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Michael Grimes '22 has great difficulty breathing under water while swimming—so he says.

A certain man died and divided his property between an Englishman, an Irishman and a Scotchman, on condition that each place five pounds in his coffin. On the burial day the Englishman placed a five pound note as willed, and the Irishman with a handful of odd coins made up his share. Then the Scotchman wrote out a cheque for fifteen pounds, and pocketing the ten pounds already deposited, threw his cheque in, with the remark "That's easier."

A month later, while perusing his bank book the Scotchman noticed with surprise that the cheque had been cashed.

The undertaker was a Welshman.

Wonders of Science

If nothing happens an elephant he lives a great many years.

The snake is the longest waisted animal in natural history.

An Eastern genius is at work on a new telephone. It is guaranteed that on this instrument a person may get the right number in forty-five minutes.

To remove the cover of a fruit jar (glass) bang it vigorously on the edge of the kitchen table or use a hammer if necessary.

A cricket makes the peculiar cricketing sound by rubbing its wings against its hind legs. A mule can do this, but makes his cricketing noise by rubbing his tongue against the roof of his mouth.
The Preparation of Field Crop Material for Exhibition

Prof. W. J. Squirrel, O. A. C., Guelph

The largest annual exhibitions held in Ontario, viz., the Canadian National at Toronto, the Western Fair at London, the Central Canada Fair at Ottawa, the Provincial Winter Fair at Guelph, the Eastern Ontario Winter Fair at Ottawa and other exhibitions of lesser magnitude are paying increased attention to Field Crop exhibits. There has come a realization that crop production is the single greatest industry of this country and that success in all other lines of endeavor depends upon it.

The value of any agricultural exhibit largely depends on well prepared material and the exhibiting of this in such a manner that it will not only be attractive to the eye but its educational features readily available to the public without too much study.

The preparing of material is by far the larger part of the work in placing either sheaves or grain on exhibition. It should not be forgotten that with every agricultural exhibit a certain amount of material is required for decoration purposes. This material often does not fit in to the general scheme of education. However, the material used for decoration requires the same care in prepara-
tion as does the material which would more properly be called educational material.

The first use of sheaves at fairs and exhibitions was undoubtedly for decoration purposes to provide a setting for the rest of the exhibit. It is only recently that fairs and exhibitions have included this class of material in competition as part of the exhibit and awarded prizes for the same.

It is very important that sheaf material of any class of grain be thoroughly dried before being exhibited. Wheat, oats, barley or rye to be exhibited in the sheaf should be cut between the period when they commence to turn yellow and the ripening period. If cut at this stage the grain possesses a greater elasticity of straw than when cut at any earlier or at any later period. The best color in the straw will be produced by material which, after being cut, has been bleached in the sun for a period varying from ten to fourteen days. The exposure of these grains in the straw in a cold frame is a method often employed. With comparatively large sheaves of good length where considerable moisture is always present, fourteen days is not too long for the bleaching process. At the end of the bleaching period stripping off the outer sheath of the straw and exhibiting only the bright inner straw will add much to the appearance of the sheaves. Most of the outer sheath material may be removed readily by hand. Where the outer sheath of the straw is tough its removal may be accomplished by “ringing round” the straws at the joints or nodes with a jack knife.

The size of sheaf exhibited should be in keeping with the general size of the whole exhibit. A thousand heads of wheat, barley, oats or rye exhibited in the straw makes a sheaf of about six inches in diameter at the smallest part, and nearly one foot in diameter at the butt. Sheaves such as these would be of suitable size for the largest exhibitions. At smaller exhibitions sheaves containing five hundred individual heads or even less are shown. The most important part of the sheaf is, of course, the head. Too many exhibitors make the mistake of having each of the straws the same length and the head consequently square across the top. This produces a head of a shape not only unsightly in appearance but results in many of the heads breaking when tied. The accompanying photograph is that of a sheaf with the head properly shaped. It will be noted here that the longest straw is in the centre, the outside of the sheaf gradually sloping away from this point. In preparing large sheaves the plan is often followed of making each of a number of small ones. This may be done by sloping the head of the sheaf as in the former case, using small sheaves in the operation as individual straws. The sheaf is then finished off by ringing it round the outside two or three layers of individual straws and heads giving the whole the appearance of a solid sheaf. This is an especially suitable method in the construction of large sheaves where the grain is over ripe and the straw somewhat brittle.

One of the most important factors to consider in the construction of a sheaf is its proper tying. The average length sheaf will require to be tied in at least three places, and barley will keep its shape better if it is tied in four places. The first tie should be made about four inches below the heads, the second near the centre of the sheaf, and the third about six inches from the butt. The appearance of many sheaves is spoiled by being tied with ordinary string or binder twine. The tying of sheaves with wide, bright colored ribbons often
detracts from the good appearance of the sheaf. Raffia, which is nearly the same color as bright straw, is very suitable material for use in tying. Red or blue ribbon about one-half inch in width makes excellent material for this purpose and provides a nice contrast to the golden yellow of the straw. Cutting the butt off squarely at the bottom produces a nice trim sheaf. This operation is of course not performed until after the tying of the sheaf and may be accomplished by laying the sheaf on a broad board or table and removing the ends with a pair of shears. The butts of large sheaves will need to be cut off in sections when the operation starts at the top of the sheaf.

Only straight straw should be used as material for sheaves and it should be of good average length for the variety. The heads should be true to variety, of good size and filled with large, sound, plump seed.

Sheaves after being properly prepared should be safely packed for despatch to place of exhibition. Careless packing of sheaves will result in a ragged sheaf exhibit. The man who is a regular exhibitor of sheaves at exhibitions usually has boxes built to house this material. These specially prepared boxes require less packing material to hold the sheaf in place and there is less room for the sheaves to shake about when in transit. Excelsior, old newspapers, pieces of burlap, etc., all make suitable packing material.

To sum up, the judge of sheaves looks for the following points of excellence in sheaf material:

1. Size of sheaf—that it contains the required number of heads or is in keeping with the size of the exhibit as a whole.
2. The length, color and straightness of the straw.
3. The material used in tying and the neatness of the same.
4. The shape of the head of the sheaf.
5. The size of the individual heads contained in the sheaf.
6. The size, plumpness and the uniformity of the grain in the head.
7. That the sheaf material in straw and grain is true to the named variety.

When it is considered that the basis of seed selection really comes back to the individual plant there seems to be sound reason why the exhibiting of grain in the sheaf at exhibitions will become increasingly more important in future years.

The greater part of the space occupied by field crop exhibits is taken up by the shelled grain. Many really good grain exhibits are spoiled because they lack the one great essential—uniformity, not only uniformity in amount exhibited, receptacles in which contained, but uniformity of product as well. Grain for exhibition purposes should be well matured. It is only when grain is thoroughly ripened that it takes on its best color and shows its best general appearance. Besides possessing these two characteristics, shelled grain should be
true to variety, free from weed seeds and all other impurities, and also free from dirt and chaff. It is often possible to get these conditions in shelled grain if the best section of the field (which of course must be comparatively clean) after being well ripened, is threshed separately, thoroughly fanned with a good fanning mill, and then possibly further improved by means of hand sieves. It is not uncommon today to see shown at some of our best exhibitions considerable quantities of hand picked seed. The best shelled grain is likely to be found in those fields which have been seeded a little less than the average per acre. Care should be taken to avoid selecting grain from those portions of the field which have been injured by rust or smut. These fungus diseases will not only spoil the appearance of the shelled grain, the straw and the heads but are a possible source of injury to other exhibits.

Where grains are exhibited in open competition they are usually shown in cotton sacks or jute bags having a capacity of one, one and a half or two bushels. The educational value of shelled grain may be much increased where the best of this material is displayed in glass jars. If bottles of different capacity and of different design are used it is possible to make an artistic display of material of this kind. Each glass jar or bottle should be correctly labelled with the name of the variety shown. By the use of shelves and bottles of various sizes several rows of this material may be exhibited and the contents of each individual lot plainly seen by the public. The accompanying photograph is that taken of a section of the Ontario Agricultural College exhibit at the Canadian National Exhibition at Toronto in 1915, and shows grains exhibited both in the sheaf and in glass jars.

At the period of the year when some exhibitions are held it is difficult to get Swede and Fall turnips far enough advanced for display purposes. The exhibitor has, therefore, to depend largely for his root material on the Mangel, Sugar Beet and Carrot crops. Mangels, in themselves, make a nice root exhibit, get four distinct shapes, viz., long, intermediate, tankard and globe. Besides this difference of shape, two different colors, red and yellow, are common in different mangel varieties. Some kinds of mangels have the natural characteristic of prongy roots, and especially is this true of the long red type. In selecting this type, therefore, care should be taken to eliminate, as far as possible, this objectionable feature. The same fault is also found in Sugar Mangels, although to a lesser extent.

There is a tendency today at most exhibitions to sacrifice something in size for the sake of better quality in the roots. This last condition, too, has resulted in a root of a more uniform shape being shown. There seems to be no good reason to support the position of the man who in the past exhibited extremely large roots, as it is not the root which produces the most per acre, nor is it the root which possesses the best quality. Roots for show should be sound, free from disease, of good size for the variety, true to the shape and color of the variety or class which they represent, and as far as possible should be smooth in outline. They should be of good quality, indicated by firmness — not hollow or spongy. The appearance of any class of root will be improved by trimming off the prongy or small rootlets at the tip and by removing the tops as close as possible to the root. In mangels and sugar beets it is best to twist
tops off to prevent bleeding. In turnips the tops may be removed with a knife which causes no injury to the roots.

It requires less care to pack roots for shipment than grains. They should, however, be packed in such a manner that they will not be broken or the skin removed by rubbing against one another.

As has been intimated in the first part of this article, the blending and contrasting of colors is necessary if the exhibit is to be attractive. The use of fodder plants, especially of grasses and clovers, will provide this color material better, perhaps, than any other class of crops. Grasses should be cut just after coming into full head, and clovers at a little later period. They should then be thoroughly dried, but not bleached in the sun like grain in the straw. A very satisfactory way to do this is to bring the fodder material in as soon as cut and spread it out thinly on the barn floor, or in some covered building sheltered from the sun and rain but where there is a good air draught. This class of material will give better satisfaction if tied in smaller bundles than grain sheaves. Owing to the larger amount of moisture which is present in the grass or clover bundles even when thoroughly dried they require to be more loosely tied than grains. If too tightly tied the heads will break down. The shaping up of heads and packing is much the same for grasses as for grains. Clovers require extreme care in packing because of ease with which leaves drop off. In order that the educational features of the exhibit should be as prominent as possible all fodder material used should be correctly labelled. As some of the grasses and clovers are known by more than one common name the scientific name is usually mentioned as well.

In conclusion, let me say that the making of a really attractive exhibit, and one having strong educational features, lies chiefly in the hands of those who prepare the material for exhibition. The best artist in the world cannot make a good exhibit unless he has the proper material with which to work.

Kapuskasing and Northern Ontario

By E. J. Chesley, '22

The future of Northern Ontario as a farming country sanely developed and conservatively settled now seems promised. Kapuskasing has killed the land boomers and quieted the “back to the lander.” It was a harsh lesson to the many thousands who were feverishly planning to homestead in the “wide free spaces of the North.” It was a bitter blow to the skilful speculators of the Northern cities who have been quietly but steadily acquiring great tracts of country by the delightfully simple means of offering a penny an acre to the holders of old South African War claims, by nosing out and securing under one and a hundred different names the multitude of pretty parcels of potential farming lands listed as timber limits and mining claims; by buying up for practically nothing those farms abandoned by unfortunate homesteaders. It was a disappointment to the Northern agriculturist, a firm believer in the worth of this
New Ontario. But in the end that catastrophe which was at first to wreck the North for all time may prove a blessing to the country.

Any legislation that will keep the unsuitable settler out of a country is good, for this will make for stability in the agricultural progress. Kapuskasing is better than any legislation; it is much more effective. The back to the lander is a serious menace to a new farming land. Our great western prairie lands are spread with the wrecks of would-be farmer millionaires. Of the hundreds of thousands who flocked to the prairies twelve years ago, men from the office desk, men from the factory, travellers, clerks, merchants, unsuccessful small farmers from the East—how many are left? A few, a very few. The ones who stayed and made good were those that either knew the land or were men of exceptional grit and firm purpose, the kind that will never acknowledge defeat and who in any walk of life will make good.

There is no failure more hopeless and pitiable than that of the wrong type of homesteader—down and out, worried, worn, bewildered, bankrupt, a poor helpless creature, hating the life and beaten by the land that he set out to tame. Such as these were the misplaced and misguided thousands on the prairies for whom the Government had to provide food on several occasions. And they with their attendant hordes of land-boomers and real estate sharks nearly wrecked the country.

There was a time when people said that anyone could farm in Canada. After years of painful experience the cry came to be that anyone could farm in the West, and it took the life blood of thousands to explode the wild idea of a paradise on the western plains, and to expose the criminal exploitations of the land shark. And now just as the speculators had every thing set for an early boom and fine pickings in Northern Ontario, along comes our poor unfortunate Kapuskasing and supplies the effective sedative to wild imaginings and costly day-dreams. It was a cold and nasty shock to the thousands of foolish lambs ready for the slaughter when new land is boomed and boosted. It was certainly a cruel blow to the parasitic speculator.

Now it is almost impossible to sell farm lands at any but the most reasonable figure. Let the price be too high and the sign “Farm for sale” continues to hang in the windows of the town agent. The farm remains untenanted and the taxes go merrily on. There are no buyers. Even at the most favorable prices buyers are scarce. It takes much consideration and lots of pluck to decide upon settlement in a land that has been blasted by men so well informed as the members of the commission appointed to inquire into the Kapuskasing fiasco. This is not meant to imply that there is not a lot of over-valuation in the north. There are hundreds of acres lying idle, cleared and ready for the plow, for the reason that people hate to throw away their ideas of huge returns from real estate deals. There are others who do not realize that land is valued here mainly on its clearing. An homestead of one hundred and sixty acres of the finest soil given free by the Government is a questionable enough bargain when the cost of clearing is realized. When labour can be secured, it will take from twenty-five to seventy-five dollars an acre to get the land cleared and broken. The soil in the North is worth almost any amount, but it is the clearing, drainage, and road questions that will determine the value of the land. Clearance
is the economic problem of the country and not climate, as many imagine.

There are two distinct and separate classes of settler needed in this country today. The first is the woodsman-farmer, the man who takes delight in carving a home out of the bush. He will make a success of this primary farming where the other man would fail, and he should be allowed to settle on the fringes of colonization. He, however, is not often fitted to carry on the work of really farming the land that has been saved from the bush: it requires a different type to handle the soil to the best advantage and make it yield to its fullest. Here is where the second class of settler comes to the fore. Thousands of acres are now cleared and ready for him, the husbandman, but he is the missing link in the chain of progress, and in all probability Kapuskasing will not hasten him towards the North.

But without doubt in the near future, farmers of the East driven to desperation by land values, diseased and worn out soils, crop plagues and other worries, will suddenly awaken to the fact that it is ridiculous to condemn the whole North country because of the failure of one little part to prove of worth: that it would be just as foolish to say that the Niagara Peninsula was worthless because peaches will not grow at Ottawa. Should misguided men start a peach plantation at the Capitol and fail, we would scarcely condemn the whole of old Ontario. This commonsense reasoning will in the near future be applied to the North, and certain and sure will be the inflow of settlers.

Certain and sure the inflow will be for the potentialities of the country are great. There is not room in this sketchy paper to tabulate crop yields nor point out the several blessings of the climate which far outpoint the defects. But the reports that Government officials have secured during the past few years will be an eye-opener to those who have not taken the trouble to read the few articles that have been written on the subject. And there never has been a crop failure. Seed may be blown out of the soil in the West and crops shrivelled by drought, but in this conservative farming land of the North where enough land is under cultivation there is always feed for the stock, food for the house, and a pretty little amount to be added to the balance in the bank.

But before this movement to the North commences, it will be up to the Provincial Government to formulate a new policy of settlement. The old one, if one can call it a policy, is ridiculous. Townships are seemingly opened up for agricultural development regardless of their suitability for such purposes. Good timber land is spoiled for lumbering and good agricultural land wasted by the lumbering interests through these careless surveys. Settlers have been allowed to locate on land far back in the bush where success is an impossibility. I quote from a report by B. E. Fernow to the Commission of Conservation in 1913 as follows: "A classification of lands is needful. Most, if not all the land may, at some time, be capable of being turned into farm land, but unless the colonization is properly directed, disappointment will be experienced through the irresponsible settlement of good, bad, and indifferent locations." And I might add through the good, bad and indifferent type of settlers. What is needed is careful supervision by competent agents empowered to regulate the settlement of the various classes of land. Qualifications should divide the applicants into the two types of farmer, woodsman and husbandman, and to each of these should be given the areas which he is fitted to
handle — unimproved and improved lands. Settlement should be made gradually to expand from the thickly settled areas, and only as fast as roads can be built. And only by means such as these will steady progress be made in the North.

Kapuskasing has stopped rapid colonization for the time being, but can never permanently affect the agricultural future of the country. What is required to secure a real success in the years to come, is a sane investigation by the Government and a new and real policy of settlement. For the "back to the lander" is permanently shooed off, the real estate shark is quieted for years to come, and a wonderful soil waits for the real farmer. Surely these things augur well for the future.

Precooling Niagara Fruit

T. H. Jones, B. S. A.

Fruits ripen slower at low temperatures than at high temperatures; although low temperatures do not cause the ripening process to cease entirely. The refrigerator car requires too long a time to cool ten tons or more of fruit from atmospheric temperatures, varying from sixty to ninety degrees to forty degrees Fahrenheit. The car may cover two or three hundred miles of its journey before the latter desired temperature is reached. Often decay and over-ripeness attack the fruit before the refrigerating system in the car is able to thoroughly cool all the fruit.

In order to overcome the above disadvantages in shipping fruit to distant markets the process known as precooling has been adopted. This treatment of the fruit consists in reducing its temperature from that of the atmosphere to thirty-eight to forty degrees Fahrenheit as soon after picking as possible before loading into the refrigerator cars. By conducting such an operation the ripening process during transit is greatly minimized as compared to ordinary refrigerator shipments. This precooling enables the refrigerator car to maintain the desired temperature of forty degrees Fahrenheit or lower throughout the entire journey.

Precooling of Niagara fruit is conducted at Grimsby by the Dominion Department of Agriculture in a warehouse type of plant with a Cooper Brine system of refrigeration. This plant was opened during the season of 1914 for experimental purposes to determine the feasibility of shipping Niagara Peninsula fruit to more distant markets with greater efficiency. Their experiments proved that precooling would be a commercial success. The plant consists of four rooms each holding one carload of fruit on trucks, with a storage space for eight additional cars of fruit.

The fruit is conveyed to the precoolers by the individual growers and shippers; loaded on these trucks which are then placed in the precooling rooms previously mentioned. The loaded trucks are allowed to remain there until the temperature of the fruit reaches thirty-eight to forty degrees Fahrenheit—a period of twenty-four hours. At this
juncture the truck loads of fruit are wheeled to the car door, which is protected by the adjustable car door canvas vestibule, against the warm atmospheric conditions. The fruit is then piled into the car preparatory to shipment.

Precooling of fruit has brought the distant Western markets within the reach of the Niagara Peninsula fruit growers and shippers so effectively that the danger of decayed fruit upon arrival or in transit to these markets is practically a negative quantity. Peaches could not be shipped to the West on a commercial scale whatever. Some varieties of pears and summer apples were more or less doubtful commodities to ship long distances. Grapes are not precooled for any markets, as they ship with entire satisfaction to Calgary, Alta., for instance, without treatment provided that the varieties are picked at the proper time of maturity, and that the cars are properly iced in transit. It may be mentioned that the Brine Tank type of refrigerator car is particularly well adapted and at present almost entirely used for shipping precooled fruit.

Previous to the advent of precooling, sour and sweet cherries could not be shipped satisfactorily even to the nearest Western market, i.e., Winnipeg, Man. Plums and tomatoes usually caused considerable anxiety to both shipper and consignee as to whether or not they would arrive at their destination in a profitable, marketable condition. Sour cherries are not shipped to the Eastern Provinces to any extent. While the kinds of fruit mentioned in the above paragraph have always been and are still shipped to the Eastern Provinces without precooling, except in very few cases; nevertheless, precooling would materially assist the shipper and improve the present shipping conditions to these markets. Up to the time of writing, however, nearly all the efforts towards precooling fruit grown in the Niagara District, have been confined to shipments consigned to the West.

Of course large quantities of plums, pears, tomatoes and summer apples are consigned to the Prairies from the so-called “Garden of Canada” without precooling; and arrive in fairly satisfactory condition. This shipping without precooling, however, is quite incapable of catering to such centres as Edmonton, Prince Albert, Calgary, or Regina with any kind of fruit except grapes and winter apples; nor is it able to offer as many different kinds of fruit to nearer centres, such as Winnipeg, Portage la Prairie or Minnedosa.

Precooling has enlarged an already extensive market and has afforded Niagara peninsula fruit growers access to a profitable and permanent market for plums, tomatoes, peaches and cherries, particularly sours, in the Western Provinces. During the past three seasons many of the growers and dealers have
been using the precooler for commercial shipments to the Western Provinces with splendid results. Consequently, the Western fruit dealers are wiring to Niagara Peninsula growers; "Quote prices on car of PRECOOLED fruit," to a marked degree in preference to "Quote prices on car of fruit." Such a condition of affairs illustrates the popularity and demand enjoyed by precooled fruit from the Niagara Peninsula and that precooling fruit is a decided commercial success.

**Farm Accounts**

**By J. A. Clark**, B. S. A., Supt. Experimental Farm, Charlottetown, P. E. I.

There is perhaps no one feature of our profession so generally neglected as the keeping of accurate accounts. Many excuses are made; such as lack of time and lack of efficient help, but the real reason with most farmers is the lack of a simple system that they are able to use from day to day as they go about their work. The need of a simple practical system of keeping farm accounts has increased many fold during the last few years. Cost of production of many of the staple foods has increased so that unless we can accurately know their value we may feed them at a loss to our stock. The income and personal taxes that have come to us as a legacy from the war require actual statements of our business compiled from accurate detailed summaries of our seasons transactions.

Other good reasons stated briefly are: That well kept accounts increase profits; add to the farmers business standing in the community and may be the means of overcoming new difficulties that crop up in our business. The farmer is a business man and a capitalist. His business ability is vital to his community. It is the prosperity of the farmer upon which all of our great industries rest.

Today it may be easier to acquire wealth with less labour at other professions and trades, but already there are signs that a crash will come unless farm production is maintained. The world this year has touched on the border of starvation at many points. At some starvation has swept over and the results have been appalling. Industries cease, values are turned topsy turvy, communities and nations that were centuries in the making have been set back generations, and those yet unborn will suffer unless production is maintained on our farms.

"Knowledge is power" keeping accurate accounts will enable us to know our business and knowing our business we will be able to reap the full benefits and profits that should come from the honest labour and faithful service that is on our farms today.

In connection with my work as head of the Department of Agriculture, in the Khaki University of Canada, overseas, it was my privilege to make a careful study of all the best systems so far suggested in Canada, the United States and Britain. The following is an outline of a simple system of keeping accounts that does not require special training, other than a knowledge of arithmetic, and
about 10 minutes per day on an average mixed farm. The records and calculations used are based upon simple arithmetic, and are devised to economize time and yet be efficient. Only once a year, and that during the slack season need any great amount of time be spent upon cost of production records.

Success in keeping accounts depends upon forming the habit of writing down the necessary facts about every transaction at the time it occurs, and entering or posting these daily records in their proper places in the books you keep. Animals have to be fed, cows milked. Why should items of business not be placed in their proper places? If they were attended to in connection with some other regular work, like recording the milk, the few minutes would not be missed, and the accounts would be complete for the day.

Like many another task, the most difficult part is the starting. When shall we start, and how?

The time when supplies are lowest is generally the best season of the year to start. That date will depend upon your line of work. For the poultryman, October or November, before the pullets start laying, would be best. For mixed farming, February or March would suit many. In commencing to keep a system of accounts, the first thing necessary is a complete inventory or simple statement of everything you have on the farm, giving every item a value based on what it is worth. This can be kept in any blank book ruled with faint lines, across the page, and a money column at the right hand side. Sub-divide your inventory into the different divisions of your farm investments, and departments of farm work. List everything that belongs to a division under its proper heading. A partial list of divisions on the average farm would be: Land, Buildings, Machinery and Tools, Horses, Cattle, Sheep, Swine, Poultry, Field Crops, etc. In estimating values, the purpose for which a thing is kept often influences the value. Stock for breeding purposes is usually worth much more than when kept for labour, milk or meat. The annual depreciation of an article should be proportional to its period of usefulness. Household effects are not usually included, as they are not considered as a part of the farm equipment. It would be better to enter them separately.

In your inventory book, set apart two pages for "Accounts Receivable" that is, money to be collected, and in "Accounts Payable" list the names of all persons to whom you owe money, including mortgages, notes, taxes, and interest charges on borrowed money, with the amount that you owe after each name. If you would then add together the total inventory for all departments, your total cash on hand and in the bank, and the total of your "Account Receivable," you would have a statement of your total assets. Deduct from this the amount that you owe others, and you could find your net worth at the close of your year's business.

The ledger is a book in which each account is kept separate from all other accounts, so that the financial condition of any particular account may be known at any time. A book of about 200 pages 12"x9" would be a very suitable size. It might be ruled to the following headings: Name of Account, Date, Items and Debits, on the left hand side; Date, Items and Credits on the right hand side.

The two words "Debit" and "Credit" have caused a great many to think that there is some great mystery about bookkeeping which it is impossible for them to overcome. If you will remember that the left hand column in the account is
always marked "Debit," and the right hand column is marked "Credit," then when you open an account with any person, such as Mr. Brown, you would then write the amount of any transaction in which Mr. Brown bought something from you in the left hand debit column; that is, Mr. Brown owes you for what you sold him, and it represents the amount of your wealth that you have put into his hands. All other purchases that he makes of you will be put in this column, so that you will have a complete record of what Mr. Brown owes you. Whenever Mr. Brown pays you some of the money that he owes you, it is the same as taking some of your wealth out of Mr. Brown's hands, so that you write the amount in the right or credit side of the account. If you should buy anything from Mr. Brown, that would also be put on the credit side. You can at any time subtract the total credits from the total debits, and find out how much he still owes you. If you will apply this same plan to all of the accounts in the ledger, you will find that one of the biggest difficulties in bookkeeping is solved.

You may wish to open an account with the dairy cows, to find out whether they are paying you for the labour and feed that you are expending upon them. You want to treat such an account as if it were the name of an individual instead of "Dairy Cows," that appears at the top. The Cash Account is kept in the same way, but in order to thoroughly understand the principle of keeping a Cash Account, you must imagine that all of the cash on hand is put into a cash drawer. You open an account in the ledger under the head of "Cash Accounts," and write all the cash on hand and all the cash that you received in the debit column. When you take any money out of the cash drawer, or wherever you keep your money, for the purpose of paying a bill, you write the amount in the credit column of the cash account. If you subtract the total of the credit column from the total of the debit column, you can find the amount of cash on hand at any time.

The ledger deals with one particular person, or one branch of a business, but each account entered in the ledger bears a certain relation to some other account. Suppose you take money out of "Cash Account" to buy "Horses," you will have to make two entries in the ledger: You will credit "Cash Account" for the money taken out, and debit "Horses Account" for the value put into horses. In other words, every debit must have a corresponding debit. This is why we speak of this system as "Double Entry Bookkeeping," and as soon as you understand this one principle, you are ready to start keeping accounts in your ledger. Read this description of the ledger over again and again, make a number of entries in a ledger, and refer back to the above statement until you satisfy yourself that you have mastered this plan of bookkeeping.

In starting a ledger, some accounts will require a great deal more space than others. If most of your business is done on a cash basis, then the accounts under the head of Cash will require a great deal more space than others, or in the neighborhood of one-quarter of the book. Two or more pages will be sufficient for "Personal Account," "Machinery and Tools," "Horses," "Swine," "Sheep," and "Garden;" you might require from four to six pages for the "Dairy," "General Production," etc., most individuals will only require one page each year, in the ledger. The number of accounts that you open with the different divisions of the farm will depend upon the detailed information.
that you wish to secure in connection with the farm operations. A few of these on the average farm will be: "Household Expenses," "Machine Repairs" and "Expenses," "Farm Labour," "Horse Expenses," "General Expenses." This last division, "General Expenses," would include all amounts spent for the general upkeep of the farm, items that benefit one division or several of the divisions, and that cannot be charged directly against any one of the divisions, such as "Insurance on Buildings," "Interest Charges on Mortgages," "Taxes" and "General Repairs." This is sometimes called "Overhead," and at the close of the year is divided up proportionately among the different departments or divisions of the farm.

Commencing your ledger in this way is sometimes referred to as "Open your Books;" and if you will add up all the accounts on the left hand side, or debits, and then add up all the accounts on the right hand side, or credits, you will find that the totals on one side will exactly correspond with the totals on the other side. If they do not correspond, it means that a mistake has occurred in entering some of the accounts, or in the addition, and you will have to find the error. Doing this is called taking a trial balance, and it is well to do it every few weeks, so that you may know that your work has been correct.

The farmer's daybook should be a convenient pocket-size book, with a pencil attached, so that, whenever a transaction occurs, it is entered down in the day-book, with the date and the amount of the transaction. It is not safe to trust to memory to write down the details of a transaction that occurred during the day, after you go into the house in the evening. As suggested before, these various transactions could be entered in their proper accounts in the ledger from the day-book, at the time of weighing the milk or at some other definite time each day. As the different items are transferred to the ledger, they should be checked off the day-book by a simple check, or by writing the number of the ledger page to which they were transferred.

In order that you may know at the end of the year, just what each department has produced, you should make it a rule to debit "Household Expenses" for all farm products used in the house, and to credit each department with all that it has produced, just the same as if you had sold it to someone else. All money that you pay out for personal expenses should be credited to "Cash," and debited to your personal account.

We speak of an account being balanced when the total of the debits in the account is equal to the total credits. This shows that the account owes you nothing, and that you do not owe the account anything; in other words the account has been settled, and it is usual to rule a double line at the bottom to show that the account is balanced. Any additional debits or credits would be made below the ruled lines, and would be the same as opening a new account in that name. Most business men who keep accounts make it a rule to balance all their accounts with other people in this way, once a month. You may decide that you do not need to know about each account so often as that, and decide upon a longer period. It is, however, a time saver to be able to open a ledger and to know at a glance just how an account stands with any particular person or division.

At the end of the financial year, and sometimes more frequently, you will want to know how much you have made or lost by your year's business. The simplest way to get this information will
be to make out a new inventory, the same as described for the beginning of the year; balance all accounts with other people, total up the cash on hand and in the bank, and make out a statement of your net worth.

The difference between your net worth at the beginning of the year, and your net worth at the end of the year, will be your net profit or loss as the case may be. If your business shows a gain or profit, this profit represents two things; your earnings from your investment and your earnings from your labour. It is easy to figure out what you could have earned from your investment if you had put all of your money in a Savings Bank at the beginning of the year; therefore, if you want to know your total labour income for the year, subtract the interest on your money for the year from the total profit. The remainder will represent the labour income. Compare the labour income with the amount you could have earned if you had been working for someone else. If you are a married man, remember that your wife has been helping you to earn this money, and you should also figure out what her labour income has been, and also that of any children who have helped with the farm work during the year. When you figure out the market value of the combined labour of yourself and family, and compare it with the labour income, you may find that you have been working at a loss. If this is the case, you want to know it, and you will then want to know why, and to secure this information it will be necessary to go more deeply into the matter of farm accounts and find out what it costs to produce the different productions that you market during the year.

If you go to the bank to secure a loan, the bank will want to know what your investment income has been from your business and they will judge your business ability by the amount of interest you can make your business pay you for the amount of money you have invested in it. To get the amount of your investment income, subtract from your total profit the market value of your combined labour. This will give you the total of your investment income. Find out what per cent. this is of your total net worth at the beginning of the year, and compare the per cent. of the interest that you have made on your investment, with the per cent. that you have to pay for borrowed money, or with the per cent. that you could have earned in other safe investments. When you have carried your bookkeeping to this point, you have kept your accounts straight with other people, you know what your profit has been on the year’s work, and you have gained all the information about your farm investment that it is possible for you to gain without going into the subject of cost finding. It is generally better to have one or more years’ practice in bookkeeping before you start keeping cost accounts, and it is always well to have some bookkeeper, such as the school teacher or clerk in the store to help you work these out. Your Agricultural Representative, or anyone connected with the Farm Bureau or local Department of Agriculture will readily give you the assistance you may need, and I would suggest that the Agricultural Representative’s office be made F. A. H. Q. (Farm Accounts Head-Quarters), and that you send there your farm accounts to be worked over into more valuable information, just as you send your milk to the factory to be transformed into more valuable commodities.
Efficient Factory Management

By Mr. G. S. Dobie, Supt. Beatrice Creamery Co., Chicago, Ill.

The pressure of the times, the keenness of competition and the outlook into the future demands the highest efficiency possible in the successful operation of a creamery whether it is large or small.

This subject is a broad one and well worthy of discussion and when we condense it to its true meaning, we must confine it to three letters, viz: “MAN”.

In each and every organization “MAN” is the large factor, individually and collectively. The scope, pressure and kind of bearing a man throws into an organization determines its success and efficiency. Man at all times is a Power either for good or bad. There are three kinds of power in every institution or organization, which make for success:

1st—Man Power.
2nd—Money Power.
3rd—Mechanical Power or Effect.

The cause of money power and mechanical power is man power. We may eliminate our money power and our mechanical power, but as long as we have man power, we can produce money and mechanical power. If, however, man power is not present in an organization, then money or mechanical power cannot be produced. This, therefore, proves the utmost necessity of man power, and its very important relation to a business organization. As we go further we find there are four kinds of man power, viz: Intellectual, Emotive, Physical and Volitional. Intellectual power gives us the capacity to know. Emotive gives us the capacity to feel. Physical gives us the capacity for sustained effort. Volitional gives us the capacity to do.

The capacity to know determines our ability. The capacity to feel determines our reliability. The capacity for sustained effort determines our power of endurance. The capacity to do determines our action. Here we strike the area of philosophy, ability, reliability, endurance and action, which is the true measure of every individual success, and represents Man Power.

Ability determines our power of wise discrimination, that is, it enables us to make distinctions, to classify, to bring out differences, to think straight on propositions, thus getting the other fellow to think straight and reasonably.

Every time a man steps into the presence of his employer to ask a question or to be helped on a certain problem, that man is doing nothing more or less but giving the employer an index to his mental calibre. You can usually measure the intelligence of an employee by the question he asks. You can usually measure the efficiency of an employee by the questions and problems he brings to you for solution. Here is where his power of discrimination determines his action and tests his power.

Reliability gives us the power of ethical conduct, so that we may conduct ourselves properly toward our fellowman or our employees. Just how shall an employer conduct himself toward an employee is the great vital subject of the day, and whatever action is taken will determine the peace, or unrest of Capital and Labor. There is no time in the history of the world when the proper
relation must exist between employer and employee. To bring this about will be the duty of both and it will mean the hearty cooperation of both in every sense of the word.

The foundation for cooperation between nations is now being laid and this action is determining the future and destinies of nations. This same cooperation and brotherhood must be brought about between Capital and Labor before good management and highest efficiency can be maintained. If we would but employ the Golden Rule between employer and employee, viz: "To do to others as we would that they should do to us" would bring light out of darkness, peace out of chaos and raise the standards of successful management, and help reach the highest efficiency. Without this spirit of brotherhood and cooperation business cannot be successfully and economically conducted. The relationship between employer and employee is going to determine his future and destiny.

The war and resultant conditions have to a large measure decreased and impaired our efficiency. I believe you will all agree that before we can manage our plants successfully we will have to increase the efficiency of each and every employee connected with it. Successful management cannot be maintained by the so-called manager alone. He is but the hub of the wheel and the employees the spokes. One is not complete or of service without the other. The two in unison cause the wheels of an organization to run smoothly and well, resulting in efficient management.

The law of value is one of the principles of efficiency. The value of a man is determined by the amount of supervision he requires. We are all more or less under supervision and direction. There is a distinction, however, between supervision and direction. Direction is telling a man how to do it, supervision is following him up and checking him continuously until completion of the work. In our business I think you will all agree that we are paying too much money for supervision.

In every organization there are four kinds of individuals, who come under the law of value, and their values are determined by the amount of supervision they require. First, there are those that must be told what to do and how to do it, and be checked in the doing. Secondly, there are those you must tell what to do and how to do it, but do not require so much supervision. Thirdly, there are those that you must tell what to do, but do not need to tell them how to do it, and they will require very little supervision. The fourth is the one to whom you outline a general policy and will be successful with the least possible supervision. The question naturally arises which is the most profitable employee of the four. The question answers itself and signifies the necessity of surrounding oneself with the proper calibre of employees in order to have an organization efficient and successful. What we need in our organizations more and more is an effect that will stabilize our employees, by this I mean putting employees in the balance. It seems to me that it is a matter of having your employee feel at all times that he is in balance with his job, in balance with the firm by whom he is employed, in balance as respects future opportunities, unless he is totally in balance he has not the kind of stability that makes for both permanence and profit, either for himself or his firm.

The question naturally arises, how can we stabilize employees? In answer, the manager's or employer's problem is to create in his employees a sort of natural
desire to do things as the employer wishes them done, in other words unless the employee has the view point of the firm, he is not going to have stability and the spirit of the organization. I do not think that there is any hope of stabilizing employees, or stabilizing an organization unless the employer or manager runs that organization on what might be called the promotion-on-merit plan. The manager must at all times consider merit and consequently award impartially. The best stabilizer I know of for an organization is to have a good man leave you every so often to assume a better, more responsible position. This sort of stabilizer is a strong asset for an organization and assists very materially in securing unity of purpose and higher efficiency.

It is the duty of the management to help the employee make good. This may seem a little bit altruistic, but it is good business. Experts on hiring and firing say that it costs one to two hundred dollars to change or fire a man, this being true it stands to reason we should select carefully, deal justly and thus help employees to make good.

I think we too often overlook the fact that the destiny of our employees under our supervision is in our hands, and we too often overlook the obligation that is there, and expect the employee to furnish everything to make the successful combination of employee and employer.

Personally I believe in profit sharing based on years of service and character of position held. This is the great stabilizer of labor, and will do more to bring Capital and Labor on to an equal footing and a practical working basis than anything I know.

We should talk more of the employees as being with us and not under us or working for us. They are with us and unless they feel that relationship in connection with their job and employer, it will be harder to establish stability.

I believe that one of the strongest elements, or the strongest factor in the stabilizing of employees is to have their heart in the game. No business or organization can succeed as satisfactorily unless the heart and souls of the employees are in the game. Conditions, surroundings and the management can do much to foster, develop and maintain a harmonious and cooperative spirit throughout an organization. The management should be ready at all times to deal with employees when difficulties arise and it should be the duty of employees to air and vent their troubles to the management at all times and not go around with a seeming grudge or an unsettled condition in their system. I believe the majority of labor troubles and differences could be very easily adjusted if the management showed a greater interest in the employees and made them feel freer to approach and discuss all matters as soon as they arise. Doing this will help develop and maintain a unity of purpose and spirit in an organization and develop as it were the family spirit which is always of a cooperative nature and which tends to increase efficiency in management.

A great deal of ones success in life depends on his ability to make and keep friends. Every business should have a personality. It must be the expression of an individuality, or it cannot succeed. Necessarily the business personality will be that of the President or whoever is in closest touch with its management.

The amount of personality will be in direct proportion to the amount of contact that the head man has with his employees. Employees take their cues from those in charge.

It is important we decide and deter-
mine what our life work is to be and harmoniously adjust it to the lives of those with whom we come in contact and with whom we must live and succeed. We should remember that the first meeting with one leaves a lasting impression and that we are more or less under the study and scrutiny of the employer or employee most of the time.

Through a well equipped factory properly maintained, lighted and aired, can much be obtained to make for efficient management. An employee's surroundings have a great effect on the kind of a spirit he puts into his work. His surroundings under (average conditions) will develop or impair his development and make him valuable or otherwise to an organization. I believe you will all agree that an employee's surroundings will effect his stability, his aim and purpose in life and will, if conditions are favorable, make him a valuable asset to an organization. In order to secure the best results from employees it is important that all equipment be kept tidy, clean and in good repair. If machinery does not run well the average employee is apt to become careless and indifferent to results to be obtained. The Company must keep up the standard of the equipment, making it productive and efficient as this has a great moral and psychological effect on an employee. Properly operated equipment develops higher efficiency and assists the management in securing results. Holding meet-
ings with the employees, discussing the business or working conditions deepens the interest and the spirit of employees. Having a Suggestion Box with a small cash bonus offered, for suggestions worth while and put into practice, develops interest and originality. It assists in perfecting organizations and develops cooperation and enthusiasm. A club room in an organization where good reading can be secured and games indulged in are factors that bind and cement a loyal harmonious spirit in an organization. An occasional picnic, dance or some such amusement relieves the monotony of routine duty and makes life really worth while.

Up-to-date organizations are beginning to realize the need and requirements of employees, and they are beginning to share with them in their needs. This action is proving the need of the spirit of brotherhood. None of us can stand alone very long. Sooner or later we will have to send out an S. O. S. and get help, thus proving the need for hearty cooperation.

As this paper has developed we have to a certain degree determined the value of man to an organization and the power he can sway if proper judgment and balance is brought to bear. Through his instrumentality, organizations grow, develop and become the assets of the nation. All successes large or small reflect the Man Power in Efficient Management.

Even in the meanest sorts of Labor, the whole soul of a man is composed into a kind of real harmony, the instant he sets himself to work.—Thomas Carlyle.
Prince Edward Island as a Source for Seed Potatoes

By A. A. Scales, B. S. A., Summerside, P. E. I.

I HAVE just received a letter requesting me to write an article for the Review. I am asked to choose my own subject. Therefore, I turn my pen to that subject that has been uppermost in my mind for some weeks past—potatoes. Being very busy planting the largest acreage which I have yet planted in any one year, I have had little time to think about anything else.

Prince Edward Island is known throughout Eastern Canada equally well by two other names—"The Island" and "Spud Island." It is called Spud Island because large quantities of potatoes have been produced in its fertile acres of light loam soil and have been shipped to the adjoining markets. For many, many years these neighboring markets have been well supplied at two seasons of the year, spring and fall, with MacIntyres, a variety of blue potatoes characteristic to this Island Province, a variety with a peculiar blue streak running through the potato which leaves it saleable only at a discount excepting in places where the people have been educated to appreciate its cooking qualities.

These potatoes have been planted and grown on this Island without any special attention. The methods followed have been far from modern. Until the last couple of years very few potato planters have been used, spraying for blight has not been practiced, potato diggers have been quite unknown, and commercial fertilizers have been little used.

The potato bugs however have been faithful adherents, and the farmers as in other places have had to combat with them year after year.

Yield Per Acre

Notwithstanding these crude methods of production the average yield of tubers has compared favourably with the yield in other parts of America. The average yield for the United States for a lesser period is 96 bushels per acre.

That larger yields of potatoes can be obtained when up to date methods of production are employed has now been demonstrated. We have a concrete demonstration in the results obtained by a former Maine potato grower. Realizing the possibilities of potato production on this Island, his birth place, he planted in the spring of 1919 about eighty-five acres. The land in which these potatoes were planted was not supposed to be fertile. In fact, much of it was supposed to be very poor. Yet with commercial fertilizers, and with intelligent attention, this land produced an average yield of 325 bushels of
potatoes per acre. The yield of some of the fields was 450 bushels per acre. This grower has planted this spring about 200 acres.

While this is the only instance where large yields of potatoes have been produced over a large acreage, we have many growers who, having given small acreages intelligent attention, have produced yields fully as good as the ones above mentioned.

Improved Transportation
During recent years our transportation facilities have improved to such an extent that we are now able to ship potatoes not only during the fall and spring months, as in former years, but also during the winter months. And we are now able to ship them with a minimum amount of handling. That is, we can now load a car at a railway station and have the car go through to its destination without transferring the potatoes to other cars, or to boats.

These improvements have been brought about by the inauguration of a car-ferry system between this Island Province and the mainland, and by the standardization of the Prince Edward Island railroad. The latter however requires several years more to complete it. These improvements put us now on a par with other parts of America as far as transportation is concerned.

Seed Markets
About all the potatoes that have been shipped from this Province, excepting a few during the last two years, have been for household purposes. These few have been sent to the United States for seed potatoes. Thus far the potatoes grown from them have given good results, both from the standpoint of production and of quality.

The potato growers of Long Island, New Jersey, and other Southern States have learned by experience that seed potatoes grown in northern parts produce for them much better crops than seed potatoes grown in their own or in more southern localities.

For many years these growers have been depending on the states of New York and Maine to provide them with seed, but now after obtaining excellent results from seed grown on Prince Edward Island, these growers are turning their attention to this Province as a source of supply.

In this market, the southern seed market, the potato growers of Prince Edward Island have an outlet for potatoes which should be not only permanent, but also more remunerative than the ordinary commercial market.

Varieties for the Seed Trade
The southern seed market, and, in fact, the southern market as a whole, does not want the MacIntyre potato. A white potato is wanted, while the variety depends on the locality. The Long Island growers want the Irish Cobbler and the Green Mountain, while the New Jersey growers want the American Giant.

The potatoes must be more than the variety wanted by the southern grower, they must be reasonably free from certain diseases among which are Mosaic and Leaf Curl. This Province has potatoes of all the above named varieties, and potatoes which are either free or nearly free from these diseases. It has potatoes which the southern potato growers want, and should get.

With a little attention and care on the part of the Island grower in the production of the potato sought after by the southern growers, a high class demand must fast develop. Accompanying the development of this demand will be an increase in the acreage of potatoes in
this Province. And accompanying this increase in acreage will be prosperity such as the people of this Island have never before experienced. Let us watch potato growing on Prince Edward Island with interest.

Milking Machines and Their Care

M. Grimes, Fellow in Chemistry, O. A. C.

Practical experience and numerous investigations conducted by experimental stations during the last decade or two, have fully established the practicability and the economy of the modern milking machine. Owing to the high cost of labor, and the difficulty of securing good hand milkers, the milking machine is rapidly coming into use, wherever, twenty or more dairy cows are kept. A milking machine usually gives best service when operated by its owner himself, or by help directly interested in its success. Careful handling of the milking machine is necessary; too often the men employed are none too interested in their work, and prove poor or indifferent operators.

In the selection of the particular make of machine a number of points should receive consideration besides first cost and nearness to service agency, such as, cost of up-keep, depreciation, simplicity of mechanism and cleaning. Investigations show that with proper and with careful, prompt hand stripping, milking machines will have no appreciable effect, one way or the other, on the dairy production of the cows, or on the general welfare of the herd; but they will not long render satisfactory service with careless handling and lack of cleanliness.

The readiness with which a herd of cows becomes accustomed to the milking machine depends upon several factors, the most important of which is the age of the animal. It is the general experience of farmers that young cows who are started on their first lactation period with the mechanical milker take to it more readily than the older ones who have been accustomed to hand milking. They become used to it in a shorter time and milk out cleaner than the older cows. Many young cows are difficult to milk by hand on account of their short teats. Short-teated cows and hard milkers are as easily milked by the machine as are the easy milkers. No machine will milk all cows absolutely clean and hand stripping should be practised after all machines. Prompt and careful hand stripping is the most important factor in successful machine milking, even though the machine used leaves only small amounts of milk to be stripped out. This stripping must be done in a cleanly manner; in some cases machine milk is reduced very considerably in quality by the addition of strippings from dirty cows, stripped by a dirty milker with dirty hands. Damage to the teats or udder will usually be found to be due to too high vacuum or pressure, too rapid pulsation or careless attachment of the cups to the teats; all of which can be remedied by an intelligent operator.

Some dairy farmers seem to think that because they milk their cows with a machine there is no chance of unclean milk. There is just as much "high bacteria" milk produced where machines are used as where hand milking is done. It all depends on the operator. The
question of the effect of dirty machines as a source of bacteria in milk has been investigated. The investigators found that the condition of the machines on the majority of the dairy farms was unsatisfactory, since, in spite of the use of various antiseptic solutions, sterile water drawn through the machines was found to contain millions of bacteria per cubic centimeter. The chief source of contamination was found to be the teat cups and rubber tubes; but the pails of the machines were also a prolific source of trouble in some cases. Bacteriological tests showed that in order to obtain milk having a low bacterial count when the milking machine was used, it was necessary to keep the rubber parts which come in contact with the milk submerged in an anti-septic solution, also, to see that the centre of the tube did not remain filled with air. It has been found that when a proper antiseptic is used and these conditions have been carefully complied with milk is obtained which has a lower bacterial count than does that obtained from hand milkers.

Satisfactory bacterial results were obtained where practicable and suitable methods were used for keeping the machines cleaned, provided the teat cups and tubes were immersed in any of the following solutions:

1. Brine containing 10-15% Salt (common).
2. Solution of Chloride of Lime (1 lb. of Chloride of Lime to 1 gallon of water, allowed to stand overnight with occasional stirring, the clear liquid poured off and sufficient water added to make 10 gallons).
   This solution has been used at the O. A. C. barn with every success.
3. Chloride of Lime dissolved in saturated brine.
4. Milking Machines and their Care.

Antiseptic solutions were not found to be successful unless the teat cups and tubes were maintained in a cleanly condition, as it is the difficulty of preventing the growth of germs in the teat cups and rubber tubes which is chiefly responsible for the high germ content of the machine drawn milk.

Thus it will be seen that too much attention cannot be paid to the cleanliness of the machine, if high quality milk is to be obtained. All experiments to date point to the fact that the milking machine is here to stay; and fulfills an economic need in these days of scarcity of labor.

Farmer—"I'll give you five dollars a day to dig potatoes for me. How about it?"

Weary Willie—"'Fraid you'll have to go it alone, mister. I didn't plant 'em and I don't know where they are."

The reason more bedtime stories are not told to children these days is that the children come in after mother has gone to bed.

She—"Don't you know that a kiss is the cream of life?"

He—"Please pass the cream."
Economics and History
Should the Present Course be Expanded?

By Lieut.-Col. W. J. Brown

On the occasion of the Alumni reunion banquet at Macdonald Hall on July 8th, while discussing the proposed changes in the curriculum, I offered the suggestion that “Economics and History” should be added to the College course. A certain amount of elementary work is now being done in Political Economy, while the studies in Farm Management seem to be helpful to the students and useful to the public; but this work is too important to leave where it is. I feel sure that one has only to call attention to the need and suggest a way of meeting it and those in authority will immediately respond by making more room in the curriculum for the kind of training which will prepare our graduates to grapple with the problems that oppress the age in which we live. The country looks to the Ontario Agricultural College to train men for leadership not only in the production of food and food-products and other necessities that spring directly or indirectly from the cultivation of the soil; but in working out solutions to those intricate questions involved in our economic, social and civil relationships.

It was suggested that the department should include studies in the Principles of Political Economy, including Rural Economics and Farm Management; Economic History; Banking and Finance; Principles of Transportation and Distribution; Commercial Law; Commercial Geography and International Trade; Elements of Political Science and Civil Government; History (a survey of Ancient, Mediaeval and Modern History, giving special attention to the History of Great Britain, Canada and the United States); Constitutional History (England and Canada); the Principles of Sociology; and the Elements of Jurisprudence.

Most of the subjects suggested in the foregoing paragraph are self-explanatory; but a word or two may be offered in regard to the others. Political Economy may be defined as the science dealing with man’s temporal well-being in the widest sense. It covers the study of the production, distribution and consumption of wealth. Commercial Geography is a subject that is rapidly acquiring popularity among all students and writers who are trying to understand the basic principles of domestic and foreign trade. A knowledge of the commercial geography of the British Empire alone is a valuable acquisition. When one knows the climate, physical features, resources, products, trade channels and people of each of the kingdoms, dominions, colonies and protectorates, which thrive under the Union Jack, one has learned a good deal about almost every part of the world. Herein lies one of the secrets of the success of the British business man. In attempting to master such a subject as Commercial Geography the student should have access to a commercial museum where all the products he studies may be seen in the various stages of their development. There should be maps or charts showing what each agricultural country does each
month of the year; also maps showing the various trade routes and how ships are loaded in passing to and from the great commercial centres. Such a museum as this at the College would be interesting and instructive to students and visitors alike. Political Science is the science of government and describes the rights men should enjoy as well as the duties they ought to perform. Sociology is the science of society and explains social phenomena. It is an intellectual pursuit founded by Herbert Spencer in working out his synthetic philosophy. It has been developed since on a par with the most practical and advanced physical sciences. Jurisprudence is the science of positive law and when studied historically sheds a flood of light on the processes through which government and law have made the deepest impress upon civilization. It defines the essential nature of law and rights and explains the principles of private law, public law and international law.

If the work of this department were given the same emphasis in the curriculum as is given to English Language and Literature and the subjects were taught throughout both the Associate and Degree courses the results would soon prove eminently satisfactory. As a means of mental training and discipline these subjects have no superiors. They widen the student's horizon and teach him to observe and think. They help him to grasp the keys that unlock the doors of the business, social and political world in which he lives. They embrace in fact only what every intelligent citizen and leader of men should know. If additional arguments be needed it may be observed, first, that in this country today the unsolved problems of rural life and rural industry are economic and social. Here is a promising field for investigation and research. Secondly, when we turn our attention to the realm of civil duty and legislation we note how imperative is the demand for trained minds and sound knowledge. If the new status of nationhood is to mean anything to Canada our public men must think before they speak and speak with knowledge and understanding. Our political and moral conscience, like our musical instruments, must be constantly returned if our national dignity is not to suffer.

One good text-book should be selected for each subject. The course of lectures and assigned reading if well prepared would broaden the student's knowledge and make him familiar with much of the best thought and literature on all the major themes. Essays should be required on each term's work. If the College library were well stocked with selected reference books on related subjects there would be an added incentive to systematic reading. In recent years a large number of excellent books have been written on economics, history, sociology and jurisprudence. They are far more informative and stimulating than the books used by students a few years ago. This shows that these subjects are alive and are studied by men of affairs. If one desires to get saturated with a subject there is no better way than by reading what the best writers have written on it and by thinking out the pros and cons as one reads. It is like meeting each author face to face and having a battle royal with him over his pet theme and on his own ground.

The time seems opportune for the development of this department of study as the whole civilized world is bristling with social and economic difficulties; but this is not all. One cannot help being impressed when talking with the farmers of this Province that they in particular
feel the need for more knowledge and better leadership in this field. If such a course of study were offered at the College, under proper direction and with competent teachers, it would certainly attract many additional students and would improve the intellectual training and mental equipment of the whole student body.

The time has come when the Ontario Agricultural College must make a supreme effort to render greater service to the State. Its regular students should be twice as numerous as they are now, while the opportunity to utilize short, extension, extramural and correspondence courses with travelling library facilities ought to be grasped with both hands by the Faculty. The College must be taken to the boys and girls on the farms. City and town boys and girls should have equal opportunities if they are willing to study. There is an urgent demand for more graduates in Agriculture on the farms of Ontario that they may lead their respective communities into higher channels of cooperative service, intellectual culture and social refinement. If every rural side-line could be packed with College Associates the impetus to agricultural betterment would be a revelation.

It may be noted for our encouragement that the wall of prejudice which has so long separated the rural and urban dwellers of this country is rapidly breaking down. The social cleavage and the class antagonism have been a heavy burden to carry; but a new era is approaching. Our people are breathing a purer air. The fog that obstructed their vision is lifting. For sometime it has been clear that the city business man was more than willing to meet the farmer half way. If the farmer only makes the effort now he may profit enormously by the association and interchange of goodwill. This fortunate change of attitude has brought to the surface an opportunity that the whole country has been waiting for. We may attribute the change to the war, or to any other cause, present or remote; but the fact remains and it is pregnant with possibilities that should make every Canadian’s heart rejoice.

It is time we realized what is taking place. The College, if awake, will recognize it also. It now has an important duty to perform and should permeate its activities with the spirit of the times.

The Good Old Days

A farm hand who worked every day in the week and finished the chores by lantern light, said to the farmer at the end of a month: “I’m going to quit. You promised me a steady job of work.”

“Well! Haven’t you got one?” was the astonished reply.

“Nope. There are three or four hours every night I don’t have anything to do except fool away my time by sleeping.”

Usual Reason

“Gone in for politics, have you? Want to see what good you can do this country?”

“Bless you no! Want to see what good the country can do me.”

The New Necessities

Jud Funkins says he’s going to have help this summer if he has to put phonographs on the farm machinery and have moving pictures in his barn.
Hydro offers a solution for large power requirements. Where heavy work, such as silo filling or threshing is to be done, it is common to find several farmers forming a syndicate. A large motor is purchased by them together with the other appliances necessary. While this is being used, individual requirements are kept as low as possible, so as not to exceed the total load taken by the members of the syndicate. This large motor is usually one of 25 or 30 H.P., and where the total load of all the members is much above 30 or 35 H.P. practically, no inconvenience is experienced.

We now come to a consideration of the cost of Hydro. From its many advantages, it would be supposed that the expense would be proportionately greater than for other forms of power. Such, however, is not the case. Hydro power is unique in that it is probably the only commodity that has been reduced in price during the war.

In most cases a service charge is made, whether any power is used or not. This covers interest and depreciation charges on the power line, transformers, etc., and amounts to about $30.00 or $35.00 per annum. The cost of current varies in different localities, but from 4 cents to 5 1-2 cents per kilowatt hour is the usual rate. The amount of current used has also an influence on the cost above.

Above a certain limit, the cost per K. W. H. is much reduced. Power charges for motors or ranges are somewhat lower than for lighting, and in some cases a flat rate per horse power per year is charged.

The following table will give some idea of the cost of Hydro. It includes three syndicates in Waterloo County, and dates from January 1st, 1918, to January 1st, 1919:
<table>
<thead>
<tr>
<th>FARM NUMBER</th>
<th>EQUIPMENT.</th>
<th>K. W. H.</th>
<th>COST</th>
<th>K. W. H.</th>
<th>COST</th>
<th>K. W. H.</th>
<th>COST</th>
<th>SERVICE CHARGE</th>
<th>TOTAL COST PER YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Syndicate No. 1—4 cents</td>
<td>Syndicate No. 2—5 cents</td>
<td>Syndicate No. 3—5 cents</td>
<td></td>
<td></td>
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<tr>
<td>1</td>
<td>1 H.P. Motor Wash Machine, Iron Toaster and Cleaner.</td>
<td>648</td>
<td>29.15</td>
<td>11</td>
<td>2</td>
<td>119</td>
<td>42.53</td>
<td>35.00</td>
<td>100.70</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>580</td>
<td>21.92</td>
<td>774</td>
<td>24.89</td>
<td>30.00</td>
<td>74.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>384</td>
<td>13.82</td>
<td>1567</td>
<td>56.41</td>
<td>30.00</td>
<td>100.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1 H.P.</td>
<td>568</td>
<td>29.45</td>
<td>626</td>
<td>29.74</td>
<td>35.00</td>
<td>85.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>257</td>
<td>9.28</td>
<td>1091</td>
<td>39.55</td>
<td>30.00</td>
<td>97.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1 H.P.</td>
<td>275</td>
<td>27.90</td>
<td>42</td>
<td>23.83</td>
<td>9.03</td>
<td>32.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Lighting on town system</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

The table above summarizes the costs and charges associated with various farm equipment. Each row represents a different piece of equipment, with columns for the number of farm units, equipment type, cost, and additional service charges, leading to a total cost per year.
From this table we see that the cost of electricity is very reasonable. Taking the average of the nineteen farms concerned, it is found that they used 403 K. W. H. of energy during the year for domestic purposes, costing $16.61. For small power on five farms the amount used was 299 K. W. H., costing $13.46. For the 20 H. P. motor the average was 71.9 K. W. H., costing $28.95. The service charges were about the same in each case, and the total annual outlay amounted to $78.93.

Of this amount the largest item outside of service charges is for power work. The author examined tables showing what had been done, and it can safely be said that if the amount of work shown had been done by steam power, the cost would have been considerably greater than it was.

From the foregoing remarks, we see that the Farm Power Department of the Hydro has not been idle. Their work has advanced steadily, and, but for the setback caused by the war, the number of farmers using Hydro would probably be much greater.

There is much to look forward to, however. New ways are constantly being devised whereby electricity may serve. Electric plowing has met with much success in Europe, and there is no reason why it cannot be used in this country, especially on our larger farms. Hauling produce, with the use of electric trucks will have its place. Hydro Radials are very much talked of these days, and will help to provide an economical form of transportation, whereby the products of the farm will reach the consumer quickly, and in good condition.

The power required for this expansion can be easily obtained. Even now the Hydro is building a canal that will convey Niagara waters to Queenston, where a plant will obtain 220,000 H. P. from them. This is more than the present load of the Hydro, and the demand for power is so great that it will be quickly taken.

The completion of this and other projects will place Ontario in an enviable position. With plenty of power, great expansion can be looked forward to in the work of the Hydro. The farms of the province will benefit by this expansion, and the basic industry of our country will receive some of the reward that has long been its due.

Not Acquitted

"So your son went to the city to work in a bank, eh?"

"Yes."

"How did he acquit himself?"

He didn't.
THE editorial which appeared in the July "Review" is deserving of an answer, not because the Y. M. C. A. Executive takes issue with the opinions there set forth, but because those opinions are right in line with the resolutions and plans which the Y. M. C. A. personnel have in mind. It is my purpose here to state briefly the present position of our College Y. M. C. A., and what appears to be the way out, into something better and more useful.

The present Executive took over, last February, a very satisfactory bank balance, and a situation well-nigh impossible. Quite uninitiated, and asked to take charge on the day following their election to office, it was two months before they were fairly acquainted with their organization and relationships. No wonder the Y. M. C. A. was everywhere discredited! Not one of its officers, all last spring, knew what to do or how to do it!

No very serious attempt, then, was made, to push the several "activities" which the Y. M. C. A. is supposed to maintain. The Executive practically limited itself to preparation, more or less immediate, for next year and the years to follow. In consultation with the National Student Secretary, Mr. Clarke, and the quasi Student Secretary, Mr. Robinson, (who rendered aid invaluable as often as he was able to be present), certain plans were laid and developed. The most important of these was, to have as large a number as possible, from O. A. C., to attend the Summer Y. M. C. A. Conference at Cobourg. Twelve men finally attended, with the result that a body of resolutions was drawn up, pointing to a number of radical changes for the better, and giving grounds for hope that the Y. M. C. A. may be what our Editor has called "an organization that means something."

But here we must pause a minute and remind ourselves that no plan, no project, no resolution can be fully realized unless the whole body whom this Executive represents, is ready to make our plan their plan, our project their project, and our resolution their resolution. The College wishes a useful, living Y. M. C. A., does it? Then let the College—that is you—come forward and use it and make it live.

The plan calls for the abolition of the "compulsory" fee paid upon Registration, and would make both membership and contribution voluntary. Will you do it? Will you join and take part in study and devotion? Will you let your useful, Christian fellowship lack means? No, you must not, or the indictment that is now ours will then be yours—"a dead issue." As you are Christian, you dare not let this cause fail.

As there are some students at the College who have decided to go out as Foreign Missionaries, they, and any who may join them will constitute a Volunteer Band, under guidance of the Student Volunteer Movement.

It is desirable that the Y. M. C. A. should cease to be one of the activities controlled by the Student Council. Perhaps an amendment to the Student Council Constitution is needed to effect this; perhaps it is not. Rather than
"one of the Major Societies" of the College, the Y. M. C. A. ought to be a branch of a great National and International Organization, similar, in its own way, to the G. W. V. A.

It is recommended: "To secure, if possible, the services of a competent, well-paid student secretary." Now, the Y. M. C. A. alone is not able to pay well for the time of a competent man, nor is it altogether desirable that it should be asked to do so. If a man is to devote his whole time to this work, in the winter among the students, and in the summer among rural schools and communities throughout the Province (a man's job, mark you), certainly the government ought to see the advantage of such a man's work, sufficiently clearly to be induced to pay a large share of his salary.

To combine this job with some other, some faculty position at the College, has been suggested, and may yet be the means by which we find us the man we want. At present we await the decision of the government as to their recommendations and degree of assistance. Needless to say, the Y. M. C. A. Executive, in the person of the writer, will highly appreciate any comment or suggestion that may be sent him between now and the day College opens. Simply address, Y. M. C. A., O. A. College, Guelph.

Once again, the hearty co-operation of all present and prospective students is earnestly besought, to the making of the Y. M. C. A. in our College, "an organization that means something."

Hotel Clerk—"With or without bath, madam?"
Small Boy—"Aw, mother, get it without a bath."

"My dear, surely it didn't take Dick a month to propose!"
"Yes, that long anyway."
"He's getting slower all the time."

Unsociably Henry
"I think you were absolutely wrong Henry about the furniture."
"Yes, dear."
"And about the wall paper."
"Yes, dear."
"Now, loow here, Henry, if you're not going to be sociable I'm going to bed."

"Hello, neighbor! Going to have a garden this year?"
"Nope. You can have the garden. It's my turn to keep chickens."

Helpful Hint
He (tenderly)—It's a mistake for a man to go through life alone.
She—Why don't you get your mother to chaperone you?

First Speed Cop—"Did you get that fellow's number?"
Second Cop—"No, he was too dinged fast for me. That was a pretty classy looking girl in the back seat, wasn't she?"
First Cop—"She shure was!"
EDITORIAL

Athletics for All at O. A. C.

In September another college year will open, and over five hundred students in various stages of preparation for Canadian citizenship will crowd the halls and class-rooms of our college. In the majority of cases these students who arrive will have been engaged during the vacation in healthy invigorating outdoor pursuits. It is the aim and object of the Athletic Association to keep these men in perfect physical condition throughout the college year by a systematic course in athletics.

It has long been a custom in Canadian colleges and universities to have inter-year meets, in which a very few of the students of the various years contest with each other for points, either on the athletic field or in the gymnasium. These few are supposed to bring honor to the year they represent, while the great majority of the student supporters (as they are called) stand shouting on the side-lines. This system of training students for citizenship is altogether unworthy of this college, but unless the individual student or member of the college staff has caught the vision of citizenship in its truest and fullest light, we cannot hope for any radical change in our athletic programme.

Almost invariably there are many students who have never met an opponent on the field of play, or gone down to defeat due to lack of training, or felt the thrill of victory in the face of great
odds. To these men it is almost impossible to show the value of training the hand, foot, eye, and brain to act in unison, and instantly, to gain command of a difficult situation. Too many of this class are overwhelmed each time a new and difficult life problem is presented for solution. The true athlete, not the physical monstrosity, is the man trained to obey the laws of the game, and if necessary go down to defeat at the hands of a seemingly unjust referee with sufficient self-control to mark him as a true lover of the game, for the sake of the game itself and the all-round development derived from the taking part in it. These men are today seldom, much too seldom, seen on the field of sport. The sideline sport, quite frequently ignorant of the fine points in the game, shouts wildly for the plays which in the opinion of an experienced athlete do not at all merit applause. We need men trained to support and cheer on, if need be, a “losing” team, and who appreciate improvement of condition in an athlete even more than record-breaking qualities in one who has not had to submit to training in order to win out.

It is difficult to imagine a true Canadian citizen who has not a true appreciation of at least one of our manly Canadian sports. It is not given to all to wear college colors for having added to the honor of the college by acquitting themselves as trained and successful athletes on field, or floor, or in the swimming pool; but it is given to every man to accept the offer of the Athletic Association of the Ontario Agricultural College to be one of those who wish to add to the nation’s wealth in the form of her healthy, happy, generous sons.

Over fifty of our finest athletes have offered to take men at the various stages of weakness, or strength, and to give generously of their time and talents to train the relatively weaker members of the college staff and student body, and put them on a basis where they will view the activities of our college with keener, healthier, and more unselfish interest. To these men who have a desire thus to attain to an even higher standard of Canadian manhood, the Athletic Association appeals, and trusts that there will not be a single dissenting voice, when the slogan for “Clean Sportsmanship and Athletics for All” is sounded at the opening of the college year in September.

W. C. BLACKWOOD.

A Contrast

HAVE you nerve enough to walk down a city street, singing at the top of your voice—with no other source of inspiration than the fact that the sun is out again after a week of rain, and that the world looks good? Not very likely: we sometimes feel that way, but we seldom let go our clutch on the safety valve—and yet that’s just what we saw—and heard—a man doing the other evening near a city park.

He wasn’t drunk, for his gait was quick and snappy, without a single suspicious wobble, and he didn’t appear to be crazy, as most of the astounded passersby seemed to think. He was young and full of steam; he felt like singing, and so he caroled away merrily, and the city could go to eternal suffering blazes for all he cared.
City civilization forces us to restrain our emotions. Back on the good old farm we can whoop and yell to our heart's content; people out there would say "That fellow's feeling good," but here they point their fingers to their heads and smile sadly. In town the only chance to get rid of any surplus lung-power is either to enter the news-boy profession, or to take in the baseball games and hockey matches—and that is probably one of the big reasons that we go. Over in England and France the people were amazed at the terrific rumpus that our boys raised over a mild looking game of baseball. They didn't realize that if only eighteen men could play, that several hundred others were having the time of their lives tearing their lungs loose. The old countryman, trained to restraint, gave way to an occasional "Bravo" "Well played sir," but your Canuck, used to wider spaces, simply bubbled over with howls and catcalls, and kept up a running fire of abusive chatter that shocked the ears of our British friends, who took it as literal, and not as pure noise, which it was.

One day as we were travelling on a day coach to Stratford, a dark little Italian got on, draped himself comfortably over a couple of seats, and began thumping on a huge string instrument nearly twice as big as himself. He sang Italian songs, to his own accompaniment, over several score miles of roadway, while the delighted passengers strained their ears to listen. But the singer wasn't noticing us; his thoughts were back in the sunny land where the songs came from, and he sang without batting a self-conscious eyelash. He was like the fellow on the street; his feelings got the best of his dignity.

Still, if everyone put their moods into expression in this way, there would be some tremendous discords of fine sunny days. But why worry?—none of us have the courage anyway, and if we did, in all probability the strong arm of the law would gather us in before two blocks were passed!

MAIL DISORDERS IN U. S. A.

Mr. E. E. Wildman and subscribers of the "College Avenue Semi-Weekly Gazette" have received numerous complaints from the U. S. A. mail authorities, advising them to ask the Editor to send said Gazette either by express, parcel post, or reduce the paper to at least 24 pages.

We hope that the parties concerned will be considerate and govern themselves accordingly.

As Gus was going out one eve,
His father questioned "Whither?"
And Gus, not wishing to deceive,
With blushes answered "With her."

An old lady after waiting in a confectionery store for about ten minutes grew impatient at the lack of service. Finally she rapped sharply on the counter and said:
"Look here, young lady, who waits on the nuts?"
A PLEASANT event took place at the Government Park, Rondeau, on the 25th of June, when O. A. C. Graduates, Associates and Undergraduates, gathered there for a picnic. The idea originated with Mr. W. M. Grant, and was enthusiastically taken up by everyone who heard of it. Kent County’s energetic Agricultural Representative, J. L. Doherty, took charge of all the details, such as the notification of outlying men, and the ensuring of transportation for all who could come.

Promptly on the hour well over twenty-five noses were counted, eagerly sniffing at the tempting array of good things on the table. When several were bemoaning the fact that they could eat no more of the good things that seemed to keep coming from nowhere in particular, Mr. Abraham, B. S. A. ’16, rose and acting as Chairman called on several of those present to propose toasts.

That to our “King and Country” was fittingly given by Mr. J. Laird, an Associate of ’99. Among other things he asked us to remember that the main cause of Ontario’s evident prosperity, was due to the supremacy of the agricultural element, whose high standards were directly traceable to the influence of the College. Mr. W. M. Grant, “the Daddy of them all” was then called on for a toast to Kent County.
from the store of a long and varied agricultural career; he is an Associate of '81, his words were inspiring and helpful. Mr. Abraham then called on Mr. J. Presant, '11 to propose the ever popular toast to "The Ladies." Although he has but lately embarked on the hazardous "Sea of Matrimony." "Thunder" claimed he could not do justice to such a theme and said "he would then have to abandon the subject." The "piece de resistance" came when Mr. Fancher B. S. A. '17 rose to propose the toast to the College. His remarks were eagerly listened to and were most fitting. He claimed that it was the spirit of fellowship which accounted for so much of the high value placed on O. A. C. men throughout Canada and across the line, and it was his hope that this "esprit de College" would continue. In concluding he gave it as his opinion that under the leadership of the new President the College was entering a new period of achievement. With the hearty backing of the Hon. Manning Doherty, we could look forward confidently to greater triumphs in the Science of Agriculture.

A game was soon started between the Seniors (Graduates) and Juniors (Undergraduates) and proved exciting all the way. The Seniors by grouping hits and taking advantage of errors, scored seven runs in the first inning and had the Juniors backed against the wall. Batteries were changed frequently but the famous "Shorty" Cullum showed himself a star. So strenuous was the batting that the cover was knocked off the ball and the bat cracked. The Juniors kept working hard and by timely hits and neat base stealing began to even the score. In the fifth innings the second ball began to show signs of distress. With three men on bases George made a home run which tied the score. On recovering the ball it was found to be in such a condition that the game had to be called off. Everyone was satisfied with the game as will be seen from the accompanying snap.

After supper Mr. Doherty produced "eggs and spoons" and the ladies forthwith had a race. This proved most exciting. Mrs. Smith winning by an inch or two. Several sets of horse shoes were then brought out by the resourceful Mr. Doherty, and soon three or four games of the farmer's time honored pastime were in progress.

Dusk began to come on now, and the crowd began to disperse. On every side expressions of happiness and satisfaction were heard. All voted the occasion a wonderful success and voiced the hope that it might be repeated and made an annual affair.

Three Kentuckians were killed in a fight over a dog. The dog is alive because he ran away and hid. Which proves that brains will triumph in the end.

1st Chemist (Holding up egg shaped lump of Sodium Cyanide)—What kind of a bird laid this egg?
Second Ditto—Why any sea hen (Ca Cn) could lay an egg like that.
Canning

In these days of endless bulletins and hints in magazines as to the art of canning fruits and vegetables, it is rather interesting to note what a writer of 1760 has to say on the subject:

"I should not, in my notations, forget to mark a new luxury that got in among the commonalty at this time. By the opening of new roads and the traffic thereon with carts and carriers, and by our young men that were sailors going to the Clyde, and sailing to Jamaica and the West Indies, heaps of sugar and coffee beans were brought home, while many, among the kail-stocks and cabbages in their yards, had planted grosset and berry bushes; which two things happening together, the fashion to make jam and jelly, which hitherto had been known only in the kitchens and confectionaries of the gentry, came to be introduced into the village. All this, however, was not without a plausible pretext; for it was found that jelly was an excellent medicine for a sore throat, and jam a remedy as good as London candy for a cough or cold, or a shortness of breath. I could not say, however, that this gave me so much concern, as the smuggling trade; only it occasioned a great fasherie for my wife, for in the berry-time there was no end to the borrowing of her brass pan to make jam or jelly, till Mrs. Toddy of the cross-roads bought one, which in its turn came into request, and saved ours."

And even in spite of all this new equipment which has come on the market to facilitate the speed and accuracy of the undertaking, one may frequently hear two women in deep conversation over the back fence:

"Oh! Mrs. McPherson, and did your jelly jell?"

And the reply.

"I can make naething o' yon thing. I've boiled it, and boiled it, and its just stannin' like tub water."

Where Women Are

"They talk about a women's sphere, As though it had a limit; There's not a place in earth or heaven, There's not a task to mankind given, There's not a blessing or a woe, There's not a whispered yes or no, There's not a life, or death, or birth, That has a featherweight of worth, Without a woman in it."

"In a Government report it is said: 'The farmer's wife is now so occupied with social affairs that she has lost the art of making butter and jam and doing the work of the farm, that her grandmother did.
This results in a great economic loss to the country.' "

A writer of verse comments in this manner on the Government statement:

"The farmer's wife in early days got up at half past two,
And shined the plows and milked the cows and put the prunes to stew;
The breakfast for the hands she set upon the stroke of four,
And then she'd bake the bread and cake and scrub the kitchen floor.

But now-a-days the farmer's wife has time to call her own,
'Good gracious!' says the Government, 'how idle she has grown!'

"The farmer's wife in times gone by brought up the calves and lambs,
And sacked the oats and fed the shoats and smoked the hickory hams.
And when she'd cooked three great big meals she cheerfully arose,
And with the churn sat down to earn the money for her clothes.

But now she often visit round and gossips, like as not,
'Great heavens!' says the Government, 'what is she coming to?'

"The farmer's wife some years ago was wholly free from nerves;
Twelve hours a day she'd store away at putting up preserves.
Six children dangling at her skirts, — a seventh on her arm,
She'd gamely set herself to work to get the mortgage off the farm.
But now she sometimes takes a rest, like city women do.
'Great heavens!' says the Government, 'What is she coming to?'

"The farmer's wife departed from this vale of toil and tears
For happier climes, in those old times, when under thirty years.
The farmer got another mate, he somehow always found
The ideal wife who toiled through life and rested—underground.
But now,'sometimes, her years add up their full allotted sum.
'Great Scott!' exclaims the Government, 'how shiftless she's become.'"

(From Country Life in Canada)

Mr. Newlywed — "This lettuce tastes beastily! Did you wash it?"

Mrs. Newlywed—"Of course I did, darling—and I used perfumed soap, too."

The Immortal Small Boy

"Two men got into a scrap in front of the bank to-day," said father at the supper table, "and it looked pretty bad for one of them. The bigger chap brandished a huge stick over the little fellow. I felt that he was going to knock the other's brains out, and I jumped in between them."

As he paused in the narrative his young heir whose respect for his father's bravery is immeasurable, proudly remarked:

"He couldn't knock any brains out of you, could he, father?"
The following news items have been contributed concerning O. A. C. men in and about Ottawa.

H. W. Jamieson '22 taught Geology and Science at the Ottawa Collegiate Institute from April to June of this year. Since then he has been on the Soldier's Settlement Board in Ottawa.

Rowley Firth is spending part of his vacation at Westboro, Ont.

"Pat" Stewart T5 is with the S. S. B. in Ottawa.

Paul Saunders '22 is working on the Horticulture Department at the Experimental Farm, Ottawa.

Percy Halpenny '22 is prospering as an Insurance Agent near Ottawa.

Bert Hopper '20 has traversed the Prairie cities with the Dominion Experimental Farms Exhibit from Ottawa. Bert is expected to return during the first week in August to Headquarters at Ottawa.

Stuart McGiffin '23 is working on Exhibit Construction at the Central Experimental Farm.

Ross Armstrong '23 is learning the Bee business at the C. E. F.

Marshall Baron '23 is working in the orchard.

J. S. Shoemaker is operating a new microtome, making sections of apple blossom ovaries to determine the steps in the process of cross pollination of apples.

Neil Bissonnette '22 is working as an entomologist. He is batching it at the cottage of Geo. Fixter, Woodroffe, Ont.

G. C. Crawford, B. S. A. M. S. is in charge of Field Insect Investigations, Ottawa.

Wentworth Richardson '22 is working his own farm at Woodroffe, Ont. "Rich" reports good crops.

In a recent letter from H. U. Western, '22 he tells of his work in the Peace River District with the S. S. B. "Brig" wishes to be remembered to all the boys.

F. S. P. Thomas, '22, is working on a farm near Didsbury, Alta.

Earl Whitelock '22 who has been working with C. F. Luckham in the
Orangeville District Survey is at present working on the data collected in the Guelph office.

Marriages

Alumni will be pleased to hear of the marriage of C. A. Campbell, '20 to Miss Ethel R. Simpson on Wednesday, July 17th at Marshville, Ontario. Arleigh started with year '19 and proved himself a good student and a most likeable chap. He was never much of a fussier from all accounts while around the College. Now we know the reason. The Review joins with many friends in extending heartiest congratulations.

Mrs. John Bright announces the marriage of her daughter, Evelyn Doreen, to Mr. Norman Alexander Marshall, on Tuesday, July 27th, 1920, at Oshawa. The engagement announcement of this wedding appeared in the June Review. The Review and the host of friends wish Doreen and Norm many years of wedded happiness.

The wedding of C. S. Nelson (Charlie) '18 to Hattie Lyle Kelsey is announced. The marriage to take place at the home of the bride, 300 Lundy's Lane, Niagara Falls, Ont., on July 28th. Many friends and classmates together with the Review extend the happy couple heartiest congratulations.

Gord Minielly, '20 has accepted a position as Instructor in Agriculture on the Experimental Farm at Sleichen, Alta.

Mr. and Mrs. Norman James were the guests at a gathering of year '18 at the Wyndham Inn on July 13th. After tea Norm gave a pleasing talk about his work at the Manitoba Agricultural College and also of the interests and activities of the other O. A. C. men on the faculty. Year '18 members present were: L. Heimpel, J. Flack, D. Munro, F. L. Ferguson, J. C. McBeath, Louie O'Neill, Gus Edwards, Bill Michael.

Alex Brink, '19, who is with the Western Canada Flour Mills, Winnipeg, attended the Annual Meeting of the American Association of Cereal Chemists held in Kansas City. After the conference he visited the plants of some of the leading millers. He says he enjoyed the trip immensely and obtained some valuable experience.

Tom Stoddart, '21, visited Guelph and the College last month. Tom is working for Miller Brothers, near Toronto.

Jimmy Creelman is with the Soldiers' Settlement Board at Ottawa.

F. R. Shore, '22, is working on the Gooderham Dairy Farm near Clarkson, Ontario.

O. H. J. White, '21, is engaged in dairy work in Toronto.

Gordon Fraser, '21, recently spent a week end in Toronto.

R. J. Rogers, '22, spent a week end and then some about Belleville.

Charley Riley, '21, is out with C. F. Luckham, '19, on survey work in Oxford County.

Dave Munro, '18, is at present working on Farm Survey Work near Woodstock.
In a recent letter received from John Macadam, '21, he wishes to be remembered to all the boys, and says his address is Box 401, Vernon, B.C. He is liking the work, and sees Alf. Hammersley, '22, from time to time. Alf. is stationed at Nelson, B.C.

Andy Fulton, '21, was up at the College for a day or so lately, getting the power sprayer equipped with a boom attachment for work on onions. Andie is liking his work with the Vegetable Branch.

“Gus” Edwards is learning to drive a Nash.

Art Musgrave, '20, wrote in to say his address is 48 Collier St. Phone North 6043W. If any of the boys are in town Art is a real good man to know. He is with “The Farmers’ Sun.”

Fred O'Dell, '20, George Hood, '20, and Warren Oliver, '19, are also in Toronto.

Births

On July 20th, a daughter, Jean Patricia, was born at the Private Patient's Pavilion, Toronto General Hospital, to Mr. and Mrs. James C. Fuller. “Jim” was with Year '17. He won his commission and the Military Cross with the Princess Pats. At present he is head of a department in the Toronto Branch of the Soldier Settlement Board. Classmates, Alumni, together with the Review, extend heartiest congratulations.

To Mr. and Mrs. E. C. Foreman on July 19th, a son. The baby is to be christened Ernest Foreman, Jr. May he be as fine an athletic and good fellow as his Dad, who is with '22. Congratulations from classmates, friends and the Review.

List of Graduates

1895—Robertson, G., Box 275, St. Catherines, Ont., Fruit Farmer.
1895—(E) Rowe, G. F.
1897—(E) Rogers, Col. C. H., Grafton, Ont., Fruit Farmer.
1898—Ross, Normam M., Indian Head, Sask., Asst. Supt., Forestry.
1898—Ross, H., 35 Wright St., St. John, N. B., Manager Cold Storage Plant.
1899—Raynor, Dr. M., 808 Russell St., Victoria, Physician.
1900—Robertson, J. A.
1904—Ready, J. C., Dept. Agric., Victoria, B. C., Crop Instruct.
1905—Rothwell, G. B., Dom. Exp’t Farm, Ottawa, Ass’t Animal Husbandman.
1903—Rutherford, W. J., Saskatoon, Sask., Dean Agric. College.
1907—(E) Reed, F. H., Reed Division, Dept. Agric., Ottawa, Assistant.
1905—Rivett, T. B., Niagara on the Lake, Ont., Farmer.
1914—(E) Ramsay, R. L., Agassiz, B. C., Experimentalist.
1905—Rudolph, N. H., Hamstead, Jamaica, Farmer.
1908—Rose, D. M.
1911—Revell, H. K., Goderich, Ont., Farmer.
1911—(E) Robertson, W. H.
1912—(E) Reeves, F. S., Vineland Station, Ont., Hybridist.
1912—Reincke, O. S. H., Univ. of Stellenbosch, Cape Province, S. Africa., Professor Pomology.
1915—Robb, O., Vineland Station, Assist. in Hort.
1912—(E) Rokeby, C. C., Rowan Mills, Ont., Farmer.
1912—Ross, W. H., Beaverton, Ont., Farmer.
1913—(E) Ryrie, H. S., Oakville, Ont., Farmer.
1911—Rutherford, R. L., River Herbert, N. S., Farmer.
1916—(E) Reilly, E. E., O. A. College, Guelph, Ass’t in Farm Survey.
Continued on page viii.
"Making 2 Blades Grow where only 1 grew before"

FALL WHEAT WILL PAY WELL

SHUR-GAIN FOR YOUR BANK ACCOUNT

GUNNS LIMITED, West Toronto

LIST OF GRADUATES
Continued from page vii.

1917—(E) Redmond, E. E., Dartmouth, N. S.
1894—Sleightholm, F. J., 315 Lonsdale Road, Toronto, Agent.
1890—Shantz, Allen, Waterloo, Ont., Farmer.
1889—Soule, R. M., Deceased.
1891—Sleightholm, J. A. B., Deceased.
1893—Story, Harry, 4150 Aliso St., Los Angeles, Cal., U. S. A., Mgr. W. A. Saunders Mule Co., of So. Cal.
1898—Summerby, W. L., Russell, Ont., Farmer.
1896—Smith, G. A., 1433 President St., Brooklyn, N. Y., Chemist.
1907—Squirrell, W. J., O. A. C., Guelph, Ont., Associate Professor in Field Husbandry.
1903—Silcox, W. J., Iona, Ont., Farmer.
1906—Stewart, D. F., South Battleford, Sask., Real Estate Agent.
1907—Scott, H. W., Sedgewick, Alta., District Agent.

Con. on page xii.
Entomological Supplies

- Insect Boxes, each: 60c
- Killing Bottles, each: 25c
- Insect Nets, each: 60c
- Labels, booklet of 48: 5c
- Insect Pins, per hundred: No. 1 & 2: 30c
  No. 3 & 5: 25c
- Stretching Boards, each: 30c
- Text Books

Botanical Supplies

- Mounting Paper, per dozen: 25c
- Pressing Paper, per dozen: 25c
- Labels, per hundred: 15c
- Weed Seed Vials, per dozen: 30c
- Scalpels, each: 35c
- Dissecting Needles: 5c and 15c

SPECIAL: WINDOW CURTAINs

Agricultural Text Books

We have the largest variety of agricultural text books in Canada.

Addres: The Students Supply Store
O. A. College, Guelph, Ont.

Please mention the O. A. C. REVIEW when answering advertisements.
OFFICIAL CALENDAR
OF THE
DEPARTMENT of EDUCATION for the YEAR 1920

September:

1. Continuation, Public and Separate Schools open. [P. S. Act, sec. 7; S. S. Act, sec. 91]. (1st day of September).
   Last day for receiving application to write on Supplementary Matriculation examination. [Cir. 24]. (Up to September 1st).


   Supplemental Matriculation examination begins.


15. Last day for receiving any appeals against June examinations. (Not after September 15th). [Circular 34, page 48, sec. 16 (2)].

Please mention the O. A. C. REVIEW when answering advertisements.
"As Soon As The Grain Is Off"

The Cletrac will harvest and thresh and, as soon as the grain is off the ground, it is ready to start right in with Fall plowing.

No need to let the soil dry up while waiting for cool weather. Heat does not bother Cletrac. With the Cletrac, no stops to rest are necessary. It does not tire out.

Cletrac travels on its self laid tracks at just the right speed for good plowing. Soft ground, side hills, sandy places or wet spots, do not hinder its progress. It plows close to fences and turns short corners.

Cletrac does well practically every farm job. It is just as good as sawing wood, driving the silage cutter or the feed grinder as it is at plowing, hauling or discing.

The water air-cleaner is one of the worth-while Cletrac features. Cletrac works perfectly on coal oil, (kerosene) or gasoline.

Write for booklet, "Selecting your Tractor." Every agriculturist should have a copy.

The Cleveland Tractor Company of Canada Limited

Head Office
WINDSOR, ONTARIO

Western Sales Office
REGINA, SASK.
THE COW STALL FLOOR PROBLEM

Is solved for all time by use of Cork Paving Brick. These bricks possess all the good features of both wood and cement, with none of their faults. Cork brick are warm and resilient, non-slippery, perfectly sanitary and remarkable for durability in service.

Cork Brick Floors
Are used by hundreds of prominent stockholders in the United States and Canada, and also by many Agricultural Colleges and Government Experimental Stations.

Send for sample brick and booklet which gives particulars regarding this remarkable floor material. Both are free.

ARMSTRONG CORK & INSULATION CO., Limited
McGill Bldg., MONTREAL, QUEBEC

LIST OF GRADUATES
Continued from page viii.

1908—Slater, A. C., Agric. Coll., Allahabad, N. India, Agronomist.

Con. on page xv.

Please mention the O. A. C. REVIEW when answering advertisements.
Farm Housework and Goodyear Belts

Just as indispensable to the household power as to the efficient operation of the great tractors and threshing outfits in the field is the belt that transmits the energy of the stationery engine to the new time-saving and labor-saving machines used by the farmer's wife. Made of the same stock, and with the same care, as the big free-swinging Goodyear Extra Power on the thresher, the Goodyear Extra Power Belt on the churn, or the washing machine, or the lighting plant, reveals the same qualities of economy.

A Goodyear Belt needs no breaking in. Whatever the service in which it is employed, it goes straight to work. It requires no belt dressing. Cold and damp do not affect it, for a Goodyear Extra Power Belt is waterproof. Flexible and friction surfaced, it holds the pulleys at high speeds or low, on light drives or heavy, with the same sure grip and full delivery of power.

Noting its reliable work day in and day out, many a farm wife recognizes the truth in her husband's remark that a Goodyear Extra Power Belt is "the best help on the farm." The housewife, as well as the farmer, finds much of value and interest in the Goodyear Farm Book. A letter to the Goodyear Tire & Rubber Co. of Canada, Limited, Toronto, Ont., will bring a copy.
Partridge Tires
Sentenced to do 10,000 miles
They will long outlive their term

Made by The F. E. Partridge Rubber Company, Limited, Guelph, Ont.

Please mention the O. A. C. REVIEW when answering advertisements.
Scientific Agriculture in the Middle Ages.

LIST OF GRADUATES

Continued from page xii.

1916—Strong, W., Ontario Hospital, Whitby, Ont., Herdsman.
1911—Scott, W. R. M., Care A. Scott, Customs Dept., Toronto, Ont., Florist.
1911—Shortill, R. J. R., Ballinfold, Ont., Farmer.
1913—(E) Shaver, F. D., Soldier's Civil Re-establish. Board, Toronto, Ont.
1914—(E) Spencer, G. J., O. A. C., Guelph, Ont., Ass't in Entom.
1913—Staniforth, H., Alderoyde, Alberta, Farmer.
1914—Stark, J. W., Deceased.
1912—Stevenson, L., Expt. Station, Sidney, Vancouver Island, B. C., Superintendent.
1916—(E) Scott, H. M., O. A. C., Guelph, Ont., Post Crad. in Hort.
1915—(E) Smith, D. M., Dep't Agric., Victoria, B. C., S. S. B.
1916—Steckle, H. S., Demonstration Farm, Monteith, Ont., Ass't Supt.
The Supreme Evidence of

DE LAVAL

CREAM SEPARATOR SUPERIORITY

Naturally the cream separator does not make or break the average farm user. The majority of them have no sure means of knowing just what their separator may be saving or wasting.

But the big user in the whole milk creamery or city milk and cream plant does know, and in the long run the separator means success or failure in his case.

That's the reason why 98% of the world's users of factory size cream separators use the De Laval and why the few such machines of other makes occasionally sold soon find their way to the scrap heap.

And it may well be remembered that De Laval superiority means relatively just as much to the small as to the big user. Ten dollars a month mean as much to the farmer as ten dollars a day to the creamery-man.

It's not only a matter of quantity and quality of cream, but of capacity, labor saving, dependability and durability over a long term of years.

A De Laval catalog helps to make these facts plain. The trial of a De Laval machine does so better still. Every local De Laval agent stands ready to prove them.

If you don't know the nearest De Laval agent simply address the nearest main office, as below.

THE DE LAVAL COMPANY, Ltd.
MONTREAL PETERBORO WINNIPEG EDMONTON VANCOUVER
50,000 Branches and Local Agencies the World Over.

Please mention the O. A. C. REVIEW when answering advertisements
Guelph Business Directory

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

Banks—
The Dominion Bank
Guelph & Ontario Trust Co.
The Merchants' Bank
Royal Bank
Union Bank

Barbers—
Stock Donaldson
Molloy & Finlay

Boots and Shoes—
J. D. McArthur
W. J. Thurston

Cafes—
Dominion Cafe
Central Cafe
Presto Lunch

Candy and Ice Cream—
The Kandy Kitchen
Royal Candy Works, Wyndham St.
Candyland

Dentists—
Dr. M. J. Rudell
Dr. G. P. Britton

Druggists—
J. D. McKee
Alex. Stewart

Dry Goods and Ladies' Wear—
Moore and Armstrong
D. E. Macdonald & Bros.

Electrical Appliances, Plumbing and Heating—
The Grinyer Co.

Florists—
James Gilchrist
E. S. Marriott

Grocers—
Hood & Benallick

Railways—
G. R. Railway Time Table

Shoe Repairing—
Goodyear Shoe Repair Co.

Shoe Shine—
Candyland Shoe Shine

Gents' Furnishings & Tailors—
R. S. Cull & Co.
D. E. Macdonald & Bros.
R. E. Nelson
Geo. Wallace

Hardware—
The Bond Hardware Co.
Cronk & Buchanan

Jewellers—
Savage & Co.
J. J. McTague
W. G. Singer

Magazines and Newspapers—
Geo. M. Henry
Malone's News Stand

Musical Instruments—
C. W. Kelly & Son

Opticians—
A. D. Savage
H. E. Davison

Photographers—
The Kennedy Studio
The O'Keefe Studio

Printing—
The Guelph Herald
Kelso Printing Co.
Wallace Printing Co.

Pressing—
C. F. Griffenham
C. Millar Wallace

Shoe Repairing—
Goodyear Shoe Repair Co.
J. D. McArthur

Taxicabs—
C. L. Kearns
F. Keil

Typewriters—
A. E. McLean

Picture Framing—
W. C. Bard

Tea Rooms—
Miss M. Richardson

Milliners—
Miss Stockford

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

If you can imagine the water that falls over Niagara changed to milk and flowing continuously for five nights and five days, you will realize the volume of milk produced in the United States in 1919.

The sensitive qualities of this mighty flood of human food need constant protection, and the increasing use of

![Wyandotte]

in thousands of dairies, creameries and cheese factories proves its great assistance in the safe marketing of delicate milk foods.

This cleaner is pure and purifying. It sweetens, freshens and cleans clean. Every particle is such an efficient cleaning particle that it proves a most economical cleaner.

Order from your supply house.
It cleans clean.


Please mention the O. A. C. REVIEW when answering advertisements.
The Reason of Education

The layman marked the lawyer,
And looked with reverent eye,
The while that stately gentleman
Red bay in hand went by.
The layman said: "No doubt he knows
By heart each Statute Book,"
Nay, but he knows the next best thing,
He knows the place to look.

The lawyer sees the Classiciat,
And mutters, "Mercy me,
No doubt he knows Euripedes,
As I know A. B. C."
He doesn’t know it. He may read
A Greek or Latin book,
And of a problem should arise
He knows the place to look.

The Freshman marks the Senior,
And looks with reverent eye,
The whole that stately gentleman
"Macite" on arm goes by.
The Freshman said: "No doubt he knows
A score or more like that,"
Nay, but he knows the next best thing,
He knows the place to look.
So every man whate’er he be,
Professional or plain,
Plods through the solemn books of youth
With groaning and with pain.
Believing when he turns away
From College and the Boys,
His education will be done
And brave will be his joys.
And when he wears a Doctor’s hood,
He will reflect with shame
That he is still as green as grass
Despite his noble name.
For Education comes with years
In bits, by hook or crook,
And blest be he who learns the Art
Of knowing where to look.

—Anonymous.
YOUNG MAN!
THE
TWO-YEAR COURSE
AT THE
ONTARIO AGRICULTURAL COLLEGE
GUELPH, ONTARIO
IS EASILY WITHIN YOUR REACH
WHY?

Because—

Ordinary public school education is sufficient for admission to the Two Year Course.

The College Year begins September 17th and ends April 15th, so that students from the farm may return to their homes to assist in the spring and summer work.

Five months during the spring and summer gives many students opportunity to earn sufficient money to defray College expenses for the following year.

The tuition fee for Ontario Students for two years is only $20.00 per year, while board and room in residence is obtained at $5.00 per week.

FOUR YEAR COURSE FOR THE DEGREE OF B.S.A.

Commencing with the opening of college this fall. Applicants for this course are required to have Ontario Junior Matriculation standing.

College Opens September 17th, 1920.

Write for a College Calendar.

Please mention the O. A. C. REVIEW when answering advertisements.
A Real Coal Oil Engine

Simple of construction and in operation. Utterly dependable and powerful. And because of the small cost of operation, this engine will pay for itself in a year.

Dependable power at a big saving in fuel cost is what owners of Renfrew Oil Engines get. In addition they are spared the worry of watching and continually repairing carburetors, magnetos, coils, wires, batteries, etc.—the annoying features of gasoline engines.

The use of kerosene (or coal oil) or in fact any cheap fuel, provides a big margin of safety to the users of this engine. Because of the oil fuel, back firing is impossible, and the fire hazard is entirely removed for men who own the

Renfrew Oil Engine

It is simple to operate, starts easily in the coldest weather, uses very little oil as fuel, has no electric devices whatever, starts and runs on kerosene, naphtha, fuel oil, crude oil, etc., and WILL NOT run on gasoline. This engine is in a class by itself. The principles of operation are different, and above comparison. The engine is fully guaranteed to give complete satisfaction.

Write us for full information about this engine. It is being sold all over the country, and its many users express their entire satisfaction.

THE RENFREW MACHINERY CO., LIMITED

Renfrew - - Ontario

Branches at Montreal, Que., Sussex, N.B., Milwaukee, U.S.A.

Other Lines: The Renfrew Cream Separator, The Renfrew Farm Truck Scale, The Happy Farmer Tractor.