, the amount of shake and size of the opening in the hopper so that as much of the seed as possible will find its way through the riddle. That is, do not give the sieves so much shake or have them at such a pitch that much of the seed runs off the screen with the weed seeds. The slant of the sieve can be reduced by raising the back of the mill, by simply placing small blocks of wood under it.

The lower screen should be just large enough to not let the good seed through. Woven wire cloth sieves are usually employed as lower screens.

The air blast should be strong enough to blow out everything lighter than the seed. It is not strong enough unless a few good seeds are blown out with the chaff. This is the only way of taking out some weed seeds which, on account of their size, cannot be separated by sieves. It may be advisable to run the seed through the mill slowly once or twice to take out as many of the weed seeds as possible by sieves and then make the separation by the air blast afterwards.

How to Clean Timothy.

The 1-12 inch perforated zinc riddle will be found satisfactory for most samples of timothy. Many seeds of Canada thistle, docks, ribgrass or buckhorn and green foxtail will be removed by this sieve. When lamb's quarter or catchfly are prevalent the 1-25 inch riddle is required and its use will entail the loss of much timothy seed unless the mill is operated very carefully. Better work can be done with this seed by using a hand screen. Where the timothy seed is very plump, the 1-20 inch riddle should be used.

For the lower screen the 30 by 30 (thirty spaces to the inch each way) woven wire screen will hold practically all of the timothy, while seeds of cinquefoil, plantain and chickweed will pass through. For worm-seed mustard

the 28 by 28 screen is better. Some mills are equipped with 8 by 36 or similar sieves instead of the 30 by 30 woven wire.

Red Clover Hard to Clean

Red clover is a hard seed to clean on account of the similarity in size between it and the weed seeds usually found in it. The 1-15 inch perforated zinc riddle in the upper shoe and the 4 by 25, 4 by 26 or 4 by 28 woven wire screen in the lower are probably the best for ordinary samples. These lower screens are the best for cleaning out ribgrass or buckhorn. They will also take out many of the plantain, lady's thumb, Mayweed, knot weed and some of the Canada thistle, lamb's quarter and sheep sorrel. Cleaning red clover over this sieve will greatly improve its general quality by removing the shrunken brown seed so prevalent in some samples. Foxtail, ragweed, catchfly and docks are the seeds which give most trouble in cleaning and where there are very prevalent clover seed growing will not be very profitable.

For alsike the 1-18 inch perforated zinc riddle above and the 26 by 26 woven wire screen below are recommended, but they will not clean out catchfly, false flax, sheep sorrel or black medick.



Points for the United Farmers to Consider.

By R. E. BRGG, '19

THE word Co-operation is being written with capital letters in Canada at the present time. The farmers of Western Canada have proven to the farmers of Eastern Canada that farmers can co-operate successfully. Ontario has benefitted by the experience of the West and is rapidly following her lead. Quebec and the Maritime Provinces are also in line and are pushing co-operative principles.

Co-operative marketing of farm products should be the aim and desire of every Ontario farmer at the present time. Canada's national debt totals about \$4,500,000,000. The annual revenue raised will have to be approximately \$400,000,000. During the past fiscal year the factories supplied exports totalling \$636,602,000, made up chiefly of munitions, the raw material for which was largely imported, while the agricultural and animal products amounted to \$740,456,000. Munitions have ceased to be an exporting commodity. Thus we see that agricultural products will total many times the total exports of all the other industries. A large export trade will be a great factor in reducing Canada's war debt.

Co-operative marketing of farm products would tend to improve the quality of the export article and would reduce the cost of handling between producer and consumer. For a country to be a successful exporter she must produce what the foreign market demands and place that product on the market in the best possible condition. Denmark has one of the most successful export trades in the world. This is the result of having developed the highest degree of co-operation of any

country in the world. If Canada is to develop and hold an export trade, the farmers will have to promote the co-operative marketing of farm produce.

We will naturally ask how Ontario is going to co-operate in marketing her farm products? Are we to organize a new provincial co-operative company for this purpose? We have at the present time the United Farmers' Co-operative Company doing business over the whole province. There are clubs affiliated with this company in every county and district in Ontario. Thus we see that Ontario farmers already possess the nucleus for developing the co-operative marketing of farm products.

This company has great possibilities and opportunities before it. Ontario's marketing problems are somewhat different to those of the West. The Ontario farmer markets his grain as meat products, dairy products or poultry products. Ontario also produces a large quantity of fruit.

Great Britain is our controlling market for livestock products. Britain demands the bacon type of hog and if we are to supply that market we must produce that type of hog. If the Ontario farmer is to be induced to produce the bacon hog he must be paid a premium for doing so. That should be one of the objects of the Livestock Department of the United Farmers' Co-operative Co.. Canadian beef does not command the highest price on the British market, because our cattle are slaughtered in an unfinished condition. Older Ontario is especially adapted for the finishing of beef cattle. Probably some farmers are unable to finish all

the cattle they raise, but there may be some farmers who could finish them in the same community. Co-operation would be able to place these unfinished cattle with the farmers who could finish them, and as a result there would be fewer unfinished cattle go on our markets. This should be another of the chief aims of the Livestock Marketing Department of the United Farmers' Company.

There should be a man in charge of the marketing of poultry products for the United Farmers' Company. There are great possibilities in the standardization of poultry products and this can only be done by the farmers themselves, through their own company. There should also be a man in charge of fruit marketing to help the Ontario fruit growers in standardizing and marketing his fruit.

The standardization and distribution of farm machinery are problems that the United Farmers' Company could materially assist in solving. Under the present system of selling farm implements it costs as much to sell an implement as it does to manufacture it. If the United Farmers' Company would select, for instance, a type of waggon suitable for the majority of Ontario farmers, and get some manufacturing Company to make these waggons, they

could be sold much cheaper than at present. This system could be worked with many types of farm implements, and would help to standardize farm machinery.

Co-operative buying and selling is a business just the same as manufacturing is a business. Business principles must be adopted and followed just the same, if success is to be assured. Politics should not be introduced into the business office of a co-operative company. A successful business makes profit for the investor, therefore the co-operative company should pay a dividend to the investors which are the farmers themselves.

The possibilities of the United Farmers' Co-operative Company are many. Its success will depend on whether the manager is a broadminded, clean and farsighted man. The board of directors should be the very best men in the province. This is a work which is not too small for the cleverest and best men which Ontario can produce. Every farmer should take a very optimistic view of the present situation, and work for the success of Ontario agriculture, by endeavoring to create an efficient organization for the selling of farm products and the buying of farm supplies.



Why should a farmer retire to the city where there is no kitchen range to put his feet on and to throw matches into? Why should he leave the place where his heart has always been? Why should he go to a centre where he is unknown and a nobody? Why should he not remain among the scenes of his early activities and live a happy old age? Modern comforts are no longer confined to the city.

The Shire Horse.

The First and Greatest of all Draught Breeds.

By A. W. M., '20.

I HAVE been asked by the Editor to write an article on the Shire horse. Having read the articles on various other heavy draught breeds that have appeared in recent Reviews, it struck me that this was rather a hopeless undertaking, as all the good points that a draught horse could possibly have, have already been appropriated to at least two other breeds. Yet, on second thoughts, perhaps it may be worth while to call our readers' attention to a few facts relating to the oldest and purest of our true heavy draught horses.

The first beginnings of the breed are shrouded in antiquity. At the time of the Roman conquest of Britain there was a breed of horses in the country noted for their great strength and weight, whose description indicates that they were of almost the same type as the modern Shire. There is little doubt but that these were the foundation stock of the Shire breed, and incidentally of the Clyde, for the Clydes were originally produced by the use of Shire stallions and Flemish mares.

Up to the latter part of the nineteenth century, when the Shire and Clyde Stud Books were started, and the breeds became distinctly separated, there was a steady flow of breeding stock across the border between England and Scotland. In the latter part of the century this tide flowed almost entirely from the South to the North. It may be interesting to note that the two Clydesdale sires whose names are

to-day most valued in a Clydesdale pedigree, namely Darnley and Prince of Wales, have more Shire than Clyde in their own breeding.

During this period of interbreeding, however, the Englishman and the Scotsman were aiming at different ideals. The Scotsman aimed at quality and style at the expense of real weight and substance, while the Englishman aimed to preserve all the weight and substance possible with a sufficient amount of quality to ensure durability. As a result of these ideals we have in the typical Shire of to-day a short coupled, deep girthed, draughty horse, weighing between eighteen hundred pounds and a full ton, and standing about 17 hands on comparatively short legs. He is the fastest walker of any draught horse in the world to-day, and his hoek action, owing to his short coupling, and the enormous muscular development of his loins and quarters, is superb. The superabundance of hair on the Shire has been very largely bred out during the last few years, though we still like a good covering of hair and plenty of "feather." Abundance of "feather" is, by the way, a distinct advantage, as it is practically waterproof and provides good protection against "scratches" and kindred ills. We like a fair slope of shoulder and pastern sufficient for protection against jarring on hard roads and pavements, but a long weak pastern is undesirable. Flashiness and "prettiness" are not characteristics of the Shire.

Continued on page xvii.

Potato Eugenics.

Northern Grown Seed Best—The Chief Diseases and their Control.

BY A. M. PORTER, '20.

LAST year the Division of Botany of the Dominion Department of Agriculture conducted a survey of the potato fields of Ontario, with reference to potato diseases, and the securing of seed free from disease for Ontario growers.

Leaf roll and mosaic were found to be the most prevalent diseases in Old Ontario, some fields inspected containing as much as 90 per cent. diseased plants. In Northern Ontario these two diseases, where present at all, were in a very mild degree.

The potatoes in Northern Ontario are, generally speaking, much more vigorous, give greater yields per acre, and resist disease better than those of Old Ontario.

A field inspected in Wentworth County contained four acres of potatoes, two acres planted with local seed and two with seed imported from Northern Ontario. The variety and date of planting were the same for each. It was possible to tell to the row the division between the seed from the two sources. The plants of the Northern grown seed were taller, more vigorous, and had much less disease than those of the local seed. At digging time it was found that the Northern seed yielded considerably higher than the local seed.

The following is a list of some of the more serious diseases, their description, results on the crop, and their methods of control:—

Leaf Roll

This disease is characterized by the

rolling of the lower leaves of the plant. They are much thicker than is normal and crackle at the touch. The plant is as a rule small and has an upright habit of growth.

Leaf roll reduces the crop by about 70 per cent. and is one of the most serious diseases with which we have to contend.

There is no indication of the disease on the tuber; it is only noticeable on the plant. The only method of eradication or control is the growing of seed from a district where the disease is not prevalent.

Mosaic

Farmers have sometimes noticed a puckering and mottled condition of the leaves on some of the plants in their potato fields, but have thought perhaps some foreign varieties had got among the tubers planted. This is not another variety of potato but a diseased one. The leaves pucker or blister and are mottled with yellowish green spots. In severe cases the plants assume a yellowish green colour and have a wrinkled appearance.

This disease causes a decrease of about 40 per cent. in yield, and, like leaf roll, can only be eradicated by growing seeds from a disease free district.

Black Leg

In advanced cases the stalk of a plant having this disease turns black and becomes rotten, thus giving the disease its name. The leaves of the plant wilt and turn yellow, and any

potatoes produced are as a rule rotten or partially so. The disease is caused by a bacteria which winters over in the tuber.

To control this disease the following precautions are necessary:—

1. Avoid seed from infected fields.
2. Discard all rotten, bruised or discoloured seed. The disease is shown in the tuber by a thin black ring just below the skin.
3. Pull out and burn diseased plants in the field.

Black Leg is not at present very serious, and if these precautions are observed it may be kept from becoming so.

Late Blight

Late Blight generally appears about the middle of July. Purplish brown spots having a water soaked appearance are noticed on the leaves. It spreads very quickly during a wet season, and sometimes whole crops are ruined in a very short space of time. There is generally very little trouble from this disease during a dry season.

The disease is caused by a fungus which winters over in the tuber. The rain washes the fungus down through the soil on to the tuber, causing what is known as "late blight rot."

This disease can be largely controlled by thorough spraying with Bordeaux Mixture. If the season is wet spraying should be done several times during the growing season.

Rhizoctonia (Little Potato Disease)

This disease is caused by a fungus which lives over on the tuber in the form of fungus threads on the outside. They are sometimes mistaken for specks of mud. The fungus is also thought to be able to live over in the soil. The disease is shown on the plant by a curling or rolling and some-

times yellowing of the upper leaves. In many cases aerial tubers are produced just above the surface of the ground. The fungus working in the stalk girdles it, thus stopping any food from passing down into the tubers. As a result of this the starch manufactured in the leaves is stored on the stalk above the ground in the form of aerial tubers.

Control

Rhizoctonia can be controlled by disinfecting the tubers before planting, with corrosive sublimate. (1-2000), for a period of three hours. Care should be taken in using this disinfectant as it is a deadly poison.

Common Scab

This disease is familiar to most growers of potatoes. It is caused by a fungus which lives on the outside of the potato in the form of a scab. This renders the potato unmarketable and thousands of dollars are lost every year as a result.

As this fungus lives over winter in the soil a four or five year rotation of crops should be practised. The fungus may be destroyed by treating the seed with formalin, 1 pint to 30 gallons of water for a period of three hours.

It has been proven that where potato growers use their own seed year after year in time the yield becomes smaller and the plants badly diseased. The only way to get rid of these diseases which decrease the yield is to get seed from a non-infected area. As the diseases are not severe in Northern Ontario, seed from this part of the Province has proven a distinct success in many parts of Old Ontario.

During the month of August a thorough inspection was made of the potato growing area of the Algoma

Continued on page xxxiii.

The Comparative Yields of the Best Varieties of Crops

These Tables are worthy of Consideration at this Season since They Show What Varieties have Yielded Best over a Term of Years

From Dr. Zavitz' Report delivered at the Experimental Union Meeting.

NOTE—All the poorer yielding varieties had been discarded previous to 1918, and only the following and best varieties were retained. In oats O. A. C. No. 72 outyielded O. A. C. No. 3, but the latter is ten days earlier and is more suitable for sowing in mixtures. It was, moreover, the only oat to mature around Sudbury last year. Much has been said in the past of the relative values of barley and emmer. The figures below prove emphatically that emmer is a much inferior yielder of grain. Rye buckwheat, Early Britain peas and Pearce's Improved Tree

beans were best in their respective classes. Yellow Leviathan and Bruce's Giant White Feeding Sugar Mangels, Steele, Briggs' Good Luck and Canadian Gem turnips, and Rennie's Mammoth Short White Carrots gave the best results. Northern Ontario grown potatoes not only yielded better but were freer from disease than potatoes from any other source. Irish Cobbler was the best early variety and Green Mountain the best late variety. In corn, Golden Glow yielded the most grain and was a close second in amount of green crop.

VARIETIES OF GRAIN CROPS

EXPERIMENTS	VARIETIES	Comparative Value	YIELD PER ACRE		
			Straw (tons)	Grain (bu.)	Grain (lbs.)
Oats (31 tests)	O.A.C. No. 72	100	1.80	54.19	1842
	O.A.C. No. 3 (Early)	73	1.46	46.14	1569
Six-rowed Barley & Emmer (11 tests)	O.A.C. No. 21	100	1.34	44.53	2138
	Common Emmer	58	1.33	32.62	1566
Hullless Barley (13 tests)	Black Hullless	96	1.59	26.67	1600
	Guv Mayle	100	1.55	25.51	1530
Spring Wheat (25 tests)	Marquis	100	1.47	23.11	1386
	Wild Goose	96	1.65	22.91	1374
Spring Rye (3 tests)	O.A.C. No. 61	100	1.88	20.47	1146
	Common	89	1.84	20.00	1120
Buckwheat (3 tests)	Rye	100	2.20	37.78	1814
	Silver Hull	67	2.07	28.05	1346
Field Peas (68 tests)	Early Britain	100	1.19	28.75	1725
	Potter	90	1.32	25.67	1540
	Canadian Beauty	95	1.35	25.12	1507
Field Beans (14 tests)	Pearce's Improved Tree	100	.89	19.19	1151
	White Wonder	88	.73	15.61	937
	Elliott's Pea	69	.75	15.29	918
Soy or Soja Beans (2 tests)	Habara	96	1.04	11.57	694
	O.A.C. No. 81	100	.99	11.52	691
	Brown	86	.78	8.45	507

FIELD ROOTS

EXPERIMENTS	VARIETIES	Comparative Value	Yield per Acre (tons)
Mangels (7 tests)	Ideal	88	25.27
	Yellow Leviathan	100	25.01
	Sutton's Mammoth Long Red	76	25.01
Sugar Mangels (6 tests)	Bruce's Giant White Feeding	100	20.93
	Carter's Sugar	75	18.34
Swede Turnips (5 tests)	Steele, Briggs' Good Luck	100	27.79
	American Purple Top	73	25.80
	Canadian Gem	100	25.65
Carrots (4 tests)	Rennie's Mammoth Short White	100	21.57
	Bruce's Mammoth Intermediate Smooth		
	White	82	19.24

NORTHERN AND SOUTHERN GROWN SEED POTATOES

DISTRICTS	Average Yield of Potatoes per Acre. (tus.)
Northern Ontario	142.8
Southern Ontario	123.9
New Brunswick	119.5

VARIETIES OF CORN FOR FODDER AND FOR GRAIN

VARIETIES	Average Yield of Green Crop per Acre. (tons)	
	1918 (6 tests)	Average 3 years (29 tests)
Wisconsin No. 7	9.66	10.63
Golden Glow	9.78	10.11
Compton's Early	9.17	9.56
White Cap Yellow Dent	8.55	9.36
Bailey	9.55	9.20
Longfellow	9.11	8.99
Salser's North Dakota	9.25	8.62

VARIETIES	Yields per Acre 1918. (7 tests)	
	Whole Crop (tons)	Grain (Bushels)
Golden Glow	9.73	67.2
Bailey	9.31	61.2
Salser's North Dakota	9.58	60.3
Compton's Early	8.97	60.2
White Cap Yellow Dent	8.51	59.0
Longfellow	9.21	55.5
Wisconsin No. 7	9.62	51.1



Give us, oh, give us, the man who sings at his work.—Be his occupation what it may, he is equal to any of those who follow the same pursuit in silent sullenness.—He does more in the same time—he will do better—he will persevere longer.—Thomas Carlyle.

An Ex-Student's Opinion of Student Housing.

What Is Yours?

Editor "O. A. C. Review."

MOST of the ex-students of the O. A. C. have pleasant recollections of that part of their life spent at College. It is the biggest and most memorable experience which comes to a man —

except getting married. There is one phase, however, of college life that is not altogether pleasing to look back upon. No one of us will ever forget the day, when having satisfied the President as to our genealogy, and the Bursar as to financial ability, we were shown to one of the

box-stalls, with room for two, or, in my case, what was then known as "Upper Hunt Street." (This was named after the Resident Master who presided in the "eighties.")

The room was small, containing two old wooden beds, a dilapidated dresser with cracked mirror, a measly wash-stand with metal pitcher and basin partly filled with water on which there was always a film of dust, and having in the lower part some broken crockeryware. The window was so high that it was impossible to see out of doors except at an angle of about 45 degrees, or by climbing onto a bed or chair. In the mornings, when those who lived on "Upper Hunt" went to breakfast, we were compelled to des-

cent to "Lower Hunt," and pass the R. M.'s door. Here, there was usually a collection of Indian Clubs, old boots and shoes, wash basins and pitchers, and everything that was throwable,

piled at the foot of the stairs. Frequently a panel or two of the door was kicked in, or the windows of the fanlight were smashed. Water fights were common, during which the halls were miniature lakes. Marks of rotten apples and other decaying vegetables were quite common on the walls. "Pillow fights" were of

frequent occurrence. Beds were "raked," and all sorts of pranks were carried on daily and nightly. I do not suppose that such uncivilized doings characterize the students of the present day, but mankind tends to revert to barbarism, the moment that civilizing forces are relaxed.

What is the greatest civilizing force in Canada to-day? It is not our Schools or Colleges, Churches or Chapels, important as these are, but the Home. The chief cause of the unmannerly behaviour of students in the "eighties;" before, and since, is the fact that restraining influences of home life are withdrawn and under these

Continued on page xxxiii.

THE OAC REVIEW

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EDITORIAL

As a Farmer Sows

THE necessity of good seed is not a modern idea by any means. However, the importance of sowing only good seed increases with the cost of land and labor, and the growth of population. Moreover, common sense tells a man that he should sow seed that will produce the greatest yields. No man would cultivate his ground with a spade when he could use a plow, so why should he sow poor seed when he may greatly increase his yields by sowing good seed.

The advent of March heralds the time of sowing. Then farmers begin to select, clean and buy seed for the year's crops. If a man is going to buy his seed, this time is very suitable as storage is thus saved; but if a farmer

is going to sow seed grown on his own farm it is the wrong season to select his seed.

The proper time to select seed for a year's crop is in the previous summer, before the grain is harvested. All selection work at an experimental station is done then. In fact it is the only opportunity a farmer has of selecting seed possessing known qualities. What breeder would walk into a pure-bred herd and pick out breeding animals by mere inspection? Just go to a stock sale and observe the prices paid for an excellent animal with a poor pedigree. Likewise, how can a man determine what he is going to obtain from a grain of wheat simply by looking at it? It may be a large, plump

grain, but it may have come from a low-yielding, weak-strawed, non-rust-resistant strain.

Although it means additional labor, it will pay well to take the trouble of selecting next year's seed from the standing crop. A farmer is then able to judge the stand, the size of head, the number of spikelets and kernels, the maturity, the quality, stiffness and rust-resistance of the straw, etc.

However, such a practice cannot be followed this year. The next best plan is to select clean, large, plump,

sound, grain, giving a high germination test. All broken and small seed should be removed. Too great care cannot be exercised because the labor is done at a period when work does not press, and a man is enabled to grow more grain on the same acreage and with the same labor than he otherwise would.

To secure big men, education must begin from the cradle, to secure big yields, selection must be done while the seed is still in the cradle, the waving head.



The Consolidated School

IS the Macdonald Consolidated School the exponent of the highest possibilities in rural schools, or is it a monument to the failure of Consolidation in Ontario? In a recent debate at the O.A.C. both the affirmative and negative used it to strengthen their arguments pro and con. The affirmative showed it to be the most desirable type of rural school, while the negative held it up as an undesirable. The decision was given in favor of the negative.

We wish to point out that the affirmative lost their case simply because the wording of the debate was so rigid as to prevent any possibility of excepting even the most isolated school section in Older Ontario from being forced to come under the proposed legislation. The remarks of the negative were most derogatory to the school in question, and they mis-quoted its principal as authority for their statements. The affirmative failed to repute the assertions and consequently the audience received an erroneous impression of the work of this school.

The Macdonald Consolidated School stands as an excellent example of the possibilities of consolidation. Its efficiency is far above the average graded schools and the pupils educated there are a credit to the institution. Besides the regular subjects of the public school curriculum several practical features are added to the course. Manual Training, School Gardening, Nature Study, Agricultural and Domestic Science are given an important place. And despite the time required for these subjects, the other studies are not neglected. They are taught more efficiently on account of this addition, because practical application of principles is given the children through this channel.

Probably no school in the province has a more enviable record than has the Macdonald Consolidated. This is a three-teacher school. The total enrollment in January, 1919, was 127, while the average attendance for the month was 118. During the past six years over 80 pupils from this school have written their entrance examination, and

only 2 failed. In what other rural schools are we able to find that over 97 per cent. of the candidates have succeeded at the Entrance test during such a period? And, following these pupils through Collegiate, we find a good percentage of them are among the first five students in their respective classes.

We are justly proud of the high standard of efficiency maintained by

this school, and regret that any unfounded statements were made regarding its value.

A system of consolidation of schools for rural Ontario is on the way, and from the excellent showing the Macdonald Consolidated School has made we may anticipate vast improvements in the type of education meted out to our rural pupils.

J. B. M.



Agriculture Needs Capable, Understanding, Fighting Leaders To-day

WE have heard considerable recently regarding the lack of men capable of leading the farmers in their fight to improve the social and economic status of the agricultural industry. A search in those places where we would expect to find such men reveals the fact that the statement is largely true. Both the Provincial and Federal Parliaments contain a negligible number of farmer members. Even in the executive of the United Farmers' we fail to find more than one or two capable men. That organization is cramped in its growth because directors possessing a knowledge of leadership and business principles are lacking.

Agriculture must have leaders of the right type if it is to become the desirable, dignified and profitable industry that it ought to be. Such men must know what agriculture needs, must sympathize with the average hard-working, rutted farmer and must be educated. Education is not enough; a sympathetic understanding is not enough. The leader must possess these combined and, as well, an abundance of energy. He must be "hot" on agriculture.

Leaders must be educated; they must

possess broadened minds, so that they will be capable of wrestling with various problems in a fair, sensible manner. Those who have done so much harder. Such a course as the O. A. C. offers, with its practical and technical study of agriculture, its courses in economics and public speaking, should fit a man to become a leader in so far as education is required.

But education is not all. Though a man may be equipped with all the necessary fundamentals of the science of agriculture, he will be of slight assistance to the hundreds of thousands of Canadian farmers unless there surges through his arteries unbounded enthusiasm and a strong sympathy for and a true understanding of plain, everyday farming.

The majority of students are raised on the farm. But many come from cities and do not appreciate the financial worries, the social problems, and all the other difficulties experienced on the average farm. These men might make great plant-breeders, might obtain excellent results in research work, but cannot hope to go out as farm leaders, whether as district representatives or members of parliament, with

the best results—unless they use their powers of observation to the limit as soon as they take up such work. Even many of the men who come direct from farms do not possess the proper mental attitude required in a leader. There work, while on the farm, that they have undergone a cooling process; there are men who at best are lukewarm, and there are those who allow the influence of the city and its industries to dominate their rural sympathies.

If every agricultural student does not realize the present need he should be ashamed of himself. If he has not the ambition to fill that need, he should be thoroughly ashamed of himself. It is the agricultural student's duty to become a capable leader, either as a

farmer leader or as a professional one. The farmer particularly is in demand, and there is a tremendous amount of work awaiting him. If he does not possess a proper knowledge of rural conditions, he should get out on a farm and learn them.

Every student should keep posted on all agricultural current events; he should get into discussion with every brand of farmer, at fairs, stock sales, or wherever opportunity offers, and get his point of view; he should talk agricultural subjects and conditions over with his fellow students; and he should daily read articles and editorials on agriculture in the farm and city press.

Every man should warm up, plunge heart and head into the job of helping the farmer to better things or quit.





J. G. Archibald wrote recently from Truro, N. S., asking us to add the name of J. M. Varey ('16) to the Honor Roll. Varey went over with the 56th Battery, and has seen over a year of service in France.

J. A. Clark '07, high man at Guelph Fat Stock Show, wishes to extend his hearty congratulations to the Chicago Judging Team. He is now a captain in connection with the Khaki University.

Orloff M. Mallory ('14) paid us a visit recently. He went overseas with the tenth draft of the 64th Battery at the same time as George Knowles, was three and a half months in France, and was wounded near Arras in September. Mallory returned to Canada on the Olympic on January 17th, and is at present making his headquarters at 48 Pine Ave., Toronto. He tells us that he intends to take up farming if he can find a suitable location.

E. H. Parfitt ('18) wrote recently from the Base Hospital, Camp Meade, Maryland. Parfitt left the Dairy Department here in October to join the American Army as a pathogenic bacteriologist and chemist. While taking a course in these subjects and in sani-

tation he met E. G. Hood of '15, who was in the same class. He expects to receive his discharge in a few weeks.

In a letter written recently to W. R. Gunn F. K. Merkley '17, gives some very interesting information on "The Fraternity Spirit," as follows:—

Iowa State College,
Ames, Iowa.

"Since leaving my Alma Mater I have encountered the fraternity spirit at other colleges, and have wondered why our Cosmo Club has not been taken advantage of by more students.

At the College here we have nineteen National Fraternities, six National Sororities, and several other local organizations. We have also a Cosmopolitan Club here. I belong to one of the National Fraternities, and have been quite actively engaged in its work and welfare. To give you an idea of the fraternal spirit, the students spend about \$75 to join, as well as paying annual fees. When one first meets a fellow one tries to find out what Frat. he belongs to, and then he is classed according to that particular Fraternity.

From my experience I infer that if a student neglects the social side of College life he is losing the best and

one of the most important phases in his college course, which is undoubtedly of invaluable service to him in future years."

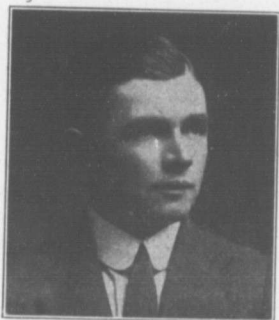
A. Fulton '16 and Gordon Hill '17, both recently returned from overseas, were at the College for a few days recently.

C. M. Nixon '17 was a visitor at Guelph a few days ago. He has received his discharge and will shortly be connected with the Farm Survey work of the Farm Department.

R. Finklestein is engaged in bacteriological work at Camp Meade, Maryland.

The following old Year '20 men were in town for the Year '20 Valentine Dance:—

H. F. Porter
 "Stan." White
 Jack Pawley
 "Archie" Leitch
 _____ Gregory.



Lieut. F. R. Kirkley, M. C. '15

an account of whose death in Italy, from typhoid fever, appeared in the February issue.

Walter Ziegler '19 was at the College recently. He expects to remain in the American Navy until next Fall on transport work. Next September he hopes to return to the College to finish his course.

The following letter received recently by Dr. Creelman from J. L. Foote ('16) will be of interest to many of our readers:—

Menden, Rhineland, Germany,

5th January, 1919.

G. C. Creelman, Esq., Guelph, Canada.

Dear Sir,—We crossed the German border a month ago to-day. On the 13th, ult., we marched through the University City of Bonn and across the Rhine with fixed bayonets and colors flying. General Currie took the salute on the Bonn bridge; with him were the Divisional and Brigade Commanders and many other staff officers. We took up an outpost position well east of the bridge.

The 24th Battalion was lucky enough to be back in Bonn for the Christmas week. The H. Q. of the Khaki University of Canada, in Germany, is in the Bonn University. We had a very fine time over Christmas, with dinners for each of the companies and regimental units. We crossed the Rhine again and came to Menden, near Siegburg, last Monday.

We have several educational classes going in the Battalion now. I have charge of the agricultural class, and find the work much more interesting than close order drill on the parade ground.

Mr. Spencer is on Brigade, and has charge of the educational work in the 5th Brigade.

I have not heard from George Wilson lately. He was taking a cadet

course (artillery) when last I heard, in England.

I was in London one day last October when you were there; unfortunately for me you were not in when I called at your hotel. Carneross and I met at the enquiry office, both of us enquiring for you. I was very glad to meet an old O.A.C. man, a year '16 man at that, as I have not met many of them out here, they seem to have gone to the artillery mostly. I met Sgt. Cotsworth in Bethune about Christmas time, 1917, while I was buying the Company's Xmas dinner.

We were inspected by General Currie in Bonn, and were highly complimented by him on appearance and steadiness; and he never gives praise unless it is earned, as we know well by experience.

Kind regards to Mrs. Creelman and the family. Wishes sincere for 1919.

Yours very truly,

JOHN L. FOOTE.

From Lieut. J. L. Foote,

24th Bn., V. R. C.,

Canadians,

B. E. F., Germany.

The following extract from a letter recently received by "Cap." Gandier from C. F. Patterson ('18) gives an interesting view of the attitude of the people of the U. S. as regards the war:

610 W. Illinois St.,

Urbana, Ill., Feb. 9, 1919.

Mr. Gandier, Guelph, Ont.

Dear Mr. Gandier,—May state that I am well pleased with the move I made. I like Urbana very well, and also the work which is being thrust upon me. Of course life at a University such as is located here is very different to that of a College such as the O.A.C. Here students remain un-

acquainted with the mass, which is due partially to the large numbers and partially to the "Electric System," which is in vogue at this University. At Guelph, the boys and girls were members of one large family, and one had the opportunity of becoming acquainted with most of the members, if he so wished.

As regards the people I find them to be similar to the Canadians in manner. Judging, solely, from the people, I would not know that I was in an American city. I have found that the Americans have a very high respect for the Canadian; possibly, I should say, for the Canadian soldier. On different occasions when I have disclosed my identity as a Canadian, I have had to respond to the like of this: "So you have been in the army." Many have the impression that every Canadian was in the army.

While many of the Americans give themselves great credit for having brought the war to a close, many state that such an attitude is assumed only by a small percentage of the U. S. population, chiefly the soldiers. The great mass of American people believe that Canada actually won the war, that England and France were only slightly instrumental in the winning of the struggle. Such a view, of course, is held only by the less educated classes, but this class constitutes the major portion of the American people. But many of the best people believe that America had little influence on the shortening of the war. They believe that the war would have terminated at precisely the same time had America remained neutral. So you see we have all classes of people—some assuming, some modest and some very frank.

I trust that this finds you and all your care in the best of health. Ac-

cept my best wishes, though late, for a happy and prosperous year.

With best regards.

Yours very truly,

CECIL F. PATTERSON.

I. B. Martin wrote recently from Eschmar, Germany, congratulating the Chicago judging team. He mentions having seen Art. White ('16) and says that the latter seemed to be in the very best of spirits. Martin's address is:— No. 335075, Gnr. I. B. Martin, 2nd Section, 2nd Canadian D. A. C., B. E. F., France.

"Bill" Gardiner ('18) wrote recently from Cannon Falls, Minnesota. The following extract from his letter may be of interest to our readers:—

"We had a man at our Short Course by the name of Bowers '06 (O. A. C.) a native of Wellington County. He addressed the Farmers on Feeds and Feeding of Dairy Cattle, and is splendid. He lives on a farm about 36 miles south of here, but does a lot of institute work during the winter. He is enthusiastic and sounds practical. Will visit him on his 80 acre farm in the summer. Part of this could go to the Alumni editor (Chummy Bob Wade '06—please take note) is what was asked to be inserted when I mentioned writing to the alumni editor. Had to come half way across a continent to find out what Prof. Roberts pet name was. My Superintendent is a Canadian boy, but has been out here about twenty-five years. Lived a lot around Clinton. Taught school at Copper Cliff before crossing the border. Three Canadians piled into a sleigh and visited a nearby farm, and had a talk on Canadian affairs. Needless to say I was better posted as they have

been here so long that they have lost touch more or less.

Having a wonderfully open winter; haven't worn anything but a fedora hat yet, and didn't need it except one or two days.

Flue is again breaking out, but it is taking a milder form.

I am glad to hear so many of the boys are getting back. Very best of luck to my old friends of the O. A. C.

BILL.

Captain N. S. Golding ('14), who served with the 66th East Lancashires in France, is now commanding an agricultural school at Northcourt, France, for the 5th Army. On his staff are 30 Instructors, 10 Officers and 20 N. C. O's. There are 300 student soldiers who have some agricultural experience. Each day 50 students will be taken to nearby farms for judging purposes, and will also have the use of stock that the Government is sending over to replenish the losses in France and Belgium. As the course will continue till May Capt. Golding does not expect to leave the army until mid-summer. Mrs. Golding and her baby son are still in England.

F. A. W. Boyd, of Class '12, visited Guelph and the O.A.C. during the Xmas holidays. Boyd has been living in the West since he graduated, and has been engaged by the Canadian Pacific Railway Co. on horticultural work. He is now assistant to the C. P. R. Horticulturist, with headquarters at Wolseley, Sask., and is doing good work in tree planting and helping to beautify the Company's station grounds on the western lines. "Art." as he was known to his class mates, married a western girl about two and a half years ago, and has one fine husky boy.

"Archie" Campbell, of Class '09, left the Agricultural Branch of the C. P. R. about a year ago. He is now with a company of Hail Insurance Adjustors, with headquarters in Winnipeg. He has charge of the adjustment of hail insurance claims for the company throughout the West.

John G. Glavin is doing great work in Brimfield, Mass., as the following letter and extract from the "New England Homestead" will show:—

January 14th, 1919.

My dear "Cap."—I have intended writing to you a good many times since leaving Guelph, back to where my thoughts return in fond remembrances many and many a time, but I have written so many letters of a business nature and my work kept me so rushed that I put it off until to-day.

The line of work that I am in is very much after the nature of that practiced at Smith School, Northampton, only we are a department and not a separate school for agriculture.

When I graduated from the good old O.A.C. I never thought for an instant that I would enter this sort of work, but here I am going onto three years.

We have an enrollment of about fifteen boys (the state limit being not over twenty), and they take agriculture for half the school time for four years. I have two divisions and teach nothing but agriculture the whole time. The course is divided into four years, one division taking up the study of small animals, and the other division taking up the study of fruit growing. Next year one division will take up market gardening, while the other takes dairying or large animal study.

The students have home projects on the various subjects undertaken in the

school and I have to inspect these projects once a week. Then in the time outside of school work I act as a sort of district representative. It certainly keeps me busy and I only have off one month in the year. Since October of 1916 I have travelled over 30,000 miles on work.

When I came to Brimfield the school was certainly on its last legs, and the enrolment was 0 (none). Now we have about fifteen and the town wouldn't part with it for love or money. This has been brought about by the wonderful education given by the O. A. C. That is why Jerry is now up there. I told him that if he intended taking up the study of agriculture he would have to go to a school where you received knowledge in repay for your time and not hot air as handed out by some of the institutions down here.

Many and many a time at meetings I have been able to trip up a speaker in his flowery agricultural lecture due to the practical course given at Guelph.

You must remember how we hated the course given by good old John Evans, but I have one thing to say about that one study, I wouldn't part with the little knowledge I gained in that course for all the money I have received since my graduation. Our course here seemed to lack balance, and so I proposed to Mr. Rufus Stinson, our State Agent, to allow me to put on a farm shop course. He agreed and we are now running that course through and it is a huge success due to the words of wisdom taught by John Evans and his noble helper, Kendall.

The economic courses given by Prof. Howitt and Caesar in their subjects have been of vast help to both my school and representative work, simply because they were so thorough and practical. Even while hunting weed

seeds with "Icky" Wright I gained knowledge, if, none other than how to get an Englishman's "goat." You can tell Wright for me that I intend writing to him sometime now that I know that he is back at Guelph.

I thought that I was going to have the pleasure of visiting the old school again during December, but work piled up so high I really couldn't get away. I put my vacation off until later.

Remember me to all my old friends and let me know how the life still goes at the "good old school."

Sincerely yours,

JOHN G. GLAVIN.

(From the New England Homestead)

In Brimfield, Mass., is an institution which we ought to have many more of throughout our rural districts of New England. It is the Hitchcock Free Academy, formerly a public institution supported by private funds, but later taken over by the town as a high school. It still goes by the name of Hitchcock Academy, and the most novel and enterprising part of it is the agricultural course provided at the institution. It was some six years ago that the town voted to put in an agricultural department and hired an instructor. Things went well for a time, but later there was the customary criticism and arguments pro and con, so characteristic of our New England town meetings. The town supports the institution, but the state agrees to pay two-thirds of the instructor's salary. In the fall of 1916 the agricultural end of the school was having mighty tough sledding, and quite a few considered that the \$700 which the town appropriated was being thrown away, and the experiment should be discontinued.

At this point, John G. Glavin came

to the school as instructor, where he found only four boys registered up in the agricultural course. He took off his coat and went to work, and ever since then has been demonstrating the untold value such an institution may prove to the community. In a way, his work is much like that of the county agent, being the "teacher, friend and guide" of the farmers. However, there is this important distinction, that being a restricted territory or a single community, he comes in much closer contact and gives more personal assistance to the farmers than the county agent possibly can give in his larger field. Mr. Glavin has responded to many midnight calls to doctor a sick horse, cow or pig, and to visit some farmer, even on Sunday, to advise him on some knotty problem.

On the other hand, it is not with the adults that the institution is primarily concerned. It is more interested in the young folks. That Mr. Glavin is headed in the right direction in this connection is proved by the fact that this fall he started out with 13 boys, which is considered good, when one remembers how things were disturbed by the draft and the war. The essential part of the agricultural course at the academy is what is known as project work. This means that each boy or girl must have some special line of work at home which he will take care of, just as if his bread and butter depended upon it. It may be sheep, hogs, poultry, cows, bees, crops, vegetable garden, or fruit.

In all of this work Mr. Glavin makes it a point to be with his boys and see that they have the necessary information and inspiration for the project in hand. Whereas two or three years ago the agricultural course at the academy was a joke, it is now looked upon as

the real thing, and there is promise of even better days ahead. It is certain that it is a vital part of community life and an admirable supplement to the work which the county farm bureau and agricultural college is trying to carry on.

Last fall there was a big meeting of vocational directors at Brimfield, and one of them who is familiar with state-wide conditions, was very enthusiastic about the work being done by the boys. He declared that the potato project of Green and Russell was the best field of potatoes he had seen in the state during the year. Mr. Stimson, representing the state department of education, pointed out that Mr. Glavin's successful co-operation with the farmers should not be overlooked, and that it was a very fine addition to what he is doing for the boys.

That Brimfield is again renewing its confidence in the academy was shown at the last town meeting when funds were appropriated for the work. Some who had formerly been most strenuous in opposition, spoke in hearty favor of continuing and further improving the agricultural department. Much credit is due Mr. Glavin for his practical, untiring and effective work. Also credit is due to the community itself for taking the advanced position it does. The Homestead suspects further developments will be seen at the town meeting to be held shortly. There is reason to believe that Brimfield is entirely out of the old ruts of deadening, demoralizing conservatism and will continue to go ahead in a broad way, setting an example for other towns to emulate.

DEATHS

The death of J. W. Stark '14, representative of the Ontario Department

of Agriculture at Brampton, has cast a gloom over Peel county and his friends everywhere. A young man of vision, imagination and keen executive ability, he was a general favorite with the farmers and young people throughout the district, and there are a few homes in the county that have not felt the influence of his work.

He was carrying on a short course in agriculture with the young people at Palgrave when he was taken ill with pneumonia; after a three-weeks' illness he died at Brampton on Saturday evening. To the last day he took a keen interest in and gave directions for carrying on the work he had begun.

Mr. Stark was only in his twenty-eighth year, but he had accomplished quite enough for a full three-score and ten. He was gifted with indomitable perseverance and courage; if a cause was good it didn't matter whether it was popular or not—he set to work to make it popular and had a remarkable way of communicating his enthusiasm to others. These qualities had made him a leader in some important movements for rural Ontario. He was particularly interested in health problems in the country. Last spring he led a campaign for medical inspection and clinics for all the schools in the county. This fall he arranged a dental clinic and during the summer a Baby Welfare Week. He secured for the county the first rural school nurse in Canada and had plans under way for the appointment of a public health nurse. He was also responsible for pioneering home demonstration work in Canada, having prevailed on the department to let a home demonstrator commence work in Peel last spring.

His greatest influence, however, has possibly been through his daily con-

tact with people. An idealist who could make his ideals real, a dreamer with keen business ability and executive, a live sense of humor mixed with an unusual seriousness, a sincerity that won everyone's confidence and a kindness that held it, and an ambition for service which drew too heavily on an energy that would not save itself—he will not soon be forgotten.



W. H. Scott, B. S. A.

Death of W. H. Scott

The death of W. H. Scott, B. S. A., from pneumonia, following an attack of influenza, removes from our midst one of the best friends that the College has ever had. On the staff of the Physics Department, Scott was a most

ardent worker and a most helpful teacher. In him both faculty and students have lost a true friend. Our readers all join us in extending our heartfelt sympathy to Mrs. Scott and to his bereaved parents.

To our ex-students and other readers we extend our sincere appreciation of the manner in which they have supported us in our decision to raise the price of the "Review" to one dollar. In renewing their subscription many have added encouraging words and paid us high compliments. In regard to the increased price the following remarks are taken from scores of a similar nature: "We would not be without the "Review" at four times the price." "It is worth a dollar to any one, especially those who know the College." "The price should have been a dollar long ago." "We can't see how you have managed to finance the "Review at 50c per year." "We are not going to discontinue taking the "Review" because the price has gone up." "Your editors deserve the highest praise for keeping the "Review" up to so high a standard." "The Christmas number alone was worth the money." "I am sending you \$5.00 to square my subscription for five years—keep her coming." "I have never missed a copy of the "Review" since 1902, and I do not intend to as it maintains its present high standard." "I want the "Review," here is your dollar." Only one subscriber refused on account of the increased rate.

A few have not yet replied at all and to those we would be grateful for a word at the earliest possible time, even if it is to ask us to remove their names from our lists.—Ed.

The March into Germany.

We are very pleased to be able to introduce to our readers the first of a series of articles from the pen of Captain George Spencer on the victorious march of the Canadians into Germany. Capt. Spencer depicts most vividly the condition of the country resulting from German occupation, and we feel sure that his narrative will be followed with very great interest by all our readers. Further instalments of Capt. Spencer's story will appear in the April and May issues of the Review.

SEEING that "these be stirring times" and that vast bits of history have been made in the last few months, and especially in the last few weeks, it occurred to me that some of the good folks at home might care to know about it from at least one man's standpoint, and as I cannot write all the letters I'd like to, or a fraction of those I owe, I thought I'd write to you and ask you to put any parts of this letter you might think suitable in the Review.

Practically all whom I know see the Review, and some of them might be interested in the screed or relays thereof, because I intend to describe in series, the stages of our marches to Germany. Several times the Review has been handed round from one unit to another over here—only about two months ago the artillery furnished me with a copy because mine hadn't turned up. The Canadian Corps seems sown with O. A. C. men—quite often I have been greeted by boys who recognize me, but whom I did not always remember.

It is good to be alive during these times. Quite often I have been decidedly pleased with myself for finding that I wasn't dead after some choice bit of Fritz's strafe—but it is a sort of glowing that fills one now.

I consider that the beginning of our

march to Germany begins with our carefully concealed night ride on old London buses to take part in the battle of Amiens. We had been out of the line for about three weeks training in open warfare. Everyone was feeling very fit and clean, and we considered it high time to move somewhere else as the supply of vin blanc (vin blanc) had been consumed. We travelled from the vicinity of Arras, to near Amiens, marching from there by night stages, to the jumping-off positions. An indescribable feeling of excitement filled all ranks, and in the short time I have been in France, I have never known such cheerfulness. It was extraordinary seeing that in a few hours the show was to start. You have read how the artillery was concealed quite close to the line, and as soon as the barrage had lifted once or twice, they hitched up and pulled ahead. The wounded were happy—the prisoners, on the whole, were happy. It was a clean satisfactory battle, with a few dark, sad spots.

We returned from that region as we had come, by bus—everybody happy, everybody singing. Now and then the thought would recur of those whom we had left behind, but on the whole the morale of the troops was fine. To mention one little incident, I was going up a short while after the show began, to our new H. Q. and the

wounded were coming back hobbling, being helped by our men or carried by prisoners. Suddenly I heard a howl of "Mr. Spencer" and saw a young windmill sitting up on a stretcher, which four huskies were trying to keep steady. It was one of my scouts in the old '18th, who shouted out, "I've got a beauty—two machine bullets in the thigh." and when I came within speaking distance he told me all about it. The expression on the face of the stretch bearers was as if to say: "Sit still, you're rocking the boat," because my one-time scout was waving his arms and cheering.

Another point—don't tell me that the Scotch are humorous. In the last stages of the Amien's show I heard some extra loud reports from guns behind me, so on my way out I called in to see what calibre pop-gun was producing the noise and found two 12-inch howitzers sitting innocently among the trees of a small apple orchard. They had just finished firing, but the officer in charge, a very tall thin Scotchman, was very sociable and invited me to come around later in the day when they would be firing again. A 12-inch shell is about 4 feet long, and weighs 750 lbs. Putting my foot on one of them I said, "wouldn't that baby give you a headache if it was to fall on you." And my gaunt Scotchman said very seriously, "Man, it would do more than give you a headache, it would kill you." After due reflection, I have come to the conclusion that it would.

After a short interval for reorganization and a rest of 3 or 4 days, the battle was begun for the clearing of Arras. of which the breaking of the Droocourt-Queant line was a part. We had tough times in this series of battles and suffered some very heavy casual-

ties through machine-gun fire. The trench systems extend for miles and miles in depth in this region, and the going was slow. One has only to go over the old line to wonder how on earth anyone ever took it from an enemy with any stuffing in him. Fritz had the stuffing all right. His line looked down on us from the upper side of a long valley, through which a stream flowed, and very often forgot to flow so that the place was a marsh. His barbed wire belts resemble 30 foot black ribbons in parallel across the country, and the high bank he held was crowned with a continuous line of concrete posts of from 6 to 8 feet in thickness, very often connected by concrete passages. Of course the pill boxes were sunk below the earth and completely covered or camouflaged, and the capacity was limited generally to 2 or 3 men and a machine gun. The utter desolation of huge shell holes, torn barbed wire, bleached skulls and bones from old battles, extend to any considerable depth on each side of the front lines. Two weeks after the line had been taken, I happened to pass over the lines several times, examining enemy gas shells in his old pits, and the partridges seemed to have found the area a very happy hunting ground. for I put up covey after covey every few hundred yards. One covey consisted of 33 birds, and I longed for a shot gun.

The old battle areas now overgrown with dense grass, afford perfect cover to the millions of field mice which breed therein, and I fear they will become a serious problem to agriculture when the peasants return to try and cultivate the less torn-up fields, as they are bound to do. Every battalion transport boasts or bemoans a pack of dogs, generally very variegated mong-

rels, and the pack attached to our brigade used to spend most of the day during October, catching mice, which they swallowed with barely enough chewing to kill the little brutes. One dog in particular was very quick, and also very intelligent. Whenever she turned up at our meal hours, her master would say, "go and forage, don't come begging here," and out would go Bess. To be found, when one came out of the punk-hole that answered for a mess, busily engaged in hunting mice. She was so quick that she would sometimes be able to snatch mice from the other dogs' jaws before they could swallow them.

All this is rather a long preface to our march into Germany, but I'm getting there. After the breaking of the Droocourt Queant line there were three distinct pauses before the final breakdown of the enemy's resistance. We were just held up in front of Cherisy where some of our battalions suffered cruelly because we had outstripped our organization; then a more distinct halt in front of the Buissy-Baralle valley, where the canal proved a very tough proposition, and thirdly, in front of Cambrai. It was during the Buissy-Baralle pause, that the incident occurred of "the Corporal of Moeuvres"—when a corporal and six men of the —th Regiment, Highlanders, were isolated, but would not surrender. Our men counter-attacked two days afterwards and relieved the Scotchman who has since been given the V. C. for the deed. Moeuvres is a short distance south of the B. B. valley.

The stroke which won us the canal and Bourton Wood, the key to Cambrai, was indeed well planned and carried out. Our engineers had their pontoons in the water, right under the enemy's nose, but so well camouflaged

that he even didn't suspect them. The pontoons were for field guns to cross, and the engineers had a bridge over the 50 to 70 foot strip of canal within 15 minutes after zero hour—a bridge to take guns and light lorries—the infantry crossing on duck mats tied on huge cork floats. These cork floats were also utilized for crossing the canal a bit later, in front of Cambrai. Bourton Wood is well named the "Key to Cambrai," as it overlooks that town and the country for miles behind, and on each side of it, besides giving a perfect view of our side of the lines. The wood still contains scars of the November, 1917, battle of Cambrai. One afternoon I walked all through it, coming across several dead tanks of '17, and out to the other side, to find a large group of officers intently watching a battle to the south of Cambrai, the battle that enabled the Canadians to take the place a few hours afterwards. One could see the show for miles, away towards Le Cateau, with the church spires and very often the houses of many little villages in between. This show left Cambrai in a critical salient, and the 2nd Canadian Division attacking at 1.30 a.m. next morning, October 9th, in pitch darkness, met with but little opposition over ground which the 4th Division had paid heavily some days before, in trying to take. The 3rd Division went through the town, and met only a few Germans who put up little or no fight.

After Cambrai, the battle front moved very swiftly to the end. Before I go any further, let me tell you what I personally saw in Cambrai—and of the place before it was taken. For a week before its fall, dense clouds of smoke rose all day out of the town, and at night you could locate it instantly by the glow in the sky. We shelled

it ourselves, we had to, because the boche had his outposts in the edge of the town. And one now can see the effects of our shells on the eastern edges, and on the largest church, and our shrapnel cases here and there through the streets. I think the shrapnel was fired in the final barrage. That's on the east side only. But one can see the bursts of his shells all through the town, east and west, and frankly, I think they outnumbered ours. I try to be fair in this respect, because soon I am going to condemn him utterly. The day the town was captured I passed through it and 2 days later, I spent a whole afternoon in inspecting it. The second time I found the Grand Place still smouldering, and utterly in ruins. The condition of the place and of the buildings bordering it explain the numerous explosions we had heard for several days before, because it had obviously been blown up with a thoroughness entirely boche in its stupidity. The little cathedral—not so very little either—has suffered more from our shells than from his, I think, because we feared he was using it for an O. P.—Observation Post. The front of the Hotel de Ville is properly plastered with shell splinter marks and the carvings in stone which face it, are badly smashed. In one of the large doorways leading into the hotel court I found great bundles of cylindrical-stick bombs tied together, without the sticks, and one detonator to each bundle, the whole taking the place of mobile charges. Further on one could see the bundles of candle sticks which had been tied together before removal, after being taken from a church near by. He did not have time to cart them away. But he did have time to be entirely himself—and he did it very thoroughly—a little fur-

ther on. Street after street of big houses had been germanised — the houses each side of the street had been carefully entered and the contents smashed up as with a pick. In one house the pick-axe was still there. Such a sad spectacle—huge mirrors crashed in or pierced by revolver bullets—all the furniture deliberately smashed, upholstered chairs ripped open and the stuffing thrown around, china in small pieces littered the floors, clocks broken open, broken ornaments everywhere, beautifully carved sideboards or mantle-pieces smashed, broken glass everywhere. Beds had been robbed of their mattresses and where these had proved of feathers rather than of the wool the huns need badly, they had been ripped open and strewn over the floors. Many of the large front rooms had been filthied as if by brute beasts. In houses where he had evidently not had time to do all this, he seems to have pulled the string of a cylindrical-stick bomb and pushed it through the windows or doors, and when the bombs exploded, everything in the room fell inwards and downwards, and the doors and windows, outwards. The destruction was absolute, and it was wanton. Not only this, but the houses had previously been robbed of those pieces of furniture which the huns could remove, or especially fancied. This is proved by a notice our interpreter found on a furniture depot, which stated that this was a "loot dump," to which all furniture had to be taken in order to have it properly sent to Germany. The furniture was to be sold after the war, at a trifling cost, to the soldiers' families in order to set them up again. (This is fully borne out by the statements I have since heard from the inhabitants of every town or vil-

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SICKROOM COOKERY

We may live without poetry, music and art,

We may live without conscience, and live without heart.

We may live without friends, we may live without books,

But civilized man, cannot live without cooks.

Dr. Oliver Wendell Holmes said: "I can count on the fingers of one hand the drugs commonly used by the general practitioner nowadays." Drugs are used at the present time, to a much less extent, and are administered in smaller doses than ever before. The study of foods and their effect on the individual is as important as the study of drugs, and should concern both the nurse in training and the housekeeper.

What is food? A food is anything which when taken into the body is capable either of repairing its waste, or of furnishing it with material from which to produce heat or nervous and muscular work. The protein foods, such as eggs, meat, cheese, dried peas and beans, together with milk and some of the cereals which contain a rather small percentage of protein, furnish the material needed to repair waste, and build up the body. The material that provides heat, and enables man to perform muscular and nervous work, is furnished by the fats, and by the foods containing a large percentage of starch or sugar.

Difficult as it is to select a dietary

for the well, it is even more difficult to decide upon the proper articles of food for the sick or convalescent. An invalid diet should be modified by the nature of the disease, hence it needs to be carefully studied. A patient, recovering from illness, is often in so weak and precarious a condition, that the slightest indiscretion in diet may put off the day of recovery, or even prove fatal. What then is sick room cookery? It is the art of preparing in the most easily digestible form, food for the nourishment of the human body. Florence Nightingale said: "A good sick cook will save the digestion half its work." Hence we may infer that one of the principles of invalid cookery is to furnish food in the form best adapted to relieve the digestive organs of unnecessary labor, while still maintaining nutrition.

There are two distinct diets included in sick room cookery. The liquid diet, which is used in all fever cases, and the soft diet, which is better adapted for convalescents. Unless the liquid diet is carefully planned, it is apt to grow monotonous, and rather tasteless. Milk is the simplest, most accessible, and most nutritious of fluid foods, and should form the basis of liquid dietaries. It may be served plain, or flavored with cocoa, caramel, etc., or combined with other foods as in egg nog, and albumenized milk, or in the form of gruels. Beef tea and acid drinks help to furnish a variety which leaves

no excuse for sameness in a liquid diet. The soft diets include junkets, jellies, milk or cream toast, soft cooked eggs, custards, broths, cream soups, ice cream and either baked or steamed soft puddings. Meat, vegetable pulp, raw fruit, and all fried foods should be avoided in a soft diet.

Dainty serving of food is intimately connected with dainty cookery. It is the climax of the art of cookery. Attractive dishes need not be expensive; they require a little extra effort, and some thought, but the results are well worth while. In invalid cookery we must appeal to the sense of sight, primarily to stimulate the appetite. We should also consider the patient's powers of digestion, and his individual tastes. The nutritive value, and when necessary, the economy of the food served, are items of importance. Too much care cannot be bestowed on the preparation of the invalid's tray. Dainty china, silver and glassware, combined with immaculate table linen, both stimulate the appetite, and aid the digestion. Successful cookery for the sick room, aside from the actual process of cooking the food, involves thought, careful planning and interest, on the part of the cook.

B. S.

MISS ROBERTA MACADAMS

On Wednesday afternoon, January 29th, the students met in the Assembly Hall of the Institute to enjoy the privilege of a talk from Miss Roberta MacAdams, a Macdonald graduate, and the first woman in Canada to be elected to the Legislature. Miss MacAdams had just returned from England, where she had been dietitian of the Ontario Hospital, Orpington, and more recently in charge of the clerical force in the Khaki University.

Miss MacAdams first informed her audience that she was no speechmaker. In fact she was notorious for her abstinence from speechmaking, and to that she largely contributed her election. An Alberta newspaper had referred to her as "the least obtrusive of the candidates." She was, however, glad to speak to the girls who were for a time staying at Macdonald, because she herself had for a time stayed there. Wherever she went, she met Macdonald girls, teaching, filling various positions of usefulness, and above all working quietly in the home. Many Macdonald girls had done remarkable work overseas during the war. She had met a former classmate in London, who was acting as investigator for the Pensions Board, travelling all over England and Wales, and, where any difficulty or problem arose, visiting the women in their homes where she was always well received. Another Macdonald graduate was superintending a branch of the Khaki University, which was holding classes for English girls who had married or expected to marry Canadian soldiers, and was teaching them how to keep house under Canadian conditions, more especially rural conditions. These English women would doubtless bring much that the women of this land might profitably accept, and they must be well received, but they would have to learn much in order to become Canadians, as conditions in the two countries differed so widely. They were very anxious to learn, especially such household industries as dairying, bee-keeping and poultry raising.

Miss MacAdams said that the most remarkable thing which had happened in Canada while she was overseas, was the granting of the franchise to women. Whether all women approved

of it or not (and she herself had not always been specially anxious for it), the franchise had come. Whether the responsibility was welcome or not, it must be met. No women ever had such a responsibility. Although the franchise had been partly extended to women in Britain, the situation there was very different. Customs had crystallized. People there spoke of "reconstruction" involving demolition. But Canada was a young country with everything to hope for the future. The patriotism of Canadians lay largely in dreams and ambitions. While that of Britain was bound up in history and tradition, and fostered by the village church with its peal of bells, and the stately, ancient homes, that of Canada was not so much concerned with material things, but was rather a seeking after ideal citizenship, and had tremendous possibilities. The country was still sparsely settled; educational schemes had not crystallized. The women of Britain were not responsible for the economic conditions of their land, but if in 50 or 100 years Canada was not the best country in the world, it would be the fault of the women as well as the men.

All the machinery of citizenship lay right to hand at Macdonald Institute. By deep thinking and deep reading the students must prepare themselves to do their part. They could not deal successfully with municipal affairs unless they understood provincial affairs, or with provincial affairs unless they understood national affairs, and so on up to affairs of the Empire, and of the world. Canada looked to her women to keep their heads, to keep their balance, to help to procure and preserve an educated democracy. A democracy must be educated. An autocracy was infinitely better unless the people were

fit to be entrusted with power. If Macdonald students refused to take up this responsibility, it would devolve upon others, possibly less fit to handle it. In the near future they would find themselves responsible for the life and health and education of little children. It would be their business to see that the laws were rightly framed. Social legislation was distinctly woman's sphere—legislation bearing upon hygiene, housing, health, education, the care of the sick and poor, factories, and all things that affected women and children. Every woman everywhere should be concerned about these things, and no women in the world had such opportunities for preparation as Macdonald students, who were studying economics in such practical ways. Canada was fortunate in having such a large body of healthy, sturdy, clear-minded women turned out from the Institute every year, going out to contribute, consciously or not, their share in the great work.

Miss MacAdams concluded by quoting the words of an Englishman she had met. He said he had great faith in the future of Canada because it depended upon her women. He had met many of them during the war and had found that they were steady headed, practical and capable, and did not lose their humanity and commonsense.

She thought that if that man could visit Macdonald he would have unbounded faith in the future of Canada.

Miss Watson said that Miss MacAdams had been too modest to speak of her own achievements. She had accepted the responsibility of representing the soldiers of Alberta in the Provincial Legislature. Miss Watson wondered how many of the group of girls before her would attain to similar positions. Their work for the present

was to get ready. Miss MacAdams had been very kind in delaying her journey to speak to the students on her way to her job in the West.

A hearty outburst of applause showed how much this kindness was appreciated.

SHORT COURSE INITIATION

Thursday, January 30th, dawned bright and fair for all Mac. girls, except the short course students. Their terrified, haunted and almost pleading expression told its own tale, namely, that at 6.30 that fateful night was the trial of these young aristocrats by their superiors, the Homemakers.

As the weary day dragged on, the anxious culprits sought, bought or got the necessary garments for their attire, and at 6.30 sharp, all were huddled around the well awaiting sentence.

A motley crowd indeed it was! There were the old and decrepit and the very young, there were opera singers and ballet dancers, tramps and dudes, maiden ladies with coquettish side curls and sportive swimming girls, all regardless of age or rank were driven, pushed or dragged to the Revolutionary Tribunal in the gym. There, the judge enumerated their crimes, and punishment was meted out by the blood-smeared Revolutionists. When the Mac Hall pennant had been kissed by the criminals, they were duly rushed to the guillotine for final punishment.

When this brief but dreadful reign of terror was over, the gym rang with three hearty cheers for the short course students by the Homemakers. Finally ice cream cones were served and a social time ensued, which broke down any barrier which might exist between old and new students.

M. R.

ATHLETICS

Two very exciting basket-ball matches have been played in the gym this term. The first on the evening of January 21st, resulted in the defeat of the Mac. Hall Seniors by the G. C. I. team with a score 11-9. This game was marked by entirely good playing on the part of both teams, the combination of the Mac. team being particularly noticeable.

The second match, on Tuesday, January 28th, between the Junior Mac. team and G. C. I. ended with a score of 9-7 in favor of Macdonald. The scoring of the Hall forward was the feature of the evening. Both games were witnessed by an unusually large number of enthusiasts.

What proved to be the most amusing game of the season was played in the arena on Tuesday afternoon, February 11th, between Second Year and Mac. Hall. The men hampered by the longest and tightest skirts procurable, played with their left hands, holding their right hands behind their backs. Mr. Moffat refereed in a capable manner, penalizing often, for there were many offenders against the rigid rule agreed upon. What the men lacked in speed they made up in "style" and "grace in falling," and at full time the score was still tied at 1-1.

SUNDAY MORNING

Ida—"Where is Harley now? I never see him around."

Billy—"Why, we had him for breakfast this morning."

Junior (after watching Senior run after car)—"Are you trying to catch the car?"

Senior (witheringly)—"Oh, no, dear! I'm merely chasing it off our campus."

A venerable senior found a card attached to her door one evening, with a chicken bone tied on to it, and bearing this mysterious inscription: "To be used for reconstruction work. Subscriptions thankfully received within."

Little Girl—"I wish some one would explain to me about averages."

Mother—"What is it you want to know dear?"

Little Girl—"Well, I read that a hen lays on an average, and last night when the professor was talking to Daddy, he said 'These averages are awfully dangerous things.' I want to know why they don't give the hens something safe to lay on. They must get a lot of eggs broken."

On Saturday, February 6th, the girls of Mac. Hall invited the O. A. C. students to an afternoon tea after skating. The guests were received by Mrs. Fuller and Miss Falconbridge. At a table set up under the central staircase, Miss Lewis and Miss Fouché poured tea. Bright fires burned in the drawing-room and library, and diffused not only warmth but also a cosy, home-like atmosphere. When the rattle of the tea cups died down, there was a general migration to the gym where an impromptu dance filled up the half hour before supper.

Winifred (entering Massey Hall on Sunday afternoon) — "Oh, goodness! Just smell the canned sanctity!"

COMPARING EXAMINATION REPORTS

1st Junior—"I thought your average would have been higher; you did well on all papers, didn't you?"

2nd Junior—"I'm sure I did well on the cooking paper. When I launched out into the water I got on swimming-

ly. It was my Undergarments that pulled me down!"

Y. W. C. A. NOTICES.

On the evening of January 29th Dr. Ross gave a report of the Social Welfare Convention held in Toronto. All were impressed with the fact that it is the duty of every one to care for their own health, and by so doing influence the general health of those with whom they are constantly coming in contact. Each one present felt that on leaving Mac. Hall their duty would be to carry on the social uplift work in the community in which they labored. The Glee Club favored the meeting with a selection which was much enjoyed by all.

We were very fortunate in being able to have Mrs. Brown, a Missionary on furlough from China, to address us on January 26th. Mrs. Brown is an old Mac. girl, and was here taking the Bee Course. In view of the forthcoming Y. W. C. A. campaign, Mrs. Brown laid emphasis in her remarks on the wide field of service which is opening in China for trained women. The Chinese women are very anxious to learn Western ways of housekeeping, and of caring for their children; they see the good that the Y. M. C. A. is doing and wish to have similar buildings and teachers for themselves. The opportunity, as outlined by Mrs. Brown, seemed to be a very attractive one, and it may be that some of the girls now at Macdonald will find their life-work in China.

On February 16th we had a return visit from Mrs. Crowe of Guelph. Since Mrs. Crowe last spoke to us she had the distinction of being the only woman elected as a member of the School Board. Mrs. Crowe told us

about her work on the Board, showing us that there are many things in connection with a school which are easily dealt with by a woman, and which a man would perhaps not notice, nor know how to remedy.

Mrs. Crowe also told us of her visit to the Council of Women's Institutes in Toronto, and especially of the work which is being planned for the Community Canning Kitchens, which have done such good work for the Red Cross. There seems to be a great future for these kitchens, and when they are once established and running smoothly they will considerably lighten the heavy work of canning, which comes at the season of the year when the housewife is least able to cope with the extra work.

The Y. W. C. A. campaign had for its aim the raising of enough money to send a Y. W. Secretary to Hong Kong, China. In order that the members should realize the need more fully, Mrs. Eddy, of New York, who has been a missionary worker in Hong Kong, came to Canada to tell of conditions over there, and how we as Canadians, can improve them. Our Y. W. was most favored in having her to speak to us on Saturday evening, February 8th. The assembly room in Macdonald Institute, where the meeting was held, was well filled, showing the interest of the students and many outsiders who were present. Mrs. Eddy was a most pleasing speaker and in the short time at her disposal she told much of the beauty of Hong Kong, as well as of its commercial and industrial life. It was amazing to hear of the monotonous and tiresome lives which the women of China endure, but we were glad when she told us of the great work that the Y. W. C. A. in China has done

for the education and uplifting of her women to lives of service. Her appeal was so strong that those to whom she spoke felt that her heart was truly in the work and the need was very great.

Miss Hammill, the student secretary, also addressed the meeting, telling us how other colleges had more than reached their objective, which gave us encouragement to exceed our objective of \$400. The campaign closed February 11th with \$435 donated to the Y. W. C. A. work in Hong Kong.

DR. GATES' LECTURE

While the Short Course in Bee Keeping was in progress, Dr. Gates gave a lecture in the assembly room of Macdonald Institute, upon honey and its uses. Mrs. Gates had prepared several samples of orange marmalade and apple and pine-apple jellies, using honey to replace sugar partly and entirely, and these were not only on view, but were circulated throughout the audience to be tasted. Miss Purdie sent two loaves of bread in one of which she had substituted honey for sugar. Thus there was concrete evidence of the practical value of the suggestions of the lecturer.

Dr. Gates explained that honey, being composed of equal parts of dextrose and levulose sugars, was more digestible than cane sugar, which must be split up into these during the digestive process before it could be assimilated. It was not to be considered an exact substitute for cane sugar, but rather a different food valuable for its wholesomeness and variety. He recommended sandwiches made of crystallized honey as being very suitable for school lunches. Honey could be used for sweetening beverages as well as for preserves, and he considered that bread, especially the crust, was im-

proved by the use of honey instead of sugar. Its food value was very high, one tablespoonful yielding 100 calories.

The following is a reproduction of one of the leaflets which were distributed:—

Suggestions for the Use of Honey in Preserving Fruit.

Bee-Keeping Department, Ont. Agricultural College.

For sugar, it is possible to substitute honey in preserving fruit. The amount used may be varied from 25% to 100% by measures or volume, of the amount of sugar specified in rules for preserves.

The delicately favored honeys of light color give the most satisfactory results. The darker honeys, however, may be used in preserves, which naturally possess a dull or dark color; jams for instance, may be made with a dark honey. Honeys which possess a pronounced flavor should be used with discretion. With a little experimentation, a pleasing blend of the fruit flavor and characteristic honey flavor may be made; as for instance the cinnamon-flavored, sweet-clover honey may be used in preserves, in which the spiciness of the honey combines suitably with the fruit flavor—for example, grapes or currant products. Buckwheat honey is less suitable for preserves than for mixtures like dark spice cake and cookies.

Use extracted honey, thoroughly strained, and made free from all foreign particles as bits of comb, pollen and the like. If it is candied or crystallized in a uniformly solid mass, it is not necessary to liquify it, but care must be taken to dissolve the honey-mass by thoroughly stirring it with the hot fruit material, before the kettle is returned to the fire for its final cooking. There is great danger of scorching or caramelizing the honey. This

changes its delicate flavor to varying degrees of bitterness. When extracted honey was crystallized and is made up of both crystals and liquid, it may be liquified by placing the contained on a trivet or support in a utensil which contains warm water (about 130 degrees Fahr.) Maintain this temperature until the honey is perfectly clear. Avoid a temperature higher than 160 degrees Fahr.

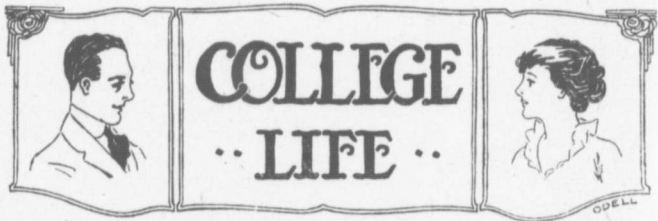
Canning—In canning pears, peaches, apples, berries, etc., use the same amount of honey by measure as would be used of sugar, or use half honey and half sugar.

Preserves—In using a more concentrated Syrup cook the fruit about ten minutes in a thin syrup made from the required amount of water and one-half of the honey, then add the remainder of the honey and continue cooking until the fruit is tender.

Jams—Allow $\frac{3}{4}$ of a cupful of crushed fruit. Add one-half of the honey to the fruit, stir it thoroughly and allow it to stand for one hour. Cook it slowly at first, let it boil for 10 minutes, then add the remainder of the honey and cook the jam until it is of the desired consistency.

Jellies—Allow $\frac{3}{4}$ of a cupful of honey to one cupful of juice from currants, apples or quinces. When other fruit juices are used it is advisable to use one-half honey and one-half sugar. If sugar is used add it at the usual time. When the mixture boils, add the honey, taking great care to stir it thoroughly. Then proceed as usual.

NOTE—It will be noticed that a slightly longer time is required to reach the required jam and jelly "tests" when honey alone is used. Also, the bulk of the finished product is greater when honey is used than when sugar alone is used.



YEAR '20 VALENTINE DANCE

Successful college events are the general rule when the O.A.C. and Macdonald Hall are concerned, but successful is a word with hardly enough emphasis and a little overworked in regard to college events in general to be used a suitable term to describe the Year '20 Valentine Dance, which was held in Macdonald Hall on the night of February 14th.

From every standpoint it was the finest thing of its kind that the college has attempted and carried out since before the war, and Year '20 might justly feel a little conceit upon the result of their efforts and the almost perfect arrangements for the enjoyment and convenience of their guests.

The dance resembled in a great measure the conversation of a few years ago, when Faculty, ex-students and students met for the real college event of the year.

The guests, numbering almost six hundred, were received in the Macdonald Hall drawing room by Dr. and Mrs. Creelman. The guests included, besides the Faculty and regular students, many ex-students, and others from Ottawa, Toronto, London, Brantford, Hamilton and other Ontario centres.

The Hall was decorated with skill and good taste. The softened lights of the corridors and dancing floors, the

sprinkling of hearts and cupids, and the general scheme of decorations gave an effect which admirably suited the Valentine occasion, and which reflected great credit on the committee in charge.

Cronk's orchestra of Guelph played in the gymnasium, and Howard's orchestra of Galt supplied the music in the dining room. The dreamy waltzes and the thrilling one-steps and fox-trots rendered were all that could be desired in time and melody. After every dance repeated encores were called for, to which the orchestras responded with the best of good nature.

A very dainty supper was served on small, tastily decorated tables on the third floor, from the ninth to the twelfth dances.

Suitable rendezvous where the dancers met their partners were provided on both first and second floors, and those who used these as it was intended they should, found no confusion in securing their partners.

The flowers and other decorations, the softened lights, the wonderful music, the delightful cosy corners, the excellent dancing floors, and the lovely ladies, beautifully gowned, combined in making a true Valentine spirit which reigned throughout the whole evening.

Dr. Stevenson, the Honorary President of the Year, Mrs. Stevenson, Mrs. Fuller and Miss Falconbridge, the

House President, assisted in the reception of the guests, and very materially aided the Committee in their dance preparations.

The programme consisted of twenty regular dances with six extras.

The following members of Year '20 and Maedonald Hall composed the committee: Mr. A. M. Porter, chairman, Misses Chase, English, Fellows, Ferguson, Hyde, Masuret and Murray, and Messrs. W. L. Currier, N. Curtis, W. A. Fleming, G. B. Hood, W. Hopper, A. W. Mead and B. F. Tinney.

COSMOPOLITAN CLUB TEA

On Saturday, February 1st, the Cosmopolitan Club was the scene of an informal party, when the Club members entertained the girls of the Hall to an afternoon tea. Mrs. Fuller, ably assisted by Mrs. Creelman, poured tea, while the officers of the club officiated in passing sandwiches and cake. Dr. Creelman showed his usual interest in the Club by being present and entering into the jolly spirit of the afternoon. The event was preceded by a pleasant afternoon on the college rink, which made the dainties served all the more acceptable. Mr. Ross Higgins, accompanied by Miss Aitken, rendered a very fine solo. The tea was a complete success, and it is the desire of all that there may be a repetition in the near future.

The second last meeting of the Union Literary Society was held in Massey Hall, on the evening of Monday, February 10th. A large and appreciative audience was in attendance.

The final debate of the inter-year series was the featuring item of the programme, the subject being: "Resolved, that the Legislature adopt a

system of consolidation of all Rural Schools in Older Ontario." Messrs. W. C. Caldwell and R. E. Begg represented the Senior Year in supporting the affirmative, while Messrs. C. M. Ferguson and R. Jukes of the Sophomore Class supported the negative. Messrs. G. H. Unwin, B. S. A., Justus Miller, B. S. A., and A. Day, B. S. A., judged the debate. Mr. Unwin acted as critic, and gave the judges' decision. The Sophomore team won by a fractional margin.

Much credit is due to the Society Executive in securing the following programme:—

1. Piano Solo—Mr. Lucas.
2. Vocal Solo—Mr. Howarth.
3. Piano Solo—Miss Watt.
4. Vocal Solo—Miss Ferguson.
5. Vocal Solo—Mr. Connor.

With Miss Leaming at the piano, the meeting closed by the singing of "God Save the King."

THE LIVE STOCK CLUB HAS ACHIEVED A GREAT DEAL THIS WINTER.

On the past few Saturday afternoons judging competitions in the different classes of cattle, sheep and swine have been held under the auspices of the Animal Husbandry Club. Only the first, second and third years were allowed to compete. The three high men in each competition were presented with suitable ribbons. The highest man in each contest was also given a book on live stock.

The competitors were allowed eighteen minutes to place each class, and then give their reasons orally to a committee chosen from the judging team which represented the College at Chicago.

It has been very gratifying for the executive of the club to notice the keen interest shown by members of the various years.

The result of the beef judging was as follows:—

1. S. W. King '20, with 223 points.
2. J. J. E. McCague '21, with 214 points.
4. J. W. Dyer '22, with 203 points.
1. Year '21, with 896 points.
2. Year '20, with 886 points.
3. Year '22, with 796 points.

Prof. Toole presented the prizes to the winners on the same evening at the Union Literary meeting.

The result of the sheep judging, which was held on February 8th, was as follows:—

1. W. C. Hopper '20, 248 points.
2. C. Deneau '21, 206 points.
3. A. F. Hansuld '20, 190 points.
1. Year '20, with 966 points.
2. Year '21, with 809 points.
3. Year '22, with 741 points.

Prof. Sackville presented the prizes on Monday evening at the Union Literary Society Meeting.

The result of the swine judging competition:—

1. W. H. Grant '21, with 244 points.
2. C. M. Flatt '21, with 243 points.
3. G. B. Hood '20, with 238 points.
1. Year '20, with 1091 points.
2. Year '21, with 1074 points.
3. Year '22, with 868 points.

On January 20th Col. Hendrie, of Hamilton, spoke to a large number of students on "The Clyde Horse." He confined his remarks chiefly to the proper examination of a horse at the time of purchasing.

The Club was fortunate in obtaining Dr. McGillivray, of the Ontario Veterinary College, to speak on "Heavy Horses." He gave the origin and the

requirements for horses of the different breeds. He also spoke of the more common diseases in the draft horse. Those fortunate enough to hear him obtained some valuable information.

DRAINAGE SHORT COURSE

BANQUET

A very pleasant time was spent in the banquet hall of the Kandy Kitchen Saturday, February 8th, when the members of the Drainage Short Course, Messrs. Wood, De Long, Sterling, Oliver, Young, Blatherwick, West, Howling, Sproxtton and Slater, tended their instructors, Messrs. L. G. Heimpel, B. S. A., and Mr. T. Cooper, B. S. A., a banquet. At 6.30 p.m. the members and instructors sat down to a sumptuous repast. After every one had done justice to the good things, the toastmaster, Mr. John Wood, Director of Drainage of the Provinces of New Brunswick, proposed a toast to the king. Among those called to address the members were Messrs. Heimpel, Cooper, Sterling, De Long and Oliver, after which discussion pertaining to drainage, conservation, general agriculture and college life were entered into. Much profit and pleasure was derived therefrom. The class this year was of special interest inasmuch as there was present Mr. John W. Wood, the Director of Drainage from New Brunswick. His experiences, difficulties and obstacles were related, notes compared and much valuable information was given and received. Needless to say, Messrs. Heimpel and Cooper, who had full charge of the course, were quite surprised to be thus honored on this the first drainage course conducted by them. Success to them and the members of the class who were so thoughtful.

WHAT THE POULTRY CLUB IS DOING.

The O. A. C. Poultry Club is for the benefit of those students who are interested in poultry. The Club tries to help its members to improve their knowledge of the poultry business and of poultry judging. Meetings are held weekly in the poultry building, where demonstrations are held and judging takes place. The judging consists of three classes, one for meat and vigor, one for exhibition, and one for egg production. These classes are taken from any of the standard breeds such as Reds, Rocks, Wyandottes and Leg-horns.

A bronze shield, which has to be won for three consecutive years before becoming the property of the winners, is offered by F. A. Marcellus, to the student making the highest total score on all judging for the year. A Standard of Perfection is offered by the Club to the man making the second highest score on all judging for the year. A cash prize of ten dollars is offered by Prof. Graham to the man obtaining the highest total score in the egg production class for the year.

The Club is giving a Standard of Perfection to the man with second highest marks in the egg production class, for the year. In addition to the above named prizes the Club is donating a watch fob to the winner of each week's judging.

This is a very interesting programme and one which is creating a great deal of interest among the members.

THE O. A. C. CARNIVAL

A large number of students and city people turned out to the annual O. A. C. Carnival, held at the O. A. C. rink, on Tuesday evening, February 18th.

The rink was well decorated with College colors and Year pennants, the ice was perfect, and the band selections good. The result was a well pleased and happy crowd of skaters.

At the end of the sixth band the large number of skaters in costume were given the ice so that the judges could perform their difficult task of selecting the winners. This was no light task as there were so many splendid costumes from which to choose.

A few of the costumes that deserve special mention were the Pirate, the Buccaneer, the Hard Luck Tramp, the Chinese Woman, the Bridal Party, the cow-boys and cow-girls, the Clowns, the Prendo Ladies, the Shepherdess, Miss Britannia, the Scotch Lassie, the 18th Century Ladies, the Hula-Hula Girl, and the Snow Girl.

After a great deal of consideration the judges decided that Miss Edith Hartin as the Pirate, and Miss Jollie Watts as the Chinese Girl, were the winners of the ladies' prizes, and Mr. Art. Musgrave as the Hard Luck Tramp and Mr. Eric Hearle as the Buccaneer were the winners of the gentlemen's prizes.

Mr. Justus Miller was a visitor at the College during the week of February 10th, during which he conducted a course in journalism with the Third and Fourth Years.

THE MISSIONARY CAMPAIGN

In connection with the recent nation-wide Y. W. C. A. and Y. M. C. A. Missionary Campaign several very interesting speakers visited the college and addressed the students.

On the evening of Sunday, February 2nd, Capt. W. J. Brace, lately returned from overseas, met a large number in

Massey Hall, and told of his work in France and China. He bears the unique distinction of having served through the South African war as a trooper, later connected with the Methodist Mission in West China, and during the present war having charge of the first Chinese working party sent to France. His talk was thoroughly enjoyed by all.

Saturday evening, February 8th, we were favored by a brief call from Mr. Theodore, an Indian student at Yale. None who met him could doubt but that association with such as he must inevitably bring the eastern and western extremities of our Empire into a closer bond of fellowship. Our only regret was his inability to remain longer.

The Rev. D. G. Cock who was for 16 years attached to the Presbyterian Mission in India, on Sunday evening, February 9th, gave a splendid narrative of his work there. At the close of this meeting Mr. E. W. Clark, of the student Department of the Y. M. C. A., made an appeal for funds to carry out the plans formulated at last summer's student conferences.

The following day the students and faculty were canvassed individually and a fairly general response was met with. At Macdonald Hall the \$400.00 objective was passed by a substantial margin. At the time of going to press complete returns at the O.A.C. were not in but the \$800.00 objective was over half subscribed.

The Y. W. C. A. funds are to be used to send an additional Y. M. C. A. Secretary to Hong Kong and also to fit up a tea room there. The money raised by the Y. M. C. A.'s of our non-denominational colleges is to provide Indian students with travelling scholarships at Canadian colleges.

While the interest aroused has not been quite so great as that of last year's drive for the Military Y. M. C. A., yet all engaged in this feel amply repaid for the time and thought expended.

THE FRESHMEN'S SKATING PARTY

On Friday evening, February 7th, the Freshmen held their annual skating party in the O. A. C. Arena. The weather was ideal for skating, and the ice was in fine condition. The rink was very artistically decorated with streamers, bunting and the different year pennants. A special band was engaged for the occasion, which rendered excellent music for the large crowd of merry-makers present. Between the sixth and seventh bands refreshments were served which were well received. The proceeds of the evening, amounting to thirty-four dollars, were given to the "Guelph Ambulance Fund." Judging by the different remarks passed during the evening it was quite apparent that everybody had a most enjoyable time. Year twenty-two has made for itself a very creditable reputation.





ATHLETICS

OPELL

HOCKEY

Elmira at College

In a close O.H.A. Intermediate hockey game, at the College rink, the O. A. C. defeated the Elmira team 8 to 5. A good crowd was on hand to witness the match. Elmira showed lack of condition in the early part of the struggle, but came strong at the finish. The Collegians were ahead in every period, 4 to 2 at the end of the first, 7 to 4 at the end of the second, and 8 to 5 in the third. For the winners, Shoemaker, Alexander and Sirrs starred, the latter giving a fine exhibition of checking. W. L. Iveson, of the College staff, handled the game. The O.A.C. lined up as follows:

Centre, Shoemaker; right wing, Sirrs; left wing, Taylor; right defence, Alexander; left defence, Musgrove (Capt.); goal, Allan.

Preston at O.A.C.

In what proved to be the fastest hockey game of the season the Preston O.H.A. Intermediates, who have not lost a game this season, defeated the O.A.C. team by a score of 7 to 5. The game was played on the College ice, and was witnessed by a large crowd, all of whom thoroughly enjoyed the sport. The ice was in good condition and it was to be expected that the game would be just as fast as it proved to be, with the score just about indi-

cating the merits of the two teams. The Preston team is a fast aggregation, excellent skaters and nifty stick handlers, and they had a two and a three-man combination which was pretty to watch. When this combination came down the ice the crowd looked for a goal, and had it not been for the excellent defence put up by the Aggies and the great work of Allan in front of the nets, the score would have been a great deal larger, for many a shot tickled for a goal was stopped before it bulged the nets by his fine work.

On the other hand the College boys surprised their most ardent admirers by the great game they put up. As an indication of how even the play was during the first two periods, it is pointed out the score at the end of the first 20 minutes was 2 goals each, and when the second period was over, it stood at 3 each, with both teams apparently evenly matched.

Sirrs, Taylor and Shoemaker on the forward line for the College, all played excellent hockey back checking their opposing players to a standstill. Musgrave was the best of the defence, making numerous rushes from end to end, that nearly resulted in goals.

The teams lined up as follows:

O.A.C.—Goal, Allan; right defence, Musgrave, left defence, Alexander; centre, Shoemaker; right wing, Taylor; left wing, Sirrs; subs., Stillwell and Howarth.

Preston — Right defence, Schlager; left defence, J. Bowman; centre, George; right wing, Clarke; left wing, A. Bowman; subs., Sturdy and Schumm.

Referee—Allan Kinder, Preston.

The inter-year hockey has started after one postponement due to lack of ice. The Sophomores defeated the Freshmen by 7 to 1. The next game will be played between the Junior and Senior Years as soon as possible, and the winner will meet the Sophomores for the championship. From the fact that the Sophomores have on their team four men who were regulars of the O.A.C. Intermediates, they should have little difficulty in disposing of any other year.

The first inter-year hockey game of the season was played Monday afternoon, February 17th. The competing teams were First and Second Years. The game was very good throughout, but during the last two periods the Sophomores out-skated and out-played the Freshmen. Watson in centre and Dennison in goal starred for '22, while Taylor, Shoemaker and Sirrs on the forward line played the best game for '21. The line-up was as follows:—

Sophomores—Goal, Snyder; defence, Alexander and Stirrett; forwards, Taylor, Shoemaker and Sirrs.

Freshmen—Goal, Dennison, defence, Hendie and Worsley; forwards, Johnson, Watson and Smith.

Score—Sophomores 7, Freshmen 1.

INDOOR BASEBALL

The indoor baseball schedule is nearly concluded. The Sophomores have been winning very consistently. They have

beaten the faculty, the Juniors and Freshmen. The other teams have been cutting each others throats, the Seniors beating the Freshmen, but, being, in turn, beaten by the Juniors. The Juniors were beaten by the Freshmen, and owing to the inability of getting together a team defaulted their game to the Faculty. Only two games remain to be played. Sophomores against Seniors, and Seniors against Faculty.

INDOOR BASEBALL

The Second Year maintained their position at the top of the Indoor Baseball League by defeating the Faculty on February 6th, in a very interesting and exciting game.

The line-up was:—

Faculty—Klinck r.f., Baker p., Squirell 1st, Musgrave c., Neale l.f., Fulmer 3rd, Gandier s.s., Snyder s.s., Maxwell 2nd.

2nd Year—H. H. Taylor p., Shoemaker 3rd, Sirrs 1st, MacArthur s.s., Snyder c., McCrimmon r.f., Howarth 2nd, Frith s.s., Grant l.f.

BASKETBALL

Guelph Collegiate at O. A. C.

A fast game of basketball was played at the O. A. C. gymnasium between the O. A. C. senior team and the Guelph Collegiate Institute. The collegiate team defeated the Aggies by a score of 16-13, the first time in the history of the collegiate that they have defeated the College team. The Aggies were much heavier than their opponents, but the latter were faster, played a much better combination, and displayed better shooting stability, both Creelman and Pequegnat being very accurate. Carroll, at centre, and Newstead and Nunan, as guards, put up a fine game.

Continued on page xii.



A KISS

(Treated as a chemical element.)

Name—"Kiss." Symbol—"X."

Atomic Weight—"Unknown." Valency—"2."

Historical Reference—One of the oldest elements known. Undoubtedly common in the days of Adam and Eve. Has been made use of, particularly by the young, and all succeeding generations to the present day. Many of Shakespeare's heroines were adept in the use of this element, notably Juliette and Cleopatra. Discovery can hardly be accredited to any one individual, though most young people, since time immemorial, fondly believe they are the true discoverers of the elements in its pure state.

Occurrence—Seldom occurs in free state, but is found in an unlimited number of combinations. Is found in every country in the world in some form or other, and usually in large quantities. Invariably forms a constituent of all love affairs. Is very easily located in parks, shady paths, canoes, row boats, etc., particularly on moonlight nights. Is quite often found in cozy corners, large arm chairs, and frequently very abundant and easily obtained in front of a grate fire in a darkened room.

Large deposits of the element may often be located at the door or garden gate, while saying good night. It is necessary in this case to be on such intimate terms with the family dog that he will not bark or else make sure

he is locked in. Also in case the upper half of the door is glass, see to it that the hall light is turned out, otherwise, silhouettes, amusing to the general public, may result. At times is a rare element but usually can be extracted with little difficulty if proper methods are followed.

Preparation—To one ounce of dark verandah add a little moonlight. Take for granted two people. Place in two strong ones a small soft hand. Sift in lightly a sufficient amount of attraction and romance. Add a large measure of folly. Stir in several whispers. Add half a dozen glances previously dissolved in a well of silence. Dust in a small quantity of hesitation and a faint cry. Place on a flushed cheek or two lips flavored with a smothered scream and set aside to cool. This should succeed in any climate if directions are carefully followed.

If one uses judgment, works carefully, and the experiment proves successful, it will be found extremely simple, by following the same procedure, to duplicate the original result any number of times.

The following conditions sometimes govern results:

- (a) Neither party may wish to experiment.
- (b) Both parties may be anxious to experiment.
- (c) One party may be anxious to do the kissing, and the other condescend to be so treated.

The most desirable condition is where one party is anxious to experiment and the other equally anxious, but hesitant.

A beginner may meet with apparently unsurmountable difficulties, but one more experienced can be counted on to perform a complete and perfect experiment at a moment's notice.

One may substitute the dark verandah for any of the situations previously mentioned, also the moonlight may be replaced by the glow from an open fire. An experienced experimenter may even work in the dark.

There are several precautions in the preparation that one would do well to keep in mind:

(1) Always consider carefully just what may happen.

(2) Always assure your assistant that you have "never, no, never, so help you," kissed any one before.

(3) If single, it is necessary to be extremely cautious in experimenting with married people.

(4) Parties experimenting should be of the opposite sex. Two girls kiss with about the same emotion as two billiard balls. Two men kissing is a French custom, and—should be left to the French.

(5) Never experiment with a person who is in a bad humor. Results usually prove disastrous.

(6) Never experiment in the rain. The elements are liable to mix, forming an aqueous solution anything but satisfactory.

(7) When experimenting it is always very undesirable to have a third party present.

Propertees—Is not found as a solid. Forms very strong affinities. In fact, a kiss is always more or less intimately associated with an affinity. Is extremely volatile and usually found as

a gas. Is very active, and at first causes abnormal beating of the heart, rapid breathing, a mistiness in the eyes, a convulsive embracing contraction of the arms (particularly in men) with a corresponding feeling of exhilaration, but if frequently taken, the system becomes immune and very little effect is noticed.

Is pungent and exhales the odor of various and sundry tale and satchel powders found in the city drug stores or mail order houses. In this respect it sometimes has a very "heady" effect and may cause sleeplessness in the most seasoned experimenter.

It is extremely light and may be easily blown from the finger tips. Sometimes when this is done carelessly, it causes serious heartaches to the recipient, and often jealous pangs to the onlooker.

Is usually invisible, rarely leaves trace of an attack and if the experiment is carefully performed little or no sound should be produced.

The taste can hardly be described, but all agree that it is pleasant.

Uses—It is made use of in all sorts of transactions, such as becoming acquainted, becoming better acquainted, becoming very intimately acquainted, for removing pouts and frowns, dissipating tear drops, etc. By many older, experienced experimenters it resolves itself into merely an exchange of methods and a discussion of the various ways and means of preparation. Is seldom used in the business world except in down-town offices where extremely pretty typists are employed.

Combines readily with gold, silver, bank notes and gilt edge bands, but can usually be easily separated from such as it forms only a mechanical mixture with these, the contact, however, has a deleterious effect as the

purchased article is never of as fine a quality as that received gratis. In fact the choicest compounds obtainable are those stolen hurriedly.

Remarks—A kiss is the result of an experiment, cunningly devised, for the mutual stoppage of speech at a moment when words are superfluous. Kissing is a pastime of the unmarried. Kismate is a young person of the opposite sex one is on kissing terms with. A woman invariably shuts her eyes when performing the experiment. She does this so she will not laugh when she sees what is kissing her. To steal a kiss is natural; to buy one is stupid; two girls kissing is a waste of time; to kiss one's sister is proper; to kiss one's wife or husband is a matrimonial obligation; to kiss an ugly woman is an act deserving the D. S. M.; to kiss an old faded woman is devotion; to kiss a young and blushing girl is — really, it's quite a different thing; to kiss a rich relative is hypocrisy; kissing three people on the same day is extravagance; to kiss one's mother-in-law is a holy sacrifice.

(Signed) Innocent Onlooker '20.

WE WONDER

Why Miss Connor does not reside at Mac. Hall with the other First Year O. A. C. girls.

If a Chill Blain would prevent Bushwa from attending College festivities.

If Bill Hendrie's brains are only on that corner of his head usually covered by his hat.

Why Alexander doesn't join the O. A. C. Rifle Club and learn to shoot the bull straight or get a few pointers from Mel.

What rake-off Eidt is getting from the hair tonic people.

Who the Barnum II is that brought the Hamilton Circus to the Third Year Valentine Dance.

If Jackson has cancelled Ireton's subscription to Maclean's magazine.

If the seed that ulcerated Long's tooth came from MacDonald's Seed Store, Ottawa.

How Rilett ever escaped Prof. Caesar's Sodium Fluoride treatment for cockroaches.

If Tolton is the only branded broneho in Year '22.

If Scott swiped Eidt's special brand of hair tonic for his moustache.

Where Duffie got the red-haired bouncing baby boy for the Carnival.

Why the squirrels enter Freddie's room when he is not at home.

Why Coon complains of his Bier being affected by paint.

Did Irene Hyde intentionally from Deneau at the rink.

If Joe wouldn't lend Russel her hair net for the next hockey game.

If Clemens doesn't sometimes dis-Hartin Fergie.

If the reason that Sippel and White carry canes is to keep the dogs away.

If the Hamilton Circus couldn't show the "Crazy Crew" a few new stunts.

By all appearances "Christie" is M. Barking on a new enterprise. We wonder if Morley will be First or Second Mate.

In the opinion of several Sophomores "Scottie" looked perfectly "cunning" at the Carnival but had Adile worn her costume she would have appeared "Cute" indeed.

It is generally felt that Messrs. Jamieson, Clark and Lindala are to be commended for materially contributing to the success of the Third Year Dance by so kindly offering to assist other less popular individuals in filling their programmes before the event.

H-h-howard's o-orchestra are all right—a-aren't they?

If Tice was a poet, no doubt he would sing of the Moore.

Gilbert's Motto

Love all the women you can,
Don't leave the task for other men!

Lives of Freshmen all remind us,
Things are green when in their prime,

All they lack is growth and culture—
They'll come out all right some time.

Queen's Journal.

The following is a Freshman's reason for studying on Sunday: "Is not a man justified in helping an ass out of a pit on the Sabbath? Then how much more justified is an ass in helping himself?"

Queen's Journal.

Listen—Little Nut—you can either be squirrel food or the seed of a mighty tree.—Paul Ritchey.

Painter to group of Freshmen. — "Well, boys, if you must give me a nick-name, why not call me 'Happy'?" And that's why he was dubbed "Skilly."

An initiated wishes to know if at a a Masonic banquet they really carry the grub in on a hod and eat it with a trowel.

Such information is mighty hard to extract from such enthusiastic "brothers" as are to be found at the O.A.C., but you might inquire of Munro, Brink, Lamont, Higgins or many other members whether it is really so.

"Then we're engaged?"

"Of course."

"And am I the first girl you ever loved?"

"No, dear, but I'm harder to suit now than I used to be."

An officer, in a State camp, decided to see for himself how the sentries were doing their duty. He was somewhat surprised at hearing the following:—

"Halt! Who goes there?"

"Friend—with a bottle."

"Pass friend. Halt, bottle."

One of the first things the new Guelph Council should do is to build a brand new rink for the Guelph Intermediates. A team that expects the students to rent them their rink for practically nothing, and then to pay the rent by attending their games certainly deserve a rink of their own.

SEED OATS FOR SALE

O. A. C. No. 3 Oats at \$1.00 per bushel

O. A. C. No. 72 Oats at 90c. per bushel

JOHN STECKLE

Rural Route No. 2.

Kitchener, Ontario

Do not
experiment
with
Fertilizers



Let the other fellow risk his season's crop and living — you stick to the tried and proven winner, Gunns "Shur-Gain." New fertilizers face you at every turn, but remember, for a completely balanced soil food made by men with many years' experience with Canadian farm needs, you can't beat — Gunns "Shur-Gain" Fertilizers.

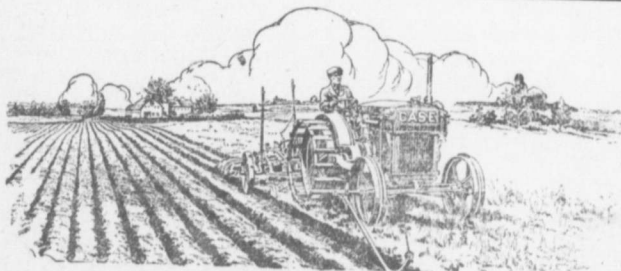
"Making two blades grow where only one grew before."

Gunns 'SHUR-GAIN' FERTILIZERS

They mean not only an early start for your crops, but a steady stream of plant food right through the growing period, giving strong, full-headed, disease-resisting growths. Get your requirements in at once before it is too late.

Ask your dealer about Gunns "Shur-Gain" to-day and write us for interesting booklet "Bumper Crops."

GUNNS LIMITED, WEST TORONTO, Ont.



FAIRBANKS-MORSE

TYPE Z OIL ENGINES are made in our own factory, that has been specializing on this type of machinery for forty years.

CASE OIL TRACTORS are made by J. I. Case Threshing Machine Co., who have been making Plowing and Threshing Machinery for seventy years.

Why buy experimental machines when you can be absolutely sure of good service and a profitable investment by buying your engine or Tractor from

The Canadian Fairbanks-Morse Co. LIMITED
26-28 FRONT ST., TORONTO

Please mention the O. A. C. REVIEW when answering advertisements

Continued from page 346.

For the College Hadden and McCorkindale shone.

Guelph Collegiate—Pequegnat, Creelman, forwards; Carroll, centre, Newstead, Nunan, guards.

O. A. C.—Burkes, Hadden, forwards; McCorkindale, centre; Musgrave, Stokes, guards.

It is the hope of the Athletic Association to run off an inter-year basketball schedule as soon as other activities permit. Every year has signified their intentions of entering a team and the outlook is good for an excellent series.

Definition

Freshmen are a necessary evil in college life.

Bill—"Whom did Dyer take home from the Rink?"

Shorty—"Maybe it was Miss Miller."

"Where was your old man wounded?"

"In the abdomen.."

"Where's that?"

"Don't know—somewhere in France, I suppose."

At the Prom.

He (being introduced to a girl from the country)—"I am pleased to meet you."

Fair One—"Don't mention it."

Prof.—You must graft trees of the same varieties, so you would not graft a pine on an apple tree.

Stuart—Wouldn't it grow pine-apples?

From

"A to Z"

There are more different qualities of diamonds sold than there are letters in the alphabet.

But there is no "Z" quality diamond used in Ryrie "Engagement Rings"—no, not even "B's and C's."

Every owner of a Ryrie ring may rely implicitly upon the diamonds, whether large or small, being of superior quality—a genuine "A" quality—something to be proud of.

RYRIE BROS.

LIMITED

134-136-138 Young Street
TORONTO

JAMES RYRIE,
President.

W. M. BIRKS,
Vice-President.

SELL YOUR MILK

Raise Your Calves



Sell Your Cream

Grofast Calf Meal will raise equally as good calves as whole milk at a fraction of the cost. Read what this Pure Bred Breeder says:

Dear Sirs:—

I can recommend your Grofast Calf Meal to those who are endeavoring to raise good stock, with the least possible cost. The calves I raised last year on your Calf Meal took first, second and third prizes at Ingersoll Fair last fall in keen competition. My herd are all pure-breds, therefore I raise all my calves, and to raise them exclusively on milk would make it very expensive, and I find your Calf Meal an excellent substitute. The sire at the head of my herd is King Johanna Rauwerd, whose two nearest dams average 27,220 lbs. of milk in one year, and 1,060 lbs. of butter.

Ingersoll, Ont.

Yours truly,
W. B. POOLE

Sold in 25, 50 and 100 pound bags by dealers everywhere.

Demand Grofast Calf Meal. Refuse substitutes to ensure best results.

INTERNATIONAL STOCK FOOD CO., LIMITED, TORONTO

INTERNATIONAL GROFAST CALF MEAL

THE SHIRE HORSE.

Continued from page 311.

The Shire breed has never been as popular in Canada as it deserves to be. There are several reasons for this, the chief of which is probably that a very large proportion of the horse owners of Canada are either Scots or of Scotch descent. Naturally they stick to their old favourites. Secondly, the nature of the work to be done here for the most part has called for a lighter and more active horse than can properly be classed as a heavy draughter. Last, but not least, good Shire breeding stock has never been cheap, consequently very few really good representatives of the breed have ever reached this country, and the whole breed has been judged by the inferior animals that have found their way here.

Now, there is to-day a larger demand for heavy draught horses than ever

before and the position with regard to imported stock is reversed in that the stock of the old country is so badly depleted that not only will there be very few horses exported, but many will be bought on this side of the Atlantic and shipped over there. Now is indeed Canada's opportunity to make a real business of the breeding of heavy draughters. Let us get away from the general purpose idea and produce the big fellows that can draw a real load. In our breeding operations in the future let us not overlook the first and greatest of all draught breeds — the Shire.

If Richardson is Sharpe why is Davidson Flatt!

Handel was a great composer. No doubt he was inspired. Howard's are a great orchestra. Well, what of it?

DOLLAR

FOR

DOLLAR



MONEY is wasted when it is put into clothes that do not represent its true value. The labor put into their making is wasted and the material which might be used to advantage elsewhere is wasted.

Good clothes are those which return in value to you the worth of the money you expended on them. Value in style, in permanence of style and material.

Society Brand Clothes

Give a full dollar's value for every dollar spent. The price range is wide, but every price indicates true value.

D. E. Macdonald & Bros.,

LIMITED

"Style Headquarters"

Where Society Brand Clothes are Sold.

Guelph Business Directory

The attention of the O. A. C. and Macdonald students is drawn to the following directory of Guelph business and professional men. Their advertisements help to make your magazine a success. They carry the best goods and give the best service you can obtain. It is only fair that you patronize them.

- Banks—**
The Dominion Bank.
Guelph & Ontario Trust Company.
Royal Bank.
Union Bank.
- Barbers—**
R. H. McPherson.
Stock Donaldson.
- Butchers—**
E. A. Hales.
- Boots & Shoes—**
J. D. McArthur.
S. Enchin.
- Cafes—**
Dominion Cafe.
- Candy and Ice Cream—**
The Kandy Kitchen.
Royal Candy Works, Wyndham St.
- Dentists—**
Dr. M. J. Rudell.
Dr. R. H. Wing.
Dr. G. P. Britton.
Dr. E. V. Humphries.
- Druggists—**
J. D. McKee.
Alex. Stewart.
- Dry Goods and Ladies' Wear—**
Moore & Armstrong.
D. E. Macdonald & Bros.
- Electrical Appliances, Plumbing and Heating—**
The Grinyer Co.
- Florists—**
James Gilchrist.
E. S. Marriott.
- Grocers—**
Hood & Benallick.
- Garage—**
Robson Motor Corporation.
- Gents' Furnishings and Tailors—**
R. S. Cull & Co.
D. E. Macdonald & Bros.
R. E. Nelson.
Geo. Wallace.
Lyons Tailoring Co.
Hillman & Wallace.
- Hardware—**
The Bond Hardware Co.
G. A. Richardson.
- Hair Dressers—**
Cora A. Pringle.
- Jewellers—**
Savage & Co.
- Ladies' Tailors—**
J. N. Lane.
- Magazines and Newspapers—**
Geo. M. Henry.
- Musical Instruments—**
C. W. Kelly & Son.
- Opticians—**
A. D. Savage.
- Photographers—**
The Kennedy Studio.
- Printing—**
The Guelph Herald, Ltd.
Kelso Printing Co.
The Guelph Mercury.
- Pressing—**
C. F. Griffenham.
Hillman & Wallace.
- Real Estate and Insurance—**
D. H. Barlow & Co.
- Shoe Repairing—**
W. J. Bridge.
S. Enchin.
- Soaps and Boiler Compounds—**
Guelph Soap Co.
- Toxicabs—**
C. L. Kearns.
- Theatres—**
Regent Theatre.
- Typewriters—**
A. E. McLean.

You will be doing the Review a service if you tell these people you have read their advertisement.

ESPECIALLY FOR MACDONALD GIRLS

Everything you are interested in—The Everyday Chemistry of Food and Cookery; The Diet in Spring, Summer, Fall and Winter; The Fine Art of Combining Foods; Seasonings, etc.—is most interestingly discussed in

MRS. ALLEN'S COOK BOOK

Bran' new, and authorized by Food Controller Hoover.

The many delighted dishes and menus are alone worth many times the price of the book, and the illustrations—nearly fifty in number—are photographs of tempting dishes and attractive table settings, which are invaluable.

\$2.00 POSTPAID.

Order from:

Library Department

WILLIAM BRIGGS

PUBLISHER

TORONTO



CLEVELAND TRACTORS

Do more than Plowing

They prepare the seed-bed without packing

The Cleveland Tractor Company
of Canada, Limited

WINDSOR

ONTARIO

(Continued from page 303)

driven ten miles to buy some binder twine, and in passing he had stopped to listen to the learned wisdom of I. Will. Soakum. Physically strong as this farmer was he had been completely overcome.

I. Will. Soakum searched the fallen man and found a jack-knife, which he gave to Shorty Waite, four matches, which he gave to Phillip Sand, and two nickles, which according to the instinct of his kind, he conveyed to his own pocket.

"Such extravagance," he muttered, "I am not so sure, however, that I'll go farming."

Rich.—"What make of car do you like best, George?"

George Garbutt (absent mindly) —
"A-a-a Mitchell."

Please mention the O. A. C. REVIEW when answering advertisements



More Crop-Dollars with a

PRICE \$7 to \$400

Spramotor
 [It isn't a SPRAMOTOR unless we made it]

is the invariable experience of users of this world-beating Canadian-made spraying machine.

FREE—Illustrated catalogue and treatise on "Crop Diseases" of all kinds, sent post paid on request. Write to-day.

J. H. HEARD

SPRAMOTOR

5803 KING ST. LONDON, CANADA

As Painter says: "One beer for one, etc."

One cannot help but pity the young men of New York. How they continue to live is a myth. Why one of our dark handsome Seniors found the bright lights of Guelph and vicinity so engaging that he is now convalescing in bed.

Hansuld's chief concern in life is to catch the Saturday 2.40 p.m. G. T. R. train going west.

Gasselli

Spray Materials

ARE AS GOOD
 AS CAN BE
 MADE



THE
GRASSELLI CHEMICAL CO.
 LIMITED

Hamilton Toronto Montreal

POTATO EUGENICS.

Continued from page 313.

Rainy River and Thunder Bay Districts of Northern Ontario.

The potato crop was in excellent condition, certain sections being practically free from any of the more serious diseases. As a result of this inspection a number of carload-lots of disease-free seed were bought by the Ontario Government, to be sold to the potato growers of Old Ontario. The use of this seed will enable the growers to rid themselves of some of the most disastrous potato diseases, as well as to materially increase the yield per acre. Information regarding this seed can be obtained from the Department of Agriculture at Toronto.

RAISE CALVES BUT SELL YOUR MILK

Demands for milk and more milk continually increase, yet there is such a shortage of cattle in the world, it will pay you well to raise your calves.

This is not impossible to a man who uses

CALDWELL'S CALF MEAL

This is the best "vealing-up" ration you can feed your calves. Mix it with separator milk or water. Your calves will thrive on it. You save money because this feed costs you less than the price you get for your whole milk.

Your dealer most likely carries this feed, if not, we will send you the address of the nearest dealer who does, or ship direct.

THE CALDWELL FEED AND CEREAL CO. LIMITED

DUNDAS, ONTARIO

We operate the largest exclusive feed mills in Canada—We make all kinds of stock and poultry feeds—We can send you prices and information on any rations you require.



Continued from page 332.

lage I've been in in Belgium or on march, of having seen continuous trains of furniture of every description and pianos, on their way to Germany.) I speak of what I have seen, because I have seen it. I cannot yet comprehend it quite even now, because since my boyhood the Germans have always seemed to me such an advanced nation, and Cambrai shows every mark of a degraded beastial race, brutal and ignorant. Just one other point and I'll be glad to leave this disagreeable subject. Between Hendecourt and Cherisy, just outside the former village, is a small triangular cemetery, which very few people would notice unless looking for it. Just after we had captured Hendecourt I wandered across this cemetery in my search for something new in the line of enemy gas

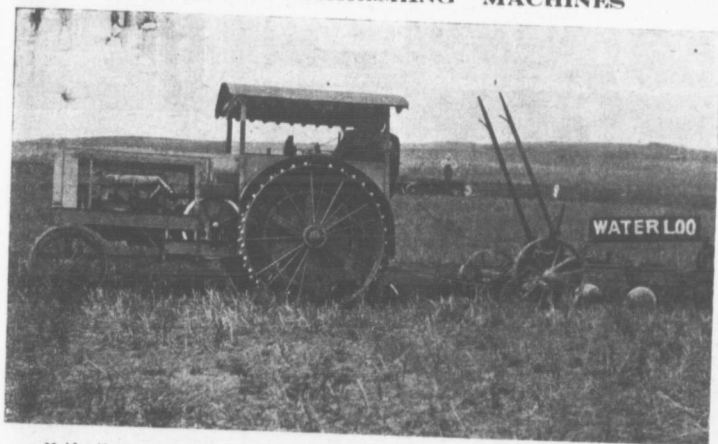
shells. There was one vault of 6 resting places—empty. One place still contained a coffin—a baby's, which had been torn open and was also empty. The vault had for some time been used as a latrine. Again to the east of Cambrai lies the Village of Thun. I was for a time in the chateau of Thun, the very much broken up home of the Marquis of Cambrai, as the dozens of family crests in the church show. The family dates back to 1400 and something. Near the family entrance to the church is one of the family vaults of four coffins, three men and one woman. The latter coffin had been torn open, the lead lining cut and the swathing clothes torn off the shrivelled breast of the woman within—presumably to hunt for jewels. The coffin was over a hundred years old. Remember, the battle

Continued on page xxvii.

Please mention the O. A. C. REVIEW when answering advertisements

WATERLOO LINE

**HEIDER TRACTORS, STEAM ENGINES
WATERLOO THRESHING MACHINES**



Heider Tractors are no experiment. Built in two sizes: 9-16 and 12-20. Special features are: Heave Duty Waukesha four cylinder motor; Friction drive; burns kerosene and gasoline; Traction speed one to four miles an hour; Belt speed 100 to 800; seven speeds forward and reverse. Built for service. Built to wear. Ask the man who uses one.

Write for Catalogue.

THE WATERLOO MANUFACTURING CO., LIMITED

Portage la Prairie, Manitoba

Waterloo, Ontario

Regina and Saskatoon, Sask.

Continued from page xxiv.

had just passed, we were pressing hard on the heels of the enemy and this appalling act of desecration was done at the last moment along with the wrecking of the chateau which had previously been used as the headquarters of some officer of high rank.

Can you tell me what is wrong with the general make-up of a nation whose soldiers do such unspeakable things?

To be Continued.

Lost—Small box containing six cigarette butts. Finder please return to A. Watson. Room 12.

Munnie—Did you hear about Tom Jones getting in wrong over at the Hall the other night?

Alex. Brink—No; how'd it happen?

Munnie—Oh, he started to show one of the girls his family album.

Luckham, having just made a very fine carom in a game of billiards. —
“They kissed all right.”

Freshman, sitting at the side—“Ah, go on, you can't kid me.”

Lost—One bolt from door of room 5. Finder kindly return to P. H. and restore his peace of mind.

Please mention the O. A. C. REVIEW when answering advertisements

Continued from page 302.

selection, good varieties that are hardier than any we now have, we cannot hope to escape some loss by winter killing. This work is of necessity very slow and cannot be undertaken with the hope of immediate returns by the fruit grower. Work of this nature is under way at our Federal and Provincial Experimental Stations, but in view of the losses which have been sustained during the past ten years and especially during the past winter it should be carried on much more extensively than heretofore. The interest on the capital value of the fruit trees destroyed in Canada during last winter would adequately finance an undertaking of this kind. It is quite true that the present generation of fruit growers would not derive much benefit from this work, but we should not forget that we are now reaping the benefit of the labor of horticulturalists who have gone before and if we are to do for others as we have been done by, we should continue this excellent work and do something for those who come after us.

2. GOOD CULTURAL PRACTICES.

The other preventative measures which might be employed to advantage are only those which are considered to be the best cultural practices. The value of these cultural practices and the principles to be observed in the selection of sites for orchards have been more clearly emphasized by what occurred last winter.

In regard to cultural practices, I would suggest that orchard cultivation be started as early in the Spring as the soil can be easily worked. The time when cultivation should be discontinued will depend upon such factors as latitude, soil and climatic conditions. As a general statement, I would say that cultivation should be discontinued earlier than is the usual custom except in dry seasons and

on light soils. In such cases it would be wise to cultivate later than on heavier soils or in seasons when rainfall was abundant. For apple orchards the range of dates for stopping cultivation would vary from early in June for the north to July 1st in the southern sections. Peach orchards of course should be cultivated somewhat later than apple orchards, up to August 1st in most cases.

3. USE OF COVER CROPS.

Cover crops exert a beneficial influence in checking late growth, help to ripen the wood, hold the snow, and may prevent deep freezing on light soils.

4. JUDICIOUS USE OF MANURES AND FERTILIZERS.

Bearing orchards should be supplied with plant food in sufficient quantities to keep the trees in good thrifty condition, but care should be exercised, however, to prevent forcing the growth of trees, as this would pre-dispose the trees to several forms of winter killing.

5. SOIL DRAINAGE.

The drainage for soils intended for fruit growing is of the greatest importance as a means of preventing winter killing. Soils which are not naturally well drained should be thoroughly under drained. This will pay handsomely as trees growing on well drained soils will invariably give much better results than those on the poorly drained soils.

6. THINNING OF FRUIT.

In seasons when labor can be obtained at a moderate price it will pay to thin the fruit on heavily laden trees. As previously mentioned heavy bearing is a big factor in pre-disposing trees to winter killing and it would seem that for this reason alone the practice would be profitable.

Continued on page xxx.

RENNIE'S SEEDS

Produce Victory Crops



THE Rennie Catalogue for 1919 is brimful of information and suggestions on the growing of flowers and vegetables. Beautifully illustrated in colors, this catalogue is truly valuable as a gardening guide.

It shows you the practical results obtained by planting tested seeds, and it proves to you the best kind of seeds to buy.

*Use the Rennie Catalogue
as a Ready Reference*

Make your selection of seeds from it—then go to your dealer and have him fill the order. If he cannot supply you with all you require write us direct.

To safeguard our customers all Rennie's Seeds are tested at our trial ground. This insures that buyers of Rennie's Seeds get nothing but the very best.

*If you haven't received a copy of our
1919 Catalogue, write for one to-day.*

THE **RENNIE** COMPANY
WILLIAM **RENNIE** LIMITED
KING AND MARKET STS. TORONTO
ALSO AT MONTREAL WINNIPEG VANCOUVER

Continued from page xxviii.

7. THOROUGH SPRAYING TO CONTROL INSECTS AND DISEASES.

Professor Caesar and others have repeatedly pointed out the benefit to be derived from thorough spraying as a means of controlling plant diseases and insect pests. The experience of the past winter have shown very clearly that thorough spraying is of definite value in preventing winter killing by destroying insects and diseases which by their attacks weaken the trees and thus predispose them to winter killing.

8. PROVISION OF SHELTER AGAINST STRONG COLD WINDS.

A good wind break, properly located, will undoubtedly lessen the amount of winter killing. This applies especially to the colder sections of the Province but would apply equally well to any section where the orchard was exposed to high cold winds or was located on exposed sandy or gravelly ridges. In some of the warmer areas of the Province where natural conditions are more favorable or where land is very expensive it may not be necessary or profitable to plant windbreaks but there are many other places where windbreaks would doubtless be worth while. Windbreaks should not be located too close to the trees as they might cause a dead air space in their immediate vicinity and thus favor the development of fungus diseases, such as apple scab and sooty blotch. If set back some distance, say from 150 to 200 feet or more, the protection afforded would be quite effective and trouble from diseases would be obviated.

PROPER CHOICE OF SITE.

A site for an orchard should have good air drainage as well as soil drainage. An ideal site is one on a gentle slope, (preferably to the North or North East) where the cold air can flow down to the

lower areas. One should not locate an orchard in a hollow where cold air settles as such a site will favor injury to the trees in winter and to the blossoms during cold spells in the spring.

HARDINESS OF VARIETIES.

With the exception of most of the crab apples and the American plums, very few kinds of fruit or varieties have proven absolutely hardy. At Ottawa some of the hardiest Russian sorts were injured. There is, however, a marked difference in the cold resistance of varieties. I am giving herewith a list of varieties which have proved somewhat cold resistant and also a list of varieties which have been rather seriously injured.

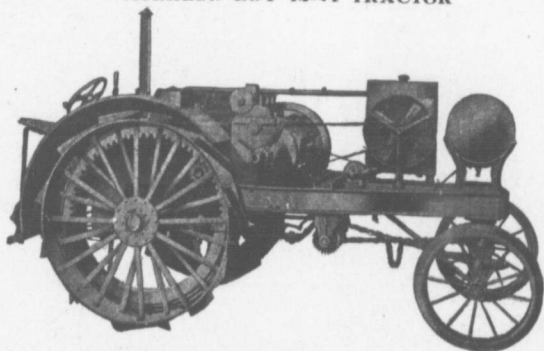
VARIETIES LEAST AFFECTED.

- 1—Hibernal.
- 2—Duchess.
- 2—Patten's Greening.
- 2—Dudley.
- 3—McIntosh.
- 3—Yellow Transparent.
- 3—Wolf River.
- 3—Wealthy.
- 3—Haas.
- 3—*McMahon White*.
- 4—Snow.
- 4—Alexander.
- 4—*Baxter Golden-russet*.
- 5—Scarlet Pippin.
- 5—Spy.

VARIETIES MOST AFFECTED.

- 1—Baldwin.
- 2—Ontario.
- 3—King.
- 4—Cranberry Pippin.
- 5—Wagner
- 6—Spitsenburg.
- 7—Gravenstein.
- 8—Hubbardston.
- 9—Stark.
- 10—Pewaukee.
- 11—Ben Davis.
- 12—Bottle Greening.
- 13—R. I. Greening.

WATERLOO BOY 12-24 TRACTOR



ATTENTION FARMERS OF ONTARIO

Take a good look at this Tractor. Study the lines of it, the design of it, and the simplicity of every working part. Doesn't it impress you well at first sight, as a real Tractor,

You can see this Tractor at Seaforth, Ont. If you buy one you can get service on short notice. You can get repairs at once. Consider the matter. Come to Seaforth and see the Waterloo Boy.

DESCRIPTIVE CATALOGUE FREE, WRITE FOR IT AT ONCE.

THE ROBT. BELL ENGINE & THRESHER CO. LTD.

SEAFORTH,

Ontario Distributors WATERLOO BOY

ONTARIO

Continued from page 316.

circumstances many young men "go wild."

A College Residence made up of an aggregation of box-stalls is not a "home," and can't be made into one, no matter what is done. Dark passages, out-of-the-way corners, bare rooms, all these tend to foster the animal, which all men have to fight continually if they would reach a higher plane than that of the beasts of the field.

What is the remedy for a serious defect in College Life? It is, supplying Cottages, holding from ten to twelve students which will be a "Home" for students while in their most plastic stage. In such a cottage, young men would learn to respect and care for a home, and be better fitted for life's duties which they will take up at the end of their College career. I venture

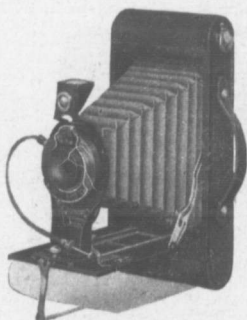
to say that under the cottage plan of residence, there would be no such "amusements" as have been all too common in the past. These pranks destroy men's respect for Home life, which after all, is the true measure of the progress of a nation.

Another advantage of the Cottage plan is that of improved sanitation. Scarcely a winter goes by that there is not a serious outbreak of measles, small-pox, "flu," or some other contagious disease which demoralizes college work and is a continual menace to the health of Students and Staff. Under the Dormitory system it is almost impossible to prevent these annual attacks of unseen foes.

A series of ten or twelve cottages would not cost any more than a factory building made up of box-stalls to ac-

Continued on page xxxiv.

MADE IN CANADA



3^A Folding Autographic Brownie

Pictures post card size

Price with single lens, \$12.50

Autographic photography makes possible an authentic, interesting, instructive farm record that could hardly be obtained in any other way.

Beneath each negative appears the date and title written on the film at the time of exposure. The result is a complete record—the pictures plus the facts—reference to which keeps the farmer in close touch with the affairs of the farm.

Any Autographic Brownie or Autographic Kodak gives you the full benefit of autographic photography.

CANADIAN KODAK CO., Limited
Toronto, Canada

commodate an equal number of students. But if they did, is not the life more than money and the body more valuable than a few dollars saved, for some one else to squander?

We should like to see the Students, ex-Students and Staff take this matter up in the columns of the "Review," and hope, Mr. Editor, that you will view this suggestion favorably, and give as much space as possible for a full and free discussion.

"X. STUDE."

A Question

Did Bert Begg and Clancy Caldwell have too much, or too little, organization in the final debate?

Year '21 is doing its duty to set the Freshmen a good example—I don't think. On January 27th the songs rendered outside the dining hall by the Sophomores were not edifying in any sense of the word. The song entitled "My Father was a Dutchman" is particularly deserving of censure—even some of the hardy seniors appeared to be shocked, to say nothing of those innocent Freshmen.

Soph. at Freshmen Skating Party—"Pardon me, Miss X., but are you full?" Note—This was before the sixth band.

It would appear that Alp will soon have a rival. Riley is developing wonderfully into Babyhood.

It seems that some upper class-men (not to mention some freshmen) are trying to draw attention to their small ankles by wearing spats. "Oh, what fools these mortals be."