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MISSING

THE O. A. C. REVIEW

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

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Address Delivered at the Experimental Union.

By Harvey B. Webster, St. Mary's, Ont.

IT gives me great pleasure to welcome you to the fortieth annual meeting of the Experimental Union. We are meeting this year under especially happy auspices, as the shadows caused by the great world war have passed away, and the dove of Peace has again returned to our midst. Many of our members have been on active service, and we welcome their return, though some will not come back to us, having made the supreme sacrifice. To all who are bereaved, we extend our sincerest sympathy.

Many and important are the problems that confront us as agriculturists at the present time, and press for solution. We would not be living up to the best traditions of our noble calling as farmers, and members of the Experimental Union, if we did not take note of conditions as we know them to be, and with broad minds, trained to fine perceptions through experimental work, focus our attention on these vital problems, and solve them in the national interest, proving all things even as we have been adjured to do all down through the ages.

We might first note some facts pertaining to the work of the past season. The weather conditions throughout the year have been unusually favorable for the prosecution of farm work, and Ontario farmers, by dint of application and perseverance, and by the general use of the most improved varieties of grain have again gone "over the top" and have produced a crop that, for yield and quality of grain, has never been equalled, with the exception of Winter Wheat. Great praise is due the farming population for their work this past year, but Providence has been kind, and has amply rewarded their efforts. We would not be fair if we did not give due recognition to the part played by the farm women. Due to acute labor shortage, they were obliged to undertake work to which they were not accustomed, and they responded nobly to the call. We must also appreciate the assistance lent by the boys and girls of our schools, as well as that of the city women who volunteered for farm work. The signal success which has attended their efforts has, we are pleased to say, been such that the doors of the O.A.C. have opened to receive them.

The call has come for still greater production from our farms. Due to the war and other causes, our country is now laboring under an enormous debt, consisting of $3,150,000,000 foreign debt and $1,200,000,000 National debt. The foreign interest which we owe abroad will amount to $170,000,000, and this combined with the running expenses of the country, soldiers' pensions, and other items, will total an annual charge of $400,000,000. Where

is the money to come from, seeing that the greatest annual revenue has been $179,000,000? Let us first endeavor to solve the problem of how we must meet our indebtedness abroad, and maintain our credit. It is only by productive work, and by selling abroad these products which are required by other countries, thus developing our export trade. There are two chief classes of exports, the products of the factory, and of the farm. 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, proving that Canada's farm lands are her chief national asset. The development of our basic industries should be our first national undertaking, that our wealth of national resources of lake, forest, field and mine should contribute to our national finances. It will probably be some time before our exports of manufactured goods will attain such volume, hence it is of more importance that our revenue-producing industries should be encouraged.

The mineral deposits of our land are of unknown richness, while the forests lend themselves to the production of building material and pulpwood, while only a small proportion of the arable lands of the Dominion are under cultivation. There is no doubt about the capacity of Canada's agricultural and grazing land to produce grain and livestock, to compete in the open markets of the world, with similar products from any other country. Canadian produce has already won an enviable reputation on the world's markets, and given free range, without restriction of markets, or the handicaps of unequal economic conditions. Canadian agriculture will continue to be, as now, the principal sustaining factor in the country's trade.

How is agriculture to be developed? First of all, by the return of labor to the land. For many years the lure of the City has drained the rural districts of the best of its young blood, and the call to arms has further depleted the already diminished supply of available help. Now that the war is over, the situation in this regard will be improved. Those who have been producing munitions, and who have had previous farm training may, now that the industrial life is in a period of transition from war to peace basis, be constrained to return to the land. They will be welcome for the land is crying for their help.

The returned soldier should be an important factor in increased production. With the return of over 400,000 men to our shores we trust that a large number of these will establish themselves on the land. The first duty of our Government is to make available suitable land for those soldiers who desire to cultivate it, and we hold that a large number of farms in Old Ontario, now producing but little, would be suitable for this purpose. There are, of course, vast acres of splendid soil in New Ontario, and a great expanse of fertile fields in the Western Provinces, that await but the touch of the human hand to make them productive. We are pleased to note that special courses are being provided at the College for those soldiers who wish to take up farm life; and we might note in passing that technical education should be provided in every line to those soldiers who desire it. The brave spirit which was displayed by our soldiers on the fields of battle, has done so much to place Canada in an exalted

position in the minds of other countries, that Canada cannot do too much for them in return. We maintain that soldiers returning to the land should receive every possible financial assistance, and capital thus expended would be far more profitable, than if used for unproductive public works, undertaken to provide employment.

Before farming will become the popular occupation, the economic conditions of our country must be re-adjusted. There is a general dissatisfaction throughout the country, and real discontent with the business of farming. Most of our farmers know how to produce much better than they are producing. This feeling has, of course, been developed during war times, because of the labor situation, and many have been forced, in their effort to maintain production, to make farming an existence rather than a life. Circumstances have occurred during the past year which have enlightened farmers as to the regard in which they are held by politicians, and they are now realizing that their occupation has been made the political foot-ball in times past. We agree that farm life can be made the ideal life, but not under present conditions. Were it not for the inherent love of the land, many more would have left the farm long ago. As Mr. E. C. Drury said at the recent convention in Toronto: "I farm for less because I would rather do it, than do anything else for more. I am a one-man farmer, and have all the problems of the ordinary farmer, struggling along with these problems to solve. I am happy in the work, but I know that I am not getting sufficient returns for the time and labor and thought which I put into my farm."

The abnormal cost of farm machinery and building materials has been an important factor, not only in increasing the cost of production, but in retarding the equipping and maintaining of a modern home. As a question of agricultural economics, we might consider one of the chief causes of this high cost of machinery. Official figures show us that for the fiscal year 1916-17, farmers contributed the sum of $2,120,000 to the Federal treasury as custom taxes on agricultural implements and farm machinery. It is also stated that, due to the tariff, three times this sum passes into the hands of the home manufacturers. The two combined make a total of eight and one-half millions, which sum was extracted from the farmers' pockets, on farm implements in one year. We maintain that this is an unjust state of affairs, and suggest as a partial remedy, apart from the tariff, that manufacturers of farm machinery should standardize their models, sell direct to farmers' clubs in wholesale quantities, and establish a common repair service.

The farm survey has shown us that the returns from the average farm are inadequate, and we suggest that our whole economic system be investigated, and established on a basis not of class preference, but that will give "Equal opportunities to all, and special privileges to none," and we maintain, that the tariff should be adjusted, so that agriculture will be enabled to pay the same interest on capital invested, pay the same wages for the same quality of work, and give equal satisfaction for the energy expended, as obtained in other industries. This is the measure of the Golden Rule.

With labor and economic conditions righted, we may expect an extensive trek to the land, and production on a large scale as a result. The form of production will depend largely on lo-

cal conditions, but we are strongly advised by the Food Board to increase production of meat producing animals. The flocks and herds of all Europe are seriously depleted, and these countries will first produce cereals and look to our continent for supplies, not only of meat but of breeding stock. More and better stock should be our motto.

Out of the pressing needs of our time is for a better system of rural education. Rural children are not brought into systematic touch with the needs of farm life, but rather away from it. If consolidation be the remedy, let us have it. Problems of reconstruction are not only national but are world wide. This is the time for unselfish and unbiased action by those who guide the destiny of our fair country. This is the time for international friendship, and we should cultivate the fine feelings which now prevail, and determine on lasting peace. This is also the time for national unity. Our work is a nation's job, and we all must join hands in making our country prosperous, that she may indeed flourish, and blossom as the rose. Unfortunately there is a condition existing which does not serve this purpose. There seems to be a widening breach between urban centres and rural communities. This feeling has been accentuated during the war, largely because of the increased cost of living, for which the farmer has been falsely blamed. It has also been developed by a consistent campaign of deliberate misrepresentation of rural conditions, by a section of the city press. In fact, the daily press, as a whole, has not been in sympathetic touch with rural thought, hence has arisen the desire of farmers to establish a paper of their own. We press for national unity and co-operation of all the people, and he who would, for personal gain, or political advantage, strive to set class against class, race against race, or creed against creed, should be branded as a traitor and a knave.

An influential movement is abroad in the rural community to-day, which is destined to elevate farm life, and to educate the farmer to a proper realization of his responsibilities of a citizen. This is the co-operative spirit. By the co-operative purchase of supplies, he is enabled to reduce the cost of production, and by co-operative selling, it is possible for him to secure the full market value of his product. We must learn to sell. We must study markets and the science of marketing, that we may be able to handle our business in the most efficient manner.

Co-operation in thought and ideal has already shown farmers the result of past economic follies, and that if they are to become a force for national good, they must be represented by their own class, in the halls where laws are made. Those of you who were present at the banquet a year ago will remember the lengthy appeal made by our Premier, then Minister of Agriculture, that if farmers wished their occupation to receive due consideration, they should send representatives of their own calling to the Legislature. The farmer has taken the hint, but we note with regret, that no opportunity is being lost to defeat that very purpose. Consistency, thou are a jewel.

We could not close without a word about our Alma Mater, which so many of us love, and the memories of which we cherish so fondly. We point with honest pride to the fact that seven hundred or more of the students and ex-students have given noble service to their country in this her time of testing, and that they have won coveted

laurels on the field of battle. We also feel justly proud of the record of the Alumni, many of whom worthily held high positions in this and other countries. And we would not forget the unique success which has been so lately won by the judging team at Chicago. All honor to the boys and their trainer.

There has, however, been a feeling amongst the students and ex-students of recent years that our grand old College here is not going ahead in the way it should. There is a feeling that more should be done in training our boys for leadership. Also it is felt that our College is not in sympathetic touch with rural needs. The College has done a wonderful and inestimable work in improving rural conditions in the matter of increased production on the farms, but now it is being looked to for leadership and guidance in the solution of social and economic problems. The graduates, as they have gone out into practical life have done much, but a stream can rise no higher than its source. May the appeal not be made in vain, for where there is no vision the people perish.

The return to familiar scenes and the meeting of friendly faces means much to all of us. Why can something not be done to unite by some tangible bond all those who have gone out from these hills by the formation of an Alumni Association? Why not link together all the ex-students of the O.A.C. men who are awakened, who have vision, who have a common interest in matters pertaining to advanced agriculture, men who have a common spirit and wanting to do the best they can, if only out of appreciation for what the grand old College did for them. Cannot some satisfactory basis for organization be arrived at, possibly in connection with the Experimental Union. We suggest that some steps be taken at once, and that the abstract be transformed into the concrete.

Now in conclusion, may we each and all strive to grasp the facts of the situation as they obtain at present. Let us not indulge in any vain regrets for the past, or in vainer resolves for the future. Let us act in the present. May our efforts tend towards building up a strong united nation, the foundation of which must be a better agriculture. May our ideals be high and noble, and may we be worthy of the sacrifice of those who have given up their lives for us. Let us grasp the torch of liberty and freedom that has been thrown to us, and let us hold it high, that we disturb not the slumber of those who lie where poppies blow in Flanders field.

The names of the winning Chicago team whose picture appeared in the January Review should have read from left to right: R. E. Begg, C. Lamont, D. F. Aylesworth, W. C. Caldwell, D. J. Matheson, C. F. Mackenzie and Prof. Wade Toole.

Banish the Common Barberry.

The Case against an Immigrant Plant Which has Betrayed its Trust.

By Dr. E. C. Stakman, Pathologist, University of Minnesota.

THE common or high bush barberry is in disrepute. In the grain growing regions of Canada and the United States respectable citizens do not wish to maintain the bush on their premises. Berberis vulgaris, as the common barberry is called in the language of the plant doctor, was brought into North America by the English colonists and has been planted widely on lawns, in parks and even in the country as an ornament, but now it is being accused of spreading the deplorably destructive black stem rust of grain crops. This is indeed a serious accusation.

Dr. E. C. Stakman

The stem rust destroys millions of bushels of wheat, oats, barley and rye every year. Some stem rust occurs in grain fields every year, but it does much more damage in some years than in others. When weather conditions are favorable to the spread of rust terrible epidemics may develop which sweep across grain-growing regions like a prairie fire and leave destroyed grain and wrecked hopes in their wake. The worst epidemic of recent times occurred at the most critically inopportune time in 1916. In that year the stem rust destroyed about 300,000,000 bushels of wheat in Canada and the United States. The rust was one of the principal causes for the food shortage which resulted in so much anxiety and so many dissatisfied stomachs. Rust was largely responsible for the use of corn bread, barley bread, rye bread, oat meal bread and many other substitutes which failed to make good with our palates. And not only were there these appalling losses of wheat, but of other cereals as well. It was positively sickening to travel through the spring wheat region and see the devastation which the rust had wrought. Thousands of acres of wheat were never cut because what the rust had left of the once promising grain would not pay for the harvesting and threshing.

Rust is one of the oldest plant diseases of which there is definite record. The Bible speaks of blast in grain which probably refers to the rust. The Ancients certainly knew the rust and made many interesting observations about it. They shrouded it in much mystery and made comments on its nature which furnish much amusement now.

The Romans feared the rust so much that they had a special rust god whom they called Robigus. Every spring they held a festival, the purpose of which was to propitiate Robigus. This festi-

val was known as the Robigalia and was taken very seriously by the toga-clad Roman fathers. Those taking part in the festival marched out along the Claudian way to a sacred grove where the real heavy work of warding off the disease was done. A priest prayed to Robigus, the entrails of a sheep and a reddish dog and some wine were thrown upon an altar and burned; and the crowd probably performed other meritorious rites. Apparently the Romans did not become discouraged with this method for they retained it for many years. And when all is said and done the methods in use until recently have not been much more efficatious, except that the wine has not been wasted.

Plant doctors went into consultation after the awful epidemic of 1916. They realized that a heavy responsibility rested upon them at that time when another such epidemic might affect the National destiny profoundly. They were not willing to entrust the fate of grain crops to a bottle of wine, the entrails of a yellow dog and Robigus, who was aging rapidly, so they took inventory of their knowledge about the nature, peculiarities and habits of the rust and tried to determine what could be done to prevent the recurrence of another such disaster. After considering the matter carefully they decided that the common barberry was guilty of developing and spreading rust, and that it was the one culprit within easy reach. They agreed that the barberry did for the rust what the cootie does for trench fever—spread it. They therefore prepared the case against the barberry and asked all public-spirited citizens to do the rest.

The Case Against the Barberry

In order to understand clearly the relation of barberry to rust, it is necessary to know something about the rust itself. Every student who has studied botany knows something about rust, but that something is not always sufficiently definite. At one of the great American Universities one of the questions in the freshman botany examination was to give the life history of Puccinia graminis—the stem rust fungus. One enterprising freshman penned the following words of profound wisdom: "The rust starts out on the barberry and then has a long checkered career." The freshman had grasped the principles all right but he was not strong on detail.

Rust is caused by a parasitic fungus, Puccinia graminis. This fungus can live in the tissues of wheat, oats, barley, rye and about fifty wild and cultivated grasses. It reproduces by means of spores which correspond roughly with the seeds of higher plants. There are several stages of the rust and each produces a different spore form. The red rust, or summer stage, develops during the growing season while all conditions are favorable. The red spores can germinate immediately and infect grain and grass plants but no other plants. In the fall the black stage is produced on the grains and grasses. The black spores cannot germinate until the next spring. They send out germ threads which in turn produce small secondary spores known as sporidia. Strangely enough the sporidia cannot infect grains or grasses but can infect only barberry and Mahonia, a plant closely related to the barberry.

Within about a week after the barberry is infected it develops the cluster cups on the lower surface of the leaves. The cluster cups contain the cluster cup spores which cannot attack barberry but can and do infect grains and

grasses. There may be as many as five million cluster cup spores on a single moderately infected barberry leaf, and each one of the spores can infect grain and produce rust on it within a week. The amount of rust therefore increases by geometrical progression.

The Spread of Rust from the Barberry

Barberry bushes usually become rusted sometime in May and the rust soon spreads to grain plants if they happen to be near the bushes. But even if there are no grain plants in the region the rust can spread because it can pass equally well to many grasses, including wild barley, quack grass, slender wheat grass, western wheat grass, red top, orchard grass, the wild rye grasses and many others. From these rusted grasses the rust then spreads to other grasses or to grains. There are different strains of the rust and the particular strains present determines what will happen. The rust from oats, for instance, will not infect wheat, the rust from wheat will not infect rye normally and the rust from rye will not infect either wheat or oats. Barley can be infected by both the wheat and rye strains and each strain can infect at least some of the grasses.

It is clear therefore that the barberry bush is a centre from which the rust spreads and this fact ought to be enough to condemn it. Even if the barberry is not the only means by which the rust can get started in the spring it develops a tremendous amount of rust and ought to be destroyed. There was a belief that the rust could live over winter in the seed. This idea has been pretty well disproved. Some botanists have also held that the barberry was not necessary in the life history of the rust. It is true that in the Gulf States of the United States the rust continues to develop in the red stage almost the year around, but it certainly does not do this in the Northern half of the United States and in Canada. While it cannot be said that the red spores never live through the winter and attack the grains the next spring, the evidence is all against it. There can be no question that the barberry bushes develop rust in the spring and that the rust spreads from the bushes to grains and grasses long before there is any rust at considerable distances from the bushes. Neither can there be any question that the bushes are responsible for the development of tremendous amounts of rust and that they are a very important factor, and in many regions the most important factor, in the development of the terrific epidemics which are the terror of all grain farmers in Canada and the United States. The obviously sensible thing to do therefore is to destroy every common barberry bush in the United States and Canada.

Description of the Barberry

Not all species of barberry rust. The Japanese or low bush barberry is immune to rust while the common, high bush, or European species rusts heavily. Both are planted widely as ornamentals but the harmless Japanese species is much more beautiful than the common form and is replacing it rapidly in popular favor.

The common barberry is a tall shrub, often as much as twelve feet high. The bark is greyish in color and along the stem are many long spines, usually in clusters of three to five. Above the groups of spines are clusters of fairly large green or purple leaves with saw-tooth edges. The yellow flowers and red berries are born in racemes like currants. In Ontario the purple leav-

ed variety of the common barberry is one of the chief culprits responsible for the spread of rust.

The harmless Japanese barberry is a low, gracefully spreading shrub, seldom more than four or five feet tall. The bark is reddish in color and the spines are smaller than those on the common variety. They are usually borne singly or in small clusters of three. The flowers and red berries are borne singly or in groups of two or three like gooseberries. The rather small leaves have smooth edges and are in clusters.

Hybrids between the common and the Japanese species are not at all uncommon. These hybrids may be intermediate in appearance or they may look like either parent. They may rust, even when they resemble the immune parent.

There are many other species and varieties of the barberry in addition to those mentioned, but they are not commonly propagated and planted. Some of them rust and some do not. In general those which resemble the common barberry in appearance rust, while those which look like the Japanese form do not. Some of these forms are native in the United States, but they grow for the most part in the mountains or on the Southwestern plains and do not seem to be a factor in the rust problem.

The Wanderings of the Barberry

The Common barberry is a native of the mountains of Central Asia. It was probably brought into Europe by the Saracen invaders who used the berries as medicine. By the middle ages it had made itself pretty much at home in its adopted country. As a matter of fact the people apparently wanted it and cultivated it. The monks evidently cultivated it quite extensively as a medicinal plant. Later it was cultivated as a fruit bush. The berries were used for preserves and the juice was used as a substitute for vinegar and lemon juice. A pupil of the great botanist Linnaeus recommended that barberry juice be used instead of lemon juice in making "The good-tasting, heathful English drink called Punch-Potus Polopuntiae." Other suggested uses for the juice and other parts of the plant were as a mouth wash, as a remedy for scurry, fever, delicate appetite, constipation, jaundice, slivers and other troubles and ailments too numerous to mention. The wood was also used and the bush was used for hedges which did service as fences between farms. The bush was brought into the New World by the colonists and flourished. It has been spread over the entire country and has even escaped from cultivation in many places, especially in the New England States and to a lesser extent elsewhere. Being a mountain plant originally, it thrives best in rocky places, especially in limestone hills. This is a very unfortunate characteristic because the bushes are hard to eradicate from such places.

Destroy the Barberry

Every barberry bush in Canada and the United States ought to be destroyed as soon as possible. The bush is at best a second rater and has no place in a grain-growing country. Its uses as a medicinal plant has long since been discontinued and its use for esthetic purposes should be discontinued because it does not satisfy the soul's craving for beauty.

The present campaign to eradicate the bush is by no means the first one. There was a long controversy in Europe between those who considered the bush harmful and those who wanted to

grow it for use in making punch-Potus Polopuntiae. A Danish preacher about 1800 wrote as follows regarding the effect of a barberry hedge on a farmer's place: "The hedge thrived well but it had a serious effect: it gave the straw of the grain shelter but the seed death." Again, a member of the Danish Land Husbandry Association about the same time wrote as follows: "A sensible man became angry upon seeing a barberry bush in my yard and another became so melancholy that he hung his head for a long time."

But some people did more than hang their heads: they had the courage of their convictions and enacted laws making the barberry an outlaw. The first barberry eradication law was supposed to have been passed in Rouen France in 1660. The colony of Connecticut, passed a law in 1726 which permitted each township to forbid the cultivation of the barberry bush. Massachusetts and Rhode Island also legislated against the barberry soon after. Many laws were passed in European countries, but apparently most of them were not enforced. But it is significant that the effect of the bush in spreading rust was so clearly apparent that people resorted to legal means to secure its removal before they knew just how it affected rust.

The scientific demonstration of the relation between the barberry and stem rust came in 1865 when the great botanist De Bary proved it to the satisfaction of the most captious. Since that time the demonstration has been repeated thousands of times. It would seem that the discovery would have prompted public spirited people to insist on the eradication of the bush, but the only successful attempt on a large scale seems to have been that in Denmark where a law was passed in 1903 requiring the destruction of the bushes. The barberry had been removed entirely from Denmark and the rust has diminished so much that it is no longer a serious factor. Other abortive attempts were made. There is a law in Ontario now which gives the township authorities the right to order the destruction of the bushes, but it is not enforced rigorously.

The present movement for the destruction of the rust susceptible barberry began about a year ago. The farmers of the great Northwest demanded that every possible means be taken to reduce rust losses and the plant doctors had already made up their minds that the barberry must go. Manitoba and Saskatchewan branded the bush as a noxious weed and there are few bushes left in those provinces. The legislature of North Dakota passed a law in 1917 requiring the destruction of all kinds of barberry known to be susceptible to rust. The barberry is also an outlaw in several other states of the Upper Mississippi Basin.

Thousands of the common barberry bushes have been destroyed in the fourteen states in which the barberry eradication campaign was carried on during the past summer; and thousands of others will be destroyed next spring. The nurserymen of Minnesota alone destroyed 598,549 bushes and property owners removed about 75,000. One nurseryman in Iowa dug up and burned over 50,000 plants. So many bushes were dug up on the campus of a college in the middle west that it took two teams more than four hours to haul them away. And every barberry bush destroyed means just that much added protection to grain plants.

Canadian Plant Pathologists at their recent meeting at Guelph went on re-

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Poultry Sanitation.

By C. F. Luckham, '19.

JUST at this time of the year, before the hatching season has commenced, a word regarding sanitation might not be out of place. We often are disgusted upon visiting the brooding house about a week or ten days after we have set the hens, to find two or three of them off the nest and the eggs cold; yet in most cases it is our own fault. Unless the birds are comfortable we can't expect them to complete the hatch, for after all "**comfort**" is one of the all important factors in successful poultry keeping.

The health of the average farm flock is not as a rule given sufficient importance. There are, of course, exceptions where a regular systematic cleaning of the house is observed but where we find one of the above we usually see many more where the cleaning is left until a rainy day or until there is nothing else for the hired man to do. The droppings are quite often allowed to accumulate for months before any attempt is made at a proper cleaning—with conditions such as these we can't expect the birds to be vigorous and healthy.

To make conditions worse the majority of houses are lighted only by a small all glass window about four feet square, and located in the south, east, north or west, as it comes handy. Practically no ventilation is provided unless it be a little fresh air which steals in night and morning when the farmer enters to feed the birds. Such conditions invite disease and favor its development, when it does settle in the flock, as well as, furnishing splendid breeding nests for all sorts of insect pests. If there is any one time when the house should be especially clean it is at time of hatching. It should be thoroughly cleaned at least once a week, and some sort of disinfectant, such as lime, sprinkled over the floor, and if at all possible the walls, nests, roosts, etc., whitewashed to give it a sweet, fresh odor. A very good whitewash is made by taking 1 bushel of lime, 20 gallons of water, about four gallons of skim milk, and a little crude carbolic added. This may be put on either by spraying or by the hand brush. The skim milk acts as a sticker and of course the crude carbolic disinfects.

The hens should be free from all vermin. It is generally admitted to be a most difficult matter to keep a flock of fowl absolutely free from body lice, but if the house is kept clean, and well ventilated, and hens healthy, a big step has been taken towards their control. Body lice breed and live on the body of the fowl. The eggs are laid upon the down feathers about the vent and may often be found hanging in clusters. They reproduce very rapidly so that a flock considered free from lice now may be badly infested in only a few weeks.

In order to control these lice a proper dust bath should be provided and placed in a sunny part of the house. In this some earth or coal ashes can be placed, but preferably earth, as it is beneficial to the skin of the birds as well as ridding them of lice. A little powdered sulphur, few handfuls, add-

ed to the bath, will also assist. Another dust which may be used is made by mixing 3 parts of gasoline with 1 pint crude carbolic, and adding sufficient plaster of paris to make it into a powder. Then dry it by exposing to the air to avoid hardening. This, of course, would be used to dust the individual

sume. The best method of control is to thoroughly clean the house, removing all the old nesting material, etc., spray all the perches, nests, floors and walls with a mixture composed of three parts kerosene and one part crude carbolic acid, being careful to penetrate all cracks and crevices of the

"The darned thing won't stay on the nest!"

birds before setting and during the hatch.

Red Mites are even worse than body lice, and are largely responsible for hens leaving the nests before the hatch is completed. They are naturally grey in color, but usually appear red, owing to the large amount of blood they con-

building. It will be necessary to make a second application about three or four days later to destroy the mites which hatch after the first application. After they are once destroyed, **Cleanliness, Fresh Air** and lots of **Sunlight** are the cheapest and most effective preventatives.

Grafting.

By D. A. Kimball, '20.

THIS method of propogation is used principally with apples, pears and plums. The reasons for grafting are threefold: (1) To perpetuate a variety; (2) To increase the ease and speed of multiplication; (3) To produce some radical change in nature or habit of stock or Scion.

By the term scion we mean the part cut from one plant to be inserted on another (or the same) plant, the stock, with the intention that it shall grow there.

The fundamental principal on which the practice of grafting is based is purely a question of plant physiology, and any one doing this work will have several points to keep in mind. First, the relationship between the stock and scion must be one that will permit a union from a physiological standpoint; i.e. the cambium cells of the stock must be so constituted that a union is possible between them and the cells of the scion, and vice versa. Second, the cambium layer of the stock must coincide with that of the scion so that sap may pass from one to the other. Third, every precaution must be taken to seal up the union to prevent the loss of moisture and consequent drying out. For best results it is essential that the stock commence growth quickly, following the operation of grafting, except in whip grafting, in which the union can be easily kept moist. Grafting may be done at any time when the wood is dormant.

For the various operations of grafting, the tools necessary are a good strong knife, a hand-pruning shears, a saw, a waxing pot and brush, and some material for tying the union. In working over large trees a chisel or grafting tool, a mallet and a two-handled pruning shears should be added to the list.

Selection of Scions

This is the first operation in all grafting work. The scions should be preferably taken from one year old wood, which has strong, well-matured growth, discarding all soft and pithy sticks. This wood must be secured when the buds are absolutely dormant. The scions may be packed in damp moss or similar material and kept in a cool place until needed. If the moss is too wet the scions will become water-soaked and worthless. In preparing the scions at grafting time the first few inches of the year's growth should be discarded as the buds are small and poorly developed, and will not start readily. Likewise the tips should be discarded as the buds are usually unmature and the wood too soft. The usual length of scion is from two to four inches.

Many methods of grafting are in use, but space will only permit dealing with three most commonly used in Canada, namely: (1) Whip Grafting; (2) Cleft Grafting; (3) Bridge Grafting.

Whip Grafting

The whip graft is used chiefly for root grafting, and on nursery stock and small limbs. It is easily made and, because of the several edges at which scion and stock unite, is very apt to form a good union. Whip grafting of

roots is the one used almost altogether by nurserymen.

The stock is cut off diagonally at a point free from knots or shoulders—one long smooth cut with a knife, leaving about three-quarters of an inch of cut surface. Place the knife about one-third of the distance from the end of the severed surface of the stock, and cut a short distance in the direction of its long axis, and slightly toward the heart to prevent splitting. Cut the scion in a like manner, and fit the two firmly together, care being taken to match the growing parts along at least one side.

The union is then wound with waxed string and wax. After growth has well started the strings should be cut to prevent girdling.

In root grafting the root constitutes the stock. It is cut into pieces from two to five inches long (known as piece root grafting), or the whole root is used (called whole root grafting). The operation is usually done during the winter months, and the grafts are packed away in damp moss, sawdust or sand, in a cool cellar, to remain until spring. No wax is used. By spring, callousing and the knitting together of stock and scion will have taken place and they are planted out with only the top bud showing above ground.

Cleft Grafting

This style of grafting is particularly adapted to large trees, when for any reason it becomes necessary to change the variety. Branches ranging from one to six inches in diameter can be used. The best results, however, will likely be obtained if branches 1 1-2 to 2 1-2 inches in diameter are used. Only part of a tree may be "worked over" during one season, as enough leaf surface must be left to support the tree. Ordinarilly half of a small tree or one-third of a large tree may be grafted at one time.

The limb should be sawn off carefully, care being taken that the bark be not loosened from any part of the stub, and then split horizontally with the chisel or grafting tool, and mallet. The split should not extend into a knot but run straight down on either side of the limb. In extreme cases where four or more scions are desired the extra cleft should be made parallel to the first and not across it. By means of the wedge on the grafting tool the cleft is spread apart ready to receive the scions.

The scion should contain at least three good buds. Beginning at either side of a bud, with two strokes of a knife, cut the lower end of the scion in the form of a wedge, one side of which is slightly narrower than the other.

The wedge end of the scion is then inserted in the cleft with its narrower side towards the centre of the stock, thus allowing the outer and thicker edge of the scion to be gripped firmly when the stock is released and sprung into place. The utmost care should be taken to match the growing or inner layer of the bark of the scion with that of the stock, or to see that they come into contact at one or more places. Sometimes, with beginners, the scion is set at a slight angle to insure crossing of the two layers.

The final step is waxing the graft. The wax should be heated in warm water until it will work readily, then with greased hands or a brush spread a thin layer over all the cut surfaces, including the tips of the scions and extending down the limb on both sides,

covering the entire length of the cleft. If the covering of wax is not air-tight the scion will die.

Bridge Grafting

This too seldom used but an extremely valuable form of grafting differs in purpose from the two just described. Its most important use is to preserve trees injured or girdled by rodents, disease or accident.

The exposed surface should be sterilized by washing with bichloride of mercury or some such solution, and all ragged or diseased edges evenly cut back to living bark, both above and below the wound. A longtitudinal slit is then made in the bark, both above and below the wound and the edges slightly loosened.

A scion is cut, about two inches longer than the space to be bridged, so that an arch will exist after insertion, to aid in holding the scion firmly in place. Before being placed in position the scions are bevelled at each end, both levels being on the same side of the scion, and relatively thin to prevent separating the bark unduly from the cambium at the points of insertion. The scion is then inserted in the slit, its bevelled face against the wood of the trunk. The ends are then thoroughly covered with wax to prevent drying out.

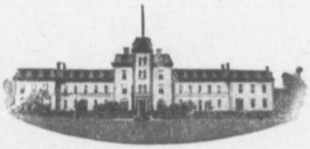
If a small tree, it must be staked to prevent its waving in the wind. The number of scions used depends on the size of the tree. Ordinarilly they are placed two or three inches apart. In placing the scions it is of great importance that the cambium, which is exposed in the sloping cut at the end, be brought into intimate contact with the cambium that lies underneath the bark at the margin of the wounded area. If necessary a small tack can be driven through each end of the scions, into the trunk, to hold it in place. The ends must not, however, be split in any way.

Grafting Wax

A good general purpose wax can be made for grafting with the following formula:—Resin, 4 lbs.; Beeswax, 2 lbs.; Tallow, 1 lb.

If a softer wax is desired (for warmer weather), substitute for part or for all of the tallow with raw linseed oil.

Melt all three ingredients thoroughly together and pour into cold water. As soon as wax becomes cool enough to handle, grease the hands well, pull and work it until it becomes light brownish yellow in color. It may be moulded into balls of convenient size and stored in a cool place until ready for use.

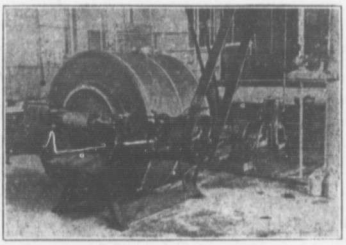


A Day's Work in Buttermaking.

By J. Ian Way, '19.

PURELY for curiosity's sake let us follow the actions of the head buttermaker of a modern sized, up-to-date creamery for a single day.

We will assume that he is doing all the work and will not take into consideration the duties of his assistants; that we are dealing with a cream gathering plant catering to the immediate retail trade and following the system of pasteurization one day and churning the next, at the same time remembering that these two operations, nevertheless, are being carried on during the same day.



Everything has been cleaned, sealed and in readiness for a quick getaway the first thing in the morning. All churn doors, pipes, strainers, etc., are put into position as far as the successive order of actions for the morning will allow.

Anywhere between four and five a.m. will find our man turning his key in the front door. If he is a firm believer in saving steps he will swing the cold water pipe into position and immediately start rinse water running into the churn as he passes on his way out to the boiler room. This first water when revolved within the churn prevents the adherence of the butter granules to the inner walls. On his way back to the churn-room he throws in the motor switch, revolves the churn a few times, generally with doors off, flops it over, draws off the water, rights it again and starts pumping the cream across.

The first man on the job seldom has any spare moments to lose as he is expected to have the work well under way by the time the other hands come on duty.

Now while the cream is being pumped over from the pasteurizer to the churn the wash water is running into the tank overhead for the purpose of rinsing the butter granules after the buttermilk is run off.

All his cream being pumped over, his churn is started.

Now comes the spare moments when a head buttermaker can be judged as to whether he is the right man on the job or not. If he is, you will not find him an idle man. He sees his chance for a good start for his other men. He will have the wash water running into the recently emptied pasteurizer; the butter wrapping table in place, rinsed off and in readiness for the day's wrapping; his nineties in a row on the floor before the churn; the boiler well under way, and in fact a countless number of things ready so that no time is wasted getting his men to work when they arrive.

His "churn is broken." He has the desired size of butter granules. He

Continued on page XXXVIII.

FARM POWER

THE world moves on, slowly in some ways, very rapidly in others Probably one of the greatest strides in modern years is the revolution wrought by the gas engine in Agriculture, the final effect of which would be difficult to prophesy.

A few years ago the tractor, the gasoline engine and the motor car and truck played a very small part in farm life. 1919 sees these forming a tremendous factor, which is daily increasing. Tractors, the most recent form of farm power, were employed on Ontario farms in 1918 to the number of seven hundred and seventy. Thousands of farmers own automobiles and operate gasoline engines; a great many take advantage of the fast-moving motor truck in marketing their produce.

These forms of farm power are here and here to stay. What they have done for agriculture during the past few years, they will more than do when turned out in more improved models. However, great difficulties lie in the way. People are naturally slow to take hold of new ideas and new machines until their value is proved and reproved. Moreover, through ignorance in operation and economic handling, many farmers will not make the success of tractors and other forms of gas engines that they would if properly instructed in their use.

Because of the great part which gas engines are taking and will take in agriculture the Review Staff has decided that they must give particular attention to this line. Thus we are beginning a new department—*Farm Power*. We intend to publish articles on the various phases of the subject and as well invite all those interested to give us their opinions, from whatever angle they see fit. We also are prepared to answer questions on tractors, etc. and their various troubles.

We had planned to have an article on tractors by Professor W. H. Day this month, but, owing to illness, he has been unable to do so and lack of time has prevented us from replacing it. However, we hope to make a real start in Farm Power in the March number.

LIST OF PRACTICAL EXERCISES FOR SHORT COURSE STUDENTS IN FARM POWER, AT THE O. A. C.

Timing valves.
Timing ignition.
Valve grinding.
Adjusting push rods or tappets.
Carbureter assembly and adjustment.
Removing piston and rings and replacing.
Babbitting and adjusting bearings.
Removing carbon.
Timing magneto and cam shaft.
Electric generators.
Electric motors.
Magnetos.
Make and break ignition.
Jump spark ignition.
Testing brake horse power.
Rope and cable splicing.
Soldering.

Keep More Sheep

By J. A. Hall, '20.

HAVING read Mr. Telfer's article on sheep, in the October number of the Review, I wish to reinforce his estimation of their value by a few deductions made from observations and information gleaned through conversation and questions.

In looking over the books of a man who has recently become interested in cattle, light horses and sheep, and who has invested considerable capital in herds and flocks of his own, I noticed that, for a period of five years, the sheep have shown the greatest profits. During the past year (1918) his fifteen hundred sheep gave a net profit of nearly five thousand dollars, while the other departments have shown a deficit.

These sheep are nearly all grade stock of Oxford Down, Leicester and Southdown origin. A large percentage of them were let out to neighboring farmers, who fed and cared for them, for half the profits. The remainder were kept on his own farms, of which he has several. The sheep did not receive any more attention accordingly than did the other livestock, and, in many ways, were living under adverse conditions, such as poor housing, lack of water in the winter time, and no accommodation for early lambs.

The sheep which came directly under my observation had never been dipped and were badly infested with ticks. This no doubt considerably reduced the profits.

During the summer months the sheep pasture on such land as is too stony or too rough for economic cultivation, and they receive practically no feed in the buildings from the middle of April until after the first or second week in November.

It is true that the price of wool has increased a greater percentage than many other farm products, but it is the opinion of leading men that the demand for wool and mutton will remain high for a number of years to come. Therefore it would seem that any who can, will do well to build up a flock of his own, the size of course, depending upon his experience and the accommodation he can give them.

"Peggy Sees Life"

A Short Story with a Surprise In It.

By Tom Brown

TWILIGHT was deepening into night, the birds were chirping their Good-night message, and the moon was rising in all her glory. The countless stars brightened up the whole land, twinkled and faded as the fleecy clouds might pass their way. The sweet night air and fragrance of the sleeping flowers seemed dominated by the dainty perfume of mignonette from the near-by garden.

In among the giant fir-trees one of the nicest country homes, owned by Mr. and Mrs. Louis A. Jennings, was situated. The house was a dark brown and white bungalow with a huge lawn all around and bushes here and there, forming a picturesque scene of beauty. A driveway could be seen winding around the side of the house by the grand old verandah which was secluded by vines, forming a net-work to the roof. The shadow from a clump of bushes was cast across the lawn and in this spot Peggy, or in other words, Mrs. Jennings, was seated on a bench.

She was a very attractive young person, twenty-two years of age, very graceful, rather tall, with light brown hair, and dark blue eyes by way of contrast. Providence had endowed her with a happy disposition but even the happiest dispositions falter sometimes and to-night Peggy was frankly dejected. This life with nature was altogether different from what it had been in the city. Peggy had been one of America's pleasure-seeking, dazzling-gowned, midnight throng and the days had been filled with excitement,—The never-ceasing crowds, theatres, cafés held her entranced, but, to-night, instead of all this, she was thinking of what she wanted to do on her birth-day. Soon she told Louis, her husband, that she wanted to go to the city alone—just once. Louis tried to persuade her not to think of such a thing but when he saw Peggy's Do-or-Die Expression, he let her have her way. "What are you looking for?" asked her husband.

Next day she and her husband found themselves in the heart of New York. Peggy sighed: "I won't go home without my birth-day present. "It is to be anything I want, is it not?" "That is the agreement."

In the early morning she had set out alone and before her husband was aware of it she was with chattering birds and squirrels in Central Park. She had fled to this park to get away from the streets which were so oppressively vacant and dreary and to find herself in cool sweet surroundings like her own home. A mounted policeman, suspicious of this well-dressed young person up at this early hour, sat watching her. He thought she must be a bird-tender as the birds were flying all about her, crowding at her feet, resting on her shoulders and extended arms, and circling above her head.

Then she went into the street again, amid the crowd that was by this time surging to and fro. She entered a quiet restaurant to eat her breakfast. She chattered with all sorts of people, such as newsboys. Instead of being cold and aloof New York was warm and sociable.

Continued on page XL.

A Hymn at Sea

By Wanderer.

God, whose mighty wisdom planned
Light and air and earth and sea,
Though our ship is far from land
We are never far from Thee.
Countless fathoms though there be
Down to ocean's floor of sand,
Yet secure and safe are we
In the hollow of Thy hand.

As our vessel cuts her way
Through dark waves and flashing foam,
Father, let us never stray
From the track that leads to home.
So our little ship shall roam
Tiny speck on ocean grey,
Under heaven's boundless dome
By Thee guided night and day.

As the seabirds round us fly,
So, before, above, beneath,
Angels of the Lord Most High
Watch and guard our every breath.
Fearless, we who walk by faith
Know Thy ministers are nigh.
Bring they life or bring they death,
Still with Thee we live or die.

THE OAC REVIEW

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EDITORIAL:

Prof. W. H. Day.

THE O. A. C. is losing an able, broad-minded member of the faculty in Prof. W. H. Day, head of the Physics Department, who has resigned to become Secretary and Manager of the Shinn Manufacturing Company of Canada, with offices and factory at Guelph.

Prof. Day graduated from Toronto University in 1903, as an honor student and gold medallist in physics. In April, the same year, he was appointed Fellow of Physics at the O. A. C., and in August became demonstrator. In 1906 he was appointed lecturer and head of the Physics Department, and in 1908 became professor.

His investigations and propaganda work in farm drainage and in the field of lightning has resulted in the improvement and reclaiming of much

PROF. W. H. DAY.

Ontario land and in the saving of many thousands of dollars from lightning loss. His institution of a short course in farm power last year was most timely and will, without doubt, do much towards educating Ontario farmers in that very rapidly growing phase of agriculture.

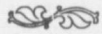
All connected with the college, ex-students and farmers, are sorry that Prof. Day has severed his connection with a position in which he has done so much, and in which he would have accomplished a great deal more, but wish him equal success in his entry into commercial fields.

The Experimental Union.

ON January 14th and 15th was held the 40th Annual Experimental Union Meeting. Although the influenza epidemic prevented many, including several speakers, from being present, the meeting was, if anything, better than ever. Not only was a review of experimental work given but the outlook for agriculture in general was discussed.

This annual meeting is an excellent educative medium, and more farmers should take advantage of it. However, this gathering is only an index of the benefits derived from the Union, under the directorship of Dr. Zavitz, O. A. C. No. 72 and O. A. C. No. 3 oats, O. A. C. No. 21 barley, and O. A. C. No. 104 fall wheat, prove that emphatically. These highest yielding varieties were originated at the O.A.C. and spread throughout Ontario by means of the Experimental Union. They, alone, ought to be enough to prove to every farmer, no matter how opposed he is to experimental activities, the work being done by this organization.

As a source of seed it stands unrivalled. Although to some it may seem a slow way of obtaining a supply of good seed, yet it is the most reliable manner. Anyone who figures out what an increase of eight bushels per acre —typical of results by experimenting— amounts to on the average farm, might well consider the trouble of conducting an experiment slight in comparison to the results thereby obtained. Better seed, weed eradication and disease control can increase the yields of grains, hay, roots and potatoes a tremendous amount. This can to a great extent be achieved by being an experimenter and by reading the literature gotten out on the work.



A Memorial To Our Fallen.

THE war is won; but it has cost hundreds of thousands of noble lives. Nearly one hundred O.A.C. boys have died that the rest of us might continue to enjoy democracy. And yet how quickly we forget. Time all too soon will dim the memory of our fallen men.

However, something can be done which, down through the years, will remind the students of the O.A.C. of the supreme sacrifice made by these heroes. When one visits the reading room of Massey Hall, his eyes often fall upon a brass tablet commemorating an O.A.C. man who fell in the

South African war. Although the great majority of us did not know that man yet we silently pay homage to his memory. With one hundred memories to preserve, it is but fitting that a memorial, in keeping with the number of fallen and the great cause for which they gave their lives, should be erected, so that, in future years their memory will be retained.

Therefore we, at the O.A.C., must institute a movement to this end. The proper body to initiate this is the Students' Council. But they will require the aid of the faculty, the students and ex-students. Now is the time to begin.

Those Skinflint, Profiteer Farmers.

MUCH has been said in the past, much is said to-day, and no doubt, much will be said in the future, of the miserly instincts of the farmer. Naturally, such a complimentary statement is only made by city-bred people, or those ex-ruralists who have become affected with town superiority. However, those of us who are in a position to regard the question from both sides are forced to admit that the statement is to a certain extent true. Yet, granting this, there must be a reason. No people or class of people possess certain characteristics without a reason. For instance, people in tropical countries are lazy because of the excessive heat and the easy manner in which they may gather their food. The English are great mariners because of their insular position; the commercial traveller has a well-muscled tongue through frequent use; every man is influenced by the particular manner in which he earns his living, and, as well, by the opposition incurred thereby.

Agriculture, prior to the war, was not a business showing a large surplus at the end of the year—nor is it now. Indeed, the great mass of farmers did not make a decent wage for their own labor. Lack of brains, systematic methods, etc.? No; not entirely. The farmer toiled with soaked shirt to produce goods that sold at prices determined by these self-same sarcastic dwellers of the city. Because of his independent nature, cultivated by his boss-workman occupation and because he was not hemmed up in a fifty by thirty-five foot lot, or smaller, he did not co-operate with his neighbor like his gregarious city brethren, and, thus could not demand such prices for his goods and labor, as the organized men of the town. He could not strike if he did not obtain forty to fifty cents an hour for skilled labor; he could not figure out the cost of producing his goods, tack on thirty-three and a third per cent., more or less, and sell at that price. How then could he be expected to possess the liberality of the "flush" city men? Bullied by the organized buyers and salesmen whose brains were unfogged by manual labor, is it to be wondered at that he was forced to keep a tight grip on his battered old wallet? Put some of the "generous" men of the city through ten to thirty years of this same grind and they will become affected with the same virus—if they can stick during its development.

The war came. The demand for farm produce became greater than the

supply. According to the laws of economics prices soared. Most farmers made money, at least more than before, but not five to seven dollars per day or the average manufacturer's profits. What was the result?

Farmers bought cars; they trucked in produce to canning centres — of course it was only going to waste anyway and so should not count; during the recent Victory Loan drive, agricultural districts subscribed and oversubscribed their quota.

As soon as he is in a position to be liberal and include that liberality in the cost of articles produced the farmer will equal and perhaps surpass the self-boasted generosity of the city man. This will come only by organization. When that time arrives, the farmer will obtain just prices for his long hours of hard labor and then he will no longer merit the hackneyed epithet so often hurled at him.

"Just prices!" sneers the ignorant customers of the city. "Why the farmers are robbers." Indignation seethes under their hot skins—indeed this indignation boiled over in one of our border villages and a fair price committee was appointed to set prices by which the profiteering farmers were supposed to abide. The citizens of such places as this have become so accustomed to dictating the farmer's buying and selling prices that they attempted once more to demonstrate their power. But this time the farmers were united and demand was great, so that they were not forced to stand bullying. Frequently a Toronto coloured Sunday paper raves through three columns about the profiteering farmers. Housewives, editors, aldermen, every lover of the bright lights raise their shrill voices in one long, unharmonious howl.

Poor old farmer. The manufacturer, the tradesman, the mechanic, the laborer, the druggist, the clerk, and any other person in the city, no matter how freakish his calling, could put up his prices, suavely smile. "War you know," and perhaps there was a murmur, but the customer was forced to admit that the extra price was quite allowable. But the farmer. He puts in extra hours paid the increased prices, and justly I asked more for his produce.

But, when the farmer put up his prices, there was the noise described above.

Such is the degree of learning, the power of vision and the consisteney of the modern, the sharp, the superior city people. No; Africa is by no means the only black spot on the map. The "city folks" require conversion just as much as the Hottentots. This can be done only by a union of farmers.

1. The farm survey in Oxford County shows that the average cost of producing milk in that district in the year ended March 1st last was $2.17 per cwt. While the average price received by Oxford farmers for milk sold was $2.19 1-2. Editors of city papers kindly take note.

Other people may strike for higher wages or raise their prices all they wish, but when the farmer attempts to do any such thing he's unpatriotic, a profiteer; yea, he's growing so wealthy he can afford to run one of Henry Ford's specials.

Dr. Creelman has heard from several of the boys lately. He has kindly passed on news of the following to us:—

Lieut. John E. Curtis writes from Bonn; he is temporarily attached to the 2nd Canadian Division as an interpreter in German. He mentions having met Spenser in Bonn.

Capt. R. W. Donaldson also writes from Bonn on the Rhine; he is at present Divisional Gas Officer at 2nd Canadian Divisional Headquarters. On returning to Canada he intends to take up once more the work of fruit growing for which he was training before enlisting.

F. C. Donald writes from Southgate Auxiliary Hospital; he had intended returning to Canada as soon as possible but has decided lately to take up the work of teaching Forestry in the Khaki University for a time at least.

Lieut. S. E. Percival, C. F. A., has returned to Canada as a married man and writes from Ottawa; he expects to be released from service very shortly.

We publish the following letter and news item contrary to our better judgment. George E. Sanders is an old class-mate of Bunting. The Review accepts no responsibility:

January 1st, 1919.

Dear Le Drew,—Enclosed find news item that I think should be put on front cover of the Review, as many old students will be interested in Bill's sad loss. The funniest part of it is he is as sore as anything and making all sorts of efforts to find out who got the chickens.

Best regards,

GEO. E. SANDERS.

Prof. Bunting Sustains Loss

It is with the most sincere regret that the friends of Prof. T. G. Bunting learn that a few nights before Christmas thieves entered his new and up to date chicken house and removed thirteen of the fifteen prize, pure-bred laying pullets contained therein.

It is reported that Bill in a rage declared that he had never before known or even heard of such an atrocity. Advertisements, police, private detectives, and even bloodhounds have so far failed to locate the missing birds.

In order to facilitate the search we beg leave to draw attention to a habit that chickens have long been known to possess, viz., that of coming home to roost.

Following the above lead we would suggest that the O.A.C. chicken house be searched, and failing to reveal the lost birds there that the seach be carried to the other chicken houses within five miles of the O.A.C.

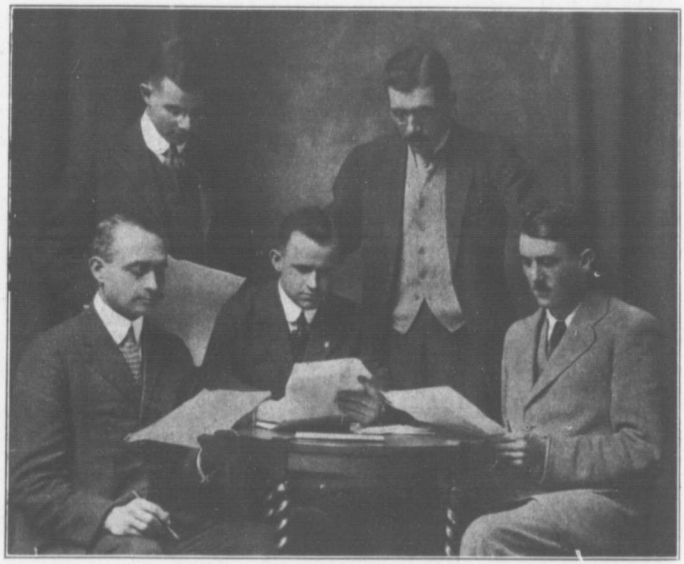
"Dutch" Middleton '18, who went overseas with the College Battery, has returned to the College, and has entered the second year.

J. H. Nixon '20 is in the United States Marines. He is at present at The Snipers' School, Overseas Depot, Quantico, Virginia.

Percy Vahey '16 hopes to return to the College from overseas in the near future.

E. A. Weir, formerly of the Editorial Staff of the Grain Growers Guide, Winnipeg, has taken the position of Supervisor of the Farm Loans Association of Manitoba.

The Honor Roll Committee at Work



G. S. GRANT
J. A. NEILSON, B. S. A.
F. C. LUCKHAM
A. W. MEAD
H. C. HUCKETT

G. W. Ware '18 is on the Conducting Staff of the Olympic.

W. J. B. Kay '18 who returned from overseas recently on the Olympic, paid a visit to the College a few days ago. He intends to come up to take his third year next Fall.

A. E. Romyn '16 has been awarded the Military Cross and Bar.

Dr. Creelman had a letter recently from Leslie Goodman '15, stating that he hoped to get back soon and brush up a little on his studies before taking up work in Horticulture.

H. L. "Pat." Keegan has been awarded the D. S. O.

We heard recently from D. H. Galbraith, who writes from Vulcan, Ont. He has kindly sent us the following address of a former student:—

Sapper A. C. Galbraith, 2504198,
C. R. T. 5th Battalion,
B. E. F., France.

A. C. Galbraith attended the college in '04 and '05.

J. H. Erb '18 was a visitor at the College during Christmas. Erb went overseas with the Second University Company of the Princess Patricia's Light Infantry and was wounded at Passchendaele on October 17th, 1917.

D. G. Fidler who was also here at Christmas went over at the same time as Erb and was wounded at Ypres on May 16th.

They have both received their discharge and intend to come back next year to take their second year.

W. Fairless '18 and R. C. Copeland '18 returned from overseas on the Olympic recently.

F. B. Cotsworth '16 is lecturing in London, England, in connection with the Khaki University.

We heard recently from Richard Creed. Creed is farming at Albion, Prince Edward Island.

J. R. Wilson, Truman Morse and Ad. Burrows, all of whom have recently returned from overseas, were recent visitors at the College. Burrows has received his discharge.

Prof. Crow of the Horticultural Department, was elected President of the American Association for the Advancement of Horticultural Science at the convention held at Baltimore, Md., on December 27th and 28th.

This is the most important Association Scientific dealing with Horticulture in America. This appointment therefore brings no small honour both to Prof. Crow and to the O.A.C.

The Review offers hearty congratulations.

The following account of the development of agricultural instruction for Canadian soldiers overseas will be of interest to many of our readers, especially in view of the fact that so many of our own graduates and under-graduates are now acting as instructors at the various Colleges of the Khaki University.

The call for books of an educational nature in the Camps and Hospitals in England, and even from the units on active service in France led to the realization of the need for organization and supervision in order to direct the reading along the best channels. As a result local classes were instituted and a correspondence Department formed to supply texts to those unable to attend classes.

A survey of the situation indicated the large demand for instruction in Agriculture. Information regarding the Land Settlement Scheme and the enforced out-door life of the soldier no doubt caused many to consider farming as a vocation, and it was decided to give every possible assistance to these men.

During the Summer of 1918 the instruction given by the Khaki University of Canada in Agriculture was largely done by the Correspondence Department, the students for the

greater part being either with the Canadian Forestry Companies in England or at Convalescent Hospitals. A total of 771 students enrolled and the work accomplished by them was a surprise to every body who had an opportunity of looking into it. No one expected such good results could be obtained.

At that time the men of the larger camps were frequently transferred, and it was difficult to carry on any satisfactory classes. During the Summer and Autumn Agricultural instruction was given at the following centres: London, Witley, Bramshott, Seaford, Buxton, Shorncliffe, and Epsom, with a total enrolment on October 25th of 296. Evening classes and afternoon stock judging excursions were held in connection with the Canadian camps, the Military Authorities granting the use of their huts and rooms for this work. While the attendance was relatively small, very good work was done at all of these centres by the instructors who taught in addition to their regular military duties.

The establishment of the Educational Services as part of the Overseas Military Forces of Canada, and later on the coming of the Armistice, greatly increased the possibilities of the work in all the camps. Teachers giving instruction were relieved from regular military duties, and it became possible to have the students in a number of centres relieved from most of their military duties to attend day classes. Some difficulty was experienced in getting together the necessary Instructional Staff, as good men were needed by their units, and it required much time and patience to get them transferred to the Khaki University for Agricultural Instruction work. The continual movement of the troops from the camps to their reserves and back to Canada interfered with the establishment of permanent classes, yet at the beginning of the Christmas holidays 858 men were reported as attending regular agricultural classes at centres in England. Owing to a large number of drafts going home from the Forestry Battalions the number of Correspondence students fell off to 735, making a total of 1598 students receiving instruction in agriculture in England.

The rapid movement of troops in France has made it practically impossible to secure statistics as to the number of students taking Agricultural instruction there. One report which came through from Corps Headquarters stated that 10,800 had enrolled as wishing to take Agricultural instruction while in France, Belgium or Germany. The work is being organized as fast as men can be secured to teach regular classes.

The present reports sent in from the various Colleges indicate that the number of students in England will be about doubled when Christmas leave is over.

Multigraphed copies of lectures, extracts from available bulletins, and such English text books as were deemed applicable to Canadian conditions, were supplied. Question papers and supplementary information were supplied with these texts, and the student was requested to prepare a written paper on these for criticism, and his answers with corrections were returned to him. These constituted prelimary examinations.

Tunic pocket editions of some of the best Agricultural reading courses have been printed by the University in large numbers. Canadian Bulletins have been secured from the Provincial and Dominion Governments by the hundreds of

thousands. These khaki booklets and the bulletins as well as the many regular agricultural reference and text books which have been secured in large numbers, have enabled the department to outline definite courses of study and to offer certain credits for the work covered. When the results of supervised tests indicate that the students have attained to the necessary standing certificates will be granted which are recognized by the Agricultural Colleges of Canada.

The khaki booklets and bulletins have been distributed as quickly as possible to the Forces. Many calls for books were so urgent that they were immediately mailed by voluntary overtime work.

The Headquarters of the Department is at 31 Bedford Square, London, W.C.I. The works in the various camps and hospital centres there and those at Headquarters are responsible for the work of their divisions in all the different areas. They assist the different Colleges from time to time, staying, if necessary, a month where sufficient instructors could not be secured.

Below is a list of O.A.C. boys at present acting on the staff of the University:—

Headquarters

Capt. J. A. Clark, Officer in Charge, Department of Agriculture, formerly at Charlottetown Experimental Station; Lieut. Alex. Maclaren, Officer in Charge, Community Work; Lieut. Peter Stewart, Officer in Charge, Animal Husbandry, formerly of the Ontario Department of Agriculture; Lieut. C. A. Good, Officer in Charge, Biology, formerly of the N.S.A.C., Truro, N. S.; Lieut. J. C. Fuller, M.C., M.O., Officer in Charge, Correspondence (Agriculture); Lieut. R. J. Skelton, N.C.O. in Charge, Dairying, formerly of the Dairy Department O.A.C.

London Area

Cadet F. B. Cotsworth.

Seaford Area

Acting-Sergt. O. McConkey, N. C. O. in Charge, Agriculture, formerly of the Natural Resources Department of the C. P. R.; Sapper A. J. Mann, Instructor, formerly of the staff of the Vineland Experimental Station; Acting-Sergt. S. J. Neville, N. C. O. in Charge, Correspondence (Agriculture).

Witley Area

Cadet G. E. Wilson, Officer in Charge, Agriculture, formerly of the Ontario Department of Agriculture; Cadet A. B. Cutting, Instructor; Lance-Corporal E. Macdonald, Instructor.

Bearwood

Acting-Sergt. C. B. Twigg, N. C. O. in Charge, Agriculture.

Buxton

Sergt. W. F. Davison, N. C. O. in Charge, Agriculture, formerly of the P. E. I. Department of Agriculture.

Epsom

Acting-Sergt. G. J. Callister, N. C. O. in Charge, Agriculture.

Sunningdale

Acting-Sergt. F. C. Donald, N. C. O. in Charge, Agriculture.

In addition to the above application has been made for the transfer of the following O. A. C. boys to the teaching staff of the Khaki University:

Lt. J. A. Carroll '14, Lt. P. A. B. Cherry '12, Capt. H. S. Cleverly '11, Lt. A. C. Cleeves '14, Capt. E. F. Coke '09, Lt. G. J. Culham '13, Capt. A. Eastham '09, Capt. S. G. Freeborne '15, Lt. J. L. Foote '16, Lt. N. S. Golding '14, Capt. L. Goodman '15, Lt. C. A. Good '14, Capt. R. E. Gunn '04, Lt. W.

E. Hare '16, Lt. R. Holmden '17, Lt.-Col. H. L. Keegan '13, Lt. R. M. Keirstead '17, Capt. C. A. Lawrence '09, Lt. H. C. Mason '17, Major F. A. Munro '12, Lt. H. M. McElroy '14, Major C. F. McEwan '09, Lt. A. E. Romyn '16, Lt. H. S. Ryrie '13, Major H. M. Scott '15, Lt. W. W. Sharman '09, Capt. G. J. Spencer '14, Capt. W. A. Townsley '15, Lt. C. A. Webster '13, Capt. D. Weir '06, Lt. K. Welton '16, Lt. O. C. White '10, G. Wilson '13, Lt. J. R. Wilson '16, Bbr. R. Austin '11, Pte. S. A. Bergey '12, Sergt. W. J. Bird '17, Gnr. W. Bisset '17, Staff-Sergt. J. M. Brown '14, Sergt. E. E. Carncross '16, Pte. A. H. Cowan '17, A. B. Cutting '04, Pte. D. Dodding '18, P. C. Connon '16, R. H. Elgie '16, R. E. Everest '05, P. H. Ferguson '16, B. E. Foyston '15, J. F. Francis '16, H. S. Francis '16, H. S. French '16, W. G. Hill '17, D. Irvine '14, J. T. Johnston '17, G. T. Johnston '12, I. B. Martin '17, C. M. Meek '17, D. C. McArthur '18, M. C. McPhail '17, S. E. Percival '17, W. H. Robertson '11, P. L. Runnals '17, D. R. Sands '15, J. M. Varey '16, A. H. White '17, J. M. Creelman '15.

Eric Hearle '16 has received a Fellowship from the Honorary Advisory Council for Scientific and Industrial Research to investigate the mosquito pest in the valley of the Lower Fraser River in British Columbia. Working in conjunction with the Dominion Entomoloist, Dr. C. Gordon Hewitt Hearle will make a mosquito survey of the whole district with a view to finding practical methods of eradicating the pest which causes large annual losses by lessening production in a rich agricultural area seventy miles long by thirty miles wide.

We congratulate Eric on his appointment to work which is so distinctly in his province and of which we feel sure he will make of it a pronounced success.

Wedding

Nixon-Westcott—On January 1st, at Sault Ste. Marie, Miss Winnifred Westcott (Mac. Hall) was united in marriage to Charles M. Nixon '17.

Deaths

We regret to report the death in New York of Algiero '19 following a severe attack of Influenza.

Lieut. F. R. Kirkley '15

It is with deep regret that we announce the death of Lieut. F. R. Kirkley from typhoid fever in Italy on November 13th, 1918.

"Shorty" enlisted January, 1915, in the 34th Battalion, C. E. F., with which he went overseas. On arriving in England he transferred to the Imperial Army, and took a commission in the Royal Field Artillery. He served in France, and later was despatched to the Italian Front. With the exception of being gassed on June 15th, 1918, when the Austrians tried to break through, Frank was fortunate until he succumbed to disease two days after the armistice was signed.

He was a brave and gallant soldier. Twice his name has been mentioned in despatches and he also had been recommended for the "Military Cross." The loss of this most popular student will be truly grieved by all who knew him.

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A PACKAGE OF TEA.

It is just a commonplace, half-pound package done up in tinfoil. What of interest does it suggest to you? Is it merely a thought of your favorite "blend" with its mellow flavor and delicate aroma making your afternoon cup so delightful?

Possibly it suggests some cozy little rest room where you are always sure of being served with a cup that is just right, and where your jaded soul has been refreshed and your poise restored as you sipped the aromatic elixir in the company of a congenial friend.

To some it might conjure up visions of shaded lights and soft music; the fragrance of flowers and the gleam of beautiful china; wonderful gowns and a dainty murmuring of confusion of faces and voices. To others it would bring memories of the home group around the fireside and a dear old copper kettle that hummed a welcome to everyone.

But how many can look at the plain little package and see within its unassuming wrappings a vision of great stretches of rolling hill country richly covered with shimmering green, where thousands of dusky forms in quaint garments and with baskets slung from their shoulders, work all day long in the sunshine and tropical showers, gathering the harvest of these fragrant leaves from which the wonderful "Cup of Humanity" is brewed. How many can see the harbors of strange foreign cities where more thousands of coolies carry the great square chests, into which the leaves have been packed and load them upon immense ships that sail away to the ports of every country in the world. The vision opens further and there are vast storehouses, and long railway trains carrying the leaves that have been made up into little packages, and multitudes of merchants buying, and selling to the nations of the whole earth. To the one whose eyes are opened to the greatness of little things, the package of tea unfolds a wonderful story. The history of its origin, culture and commercial development is one of the world's greatest romances.

If one were to ask when the use of tea as a beverage began who could answer? We naturally turn enquiringly to the Chinese and from them we have many legends. One informs us that it was discovered 2,737 B.C. by Ching-Nung a scholar and philosopher to whom the Chinese attribute nearly all their medical and agricultural knowledge. One evening as the wise man was preparing his solitary meal he replenished his fire with the twigs of a shrub that grew about his hermitage and some of the leaves fell his vessel of boiling water. The infusion was so pleasing to his taste and so exhilarating that he straightway formed the habit.

Another story tells that a certain Buddhist priest became angry because he could not stay awake to continue his prayers and devotions, and in a moment of frenzy cut off his eyelids and threw them from him. Where they fell upon the ground the tea shrub sprang up.

Very entertaining certainly, are these wondrous legends, but hardly do they carry conviction to the sophisticated modern mind, so in the effort to obtain knowledge at its source, but without reward. Its origin is hidden in the obscurity of past ages and no one yet has found the beginning.

Okakura-Kakuzo, a Japanese writer, tells us that "tea began as a medicine and grew into a beverage. In the eighth century, in China, it entered the realm of poetry as one of the polite amusements. The fifteenth century saw Japan ennoble it into a religion of aestheticism." He virtually then attributes the origin of the custom to "China, with Japan following as a close second.

He describes most entertainingly the evolution of "Teism" through three main stages, connecting each stage with the dynasty which brought it to its highest perfection. The Tang dynasty knew only "Cake" tea, and they BOILED it. The Sungs affected Powdered tea which was WHIPPED.

The Ming family used only Leaf tea and steeped it as Christians do. Each succeeding stage marked a step in the advancement of refinement and manners, until in the last, Teism was elevated to the dignity of a national Art, patronized by royalty and high society, and taught in the schools by the Masters.

Dainty little Japan adopted the custom from her neighbour, breathed into it the breath of her own artistic soul and made it a living influence that has permeated the whole world. Again Okakura-Kakuzo says "it is the only Asiatic ceremonial which commands universal esteem. The white man has scoffed at our religion and our morals but has accepted the brown beverage without hesitation. Humanity has so far met in the tea cup."

At the end of the 16th century the Dutch East India Co. introduced tea into Europe and later into England, where, in 1650 a writer described it as "that excellent, and by all physicians approved, China drink, called by the Chineans Teha and by other nations Tay, alias Tee." Before the century had closed the English had acquired the tea habit and that country has now the largest per capita consumption of any country in the world.

For many years China and Japan were the only countries producing tea to any commercial extent. About the middle of the nineteenth century a blight destroyed the coffee plantations in Ceylon and to help the country recover from the loss, the British Government financed the establishment of tea gardens. The soil and climate proved so suited to its culture that all available land was utilized and the coffee industry has never been revived. India soon followed Ceylon in the production of tea with the result that these, and the adjacent colonies of Britain now produce 1,108,828,000 lbs. annually, with a value of £16,000,000 sterling.

Tea is an evergreen shrub similar in appearance to the camellia to which it is botanically related. The large, white, fragrant flowers grow singly or in pairs in the axils of the leaves and add much to the beauty of the shrub. The wild tea of Assam grows to a height of from fifteen to thirty feet, with an abundance of lance-shaped leathery leaves that occasionally attain a length of nine inches. The China varieties are more dwarf and have smaller leaves. Under cultivation the plants are allowed to grow only four or five feet and flowering is permitted solely for seed purposes.

In starting a tea farm, seed is obtained from plants grown in a special "seed garden" where the bushes are not pruned, but allowed to attain their full growth. A piece of jungle is cleared, hoed well

and fenced. The seeds are then planted and covered with "thatch" to protect the seedlings from the hot sun. When twelve inches high they are transplanted to the permanent garden, where they are set in rows about four feet apart each way. Picking begins when plants are three years old at which time they are sending out an abundance of young branches or "flushes." From this time on the picking is carried out regularly, and frequent prunings are given to induce the formation of flushes. "Picking" is the process of plucking off the ends of the young twigs down to the fourth leaf. The twig leaf bud on the very end of the short is so delicate in flavor that it is used for the making of gifts. It is called golden Tip" and is sold for enormous prices. The next leaf is the Orange Pekoe, the third leaf just Pekoe, and remaining leaves are graded as Souchong, Congon, and Bohea.

Tea is commercially divided into two varieties—black and green. It was once believed that these were the product of two different species, but it is now known that the difference is caused by the methods of curing. Black tea is fermented during the process of curing and green is not. The process is very elaborate and much experience and skill are required in the handling. Many times over must the leaves be withered, rolled into balls and "sweated," sifted, sorted and dried, to eliminate the raw flavor, to develop aroma and to prevent souring with age.

All British teas are handled by machinery and the process is carried through quickly and sanitarily, but China still adheres to the old hand method which require about three weeks for the curing of each picking. Of the sanitation of their processes it is possibly not polite to speak.

The quality of the marketable product depends upon many things, even the weather. Tea from the uplands is much finer than that from the lower levels, but neither is good if there is not an abundant rainfall to force the tender young flushes. At every step, from the first picking to the packing of the last leaves, trained judgment is necessary.

But given the finest grade of tea, it may yet produce a vile decoction in the hands of an uninspired novice. "Tea is a work of art and needs a master hand to bring out its finest qualities. We have good tea and bad, as we have good and bad paintings—generally the latter." We must know tea, and love it, as we do our friends, treating it so as to bring out its good qualities and keep in subjection the bad.

Its chief characteristic is theine, a principle that stimulates without an injurious reaction. It also contains a volatile oil which imparts the aroma, and tannin, a bitter, poisonous constituent.

A perfect beverage can be made only with freshly boiled water, preferably from a spring. Lengthy boiling carries off the gases that give water its sparkle and flavor and leaves it tasteless and insipid.

The first step is the warming of the teapot, then put in one teaspoon of tea for each cup and an extra one for the pot. Pour the boiling water upon it and cover with a cozy. Leave it for three minutes and serve at once. This gentle infusion extracts the theine and frees the aromatic oil without dissipating it, making a fragrant, delicious drink. If it remains longer on the leaves, or if it is boiled, the poisonous tannin is extracted and this is doubtless the reason that so many people find that tea does not "agree" with them.

As has been quoted, the making of tea is an art but not a difficult one. It is not genius that is required, but merely sym-

pathy and understanding, the two qualities that are most necessary in all our relationships and activities. Give to it your best and it will give its best to you. In weariness and fatigue, it will restore you, in loneliness it will comfort, in the company of friends it will add to the congeniality. Always will it be the cup that cheers.

J. G.

DAISY'S VALENTINE

"I wish people did things on Valentine's Day now," said Daisy, thoughtfully.

"What kind of things?" said I.

"Well, all the interesting old things they used to do; charms to make them dream of their true loves, and anonymous presents and letters, and drawing lots for a Valentine. In Pepys's Diary he tells of men giving lovely presents of jewelry to be released from the Valentines they had drawn. Fancy getting a pearl pendant just to let a man not be your Valentine, when you didn't want him anyway!"

"Would you take a pearl pendant from such a man?" I asked indignantly; "you know you wouldn't!"

"No, of course I wouldn't as things are now, but if it was the custom and everybody did it——"

"It's better to let such customs die out," I said severely. "Why an innocent Christian priest who suffered martyrdom in the 3rd century, should be mixed up with all that tommyrot, I could never understand. I only hope he never knew about it."

"You don't see the romantic side of anything," lamented Daisy. "You ought to read the beautiful poems that Drayton and Donne wrote about Valentine's Day. And it's quite reasonable for young people to pair off in the spring as the birds do. You know 'In the spring a brighter iris gleams upon the——'"

"Yes, I know," I interrupted impatiently, "a young man's fancy lightly turns whichever way the wind blows. But if you want to do all these silly old things, just do them. Nobody cares."

"It's dull doing things alone."

"Well, I'll help if it will make you happy."

"Oh, you dear!" said Daisy.

I am not sure whether I just wanted to humor Daisy or to disgust her, but the more I thought about the business, the more amusing it grew. I went to the library and found a big book which told all about the ancient Valentine customs, and I determined that Daisy should have enough of them. I saved my egg from Sunday morning's breakfast and boiled it hard in the laundry, and then kept it in cold storage on the windowsill until Thursday evening. I begged 5 bayleaves from the kitchen, I spent 35 cents at Woolworth's on the most foolish things I could find, and made up 7 interesting parcels. On them I wrote the names and compliments of 7 of the men whom Daisy rather liked, and I placed them in drawers and on shelves where she would be sure to find them. I also sent her 3 picture valentines through the mail. I went over to the Institute at a quarter to six and called her up on the phone, and in a deep earnest voice begged her to appear at her window at 7.25 next morning, so that I might be her Valentine, whereupon she snapped out "certainly not!" and rang off viciously. I had previously written to Tom Maguire who had a very high opinion of Daisy, telling him confidentially that she had a romantic desire to accept for her Valentine the first man

she would see on Friday morning, and advising him, if possible, to have important business in the engine-room about 8.25.

I don't think I have said that Daisy is quite popular with those men who look out for something more soul satisfying than fluffy hair and a giggle. She is not a flirt, but she is fond of masculine society. I suppose there's no harm in that. The world wouldn't go round very fast if all women were misanthropists like me. Her conversation isn't just platitudes and personalities. She can really talk and be interesting, and I have noticed that men always appear at their best when they are with Daisy, and that's saying something.

At 10 p.m. I locked our door and the ceremonies began. I made Daisy pin a bag leaf at each corner of her pillow, and one in the middle, so that she would inevitably dream of the man she was to marry. I don't think it was sporting of her to use safety pins. I wrote half a dozen names on little squares of paper and put them face downward in a basin of water.

"The right name will turn up in the night," I said.

"Are you sure?" asked Daisy, and then she picked up a blank square and wrote on it, and added it to the flotilla.

Next I opened the hard egg and removed the yolk, filling the cavity with salt.

"What for?" said Daisy.

"You must eat this," I said, "shell and all, and then go to bed without speaking or drinking, and you will certainly dream of your own true love."

Daisy protested. "It was always done in the 16th century," I insisted; "you said you wanted to revive all these romantic customs; get a move on!"

Daisy attempted the feat, but choked and ran to get a drink.

"You have broken the claim," I said sternly, "after all my trouble!"

"I'm sorry dear but I really couldn't. I'm sure the bay leaves will be enough."

Then she began to find her parcels, but she didn't appreciate the contents properly, though I assured her it was all according to tradition, and exactly what was done in the City of Norwich 100 years ago. Then lights went out, and I bade her lie down and dream. I always sleep soundly and didn't intend to be disturbed by the rustling of bay leaves.

When I woke Daisy was bending over the basin and fishing out a paper square.

"Let me see!" I cried, taking it from her. "Ronald! Why, I never thought of him!"

Ronald went out to reinforce the Princess Pats ever so long ago, and though I knew that he corresponded with Daisy, she seldom spoke of him and I really had almost forgotten him.

"I dreamed of him, too," said Daisy, solemnly. There is not much time for talking when we dress in the morning. While we were at breakfast Daisy was called to the phone. When I met her afterwards her eyes were shining and her cheeks pink. I thought she had never looked so pretty.

"He has come home," she said in a low cooing sort of voice, "and he will be here this evening. Isn't it lovely?" I can't make up my mind whether St. Valentine had anything to do with it or not.

The next time I met Tom Maguire he remarked sarcastically that there was evidently some confusion in my mind between Valentine's Day and Hallowe'en.

MACDONALD TRAINING TELLS.

The energy, resourcefulness and administrative ability so often displayed by Macdonald graduates is strikingly exemplified in an account of work done by Miss A. K. Hull, in Edmonton, during the influenza epidemic, which has recently come to hand.

Miss Hull is a graduate of the Two-in-one Class of 1912. After leaving Macdonald she taught Household Science in Winnipeg, and later in Calgary, and also took a short course at Columbia University. She has been for some time Director of Domestic Art in Victoria High School, Edmonton.

When the influenza broke out, the city schools were closed and a week later the Victoria High School was opened as a Hospital and Nurses' Home, with a trained nurse, two dieticians and 20 volunteer nurses, the number of whom was soon considerably increased. Miss Hull was appointed Housekeeper-in-chief, and had to order supplies, engage help and see that everything ran smoothly. Bath tubs and laundry equipment were installed, and a company of High School girls undertook to wash and iron all the small linen, such as towels, tea-towels, nurses' head-dresses, etc.

A system of relief for the poorer sufferers was organized, and food, clothing and money poured in freely to the schools. The nurses took soup and other nourishment to their patients in the city, and Miss Hull personally investigated the cases which were said to require bedding or clothing. She laid out over $50 in shoes for children, and also bought quantities of underwear. Those ladies who could not undertake to nurse, came to the school to sew, and more than 130 garments were turned out, 60 of them being made out of flour sacks given by the bakers. Miss Hull received the nickname of "the Purity Flour Dressmaker."

This good work was carried on for 6 weeks and during that time this indefatigable lady worked from 15 to 17 hours every day.

Valuable help, on similar lines, has been rendered in London by Miss Craig, in Winnipeg by Miss Sue Irwin, and in Ottawa by Miss Colquhoun and Miss L. Ross.

Y. W. C. A.

Many of the senior girls have first hand knowledge of the splendid work which has been done during last Summer and Fall by the Community Canning Kitchen. On November 24th the members of the Y. listened eagerly while Mrs. Crowe, who is at the head of this movement in Guelph, told us of what has been achieved this year by voluntary helpers, all of whom had other duties of various kinds which took part of their time. With this as an illustration she showed us how often duty faithfully done proves a stepping stone to work of wider appeal, and in conclusion read us the legend of Aid and Charity, which summed up in beautiful and memorable form the message which Mrs. Crowe brought to us.

Miss Margaret Brown contributed a vocal solo and Miss Dickinson had charge of the meeting, which was very helpful to us all.

The first meeting held by the Y. W. C. A. in December was a missionary meeting. After we had sung some of the good old missionary hymns, a letter was read from Miss Margaret Anderson, a Canadian girl, who is General Secretary of the Y. W. C. A. in Calcutta, India. She recounted many interesting things in connection with

her work there and emphasized the great need of such work among the women of India.

Mrs. Dawson also spoke to us of her early life in India, and we listened with great interest to her most astonishing and unusual story.

Everyone enjoyed the meeting of the Y. W. held on December 8th. President Creelman addressed us, and we went with him on an imaginary trip from New York to Liverpool, and from thence to France, as he recounted his experiences in New York, securing a passage of the delightful voyage, of his visit to many hospitals in England, and to the trenches in France. He referred to the great impression that England's far-sightedness in the war had made on him. The English people have ploughed up their lawns, but no trees had been destroyed, so that within a year after the war England will look as beautiful as ever she did. We considered it a real treat to listen to this address and are anticipating another one from President Creelman in the near future.

The first Sunday of the New Year found us all back at College again with the anxiety of exams hanging over us. So as all had been very busy our Y. W. meeting took the form of a musical evening. Misses Totten, Leeming, Lewis and McLean each contributed to and assisted with the programme. Mrs. Smith gave a reading from Drummond's "The Greatest Thing in the World," which gave each of us ample food for the formation of our New Year's resolutions. Miss Germaine, the President, conducted the meeting.

On the evening of January 12th, relieved from the strain of impending exams, the members of the Y held what was really the first regular meeting of the term. We listened to a most interesting address from Miss Margaret Creelman on her work at the Military Hospital, which is known by the formidable name of "Occupational Therapy." Miss Creelman told us of the way in which she and her associates endeavour to get the returned men interested in some form of handicraft as a means of livening the long hours of idleness, and to accustom them again to useful work as well as the planning and carrying out things for themselves. This work is not intended to become a permanent occupation for the men, but as they become proficient they are passed on to more difficult forms of handicraft, until they are ready to go out again and earn their own livelihood. Everyone was exceedingly interested in Miss Creelman's talk, and many of us wished that we could help in similar ways.

Miss Dickinson, the newly appointed Vice-President, in the place of Miss Stenin, led the meeting, and Miss Lillian Armstrong sang "There were Ninety and Nine." We were pleased to have with us so many of the new short course students, and hope that they will find the Y. W. C. A. meetings a good place to go on Sunday evenings.

The social department of the Y. W. C. A. welcomed the new students on Saturday evening. Each girl came to the gymnasium wearing a badge to represent the title of some book. A guessing contest mingled the girls so that all got acquainted. The winner of the contest, Miss Fouche, of South Africa, was awarded the prize for guessing correctly the largest number of books. The prize consisted of a book,

which was donated by Mrs. Fuller. Every one joined in the games which were played after the contest was over, and several vocal solos gave a pleasant variation to the programme.

INDOOR BASEBALL

The Third Year Indoor Baseball team played a return game with the Mac. team on Wednesday evening, January 15th. The match was exciting, with some truly sensational slides at first. There was noticeable improvement in the girls' playing, and in spite of the many "walks" by the men, at the end of the game the score stood 15-13 in favor of the Hall team.

THE LITERARY SOCIETY "AT HOME"

"Coming events cast their shadows——" Not that the preparations for the "At Home" could really be called shadows, but to even a casual observer at the Hall on Saturday, January 18th, it was evident that a momentous event would take place on that evening. Enterprising members of committees rushed hither and thither, rugs were snatched from rooms, cushions were borrowed surreptitiously from unsuspecting juniors, and all were placed at strategic points in gym and corridor, which before were bare and uninteresting. However, all was forgiven, for when the committee had finished, the gym, with its Chinese lanterns, was indeed "a thing of beauty."

Promptly at 7.30 o'clock the crowd gathered for the "Prom," which proved to be a dance by the permission of Dr. Creelman. The Short Course girls were easily distinguished, being gaily bedecked with crepe paper bows of vivid colors—the first stage of this initiation by the Homemaker Class. Between the seventh and eighth dances, coffee, sandwiches and cake were served, and very highly appreciated.

Several of the students played the piano for the dancing. Mrs. Fuller with her usual kindness, played for the final number, after which the men departed, leaving the Hall in darkness but not in silence.

THE SHORT COURSE STUDENTS.

This term the Short Course students entered late, and as the Long Course girls returned early, the latter were well established in the Hall when the newcomers arrived on the 7th of January. The new students, twenty-eight in number, who come from various parts of Ontario, are a welcome addition to the student body of Macdonald. They are readily adapting themselves to their new surroundings, and are beginning to take an active part in the life of the Hall.

It is a matter for great satisfaction that Miss Boughner, by rest and medical treatment, has sufficiently improved in health to return to Macdonald and it is hoped that she will not find the duties of her position unduly arduous but will keep well and fit.

HEARD IN CLASS.

Win-(unscrewing sink-trap in House-Practice) "Say, do the teachers here get paid?"

'Tish—"of course! Why not?

Win—"Well,—seems to me, we do all the work."

Bessie (who has been entertaining her beau).

"Fred couldn't get a shave to-day. He was quite annoyed about it."

Tessie—"Is that why your cheeks are so red?"

Continued on page XVII.

QUERY

HORTICULTURE

QUESTION:

Would you kindly advise me on the following points: Would it be wise to set out rhubarb roots in September? Should the ground be worked extra deep? Should the roots be watered after planting? Ought they to be mulched with straw or horse manure this winter?

ANSWER:

I should strongly advise against fall planting of rhubarb. The best time is early spring, when the plants can be started into active growth at once. The land should, of course, be put in the best possible condition of fertility and tilth. Land should be well drained either naturally or artificially, and is scarcely likely to be made too rich.

J. W. C.

QUESTION:

I have twelve fruit trees that have not been given regular attention. Will you kindly advise me as to the most suitable time for pruning pear, apple and plum trees? How should I combat the disease known as black knot? I also have a grape vine which needs pruning. How should this be done?

ANSWER:

The best time to prune fruit trees is in early spring. I should strongly advise against doing any pruning at this season (October 16th). The black knot disease of plum and cherry should be cut out as soon as it appears. There is no other remedy, although spraying helps considerably in preventing infection.

2. The object aimed at in pruning grapes is to produce a fair number of strong, vigorous shoots. In order to accomplish this, severe pruning is practised. First, remove all weak shoots. If the vine is old, study to cut out the old wood, leaving strong new shoots in its place. If strong shoots are few in number, you will require to leave all you can, but if you have too many you should cut away the extra ones. A grape vine of ordinary size would be carrying quite enough new wood if you were to leave six or eight new canes, each one to be shortened back to three feet in length.

J. W. C.

QUESTION:

I would be grateful if you would advise me on the following points:

1. Should a peach orchard which suffered severely, owing to the severity of the past winter, but which has made a very fair recovery this summer, be ploughed this autumn or not?

2. Is it advisable to plough an orchard both in the fall and spring?

ANSWER:

Replying to your query re ploughing of a peach orchard would say that the condition of the land will determine whether it will be advisable to plough this fall or to delay ploughing until spring. The object aimed at is to prevent deep freezing of the ground. If

the land is firm and compact, and at the same time bare of vegetation, I should advise ploughing THE LAST THING IN FALL, and if the furrow turns up lumpy give it a stroke or two with the harrow. If the land is light and loose, or fairly well covered with vegetation to hold snow, the probability is that no advantage will be gained by fall ploughing, so far as security from winter killing is concerned.

Land which is suitable for peaches should not require both spring and fall ploughing. If fall ploughing is done, spring cultivation would consist in disking or harrowing. J. W. C.

QUESTION:

I should feel very grateful if you could give me some data upon which I can base the loss due to injuries of fruit trees in my orchard. The injuries are of the following character:

Four year old cherry—Three main branches broken off at head.

Five year old pear tree—One main branch.

Six year old cherry—Three main branches.

ANSWER:

It is not possible to give more than an approximate estimate of value. The customary rule in the matter of young trees is to calculate the increase in value at the rate of one dollar per year, up to the time they reach their maximum producing power. This would mean that your four year old cherry trees would be worth about four dollars. If it were an extra good tree, or if it occupied a particularly choice situation, and had been extra well cared for it would be worth more.

J. W. C.

QUESTION:

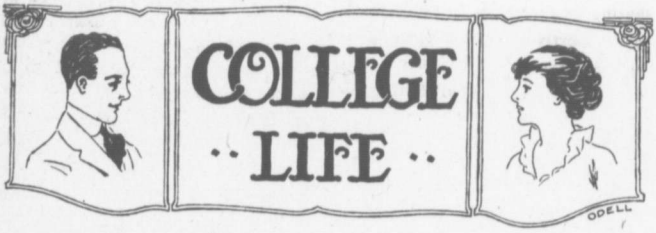
I have a six year old apple orchard. This fall I found borers under the bark on the trunk of nearly every tree. The bark on some having been eaten nearly all the way round. We used wire to get them out and found as many as four in one tree.

Is there anything I can do to fill up the cavities made by the borers? Are the trees likely to die? There are some dead trees in the orchard which I wish to replace. Is fall planting successful?

ANSWER:

I would advise you, first, to make sure you have all the borers out which can be gotten at. I would advise, also, covering the injuries made in the trees with a good application of coal-tar to prevent rot starting in the wood. Borers may be kept out by wrapping the base of the trunk with heavy paper to a height of about fifteen inches. Several thicknesses of newspaper would be satisfactory, but the best material would be grey building paper. This paper wrapping will also serve to keep mice away from the trees.

Replanting — The best procedure would be to remove the trees on which the bark has been killed all the way around. If there is a fair quantity of bark still in a healthy condition the tree should recover. Fall planting should be satisfactory if you could get the trees in at once. J. W. C.



The Fortieth Annual Meeting of the Ontario Agricultural and Experimental Union, which was held at the O. A. C. Tuesday and Wednesday, January 14th and 15th. was a decided success. Large audiences made up of O. A. C. students and ex-students, as well as many who are not actually connected with the College, were in attendance, and the excellent addresses by the various speakers were listened to with much interest and benefit to all. In other parts of the Review will be found fuller accounts of the individual addresses.

The annual supper was held in the College dining hall on Tuesday evening, at six o'clock. Dr. G. C. Creelman, President of the College, gave an excellent and exteremely interesting address on European Markets for Canadian foodstuffs. Dr. Creelman is in a particularly good position to speak on this subject, as he visited England, Scotland and France a short time before the signing of the armistice.

After the President's address, Mr. J. C. McBeath, on behalf of Year '18, presented the College with a beautiful oil painting of Prof. Geo. E. Day. Mr. McBeath spoke of the splendid work of Prof. Day while connected with the O.A.C., and the great loss sustained by this institution when he decided to sever his relationship. Prof. Day in his reply said that although actually severed from the College activities he never could forget the pleasant associations which had been his, and the lifelong friendships which he had made while actively connected with the Ontario Agricultural College.

Dr. Creelman accepted the painting on behalf of the O.A.C.

The dining hall was filled to capacity with members of the Faculty, and their wives, Experimental Union visitors, regular and short-course students, and justice was done to the excellent supper provided by Miss Montgomery.

A number of college songs were rendered and the National Anthem closed a very successful evening.

The O.A.C. Year Book Committee for 1919 are exceedingly busy and expect to have the Year Books completed and in the hands of the students before college closes this term.

Examinations which had been postponed on account of the early and unexpected closing of the college before Christmas were all over by the end of the first week of the term. Only those subjects which were not carried over until the winter term were written on, the Third Year writing on five subjects, the Second on eight and the First on seven.

Skating at the O. A. C. arena started very shortly after the opening of college this term. The continued mild spell in January prevented skating for a considerable time, but we hope that there will yet be plenty of time to enjoy that pleasant pastime. The rink manager, Mr. Kimball, has been exceedingly generous in providing a band three times a week. A large number of skaters from down town are patronizing our rink and we believe it is a sign that they are enjoying their visits when they continue to be present on band nights. The band is all that could be desired to make the skating a success. Of course the O.A.C. boys and Mac girls are in attendance in large numbers every time the rink is open for skating, and their enjoyment is shown by the fact that the rink manager has sometimes a little trouble in persuading them when ten o'clock has arrived and the evening's skating is over. We believe the O.A.C. arena this year is a success and we have no doubt the efforts of the manager and his committee with the co-operation of all has made it such.

Not only does this rink serve as a source of enjoyment for skating, but a number of good hockey matches have been played on it, and the attendance at the various games has been good, which shows that hockey enthusiasts are large in number, and college spirit is not lacking.

The various short courses now being conducted at the college are well attended as shown by the following:

Stock and Seed Judging, 85 men.
Factory Dairy Course, 30 men.
Bee-Keeping, 42 men.
Poultry Raising, 31 men.
Drainage and Surveying, 12 men.

The following courses have not started: Farm Power, Fruit Growing, Vegetable Growing and Floriculture.

On the evening of January 10th Miss Hemming, of Year '22, broke her ankle while skating. It was apparently a simple fall, but was more serious than at first thought as the ankle bones were fractured. She has the sympathy of the whole class and we hope her absence will be brief as possible.

ATHLETICS

ODELL

The Game with Preston

The O.A.C. hockey team journeyed to Preston on Friday, January 10th, to play their first game this year in the Intermediate O.H.A. Owing to the soft condition of the ice in our rink, and also to the fact that the examinations were in full swing throughout the fore part of the week, the team lacked opportunity to develop condition, combination and confidence in themselves. Under the circumstances victory was hardly expected, especially since it was known that Preston possessed an exceptionally strong team. It was not surprising, therefore, that the team was defeated by the score of 9-0. During the first period both teams did their utmost to score and thus secure a lead. End to end rushes featured, and both goals were bombarded repeatedly. On many occasions it was only the marvellous goal-keeping of Allen that kept the opposing team from scoring, and the period ended without either team having tallied. The second period ended with the score 3-0 in favor of Preston, and during the third they ran in six more. The College team was unfortunate that they did not score a goal as they had some excellent chances. The line-up of the College team was as follows:—

Goal, Allan; point, Musgrave (Captain); cover-point, Alexander; centre, Shoemaker; left wing, Howarth; right wing, Sirrs; Subs., Taylor and Johnston.

Guelph at O. A. C.

The first hockey match of the season in the O. H. A. Intermediate series was played January 13th at the College rink between the Guelph team and the O. A. C. team, resulting in a victory for the city boys by a score of 4 to 2. In view of the fact that the ice was very sticky, rendered it next to impossible to show any combination or team play, the game was a fairly good one, and was close all the way. The city boys were a little faster than the Aggies, and showed more speed and better individual work, and on a hard and fast sheet of ice would no doubt have made a much better showing, as would also the College boys.

Three periods of 20 minutes each were played, the O. A. C. scoring their only goal in the first period and that was a gift as Drone, the city defence man, deflected the puck into the town net by mistake. The Aggies scored again just before the final bell rang, Musgrave doing the trick. Following is the line-up of the teams:—

Guelph—Goal, Hume; point, Little; cover point, Drone; centre, Ogg; left wing, Graven; right wing, O'Halloran; substitutes, Hamilton and Jones.

O.A.C.—Goal, Smallfield; point, Allan; cover point, Musgrave; centre, Shoemaker; left wing, Howarth; right wing, Sirrs; substitutes, Stillwell and Alexander.

Referee—Schlagel, Preston.

O. A. C. at Elmira

On Friday, January 17th, the O.A.C. hockey team visited the Elmira intermediates. The game was fast throughout, considering the sticky ice. The college went down to defeat because of lack of condition, and lack of playing combination hockey.

Shoemaker scored the only two goals for the college. Sirrs and Taylor also played up well. The college line-up:

Goal, Smallfield; defence, Musgrave and Allan; centre, Shoemaker; wings, Sirrs and Howarth; substitutes, Alexander and Taylor.

Referee—Lereoux, of Kitchener.

Indoor Baseball Schedule

Jan. 21—First Year vs. Second Cear.
Jan. 23—Third Year vs. Fourth Year.
Jan. 28—First Year vs. Faculty.
Jan. 30—Second Year vs. Third Year.
Feb. 4—First Year vs. Fourth Year.
Feb. 6—Second Year vs. Faculty.
Feb. 11—First Year vs. Third Year.
Feb. 13—Third Year vs. Faculty.
Feb. 18—Second Year vs. Fourth Year.
Feb. 20—Fourth Year vs. Faculty.

N. B.—All games to start at 4.30 p.m.

Gymnasium Schedule

Monday—
4.30- 6.00—Basketball.
6.30- 7.00—4th Year Basketball.
9.15-10.30—Freshman Class.

Tuesday—
4.30- 6.00—Gym Team and Baseball game.
6.30- 7.00—2nd Year Basketball.

Wednesday—
4.30- 6.00—Basketball.
6.30- 7.00—3rd Year Baseball.
9.15-10.30—Freshman Class.

Thursday—
4.30- 6.00—Gym Team and Baseball Game.

Friday—
4.30- 6.00—Basketball.

Saturday—
1.00- 2.00—1st Year Baseball.
Gym. closed Saturday evening.

Athletic Programme

Freshman Indoor Meet—Feb. 1st.
Athletic Concert—Feb. 21st.
Regular Indoor Meet—Feb. 27th.
Boxing and Wrestling—Mar. 1st.
Aquatic Meet—Mar. 8th.

Prof. Graham in Physics lecture—What is Density?

Hendrie—I can't define it, but I can give an illustration.

Prof. Graham—Very good; take your seat.

Jukes (studying drainage)—How do you lay cement tile?

Tommy (coming back to earth) — Lengthwise.

First Freshie—Where do you bathe?

Second Ditto—In the Spring.

First Freshie—I didn't ask you when but where.

Sophomore Reveille

Hurrah! I hear the morning bell,
I love to hear its summons tell,
I love to get up mornings too,
I do! I do!—likellidoo.

Howarth (during practical horticulture period)—What's the big idea in packing that soil in so viciously?

M. C. R.—Clemens said yesterday that I didn't have enough sense to pound sand.

Mike Stillwell to Munnie, during one of his spasms—"Have you seen Arthur?"

Munnie—"Arthur—what?"

Mike—"Our thermometer."

Prof. Graham—How much water will a No. 8 Hydraulic Ram pump in a day?

Sippel—A ten-hour day?

If you should happen to see a handsome well groomed young gentleman, unusually well dressed, slipping down the fire escape from Middle Hunt — don't think it might be Scotty.

Banish the Barberry

Continued from page 262.

cord as favoring the destruction of all common barberry in Canada. And they acted wisely. It is high time that this shrub be replaced by something more beautiful and less destructive.

The campaign against the barberry will be successful. Plant doctors are imbued with a sense of their responsibility and will co-operate in the righteous fight against a bush which has been so definitely proven to be detrimental to grain crops. They would be sadly remiss in their plain duty as public servants if they did not see the fight through. The facts are so plain that the removal of the bushes is the only sensible corollory.

There is no good argument against the removal of common barberry. Of course there are always those estimable citizens in our midst who know by some mysteriously occult intuition things that scientists know are not true and these same estimable citizens know that many of the things that have been demonstrated scientifically hundreds of times are only the products of a hectic imagination. But happily only very few people are mentally mired in the mud of medieval mysticism. It is true that even a few erudite college professors have been known to scout the idea that a bush like the barberry could possibly have anything to do with wheat rust. Most of them have been fair enough to be open to conviction. The few who are not may call on Robigus and see what luck results. It is a wise man who realizes that the fact that he has had no first hand knowledge of a phenomenon does not necessarily signify that it is a snare and a delusion.

Continued on Page XVI.

Banish the Barberry

Continued from Page XII.

Most of us have never demonstrated that rabies is spread by mad dogs, but few of us will permit ourselves to be bitten to test the matter. Mad dogs are promptly killed. The common barberry is a mad dog to grain fields; kill it!

Macdonald

Continued from page 290.

Connie—(musing in Laundry Class)—"Um-m-add some soap solution, borax and agitate, well,—that sounds simple, but where is the agitate and how much do I use?"

Lilly Anne—"But, Miss Roddick, how can one pasteurize milk when no pasture is available?

Ida M—(in practice-teaching)." Here little girl, what do you mean by hanging up your towel that way? Don't you know that the ends must be so,—and the edges,—Little Girl—"Please teacher, Miss Job hung it up."

Billy S—(putting her head in "Nick's" room) "Oh, girls, I have a ripping riddle,—If beef is cow and pork is pig, is Mutt 'n Jeff?"

—Groans, and the door slammed.

"Why did you leave all that sugar at the bottom of your cup?"

"The spoon wasn't long enough to reach to the bottom."

"He says he wants to dance with all the senior housekeepers because they will soon be going away and he won't see them any more."