

PAGES

MISSING

THE O. A. C. REVIEW

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

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Can A School Teacher Keep Bees?

By MORLEY PETTIT, Provincial Apiarist.

THE answer to this question depends on the school, the teacher and the bees.

Starting with the bees we find they require only a limited amount of attention, but what care they do need they must have. By organizing the apiary work it can be reduced to a weekly basis and by spending an average of one day each week, an active person with good health and strength can care for 50 to 100 colonies of bees.

Starting at the end of the honey season, say in September, bees may be prepared for winter in such a manner as to require absolutely no attention until the following April or May. First the supers are removed leaving only the brood-chambers and the entrances contracted for warmth and protection from robber bees. Some of the brood-chambers are at this time examined to see if brood-rearing has ceased and if nearly all brood has emerged from the combs the hives may be weighed and fed for winter. For out door wintering it is best to place the hives in the wintering cases immediately after weighing and before the feed is given. Some of our most successful beekeepers do not weigh the hives but feed each one all the syrup it will take up to 40 lbs. An ordinary colony in a ten-frame Langstroth hive should weigh about 80 lbs. in order to have sufficient stores for winter and the following spring.

After the hives are in the packing cases each is given the required amount of syrup made from best granulated sugar and water in the proportion of two of sugar and one of water. The sugar should be thoroughly dissolved by heating, but should be boiled as little as possible. There are different kinds of feeders described in the text-books and bulletins which need not be described here. The bees take the feed down and store it in the combs, ripening and capping it just as they would honey gathered from flowers. The packing for winter should then be filled in and everything done so the bees need not be disturbed again until spring.

Packing cases should be on stands which raise the entrance at least a foot from the ground and should be sheltered from cold winds by natural or artificial wind break. Under these conditions very little snow will drift about the cases and no shovelling is required. The weekly bee day from now until spring can be devoted to the preparation of extra hives, supers, and supplies of various kinds, getting everything in readiness for the following season. Preparedness is one of the greatest secrets of the beekeeper's success.

Dead bees may be raked out of entrances each time the weather turns warm enough for bees to fly freely. When the temperature rises to 65 or 70 degrees fahrenheit with bright sun and very little wind during April

or early May brood-chambers may be examined sufficiently to see whether the queens are laying in a normal manner and to supply any shortage of stores that may occur. At this time it will be an advantage to give each colony ten pounds of sugar syrup whether they seem to need it or not. This takes the place of any other stimulative feeding that may be prescribed.

Just before or at the beginning of fruit bloom if suitable weather occurs, brood-chambers should be overhauled thoroughly to find queens and clip them, also to examine for either of the brood diseases. The weekly attention now begins in earnest.

When on the weekly inspection a colony is found to be occupying all of the space it has in its brood-chamber it should be given a super of worker combs without queen excluder, allowing the queen to go above and increase her laying operations. When honey begins to come from clover blossoms the queen should be put below the excluder again and from week to week during the main honey flow brood-chambers should be examined for queen cells or for conditions which indicate the swarming impulse. Extra supers should also be added for honey storage, but honey should not be removed for extracting until the end of the main white honey flow. In this way swarm control and supering operations can be reduced to the weekly visits.

As all queens are clipped, any swarms which do emerge will return to the hive, and the swarming condition will be detected on the next weekly visit. Of course evening visits during the week will be beneficial as the sooner a swarming condition is detected and remedied the better.

During the honey harvest it is very

important to have one hive on the scales for daily weighing which will indicate the progress of the honey flow and the approach of its end. When the harvest seems to be nearly past supers should be removed by means of bee escapes and taken to the extracting room. As the weather will still be hot and hives full of bees at least one super of empty combs should be returned to each hive to provide for storage of any fall honey that may be gathered. This is usually of inferior quality which is of questionable value as winter stores and is better to be removed and replaced by sugar syrup in September as previously stated.

We have briefly gone the round of the beekeeping year and have hinted at its connection with the school calendar, for has not every teacher one day in the week free of school duties? He also has the hours from four to six which should certainly be kept free for relaxation from the nervous strain of the school-room even if the evening should take him back to preparation for next day's work. In addition to the fact of the weekly apiary system which suits the school-teacher's calendar so well, we have the fact that June and July are the beekeeper's busiest months. It is true that the school-teacher's vacation does not begin until the end of June, but by having plenty of supers for honey storage the heaviest part of the apiary work can be postponed until July and extracting need not be done until the end of July or early August.

The location of the apiary will of course be one of great importance. The bees could not very well be kept on the school grounds and it might or might not be convenient to keep them at the boarding house. Hives of bees should be kept at some distance

from either a roadway or the dwellings of persons who are not interested in them. Beekeepers often keep them close to their own dwellings for convenience in watching for swarms and because they understand their habits and do not object to being stung occasionally. This does not apply to those who are not familiar with them however, and the teacher who is boarding away from home would need to be very careful in selecting a place for the apiary.

x 16-ft. would be a very convenient size for an apiary of 50 to 75 colonies. Various arrangements may be made with the owner for an apiary site, but the rental is not usually more than \$10.00 to \$20.00 per year, with a winter supply of honey for the landlord always included.

Before launching heavily into beekeeping the nature of the locality should be taken carefully into account. The main thing to consider in selecting a locality for beekeeping in Ontario is



A Nova Scotia School Inspector's Home, Bees and Garden.

A young orchard left in sod is an ideal spot for an apiary or a corner in a pasture field which is not cultivated, with the woods adjoining for shade and shelter from cold winds. An unused house at a distance from other dwellings and with small orchard or yard in connection will provide not only a place to set the hives, but a place inside for extracting and for storing supplies and doing necessary indoor work. Lacking the house it would be advisable to erect a small building which should be made bee-tight but with plenty of light and ventilation. 12-ft.

the soil. A good fertile soil fairly heavy is to be preferred. Soil of this nature that has plenty of lime will grow clover abundantly and even though not much alsike or white clover may appear in fields and roadside the introduction of bees will encourage its growth and develop it rapidly. The proximity of established apiaries should also be considered as it is not good policy to crowd too many bees into one district for fear of overstocking the pasture.

I have thus far endeavoured to show that beekeeping and school-teaching

may be fairly well combined and it may seem that the combination depends largely on the teacher. In the first place success in beekeeping is not a question of the sex of the beekeeper. Naturally the majority of successful beekeepers are men, but there are a number of women who are keeping bees with a great deal of success. One woman I have in mind has the management of 350 colonies, employing one or two men during the summer and producing extracted honey extensively. She conducts a large mail order business selling all of her honey each year direct to the consumers. She has learned the business in five years and is by no means physically strong. She has her winters practically free; has a most healthful out door business in the summer and very few public school-teachers have an income which would compare favorably with hers.

A member of the Beekeeping Staff at the Entomology Dept. at Washington, D.C., developed his beekeeping business during his summer vacations while acting as a school-teacher in Indiana. He still counts his colonies by hundreds back in his Indiana home.

He produces large crops of comb honey and only sees his bees during his two months summer vacation.

Other similar instances might be cited if space would permit.

The best way to get started in beekeeping is to study bee literature, attend beekeepers' meetings or the classes in beekeeping provided by Agricultural Colleges. Then spend one or more summers with a practical beekeeper as a helper. Then get some bees and go to it. With experience of this kind it would not be necessary to start a very small apiary. But if such experience cannot easily be procured it will be best to start with about five hives and equipment, experimenting with these and allowing them to increase with experience.

There are many advantages of beekeeping as an avocation for teachers which this brief article could not touch. But I have endeavored to present the practical side of the question, with the need for increased food production especially in view. As Provincial Apiarist I shall be pleased to hear from teachers or others who wish assistance in developing the beekeeping industry.

Bees in Combless Packages

By W. F. GEDDES, '18.

THESE are only three methods used at the present time for shipping bees (excepting queens), from place to place as an article of commerce: (1). Full colonies; (2). Nuclei; (3). The combless package. A full colony as sold by a dealer in bee supplies has six to eight frames of brood, a young vigorous queen and a small supply of honey and pollen, with sufficient bees to fill the spaces between the frames. A nucleus, as the name suggests,

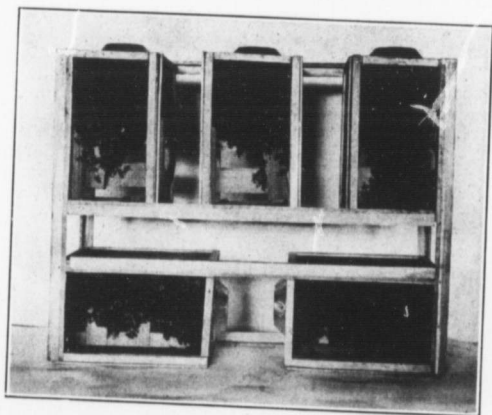
merely consists of a small colony and may consist of one, two, three or five frames of brood and bees. This smaller package was introduced to overcome the heavy transportation charges which were incurred when shipping a full colony. Nuclei are now shipped in special cases instead of the hives themselves which reduces the transportation cost much more. The latest method of shipping bees—the combless package—is a further

effort to reduce the high initial cost of bees and transportation and involves the shipping of bees in wire cages without even combs or brood.

Indeed, the shipment of bees in combless packages is about the latest development of importance in commercial beekeeping. It is so new that extensive beekeepers have hesitated to order bees in quantity for fear of failure, until trial shipments were made. So successful were the trial shipments however, that, this year, for the

bees are in the field. In this way mostly young bees are shipped. This, under favourable conditions, insures their safe arrival and also that there will be no dwindling before the bees have time to rear brood.

It requires more capital to venture into a pound package business than is needed for any other branch of beekeeping. The season is comparatively short and the shipper must have a large number of colonies to draw from. He should first be a queen breeder,



Five Pounds of Bees in Combless Packages, just arrived by express at the O. A. C. from Alabama.

first time, large orders have been placed with the shippers and the possibilities of the shipping of bees in packages are just beginning to be realized.

Since most of the orders are for delivery in April and May the package business is highly developed in the South. Because of the long breeding season and the mild winters the Southern States are peculiarly adapted to this branch of beekeeping and it may be expected to become increasingly popular there. The packages are filled in the middle of the day when the old

since he can hardly depend upon buying queens in sufficient numbers to fill orders. Most orders are for bees with queens since they are required to build up to strong colonies for the main honey flow. It has been found that there is a greater loss of queenless bees in transit than where the bees are shipped with the queen.

The two main uses for the combless package are:

(1). Where the beekeeper wants to increase the number of colonies under his control IN SPRING, and who is

looking for a crop from the same that season.

(2). To strengthen the weak colonies in order that they may build up into good strong colonies for the honey flow.

Where increase in spring is desired, and the packages are received about May 1st, it is quite easy for them to build up into full, strong colonies in time for the clover flow, when provided with full drawn comb and good stimulus (a steady flow of nectar and pollen.) However, if received late in May, if the buyer has no drawn comb, or if the stimulus is poor, then full colonies cannot be developed in time for the clover flow.

But the combless package comes into its own for the purpose of strengthening the weak colonies in spring. Colonies which are weak in spring are weak in bees and not in brood. At this time of the year the queen is seen to expand the brood nest and she is only limited by the flow of nectar and pollen and by the number of her attendants. Instinct forbids her to lay more eggs than the worker bees can care for and keep warm, hence it is useless to add more brood. The queenless package serves the purpose admirably and supplies the colony with young worker bees.

Probably the greatest advantage of the combless package to the buyer of bees is the fact that he is sure of not introducing disease in his yard. Since the packages come from the South, it requires over three days for them to reach their destination and thus the bees are automatically treated for foul brood en route. The bees have no combs in which to deposit any honey they may have in their honey sacs at the time they are shaken into the cage, and they cluster and consume it while travelling.

The importance of the introduction of the combless package trade in commercial beekeeping may be recognized, when many extensive producers in Canada are considering the question of extracting all their honey in the fall and buying bees from the South the following spring, rather than winter the large number of bees necessary for their extensive operations. They figure that it requires at least four dollars worth of honey or sugar syrup to carry each colony through, and for the same cost a three pound package of bees with a queen may be bought and thus eliminate winter losses. A few have experimented in a small way with this idea in mind and some have been definitely convinced by the results obtained that it would pay. However, this plan is not yet possible on any extensive scale because no sufficient source of supply is yet available. It is now, at least, a proven fact that it is as cheap to buy bees in packages and place them on combs in spring, as to make late increase to winter over.

The beekeeper who desires to make heavy increase should aim to produce as many drawn combs as possible during the honey flow and then buy the bees the following spring. The buyer assumes no risk as the shipper guarantees their safe arrival.

In conclusion, the business is yet in its infancy and no one can foretell what its ultimate development may be. As yet the experimental stage has not been passed. There is no standard cage and the feed in some is supplied from the top of the cage while in others from the bottom. The feed of course is in the form of candy of just such a consistency that it is not too soft to muss up the bees and cage, nor too hard to cause the bees to die from lack of food. Last year many packages died from starvation, over long

journeys due to delay at the Custom's office and poor transportation facilities. This year this defect has been remedied by the use of a larger candy container and by better arrangements with the

Custom's officials. Other improvements are still to be made and the combless package may eventually prove to be the biggest factor in modern beekeeping.

Pointers for Exhibitors of Fruit

By PROF. J. W. CROW, O.A.C., Guelph.

IT is much to be desired that judges and exhibitors should agree concerning the requirements of exhibition fruit. The responsibility of passing judgment lies with the judge, and his ideas are supposed to be correct. If he knows his business as he should, exhibitors would do well to study his decisions, and in case of doubt to go to him personally for an explanation. Judges make mistakes, but no honest judge would refuse an explanation or a discussion of the point in question. It is with the idea of bringing out helpful discussion that I have been encouraged to deal in a brief way with the requirements of exhibition fruit, referring more particularly to plate exhibits.

The points usually embodied in a score card for plates of apples, pears, plums and peaches are about as follows:

1.—Form.....	10
2.—Size.....	10
3.—Color.....	20
4.—Uniformity.....	20
5.—Quality.....	20
6.—Soundness.....	20

100

The score card is seldom used in actual judging, except in cases such as large collections or displays, where the points involved are too big or too complex to be mentally compared. I find the score card very useful, however, in explaining the qualities looked for and

in teaching the relative value of each.

The first point for an exhibitor to bear in mind is that the judge's decision is based on the exhibits as they stand at the moment of judging. In the case of an "export" class, the judge does require, of course, to forecast the probable "arriving condition" of the fruit, but in ordinary open competitions the judge takes them as they stand. This is one reason why southern grown exhibits so frequently win at our early fall shows. Northern grown winter apples, for instance, are not at their best until perhaps February, and in competition at a fall show are handicapped by lack of maturity. They get a fairer chance when the prize list offers a class for "export," and would show up still better if classes could be put on covering "apples for winter storage."

As most of our prize lists stand the greatest difficulty the judge has is to give proper weight to all the various uses or purposes which may be represented in a given class.

A class of Northern Spy apples may contain some plates which would rank as "fancy dessert"; other plates might rank as "export dessert"; others might more properly class as excellent for "cold storage dessert"; and still others might, on account of large size or over maturity, take rank as any one of several grades of "cooking" apples. It is obviously difficult for a judge to

take into account all the range of purposes for which various exhibits in the class might be used, but in the ordinary variety list this is what he is required to do. The moral for the exhibitors is that where "varieties" are shown, with no special provisions attached, the judge looks for variety type. Other things being equal, the plate win which best represents the variety.

If the class is for "dessert" purposes, quality counts, and size is much less important. The degree of maturity, which is obviously very closely connected with quality, also becomes of much importance and is considered under the heading "Quality."

In "cooking" classes, large size is frequently very important. For the hotel or restaurant trade, where the cost of peeling becomes an item, good size is most desirable because of the time saved in peeling.

The points covered in the score card may be explained somewhat as follows:

First.—Form is a varietal character and is frequently one of the important means of variety identification.

Second.—Size is also a varietal character, but, as has been pointed out, size requirements may vary according as the class of fruit called for may be "dessert," "cooking," "export," or "home market."

Third.—Color is of greatest importance as a means of appealing to the eye of the consumer. It is very essential in commercial packages, and in plate competitions color wins, other things being equal. In green or yellow varieties of fruit, such as Reine Celandé plum or Bartlett pear, the color expresses the quality, but in red varieties such is by no means the case. The poorest McIntosh apple I ever tasted was colored beautifully.

Color is more important in dessert

varieties than in cooking sorts, and is perhaps even more important in some of the near-dessert commercial varieties, such as Baldwin apple and Elberta peach. These varieties are extensively grown, and color helps more to sell them than does their quality.

Fourth.—Uniformity is of the greatest importance in commercial packages, and is scarcely less so in the case of those varieties which most commonly go into commercial packages. Especially is it important with those varieties commonly packed in boxes. Dessert Spies, for instance, should be wrapped and packed in boxes, and should be uniform in form, in size, and in color. Large sizes of Northern Spy, on the other hand, are less desirable as dessert apples and are less likely to go in boxes. In a general way, there is not the same necessity for uniformity in barrel stock as in boxes. (In order to avoid being misunderstood on this point, I should like to point out incidentally that most of our barrelled apples have too much variation in size and color.)

Uniformity covers form, size and color, and any experienced judge can vouch for the rarity of plate exhibits which show good uniformity in all three characteristics. This is the stumbling block of most exhibitors. I should be inclined to put more emphasis on uniformity than on any other one point in the score card.

Fifth.—Quality is detected partly by color, partly by aroma, partly by texture, and partly by the degree of maturity. The degree of maturity and the texture can be detected by the "feel," and also by the eye. It is not necessary to shove one's thumb into an apple or a peach to know if it is ripe. A gentle pressure between the fingers and the palm of the hand will determine the matter very

accurately, after a little practice.

Quality also bears an important relation to size. A large Ben Davis is likely to be of better quality than a small one, because the texture is likely to be more open. Conversely, a large crisp spy is likely to lack firmness and crispness because of the coarse texture.

Texture may vary exceedingly within the variety. I have handled Duchess pears which were as fine-grained and smooth to the touch as a Bartlett. The best example I can give of the extent to which texture and quality can be determined by touch is in the Sheldon pear. A good Sheldon feels literally "as fine as silk."

Sixth.—Soundness is usually defined as "freedom from blemishes." According to the Inspection and Sales Act, a blemish is an imperfection serious enough "to cause material waste." In the fruit show, a blemish is any imperfection which would lessen the sale value of the fruit. A limb-rub or an insect injury may heal over so perfectly as not to lessen in any way the keeping quality of the fruit, and the only detriment is to the appearance of the specimen. A scab spot is not necessarily injurious, especially to fruit intended for early use. I fail, however, to see any other way of valuating injuries such as these than to call them blemishes.

A worse type of blemish is a skin puncture, and it is perhaps even more common. Judges should cut heavily for any evidences of rough or careless handling. Breaks in the skin and bruises are caused by lack of care, and lessen the value of the fruit for almost any purpose.

Under this heading reference should also be made to the practice of polishing, which unfortunately is becoming so common in plate apples. I know of no judges who favor polishing—in

fact all the best judges discriminate against it—and perhaps the only remedy is for exhibition authorities to adopt a definite prohibitory rule. In plate fruit, all specimens should appear in their natural condition, and with the bloom on. In most cases there is quite a wide margin between simply removing dust or spray and actual polishing.

Polishing may be allowed in "cones" and "pyramids," because these are purely display exhibits, such as a grocer would make use of for advertising purposes.

Worm injuries are considered serious blemishes, so much so that at the better shows exhibits are frequently disqualified on account of them. No apple showing worm injury should be allowed to win a place at the Canadian National Exhibition. The highest class apple show in Ontario is at Norfolk County fall fair, and a wormy apple there is a rarity.

Another frequent blemish is caused by the loss of the stem in picking and handling. If the stem is simply broken off, no real harm is done, although in apples and pears the stem should always be present, as it is sometimes an important work of identification. If, however, the loss of the stem results in breaking the skin, the fruit is blemished, because of the liability to decay. Such injuries are frequently as bad as worm holes, and should be penalized accordingly.

In conclusion, I should like to emphasize the importance of care in picking and handling exhibition specimens. One cannot be too careful.

As to uniformity, select specimens as nearly alike as possible in form, size, and color. It is better that all the specimens on one plate should be a little off type than that the type should vary.—CANADIAN HORTICULTURIST.

Seasonable Reminders for the Horticulturists

By C. F. PATTERSON, '18.

THE "Fruit Marks Act" protects the consumer only, but the "Integrity Act" protects both consumer and producer.

If apples are too thickly on the trees it will still pay to thin them.

Do not place plums or peaches when wet in the basket as this hastens decay.

Keep an open eye for the Yellow-Necked Apple Caterpillar and the Red-Humped Apple Caterpillar. If they make an appearance cut out nests and burn.

Remove and destroy all nests of the Fall Webworm as soon as noticed.

Do not put into the basket a peach that you would not eat yourself.

"Handle with care" is the motto which should be borne in mind when picking and handling fruit.

Do not forget that strawberries require cultivation until late fall.

To rise requires years,

But to fall—

Demandeth only moments.

Are you going to defame the good name of your Association for the sake of a few paltry dollars?

This is a good time to remove and burn all old canes of raspberries and blackberries.

To keep the young foliage of strawberries free of rust give frequent sprayings with bordeaux.

In "topping" grapes remember that this practice is very weakening to the vine. Remove only what is necessary to secure a proper coloration of the fruit.

See that the celery gets an abundance of moisture and good cultivation.

If the cabbage worm is troublesome

spray the plants with a solution made by dissolving one ounce of fresh pyrethrum powder in one and one-half gallons of water. **WARNING.**—Do not dust the plants with a poison at this stage as some of it may lodge in crevices about the head and thus render the eating of the cabbage decidedly dangerous.

Watch the celery for the development of rust. On its first appearance remove and destroy affected parts, and give the plants a thorough application of bordeaux.

Where celery is grown on a small scale one of the best methods of blanching it is to place a four-inch drain tile over each plant.

Late white turnips may yet be planted, and if the young plants are thinned to from six to eight inches apart will yield well.

When cutting cucumbers for market be sure to leave on each cucumber a stem of about quarter of an inch in length.

Do not forget to turn the melons a few times while growing. Melons handled in this manner will be superior in quality to those which are allowed to mature lying on one side only.

Ears of sweet corn can be removed easily by bending down the ear with a slight side twist.

To have green onions early next spring either plant perennial onions or sow onion seed any time before September the first.

Have you given your potatoes a spraying for Late Blight. If not, do not delay and use a mixture of four pounds of copper sulphate, four

pounds of quick lime to forty gallons of water.

Remember that on farms where five acres or more of potatoes are grown a potato digger whose carriers and shakers are driven by a gasoline engine is a paying investment. A machine of this sort leaves the potatoes in bushel heaps and it can be handled easily by one team.

Do not omit the tying of cauliflower leaves to exclude light and rain.

For celery blight spray thoroughly and frequently with bordeaux mixture of the standard strength.

In washing celery for shipment use cold water in preference to warm water and thus lessen the liability of the celery wilting in transit.

To stimulate the growth and development of dahlias give a liberal application of liquid manure.

For mildew on roses spray with a potassium sulphide solution, one ounce to two gallons of water.

Do not delay too long in ordering your bulbs for fall planting.

If roses are troubled with Aphis spray with a tobacco compound according to directions on container.

To have winter flowering pansies sow seed any time in the open ground. In the late fall the plants can be lifted and placed in pots for removal indoors.

Do not forget that surface waterings are of little use to sweet peas, because of their deep rooting system. To water, make a little furrow five or six inches from the row on either side and pour the water in this drill.

To keep sweet peas free from infestations spray frequently (once in two or three days) with soapy water.

The Review Story Competition

By DR. O. J. STEVENSON, Professor of English, O.A.C.

STUDENTS who intend to enter the Review story competition this fall, should begin at once to put their stories into shape. With the small amount of spare time that most students have, three months is none too long to allow for this work. A suitable subject must be chosen, the details must be worked over, different methods of telling must be considered, and finally the story itself must be written and rewritten several times before it is ready for submission. The best pieces of literary work are as a rule not done in a day, but are the result of careful revision.

The first thing to be considered is the choice of material for a story. Few people have the power of constructing a story wholly from their

own imagination. Most stories are based upon some personal experience of the writer or upon some incident of real life of which he has read or heard. Review your own experience and think over the history of different people in your own community to see if you cannot find material out of which a story may be developed. For the purpose of this competition it is better that your story should relate to farm life.

The first essential of a good story is that it must have a PLOT; that is, it must present some situation or incident which involves a difficulty—the solution of which forms the point of the story. Technically, the difficulty is spoken of as the COMPLICATION of the plot, and the solution is the

DENOUEMENT. The short story deals with only a single incident or situation, and you should, if possible, choose a story which has a very simple plot. Young writers are as a general thing likely to make their plots too complex and to fill the story with impossible and far-fetched incidents.

In some stories the chief interest lies in the plot, but as a usual thing the characters are equally as important as the incidents. In reading a story we are not usually so much interested in what takes place as in how people act and what they have to say. But in a well-told story the characters are usually left to reveal themselves in their words and actions, and very little direct description is required.

Aside from plot and characters the most important element in the story is its emotional tone. When we read a certain story we usually form our judgment of it according to the feelings which it produces. Of course our feelings depend very largely upon the incidents and the people; but a good deal depends also upon the **ATMOSPHERE** of the story,—that is, upon the choice of minor details which are likely to produce certain feelings. If, for example, we are writing a ghost story we must see that all the circumstances,—time, place, and trivial details,—are in keeping with the eerie effect which we wish to produce. In choosing material for your story, then, be careful to consider whether it has any emotional possibilities. A story which is a mere narration of incidents and which does not appeal to the feelings of the reader can scarcely fail to be uninteresting.

When you have worked out the details of your story mentally you must next decide upon the best way to tell it. The first thing to consider is how to catch the interest of the reader at

the very outset, so that having begun to read he will wish to continue. It is evident that you will not catch the reader's interest if your opening sentences contain a series of dry facts or a statement of some abstract theory. Some writers prefer to plunge the reader at once into the middle of some interesting incident or conversation and leave him to gather the facts as the story proceeds. If the story begins with facts, these facts must be interesting enough to hold the reader's attention.

The next thing to consider is what details you will put in,—or rather what you will leave out. You must give your reader some information as to the time, the place and the people in the story. You must see that all the details necessary to the understanding of the incidents are included. How much additional incident or detail you include will depend upon your own ability to write a vivid narrative which will interest the reader without wearying him and will stimulate his imagination without satisfying it. In general it is well to remember that a certain amount of conversation in a story adds vividness to the narrative. But the writing of good conversational dialogue is in itself an art which requires much practice.

In the short story the reader must at the outset be given no clue as to how the story is to end. As the story proceeds every means must be used to brighten the interest of the reader, and when the final point in the denouement is reached it must, if possible, come as a surprise. With this "climax," as it is called, the story naturally ends, and the ending, it need scarcely be urged, should under no circumstances be allowed to "drag." It is better to leave something to the imagination of the reader than to run

the risk of destroying his appreciation. And it is scarcely necessary to say that no moral must be attached to the end of the story. A story that is effectively told conveys its own moral.

As a preparation for writing a short story it is advisable for the beginner to study various types of story in books and magazines, to see what method the writer in each case has employed. In making such a study

you should pay special attention to the way the writer has begun and ended his story and note what means he has taken to develop the character and plot so as to hold the attention of the reader until the climax of the story has been reached. One of the secrets of good writing is to study the successes of others and try in your own way to imitate them until you find it possible to develop a style of your own.

The Dish-Washing Businesses

By MRS. WESLEY HOWARD.

"H dear," sighed Jean, "I hate housework. There is always the dishes to wash," and a frown gathered on her pretty face as she turned up the lower edge of her sleeves and began to wash a large pile of dirty dishes.

"Yes dear," sympathized her mother, "I know you do, but then they have to be washed just the same."

"It seems as if it was always my job," still grumbled Jean.

"Don't you think you are a little bit lazy," suggested her mother again. "Perhaps that is some of the trouble."

"No, I'm not lazy," protested Jean, "Only I don't like washing dishes. Now if I were only a saleslady in a big store I'd work all day and never get tired, but these old greasy dishes is enough to make anybody lazy, or sick, or something. . . ."

She did not finish the sentence, for just then her mother came up and laying her hand gently on her shoulder, said: "Yes dear, I know what a trial it is, but then every kind of work has its disagreeable features, and we all have to learn to do the disagreeable things in the work of today, before we will be able to conquer ourselves to

do the disagreeable things in the big work of tomorrow."

"But if I were a saleslady, there would be no disagreeable things to do," went on Jean, and then added in a softer coaxing voice: "Think how nice it would be to be dressed up all the time, and be able to go away from the breakfast table and never see a dish until dinner time."

"Listen dear," said her mother, "When I was a child I hated housework just as you do, for as you say, there was always the dishes to wash, and I hated washing dishes too. I used to think, 'Oh if I could only sew,—make dresses,—and be able to dress up and sit down to my work, that would be Heaven indeed. But as I grew older and able to make my own clothing, I soon found out that sewing was not all sunshine either. There was always the hooks and eyes to sew on, and I hated sewing on hooks and eyes,—for I would be sure to take the point off my needle, break my thread, or leave an ungainly knot where it should not be,—so I grew tired of sewing and began to look around for a more congenial sphere of labor. Finally I decided on school teaching. That surely

would be perfection. There would be no dishes to wash and no hooks and eyes to sew on, but when I became mistress of that profession also, I soon found out that school teaching had its disagreeable features as well as sewing or housework. It was not nearly so pleasant imparting knowledge to others, as gaining it for myself. Besides there was always the dull scholar to contend with. I soon concluded that every calling in life must have its disagreeable features, and the best thing to do was to conquer my dislikes by doing the disagreeable things in a pleasant manner. When I fairly and squarely faced my work with this resolution it was not half so hard to do."

Jean stood silent and downcast, so her mother went on. "When you have a disagreeable task to perform, play the game of 'Let's Pretend.' Pretend your work is nice, and go at it as if you intended to enjoy it, and see what a difference it will make."

"But I can't pretend it is nice when it isn't," still protested Jean half sobbing, as she turned the big dinner plates to drip.

"Well then," said her mother, "Why think about it at all. Think about the good time you will have when the

dishes are all washed. You will then be able to put on a nice clean frock and work at your drawing. See," she continued, "The dishes are almost done now. It was not such a terrible job after all. It was not nearly as hard as it looked on the start. It is the thinking and worrying over it that makes it dreadful, but when you go right at it and get it off your mind it is not half so bad."

"Maybe you are right, mother dear. I never thought of it that way," said Jean half smiling, as she poured the dirty water down the sink and hung up the pan. "So it is the thinking about it that makes it so hard."

"Yes my child," replied her mother. "The more you think about the disagreeable things you have to do, the more you hate them, and the harder they are to do, at least, that is the way I have found it to work out. By thinking about the work we hate to do, we fasten our dislikes more firmly upon ourselves, and thus it becomes harder every day. If we would only forget them until we came to do them, it would make all the difference in the world. It pays to let your thoughts dwell upon the pleasant things of life, and forget about the seamy side,—the dish washing businesses."



Wild Life Pictures on a Farm

By E. V. LAWSON, B.S.A.

TO make a new bird or wild animal acquaintance and to cultivate the friendship is achievement enough to make memorable any year and worth having photos of by way of records.



Nest of the Morning Dove.

Try this and do your part well. If a bird, learn its songs by heart, recognize the gayer colored male and the modest mate by sight, locate their nest and learn all you can about their housekeeping. It is much the same with the small wild animals but birds are the easier to study.

Lovers of birds who also use the camera will find much pleasure photographing them if the required amount of patience can be commanded. The difficulties are many and the really successful pictures are few at best. But the achievements are for these reasons all the greater. Not only are the subjects found in the most

unaccessible places such as tree tops, swamps and dark woods, but they must, for the most part, be photographed unawares and with quick exposure, even when the light is dim.

An exposure of 1-100 of a second is quick enough for most bird subjects, and at times even slower may be used. With an ordinary lens and camera one must work within a yard or so from the subject to secure a good sized image. The only method is to arrange the camera, focus it upon a particular spot, retire to a distance and make the exposure from there, after the bird has returned to the chosen place. Thus it is that the nest is usually chosen because where there are eggs or young the parents will always return to it.



Kildeer Plover, Setting on Its Nest.

The easiest birds to photograph are the robins, phoebes, warblers, grass sparrows or most birds which build on or near the ground. Place the cam-

era low and focus on the middle of the nest or slightly beyond. Any intervening grasses or twigs may be held back with fine, dark colored thread. Nests are usually in shaded places. Do not break off the branches, they protect the nests so that the young may not subsequently die of sunstroke. If you cannot secure sufficient light, tie a string to the branch in such a way that it will pass around some nearby object and thence to the place of concealment so that at the proper time the branch may be gently bent back and light admitted while the exposure is being made.

Twenty-five yards is as close as one may hope to work to a bird subject. Your patience is often tried to the utmost. Often several hours are required to secure a desirable posing. The less disturbance that is made the shorter will be the time.

Conditions are never the same when the camera must be placed high up in a tree. It is harder to get it properly placed. The legs of the tripod must be tied and then adjusted as required.

In conclusion, a few general rules for getting on good terms with wild creatures may be of help. Do not carry a fire arm. Be quiet as possible. Never go after a wild creature, make it come to you. They are full of curiosity and love for good living, so if you can please their stomachs you can work wonders. Never make a quick move, it may undo a week or month's patient work. A dog is another source of annoyance. Feed the animal or birds. Provide them drinking fountains and eating places where possible, and soon your fund of outdoor knowledge and perhaps photographic records will be one of interest.

The Rural School Fair and Worthless High-Priced Flour

By A. W. GUILD, B.S.A.

WHHEAT—mankind's most useful food—is the word that commands attention today. Every newspaper, every magazine, every person on the street is talking wheat. Why? Why is there such magic in the word? Because the greatest war in history is raging over an entire continent; because a world is in flames; because not only is Europe scourged and suffering from the hideous conflict raging within her borders, but throughout the world men and women are deprived of occupation, food and shelter.

Officials of the United States tell us that no matter how great an effort we make it is practically impossible to

avert a world famine. England, our motherland, is in the grip of food regulations. Only a certain quantity of bread can be used by each person. One can have his choice of pie or cake but not both. The boys in training in England send word that they are living on half rations. The food question in Canada and the United States is becoming so serious that both governments have appointed food controllers, which means that our rations must soon be cut.

Bread is now ten or twelve cents a loaf, an almost unheard of price until this present war. Prospects are that it will go higher. It is of little moment

to those whose diet consists of a variety of food stuffs, whether their bread be ten or fifteen cents, or whether it be white or brown, whether it be made from sifted, screened, impoverished wheat, or from the whole of the little brown grain. But, there are millions to whom bread is an absolute necessity. It is literally the staff upon which their lives depend. For these millions of worthy people, the bread supply means health or sickness, efficiency or uselessness.

For the hungry there is but one kind of bread that will sustain life: white bread will not sustain life; standard bread will.

As bread began to rise in price, we heard a wild clamor from all corners of America. Cartoons, editorials, first-page stories, and flaming headlines have cried out for justice against the wheat speculator; against the increased price, but not a soul cries out against the bread itself. Not a word is said in official places against the denatured, devitalized, degerminated, demineralized, degraded patent flour loaf, yet the physical condition of growing children who eat bread three times a day is clamoring unheard against our organized system of national indifference to the abominations practiced on this most important of all foodstuffs.

Before me lies a circular being distributed by a certain flour company. This circular contains conditions for a bread-making contest at most of the rural school fairs through the Province of Ontario. (Note that I do not mention this firm in particular. This circular just comes to my attention. It is not any particular firm I protest against, it is the principle.)

It has been a custom at Rural School Fairs, fall shows and elsewhere to offer prizes for bread-baking, certain standards are used for scoring the

bread entered by the various competitors. My experience has been that none of the entries were considered unless they scored high for whiteness of color, fine texture, etc. The standard of the contest above mentioned may serve as fairly typical. Of the total 100 marks given, 50 per cent. or exactly one-half of the total marks are given for whiteness of color, texture of crust, color, silkiness, and evenness of the crumb. In short the public is told in so many words that a white bread of very fine texture is the best bread to be obtained and that the house wife should strive to reach this ideal. These contests I notice are under the control of our own District Representatives and are advertised as having the sanction of the government. A logical conclusion is then that our government is educating the people of the Province to believe that denatured, emaciated white bread is the best for all purposes. We have heard dreadful tales of the deeds of the Huns but none that could rival this. Rather therefore than believe that our own government deliberately sanctions such a course, I prefer to believe that their consent has been gained without due consideration, not realizing the full consequences involved.

One should scarcely need to here discuss in detail the relative merits of white flour or bread and whole wheat flour or bread. This magazine is read largely by college men, men who know the facts as to the constituents of wheat. We know that chickens, pigeons, white mice, rabbits, guinea pigs, monkeys and other animals die within a period of 50 days when fed on an exclusive diet of white bread, while a check pen of similar chickens, pigeons, white mice, rabbits, guinea pigs, monkeys, etc., when fed on an

exclusive diet of whole wheat bread thrive indefinitely.

Where lies the difference? Simply that in the process through which the white flour passes in manufacture, the bran, shorts and germ are extracted, taking off almost all of the protein, the fat and the mineral, and leaving a product that is practically carbohydrate, almost all starch.

As foods soar in price, men and women more and more must rely on wheat as their staple food, and in direct proportion as the consumption of white flour increases, the number of unhealthy, anæmic, run-down, nervous individuals will increase. It is a shame that men and women are allowed to feed on such denatured foods. Why is it permitted? A farmer would not dream of feeding unnatural food to his hogs. How long shall we permit the best of the wheat to be sold for hog-feed while we go to an early grave or die a lingering death? How long shall we permit, nay, encourage the people, to follow a delusion.

Nervous troubles are rampant today. Everywhere people are affected by nerves. At the same time, there never was quite so much nerve food being sold and advertised. Sargol, Nuxated Iron, etc. These nerve foods supply the iron and other minerals that are lost from our foods. Let us prevent rather than try to cure.

People of sedentary occupations are very numerous today. The foods that are eaten are largely predigested, fine, and without any roughage. Such is white bread. Consequently constipation is prevalent everywhere. A whole wheat bread diet regulates the system better because of the fibre in the bran. Give people a chance to improve their health.

3 1-3 bushels of wheat will produce

a barrel of whole wheat meal. 4 1-3 bushels are necessary to produce a barrel of white patent flour. In other words every barrel of white patent flour represents a loss of 60 pounds of the most precious elements of the wheat, which are thrown to the hogs. A loss of 60 pounds per barrel amounts to many millions when the entire wheat crop is considered. These millions of pounds of the cream of foods should be conserved and given to the people. Such a loss, such a waste is absolutely without excuse. Will not some one take up the good work and start a campaign for the use of the whole wheat bread? England is compelled to use it. Cannot our government issue a similar decree, compelling the use of whole wheat flour in Canada?

The whole wheat flour does not need the refining, does not cost as much to produce for consumption and can sell much cheaper than the white flour. Give the people a cheaper as well as a more wholesome flour.

If we must have white flour baking contests, why not also have whole wheat baking contests. If the manufacturing companies consider the Rural School Fairs such an excellent place to spread their particular brands then we may safely conclude that the fairs are the logical place where our government may start an educative campaign for the use of wholesome bread-flour.

The writer has lived on a vegetarian diet for over two years, whole wheat bread being the main item, even when doing farm-work. He is also subsisting on the same diet now, and has moreover, converted many families to the use of the real flour. I plead with every reader of this article to do his or her part to assist in this campaign.

Winning Decoration in England

AUTHOR'S NOTE: The inspiration for this little effusion was obtained from a series of incidents that occurred in a certain training camp in the south of England. A large body of troops has been stationed there since Sept. 1916, the general expectation was that they would be in France to greet the New Year or shortly afterward. In May 1917 they are still there. Much monotony has happened in those seven odd months. During that time it has frequently occurred to the minds of the Neophytes that the general command has passed many sleepless nights devising schemes to make the troop believe they were "doing their bit" in the great war. To one of those deeply laid plots we owe our inspiration.

The writer has heard of headquarter parties in batteries of Artillery. Their chief function is to keep up lines of communication between the various depots. With a view to increasing efficiency of these headquarter parties, a deeply thought out plan was devised. In our school boy days, we can all remember how the "gentle marm" obtained remarkable results in a spelling match by offering, as a reward, a large juicy apple, or something as valuable, to the sole survivor. In these days of war the authorities that be in the afore mentioned camp in the south of England, followed the same notion that prompted the school "marm." Perhaps, the apple had looked as unobtainable to these gentlemen in the halcyon days of youth that their conception was a perfectly natural one. At any rate, during the days when our more fortunate brothers in France were pushing their way resistlessly over the redoubtable Vimy Ridge, we in England were competing in laying out lines of communication from one Surrey knoll to another. As special rewards for deeds of great valour in France, they received such decorations as the V. C.; D. C. M., etc. Success in the competition meant the attainment of medals also—medals that no doubt will be marvelled at by grandchildren to come, if they, the medals are not worn out. After these few harmless words of explanation, we are prepared to begin the story proper.

IT is early morning in one of Surrey's most beautiful rural districts. The grey mist rolling off the downs, is still plainly discernable on the hills beyond. A skylark is winding its way far up into the dusky clouds, its little throat sending a fugue of melody over the meadowlands. The edges of the nearby woods are faintly tinged with the promise of spring. The solitary lover of nature, if there were one on the scene, would be rapturously running over Browning's inimitable lines.

"The year's at the spring, the day's
at the morn,

The morning's at seven,

The earth is dew pearled.

The lark's on the wing, the snail's on
his thorn,

God's in his heaven,

All's right with the world."

Peace, peace is the keynote of it all.

Suddenly, all that scene of peace and love is ruthlessly broken. A party of horsemen come cantering up. On the command from the leader they dismount and all stand grimly beside their horses. The virgin purity of the spring morn is polluted, for these

are equipped in the grisly accoutrements of war. Over the shoulders of some hang telephones, while strapped to saddles may be seen reels of wire. Grimly accoutred they are to be sure but their's is a grim business. They are expected to lay out a line of communication faster than other parties, that, by this time are appearing on the scene. Grim faces are these, but little time or inclination have they for dalliance over the beauties of nature. Written in the face of each is a grim determination to win the reward of rewards, the little bronze medal that will crown the victory.

Their leader is a youth worth looking at twice. His is a face that one would look for rather in a drawing room, than in the grim seat of war. At present he is nervous, his riding crop keeping up a merciless rat-a-tat against the high boots that encase his lean but shapely legs. One would never suspect that behind that slim and gracious face lay the master mind, the brain that was expected to drive the party to a final victory. When his parents christened him Ruthven, they

must have had an almost prenatal premonition of the great deeds that were to be his.

Among the remaining dozen are many whose deeds have long ere this made their names household ones in

ment and even the cool Dave Laird has difficulty in controlling his facial muscles. But, dear reader, never lose sight of the medals that are to be won. Is it any wonder that the whole party is in such a state of excitement?



a land over the sea. Sergeant Rowland, second in command, is stroking his chin indolently as he listens to his leader's advice. Corporal Dan, the precocious youth allows his mysterious eyes to rove over the distant scene, as he deliberates, Ulysses fashion. Here is "Windy" Winslow straining like a stag hound in leash, waiting for the quarry to begin the death race. Col. White grows perceptibly taller as the dreadful moment approaches. Ted Varey is shaking all over with excite-

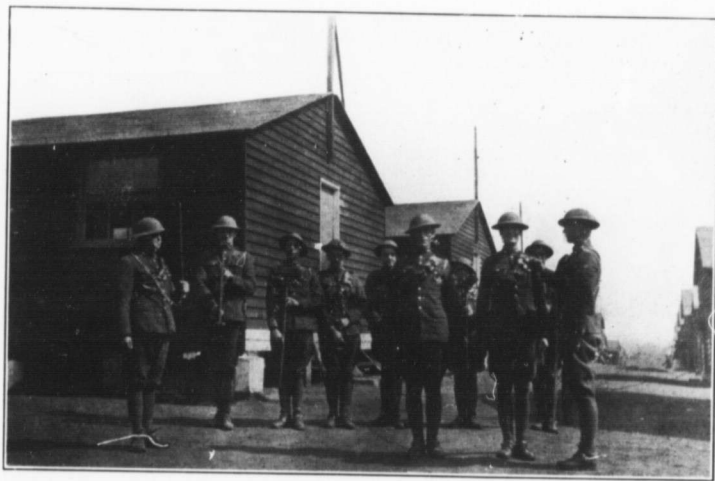
A group of officers approach. A description must not be attempted. These are the chosen ones, they are supra legem. Hardly known are they in attire or figure. Beings descended from Olympus to spend an odd hour among poor mortals. Two of them carry stop watches. Our youthful



leader is informed that the race is about to begin. Now the nervousness reaches its climax as the party lines up for the desperate race against time and for the medals from Olympus.

A pistol shot breaks the tense silence. Now there is action. Hammersley meets his mother earth with a dull thud, frantically pulls out a telephone from its case and with eyes strangely alight begins buzzy-buzzing on the key. Already Varey and Win-

legs. At last he is there. The telephone is connected, Winter frantically presses the buzzer key—he curses, there is no reply—a break in the line—Now McArthur shows his mettle. In the twinkling of an eye he has found the break, with pudgy fingers he dexterously ties a "reef knot" and "tapes her up." Now the message is through. "Forty-five seconds" says the time keeper. "We've won," says McArthur and promptly faints. The



slow are off to the distant station uncoiling wire as they run. Behind them lumbers lazy Dan and the indolent Rowland. A road has been crossed. Down on all fours go Rowland and McArthur, scratching away with their penknives and burying the precious wire. For in the lead are Winslow, Varey and weary Winter running a grand race. Suddenly Varey falls in a ditch utterly exhausted and our hopes are all staked on Windy's long

excitement has been too much for Rowland, slowly he walks around in circles, muttering, "The medal is ours, the medal's ours," "Parcel post to London, Ontario, parcel post to London, Ontario." Winter carries the glad tidings back to White and Laird who have been performing the inglorious but necessary task of holding the horses. Really theirs, has been the hard part. There they had to remain, "eating their hearts out"

while their comrades had all the excitement. These have been terrible moments. It has seemed like a century. The horses have been misbehaving. Laird has been kicked in the stomach and the onus of it all falls on little Colonel. He is almost exhausted when Winter arrives with the glad tidings. Colonel looks sickly, grins but recovers himself in time to dodge a well aimed blow from Windy's egypt. Danny McArthur's Rosa has fainted and all the others neigh loudly. Carrying the sick and maimed we walk slowly back to camp. We are paraded before the O.C. with a word of praise: "Officer N. C. O's and men of the Headquarters party; this day you have done well." He pins a delicately engraved bronze cross on each of us.

Oh the ecstasy of that moment! We are heroes, if mother could see us now.

We're back in the hut. All sit round the fire looking with loving eyes at one another. All are modest. We are living the great moments of our lives. Even the usual game of "Penny Ante" is foregone. Dewy night hurries down the slope of heaven and the setting stars invite slumber. We retire to our flops, an occasional snore breaks the silence. McAdam rolls over and says something drowsily about new honours for Vankleek Hill. A wakeful one giggles, then oppressive silence weighs and we dream of Victoria Crosses and Iron Crosses—It's over-life is short—our officers are generous—we die defending little Belgium—It's over.

Economical Dieting

C. F. MACKENZIE, '19.

DURING the past three years Canada has found a ready sale for all classes of farm products. Markets that hitherto had not been open to Canadian produce are now ready to handle all the foodstuffs that Canada can produce over and above her own requirements.

The recent propaganda for increased production has brought a ready response from Canadian people. This increased production however, must be closely followed by the most rigid, economical and careful mode of living possible, in order that our stores of food may be husbanded in the most efficient manner.

One of the greatest needs at the present time is information for housekeepers about how to buy and prepare nutritious food economically. Lack of this needed information means a great

loss to the country at this time, resulting in waste and excessive and unnecessary buying.

Teachers in both public and high schools should endeavour to impress upon the minds of their pupils the great need of economy in household buying. In this way the parents would become interested; the information imparted to the children by the teachers would be accepted by the parents, and acted upon, thus the problem of reaching the "housekeepers of Canada would be greatly simplified.

The following terms, viz., calories, carbohydrates, proteins, and vitamins, should be understood and appreciated by all who read, in order that we may clearly understand what food is and what it does.

According to scientists food is the body's coal and building bricks. It

keeps the works moving, builds, regulates and repairs. Our chief fuel foods are starches, fats and sugars. Starches and sugars are carbohydrates; fats are hydrocarbons. Foods such as potatoes, beans, bread, corn, oats, bananas and honey are rich in carbohydrates. All high in heat producing qualities. Fuel is the first need because the body burns carbon just as an engine burns it. Thus we see at once what we mean when we speak of carbohydrates.

The term calorie is used to measure the heat value of food. We find that a calorie is the amount of heat required to raise one pound of water, 1° centigrade. An ordinary serving of food contains about 100 calories. There are about 100 calories in a banana, in an orange, in a thick slice of whole wheat bread, in half a potato of fair size, or in an ounce of butter, or oatmeal, or beans. An ounce and a half of steak is required to produce as many calories as are contained in an ounce of butter or half a potato. A graham roll contains more calories than a small lamb chop. The chop, however, has more than twice as much protein.

Protein is tissue building food used for construction and repair. It is the nourishing substance of meat, fish, fowl, white of eggs. These foods are called protein foods because they are richer in protein than are, cereals, milk, bread and some of the vegetables. However we find that many foods not classed as protein foods contain this substance so that we can wisely limit our daily allowance of these foods, that are high in protein and high priced,—such as meat, fish and fowl.

Furthermore there are substances not yet thoroughly defined or analyzed known as vitamins, and the well known mineral elements in food. These are extremely important because it

has been proven that much ill health and mal nutrition are due to the lack of these elements especially; lime in the blood and lymph is absolutely necessary to maintain normal heart action, and phosphorus is necessary to every living cell in the body. We find our diet is often lacking in one or both of these elements.

Lack of phosphorus and lime is a far more important problem than lack of meat. Phosphorus is found in good forms and proportions in the following foods: milk, yolks of eggs, whole cereals, and breadstuffs made from whole grain.

Lime is found in nuts, vegetables, whole cereals, milk (and milk products other than butter,) and eggs.

Vitamines are found in milk, fresh fruits, and vegetables, fresh meat, whole cereals, peas and beans.

Having now a general idea of the above mentioned terms it remains for us to put that knowledge into practical, every day use in preparing and planning our diet.

Scientists have positively demonstrated that 75 grams of protein daily is sufficient for the average man.

Hence an ordinary individual of average weight consuming a total of 3,000 calories a day requires about 300 of these in protein, therefore a third of a pound of roast beef, or four eggs, or a quarter of a pound of cream cheese would be sufficient to supply his protein needs. He would also find considerable protein in cheaper foods such as peas, beans and milk.

Milk, is, without doubt, one of the most economical and nutritious foods, and should be included in every well regulated diet.

A large quantity of meat is not necessary, nor is it good for us, because we can use cheaper and more economical fuel producing foods.

It remains therefore for us as Canadian people to break the fetters of habit and social customs that have enslaved us in regard to our diet. We must govern our diet by intelligent choice based upon a scientific knowledge of the body's requirements. In this way we will be content to limit our diet, to use plain, wholesome food, made up for the most part of the real

necessities of life. Consequently we will conserve our resources, eliminate waste and be enabled to send a greater amount of food stuffs to the Motherland to relieve the needs of the people, and to feed the gallant men of the allied armies who are risking and sacrificing their lives on the shell scarred fields of Europe in order that the principles of liberty and justice may be maintained.

The Color of Soils

By R. A. BRINK, '19.

FOREMOST among the characters on which farmers are wont to base their judgment of the quality of land, stands the colouration of the soil. Scientific research has proven conclusively that the fertility or productiveness of a soil bears a sufficiently close relation to its colour to warrant our giving credence to the long popular belief that considerable importance should be attached to this factor.

The principal constituents of soil that determine its colour are humus and ferric oxide. To the former is almost invariably due the colour of our variously shaded, dark soils, while the latter accounts for the red, yellow, and to some extent the brown colourations. Admixtures of these two substances form the various intermediate shades. The present amount of either of these substances does not necessarily determine the intensity of the colour, as a soil composed of coarse particles presents a much smaller internal surface than does one composed of fine particles, and hence will require less of the colouring material to produce the same shade. The most deeply black soils are formed in the presence of an abundance of lime, while brownish humus is indicative of an acid condition.

In ferruginous soils, the various tints are due to the condition of the iron contained therein.

The popular judgment, whereby black land has always commanded approval, is justified by the numerous and great advantages that accrue from the presence of a large amount of humus in a soil. Aside from the general causes that contribute to the fertility of lands in which humus is most abundant, that is in alluvial soils, vast importance and value must be attached to this soil constituent in itself for humus plays a leading role in soils, generally, in rendering them most productive. This vegetable mould improves the physical condition of both light and heavy soils, and by a slow but continuous evolution of carbonic acid, renders available to the plant life of the soil food elements necessary for their growth and development. Of all soil constituents, its power for retaining moisture is the greatest. When we consider also that humus carries the bulk of the soil nitrogen, and that its presence is essential for the maintenance of proper bacteriological conditions within the soil, we conclude that the favorable judgment passed upon black soils is well justified.

An explanation of the red and yellowish tints of soils resolves itself into a discussion on the iron compounds present within the soil mass. Limonite, ferric hydrate or rust, the colouring matter of red and yellow soils, is formed when solutions of carbonate of iron come in contact with the oxygen of the air. Bog iron ore, a frequent cause of hardpan is a concretion of ferric hydrate formed in this way. Ferric oxide imparts a red colour to soil, and in its hydrated form possesses a yellow or brownish tint. Finely diffused ferric hydrate possesses notable power of retaining moisture, and like humus will improve the physical condition of clay soil, and will not continue to exist on poorly drained land. Rust coloured clays, when acted upon by decaying organic matter, are observed to change in colour to a bluish or greenish tint, the ferric hydrate having been reduced to ferroso-ferric hydrate, the compound of magnetic iron ore with water. This colour indicates the lack of aeration in the soil, caused by continued saturation with water, the result of bad drainage. This condition is very injurious, exerting a toxic effect very disastrous to plant life. In the presence

of sulphates ferrous carbonate will form iron sulphide, which in its finely divided condition imparts the blue colour characteristic of some clays.

Light grey soils are as a rule not looked upon with favor, indicating, as they do, a deficiency of humus or ferric oxide. White soils are generally the result of reductive maceration, due to a water-logged condition, during which time the lime, iron and phosphorus have accumulated in an insoluble form that cannot be made available even though the soil be properly drained. In arid regions, however, white soils are often the most productive, their colour in this case being due to the presence of excessive quantities of alkali salts, with very small amounts of humus or ferric oxide.

The temperature of a soil is very sensibly affected by its colour, much more of the sun's rays being absorbed and converted into heat by dark soils than by those of lighter shade. Very often, however, the heat gained by these black soils is consumed converting the large amount of moisture contained in such soils into vapour, thus tending to nullify the warming effect.



Canadians Die on Battlefields, Not Alone

Impure Water Causes Hundreds of Deaths Every Year. Typhoid Contaminated Water Alone Is As Deadly As a Machine Gun.

And these hundreds who die are Canada's—any nation's—most valuable resource. We seek to conserve the lives of citizens. And there are sound business reasons, too, why impure water should have no place on the farm. It lowers the vitality and arrests the development of man and beast alike and it depreciates the selling value of a farm. The wise buyer will pay for pure water and he will always purchase the farm that has it in preference to another.

Pure Water inversely has merits which cannot be overestimated. It is more necessary to health, strength, and physical development of man and beast even than is food. And—as you have perhaps already discovered—it increases the selling value of the farm. Therefore an investment in pure water is invariably profitable for the individual, while it is national service of high order.

Nor need the investment be heavy. Just a little care, labor and expense will, in the great majority of cases ensure pure water. There are three causes of impurity only: (1) the source of supply; (2) the location of the well; (3) the kind and condition of the well.

SOURCE OF WATER SUPPLY.

Underground water obtained from wells is the chief source. The earth is composed of layers or strata which occur somewhat as follows: (1) a porous layer, such as loam, containing water; (2) a deeper porous subsoil layer, as sand or gravel, containing water; (3) an impervious lay of clay or hardpan through which water will

not pass; (4) a porous layer, as sandstone, containing water.

The surface soil contains impurities which contaminate water. But if the water is filtered through ten feet of soil these impurities are removed. Therefore, water found in the lower strata is pure—**wells should be at least ten feet in depth.**

LOCATION OF WELL.

This, for the sake of convenience, has too frequently been in unsanitary places—in the barnyard, in line of seepage from privy or where surface water gathers. While the pump must be located close to where the water is to be used, it need not be directly above the well. It may be placed in, or near the house or barn with an underground pipe being laid to well. **The highest point in the pipe should not be more than twenty-five feet above the water in the well.**

When locating a new well it should be dug in higher ground than any possible source of contamination and at least 100 feet from it. This distance is required for protection against seepage from barnyards, stagnant water, privies etc.

To locate an underground stream the local "water witch" needn't be depended upon—although "water-witching" is by no means a sham—a mechanical waterfinder which has given excellent results is owned by the Department of Physics, Ontario Agricultural College, for use in the Province.

KIND OF WELL.

There are three of these—dug wells, driven wells and drilled wells.

Dug wells are more frequently sub-

ject to contamination than the others. Very often the stone, brick or other curbing is not water tight and impurities enter from seepage or run-off, or both, during every heavy rain. The curbing should be absolutely impervious to rain to a depth ten feet below the surface and at the top should extend above the general level of the land.

Driven and drilled wells, if sunk through an impervious layer into a porous one beneath, supply pure water unless it is contaminated at the surface. But all kinds of wells may be contaminated at the surface by being covered in a careless manner. It is absolutely necessary that the platform be close fitting with no cracks or crevices, else insects and filth from the feet of persons, poultry, etc., will cause impurity.

QUESTIONS FOR EACH TO ASK.

Is my well located on ground lower than that surrounding it? If so it is in danger from impure surface water. After a heavy shower is the water in my well roiy or discolored? If so, surface water is entering the well without being properly filtered.

Do I occasionally pump from my well remains of insects, earthworms, frogs, etc. If so the well is imperfectly covered and protected and the water is impure.

Is my well located in the line of seepage from the privy or barnyard? If it is, grave danger lurks in the water.

Are the ducks and geese allowed to congregate near the well? If they are the cover must be absolutely close fitting.

Is the water offensive to taste or smell? If so, it should be purified immediately—fevers are often deadly.

If, for any reason, you are suspicious of well water, either at the home or school, notify Professor D. H. Jones,

Bacteriological Department, O. A. College, Guelph, who will send you a sterile bottle with directions for obtaining a sample. Upon receipt of the sample Professor Jones will make a test free of charge, and will promptly forward you an analysis.

Meanwhile guard the health of your family by disinfecting the water used. Dissolve a level teaspoonful of chloride of lime in a teacup of water. Dilute this quantity with three cupfuls of water and add a teaspoonful of the diluted solution to each two gallons used of drinking water. Stir thoroughly. The water will be without taste or odor and will be safe for human consumption.

Failing this efficient and inexpensive method, boil all water used for at least 20 minutes.

TO IMPROVE THE OLD WELL.

The next step is to remove the cause of pollution. If it is a dug well in a good location tear out the old lining ten feet down and relay it with cement backed by at least a foot of puddled clay of very close texture. Raise the top above the level of the surrounding ground and bank the puddled clay around it to shed rain or spilled water away from the well. If the well is in low ground extra precaution may be taken by laying a tile drain, back-filled with gravel, around the well, and down the water course to a suitable outlet. Then the well should be cleaned as thoroughly as possible and the cover be made absolutely tight with cement or a double layer of boards. In case the well is located in the direct line of seepage from soil polluted by privy or barnyard, however, the only safe method is to change the site of the well or the source of pollution.

If the drilled or driven well is sunk in the bottom of a dug well exactly the same precautions must be taken as

the water above will contaminate that beneath. In any case it is safer to puddle the clay or to cement around the casing to the depth of ten feet to prevent surface water following the pipe and contaminating lower waters.

The result will be ensured health,

increased comfort and added value to the farm. It requires only a little care, labor and expense. Nothing pays better than a pure water supply — and there is no better time to do the work than in the fall when the water is low.



The Mourners

I look into the aching womb of night, I look across the mist that masks the dead, The moon is tired and gives but little light, The stars have gone to bed.	Into the shadow of the coming years, Of fathomless despair. And some are young, and some are very old, And some are rich, some poor beyond belief; Yet all are strangely like, set in the mould Of everlasting grief.
The earth is sick and seems to breathe with pain. A lost wind whimpers in a mangled tree;	They fill the vast of Heaven, face on face; And then I see one weeping with the rest, Whose eyes beseech me for a moment's space Oh! eyes I love the best!
I do not see the foul, corpse-cluttered plain, The dead I do not see.	Nay, but I dream. The sky is all for- lorn, And there's the plain of battle writhing red; God pity them, the women-folk who mourn! How happy are the dead.
The slain I would not see . . . and so I lift My eyes from out the shambles where they lie; When lo! a million woman-faces drift Like pale leaves through the sky.	
The cheeks of some are channelled deep with tears, But some are tearless, with wild eyes that stare	

ROBERT W. SERVICE.

THE OAC REVIEW

REVIEW STAFF

L. E. O'NEILL, '18, *Editor-in-Chief*

E. V. LAWSON, '17, *Agriculture*

B. P. GANDIER, '18, *Athletics*

A. W. GUILD, '17, *Experimental*

G. R. WILSON, '18, *College Life*

H. NEFF, '17, *Horticulture*

J. B. MUNRO, '19, *Locals*

R. J. ZAVITZ, '17, *Poultry*

F. C. ODELL, '19, *Artist*

H. J. SULLIVAN, '18, *Query*

MARY BIRKETT, '17, *Macdonald*

W. F. GEDDES, '18, *Alumni*

MILDRED RUTTAN, '18, *Macdonald*

EDITORIAL

OUR NEW COURSE IN ROAD CONSTRUCTION.

The Ontario Agricultural College co-operating with the Public Highway division of the Department of Public Works has arranged for a series of lectures to be given to second year students during the fall term. These lectures will cover the history of road development from ancient times up to the present. The economic value of good roads for commercial transportation as well as for military purposes will be pointed out. Road construction will be thoroughly dealt with, including types of roads suited to varying conditions, construction of same, drainage, grading, bridges, culverts, materials, road machinery, etc. Road laws will be examined and explained as well as the financial aspects for the future will be discussed.

Such a course as this should do a great deal to avoid the many expensive mistakes made by many municipalities during the process of road and street improvement. Much money has been wasted through lack of intelligent and proper supervision of road building.

The Department has made an extensive and careful survey of the work done in 33 cities and towns in Ontario. A very interesting and instructive report has been issued by the Department showing different types of roadway with costs, etc. This may be had by applying to Mr. W. A. McLean, Department of Public Highways, Toronto.

REINFORCING THE PRINCESS PATRICIA CANADIAN LIGHT INFANTRY.

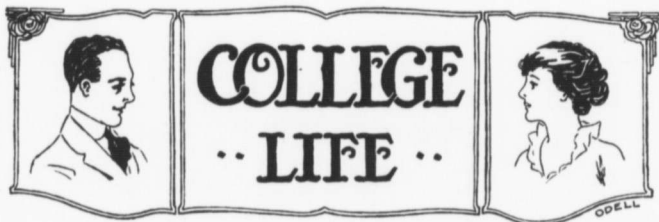
A special appeal is now being made to all Universities for aid in securing

re-inforcements of University men to this famous regiment. The need is urgent and the response should be noble. Major Barclay in command of the 1st University Company states that seventy-two men under his command obtained their commissions on the field. This is more or less typical of all the six University Companies that have reinforced the regiment.

With conscription only a short way off, it is especially desirable to attract to this regiment, as volunteers men of the University type. The reason for such is twofold: first, volunteers may join with the guarantee that they will be kept together and the advantage of being with men of your own type is very apparent; second, under con-

scription, men may be placed in any unit where their services are required, irrespective of their personal feelings or status.

A depot under the charge of Major W. E. C. Irwin, of the Princess Patricia's, who was wounded in the battle of Ypres has been opened at Camp Borden. The assistance and support of the authorities and students of our Universities and Colleges should be given to this famous regiment which has now become almost a University Battalion. Before "signing up" give this your careful consideration. Help if you can to fill the ranks of the regiment that has won everlasting fame not only for itself but for the Universities of Canada.



COLLEGE LIFE REVIEWED
(Concluded from last issue.)

The winter at the old farm where John had spent the happy days of his childhood was passed quietly and peaceably. John's parents sat evening after evening roasting their shins by the fire while nature was in the grouch. Finally "old Sol" began to cast the warm rays of heat down upon the snow-clad surface of "Mother earth." The spring members of the aerial choir began to bring mirth to the shaded haunts by the old farm-yard. The brave chanticleer salled forth with full confidence in the old maxim "the early bird catches the worm." Spring had

come and with it all the hustle and bustle of spring cultivation and seeding.

Before operations had begun in earnest John had returned from O.A.C. with a determination that he would make his young neighbors, who had hailed him as the book-farmer, realize that this was an age of advancement, that man could no longer cope with civilization by adhering to the old time-worn, laborious methods of cultivation. John meant business, not slipshod tinkering as heretofore. He meant to demonstrate that what he had learned in theory would come out in practice; that for each day the

seeding was delayed it meant a decrease of one bushel per acre at harvest time; that with every extra stroke of the disc harrow or spring-tooth the harvest was made more bountiful; that frequent mulching of the soil-surface in the cornfield would conserve the moisture and was conducive of a larger yield; and that the field behind the barn did not lack fertility but only required draining so that air could penetrate the soil and the root of the plant have a normal growth in order to produce a healthy plant. And demonstrate it, John did.

The summer passed, John whistled, and the crops grew. The golden grain was stored away and the corn was ready to harvest. The book-farmer had made good. He had at least acquired in one year, a knowledge of soil cultivation and crop production. But he must not be content to stop. He must go further and analyze each individual crop and study the requirements of his animals in order that he be able to compute a ration for the maximum production of meat and the most economic utility of feed. In short that John must return to complete his sophomore year at college was self-evident and Sept. 18th found him aboard a street car wending his way up the hill to again partake of the knowledge of scientific agriculture.

This time, however, John entered with somewhat of a pompous stride and a countenance which, to say the least, imported the idea that he was master of the situation. He had come back as a Sophomore and he meant to exercise his authority; he meant to revel in merriment while the new freshmen class took their somewhat bitter but very appropriate medicine from the spoon held fast in his own hand. His beautiful locks as a freshman were gone but not forgotten and

now he was to have the extreme satisfaction of administering a similar punishment to the first person he found guilty of treading the romantic realms of Macdonald Hall.

Not many days elapsed until John spied his victim. In spite of all his warning a stalwart son of the fruited areas of the rich and noble province of British Columbia had come down to the Ontario Agricultural College in order that he might defy the laws, reform the institution and add his name to the list of those who have piloted the old college through its childhood and adolescent stage, through its years of popularity to become an institution which has gained the fullest confidence of the agricultural population, and which is known not only throughout the length and breadth of this broad Dominion but has attracted students from the Motherland, United States, Australia, New Zealand, China, South America and The Indies. He had been a persistent fusser but had escaped captivity at every turn. He must be trapped in another snare.

The delicious Macintosh and Fameuse were ripe. An invitation to visit the orchard at night would be nectar fit for the gods. It was therefore decided that John should invite this six-foot, two-hundred-pound man from B. C. to accompany him to the forbidden fruit while John's pals would wait in readiness at the foot of the old apple tree. Eleven o'clock came and John and his friend, with laundry bags attached, set out for the orchard. Upon nearing the fruit, sounds of rustling leaves were heard and John's friend was heard to exclaim:

"Oh John, I hear the rustling of leaves, Oh, say, what may it be?"

'Tis faint-hearted robbers who cannot live,

In the presence of you and me."

"Oh John, I hear the gnashing of shears,
Oh, say, what may it be?
But Johnny answered never a word,
For a missing man was he."

The deed was done. John filled his laundry bag with apples and climbed cautiously over fence after fence and escaped unseen back to his room where he fed fat on fruit and the thought of sweet revenge while his freshman friend wondered. Yes, he wondered that he had been outwitted; he had been beaten at his own game; he had found out there were others as equal to his task as he; and he would henceforth pose, not as a reformer, but as a plain ordinary classmate.

This year John found out, however, that fun could only occupy a very small portion of his time. He had had a taste of practical application of science and he was anxious that he should get all possible from the course. He wanted to have a thorough understanding of everything. He had seen co-operation working successfully at the college where in four years it had started from nothing and attained a capital of thousands. He had drilling in stock judging and he had become enthused with an intense desire for better stock. He learned that insects were among man's greatest enemies and that at most he could only obtain a faint idea of the study in the time available. At last it dawned upon him that the more he learned the more he found there was to learn and that,—

"All experience is an arch where-thro'
Gleams that untravelled world, whose
margin fades
Forever and forever when we move."

He found that the study of marketing demanded much attention and he realized that if the farmer is to be successful in business he must compute the cost of his article, figure his profits, set his price, and not leave the middleman to feed fat on what should have been his legitimate bank account. To these questions he had given his undivided attention and at the examination test he met with no trouble. He passed his examinations, gained his Associate Diploma and was granted privilege to continue his course in pursuance of his B.S.A. degree.

College done, John returned to the old farm with a new outlook upon life. His course had been one of profit and pleasure and he had entered farming as a business with a working knowledge of every operation and had learned that the Ontario Agricultural College was there for his benefit and its staff were only too glad to assist him in his undertakings in any way possible. He had taken the proper meaning from the "Increase Production" advertisement and found that where before he could only eke out a living with hard labor he could now produce enough and to spare while he thoroughly enjoyed his work having obtained a knowledge of the why and the wherefore of every move.



"NULLA DIES SINE LINEA."

ON MILITARY SERVICE

KILLED IN ACTION.

We are sorry to report the death of Flight Lieut. R. S. Watt, '18, in this issue. Watt's home was at Langton, Norfolk County. After attending Simcoe H. S. he spent three years at O.A.C., after which he enlisted as a lieutenant with a draft of officers for an Oxford Regiment in the Imperial Army. Upon reaching England he took a signalling course and then joined the Royal Flying Corps, and after six months' training passed his examination with honors. On April 1st he went over to France, and after being there a little over a month succeeded in bringing down an enemy machine. On June 14th the sad news came that he had been killed in action.

Lieut. H. Maxwell Porter, '15, of the Royal Flying Corps, reported to have died of injuries, first entered the fighting line as a private. Two years ago he went overseas as a ranker with the 35th Battalion and after seven months almost continuous fighting in the trenches returned home last Summer. Here he secured a commission in the 162nd Battalion, in which unit his uncle, Major Fred Porter, was medical officer, and his brother Stanley, held the rank of lieutenant. When back

again in England Lieut. Porter transferred to the Royal Flying Corps and had been acting as observation officer at the front for two months before he received a wound in the abdomen on July 17. Next day he died.

Here is an interesting letter from Donald B. Shutt, '19:

Emmanuel College, Cambridge.
C. Company, 2nd Officer Cadet Battalion
May 19th, 1917.

Dear Dr. Creelman:

Not having had the pleasure of writing to you in the past, due to the fact that I was stationed in Canada, I thought I would settle down for a few minutes and give you an account of a few of my experiences.

On leaving the O.A.C. in March 1916, I enlisted with the 198th Overseas Battalion as a private and was later promoted to Platoon Sergeant. Eleven months dragged by and no sign of an early departure so I obtained my transfer in February 1917, to the University of Toronto Overseas Training Company and was accepted by Colonel Lang and General Gwatkin for the Imperial draft. A month later, on March 3rd, thirty of us left Toronto for the War Office, and after a delightful journey reached St Johns, N. B. on the 5th. On Tuesday the 6th we cast

our anchor very silently and set out on our voyage. There were a few exciting moments, one of them being when we missed a floating mine by a narrow margin.

The journey over was fairly calm and pleasant. The ocean is a wonderful place. For days all we could see was water. A few porpoises helped to liven us up but the most refreshing object was a lighthouse off the coast of Ireland the night of the 14th March. In the morning we were coming down the Irish Sea with the Emerald Isle (it was beautifully green) on one side and Scotland and her cliffs on the other. At 9.00 p.m. we set foot in Liverpool on March 15th. On the 16th after a delightful sleep on a feather bed in the hotel we set out for London, travelling through beautiful farm lands all the way. The War Office gave us a week's leave, so we all proceeded to see London.

On March 26 we reported to the Artists Rifles and were taken on the strength and sent to their camp about ten miles from London. We were all placed in a hut 40ft. x 15ft. with a stove and boards for beds. The weather was very disagreeable, being made up alternately of snow and rain. On Good Friday eight of us were given a pass and tickets to Cambridge for the Cadet School. We reported Saturday, April 7, 1917 and were sent to Emmanuel College.

The company consists of men from all corners of the Empire which tends to smooth off a lot of rough corners. We are quartered in the newest buildings, two in a room, but we have iron beds and three blankets. We have lectures in the college proper, which is just across the street and dates back to 1584 A.D. The grounds are exquisitely laid out with courts and grass plots and an artificial lake to lend a

touch of beauty. From my window I can see Christ's College, Jesus College, King's Chapel (1333) and a lot of other buildings.

The town or city consists of a population of 35,000 inhabitants. Running through the centre from east to west, is the river Cam. It is very sluggish, but much used by pleasure craft. The bulk of the Colleges are on the river and the picturesque buildings with their well cared for grounds make pleasant scenery. Ancient history also makes Cambridge interesting, as quite a number of its main streets were laid out by the Romans. To the north of the city is an old mound and earthworks dating back to the early Britons.

I had a pleasant surprise a day or so ago to learn that one of the Australians in the platoon was in Canada in 1910 and 1911 and that he had taken his first year at the O.A.C. We were both pleased to meet each other. He asked many questions about the college and the staff. His name is G. Simpson. I thought you would like to add his name to the long list you have of students at the war.

I was pleased to receive a letter from Corporal Cline of the old 56th a week or so ago telling me of the misfortunes and fortunes of the O.A.C. battery.

Yours sincerely,

(Cadet) Donald B. Shutt.

Flight Lieut. E. G. Rowley, '17, has been in the midst of the excitement. Early one morning a short time ago he was ordered up in the air to take some observations. He had only been up a short time before the enemy began to get his range. A shell exploded near him with the result that his machine was hit in five places with pieces of the bursting shell. Discretion forced him to come down. Later

he ascended and stayed up for two hours.

Lieut. S. N. Lord, '16, has been wounded, and is now in the First Eastern General Hospital at Cambridge, England. His wounds are not of a serious nature and he is able to assist the medical men at that institution.

We congratulate Lieut. W. A. Townsley, B. S. A., '15, of the 16th Battery, C. E. F., C. F. A., who has won the Military Cross for valor in the field.

Nick Stanfield, B. S. A., '14, who served with the Welsh Fusiliers has been badly wounded. He has partly recovered, but has been unable to return to the front on account of having partially lost the use of his legs. It is expected that his complete recovery will only be a matter of a short time.

ENLISTMENTS.

B. P. Gandier, '18, who has during the present summer been working for the Entomological Department here at the College has been accepted as a candidate for the aerial service. "Cap" is a popular fellow and our best wishes go along with him as he takes up his new line of service.

J. G. Taggart, B. S. A., '12, and E. S. Hopkins, B. S. A., '11, who have been teaching in the School of Agriculture at Vermilion, Alta., have enlisted with the Army Medical Corps.

ON HOME SERVICE.

Dr. W. B. McCallum is a graduate of the class of '94. The following extract will no doubt be of interest to the readers of the "Review.":

Cultivation of Guayule.

"The last report of the Carnegie Institution at Washington records the successful attempts that have been made to bring under profitable cultivation the desert rubber plant Guayule. The wild shrubs have long been collected in great quantities in Mexico and the rubber is extracted by such simple processes as to make its production very profitable.

"The task of developing methods of cultivation has now been successfully accomplished by Dr. W. B. McCallum, who in making a genetic analysis of the plant, has found that it includes several elementary species, which do not readily interbreed. The Continental Rubber Company for which Dr. McCallum is Conservationist has bought 9,000 acres near Tucson, Arizona, and are prepared to finance him to the extent of a Million Dollars.

"This is the only rubber producing plant growing within the borders of the United States.

"Dr. McCallum was recently appointed by the Governor of Arizona to serve on a Science Commission with Dr. Von Kliensruid and Dr. MacDougal of the Desert Laboratory to investigate the Potash resources of the State."

"Cultivation of Guayule."
(Copied from an April number of Scientific American.)

W. M. Chisholm, B.S.A., '16, visited the college recently. He resigned his position with the Nova Scotian Government to become advertising manager for the Continental Publishing Company, of Toronto. Chas. Nixon, B. S. A., '07, is now vice-president of this company. Watch for the first copy of their new magazine "Rural Canada." Mr. Chisholm is in full charge of this new publication and at the same time is looking after the ad-

vertising interests of Everyman's World published by the same company.

G. C. Ellis, B. S. A., '13, who served a year and a half at the front has recently been appointed Farm Foreman at the Toronto Industrial Farm, North Yonge St.

E. G. Gordon, B. S. A., '15, has the appointment of assistant to F. C. Hart, Director of the Co-operation and Markets Branch, Dept. of Agriculture, Toronto, Ont.

On July 2, 3, and 4 there was held at the O.A.C. a short course for agricultural judges. Among those present were the following graduates of the college: J. R. Shortill, B. S. A., '11; R. W. Zavitz, B. S. A., '17; R. R. Fleming, B. S. A., '17; J. Coke, B. S. A., '16; Sam Pearce, '03, E. S. Archibald, B. S. A., '08.

W. H. Hill, B.S.A., '16, has received a permanent appointment as assistant analyst in the Inland Revenue Department at Ottawa. He has been transferred to the Department's Depot laboratory at Vancouver, B. C.

E. Davey, B.S.A., '17, by Order-in-Council, is conducting investigations with regard to the treatment of bacteria in sewage. He is working at an experiment station at the Department of Public Works, Toronto.

Geo. Jackson, B. S. A., '16, is now head buyer for the Chatham Packing Company of Chatham, Ont.

Wellington County is now listed among the favored counties having

District Reps. R. H. Clemens, B.S.A., '13, has been appointed to the position with headquarters at Arthur.

W. W. Emerson, B.S.A., '12, and wife visited the college on July 14. Emerson is Business Manager of the Grain Growers' Guide of Winnipeg. He is still the same big hearty "Bill" that you knew during your college days.

MARRIAGES.

L. G. Heimpel, '18, on June 29, was married to Inez M. Zoellner at Mount Forest. "Louis" and his wife expect to live in Guelph while he finishes his course at O.A.C.

On July 18, W. H. Scott, B.S.A., '16, was married to Lila K. Scott, daughter of Mr. and Mrs. Andrew Scott, 124 Cork St., Guelph. During the next three weeks Scott expects to make use of a motor boat he purchased only a few weeks ago.

Frank C. Paterson, B.S.A., '15, took to wife Miss Eva Laura McGregor on June 15th.

H. Sirett, B.S.A., '09, was married a short time ago to Miss Good of Brantford. Sirett is Dist. Rep. for Northumberland County and is located at Brighton.

Some other well-known characters are known to have been married recently, but we have been unable to get any details. The following have been guilty: J. G. Archibald, B.S.A., '16, Norman Martin, B.S.A., '16, P. B. Slack, B. S. A., '17.



PIPE TO MATCH MAN.

She entered a downtown cigar store, and the clerk left a regular customer to wait on her.

"I want to get a birthday present for my husband," she began.

"Yes, ma'am," agreed the clerk. "A box of nice cigars now—"

"No, indeed!" she interrupted firmly. "I've read enough funny paper jokes about the kind of cigars a woman buys a man. No, I want to buy him a pipe."

"Certainly. What kind of a pipe would you like to see?"

"One suited to a man of about 45—though he doesn't look so old as that—5 feet 9 inches tall, rather stout, and with dark hair and moustache."

"Jimmy," said the teacher sternly, as she came upon the scene of hostilities, "why are you sitting on that boy?"

"He hit me in the eye!" said Jimmy savagely.

"But didn't I tell you to count one hundred before you let your angry passions rise?"

"Yes, an' I'm sittin' on him so that he'll be here when I get through the counting."

Mrs. Noorich—"No, Mis' Smithers, we ain't just decided yet what kind of car we'll get. I can't seem to make up my mind between a limousine car and a gasoline car. Mebbe you could tell me—does limousine smell as bad as gasoline?"

"There was a chap just in here looking for you, Alex."

"Was he tall or short?"

"Both."

"What do you mean?"

He was a tall man and he said he wanted to borrow a dollar."

A teacher the other day on examination of his class asked what was meant by divers diseases.

No reply was vouchsafed for some time, but on repeating the question he was rather surprised when one of the boys answered:

"Water on the brain."

A gentleman asked the housemaid, "Can you tell me of my wife's whereabouts?"

Bridget hesitated a moment, and then said, "Faith, sir, I think they are in the wash."

"You can't order me around," declared the new salesman. "I take orders from nobody."

"You demonstrated that on your last trip," said the boss, coming in at this juncture.

Nervous Gentleman (from the country): Oh, a little lamb and some potato.

Brisk Waiter (shouting up the restaurant): One lamb, one potato!

Nervous Gentleman: Waiter, waiter, a little less lamb, please, and—and a little more potato.—Tit-Bits.

HEARING ZEPPS.

Horrors! Here was the doctor ordering him beer twice a day, and only last week his dear, quiet, little wife had asked him to sign the pledge; and just to please her he had consented. No wonder Meek felt blue.

"You say you have a barrel of beer in your cellar," urged the medical man; "surely you can get down there twice a day?"

With many misgivings, Meek departed, and the doctor heard nothing more about the case until Meek's frantic wife burst into his surgery.

"Oh, doctor!" she gasped. "Percy has gone mad! All day long he thinks he hears Zepps, and runs down into the cellar to hide."

A Quaker had gotten himself into trouble with the authorities and the sheriff called to escort him to the lock-up.

"Is your husband in?" he inquired of the good wife who came to the door.

"My husband will see thee," she replied. "Come in."

The sheriff enter, was bidden to make himself at home, and was hospitably entertained for half an hour, but no husband appeared. At last the sheriff grew impatient.

"Look here," she he, "I thought you said your husband would see me."

"He has seen thee," was the calm reply, "but he did not like thy looks and has gone another way."—Harper's Magazine.

Financier: What's all the hubbub in the director's room?

Steno: Some wise minority stockholder just found that the office cat is on the payroll for \$3,000 a year under the name T. Feline.—Milwaukee News.

HOW TO AVOID A COLORLESS EXISTENCE.

Keep in the Pink of condition.
Have the Blues occasionally.
See that things are done up Brown.
Bestow an occasional Black look.
Be well Read.
Acquire a coat of Tan.
Hire Green servants.
Cultivate a Purple taste.
Subscribe to the Yellow journals.

A PRECAUTIONARY MEASURE.

Tim Casey, a juror, rose suddenly from his seat and hastened to the door of the court-room. He was prevented, however, from leaving the room and was sternly questioned by the judge.

"Yes, your honor, I'll explain myself," said the juror. "When Mr. Finn finished his talking me mind was clear all through but when Mr. Evans begins his talkin' I becomes all confused an' says I to meself, 'Faith, I'd better lave at once, an' shtay away until he is done,' because, your honor, to tell the truth, I didn't like the way the argument was goin'."—Argonaut.

FLEEING HOMEWARD.

Two little fleas together sat,
And one to the other said:
"I have no place to hang my hat
Since my old dog is dead.
I've travelled the world from place to place,
And farther will I roam,
But the first darn dog that shows his face
Will be my home, sweet home!"

Father—You're very backward.
There's Norman Smithers, the same age as you, and he's two forms higher.
Aren't you ashamed?

Hopeful—No. He can't help it—it's hereditary.—London 'Punch.'