

PAGES

MISSING

THE O. A. C. REVIEW

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

VOL XXXI

MAY, 1919

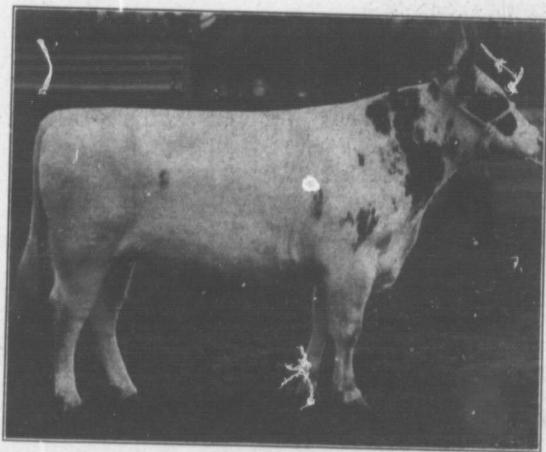
No. 9

A Pure-bred Sire on Every Farm —a Possibility.

By J. P. SACKVILLE, B.S.A., Associate Professor of
Animal Husbandry, O. A. C.

"A pure-bred Sire on Every Farm" was recently adopted as a slogan in a certain district in the United States and promises to become a national-wide movement. So far as the agricultural in-

tions in two counties in the province, go to show that the greatest factor influencing the returns from the farm is the quality of the livestock maintained. The cropping system may be lacking in those essentials



"CHANCELLOR," a Champion at Ayr Show. His offspring carry his characteristics.

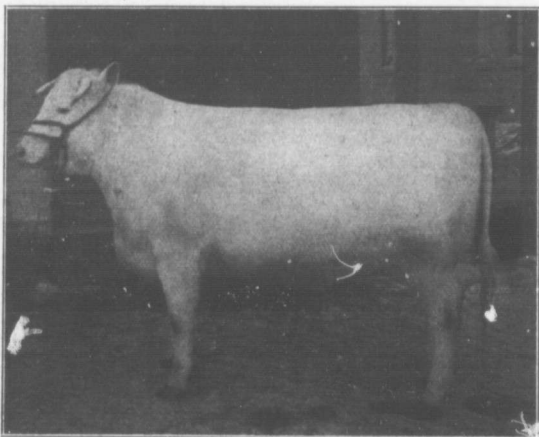
terests of a country are concerned it is difficult to conceive of a scheme that would be more productive of financial gain and general development. Recent figures to hand, the results of a survey of farm condi-

that are associated with good farming practice, the location of the farm may be unsatisfactory, the soil may be undesirable and yet if the farm crops are marketed through the medium of high-class livestock the re-

turns are reasonably satisfactory.

There is abundance of evidence to prove that the most economical, rapid and effective method of improving our farm animals is by the use of a pure-bred sire; an animal of good conformation, a true representative of the breed to which he belongs and in addition possesses those characteristics that are associated with strength, vigor and masculinity. A publication issued under

was used was \$19 per cow. In the herds where pure-bred sires had been in use less than five years the returns were \$46 each. Where a pure-bred sire had been in service more than five and less than ten years the profit was \$51, and in those herds in which a pure-bred sire had been used over ten years a profit of \$57. A profit over the cost of feed is in every case in favor of the pure-bred sire, the profit increasing in propor-



A Winter Fair Champion.

The type of steer that results from good breeding.

the direction of the American Holstein-Friesian Association claims that a good pure-bred sire used on a herd of scrub dairy cows has actually given a cash return of nearly one thousand per cent. on the original cost of the bull.

According to the farm survey made recently there is no question regarding the influence of the pure-bred sire. The profit over the cost of feed in herds where a grade sire

tion to the length of time he had been in use. The two cases mentioned of the far-reaching influences of a pure-bred sire could be multiplied many times; they all bear testimony to the rapid improvement possible by maintaining a well bred sire at the head of the herd. In actual practice the following table shows the result of six generations of grading up when a registered sire is used:

Disappearance of Unimproved Blood by the Continuous Use of Pure-Bred Sires.

Generations.	Sires	Dams	OFFSPRING			
	Per cent of Purity	Percent of Purity	Per cent of Purity		Per cent of Unimproved	
1	100	0	50	1/2	50	1/2
2	100	50	75	3/4	25	1/4
3	100	75	87.5	7/8	12.5	1/8
4	100	87.5	93.75	15/16	6.25	1/16
5	100	93.75	96.87	31/32	3.12	1/32
6	100	96.87	98.44	63/64	1.5	1/64

It has been estimated that approximately fifty per cent. of those engaged in cattle breeding are still using a grade bull. It is true that in some districts, especially in the newer settled parts of Northern Ontario, there is not a sufficient number of good pure-bred sires available; in those sections there may possibly be some excuse for those so unfortunately located. In many such cases provision has been made by the government for the supplying of sires on reasonable terms and at prices within the reach of all. With real good bulls of satisfactory breeding selling at less than \$500 it would appear that very few, if any, farmers need resort to a grade or scrub sire. The price mentioned is not beyond the reach of all and there is no question the results from the use of such a sire would warrant paying that figure.

Considerable has been said within recent years relative to the necessity of Canada increasing the output of her live stock and livestock products. What is more important is to improve the quality. It is not

saying too much that without adding one animal to what we already have it would be possible to increase the output from farm stock to the extent of the eight figure mark and to accomplish this by adopting the slogan already expressed by our friends across the line.

The purpose of all breeders of pure-bred stock should be to improve the ordinary commercial stock in the hands of the average farmer. This constitutes the outlet for the greater part of the registered stock and it should take the form of the sale of good sires to be used on grade herds. This looks like better business both for the breeder of high class stock and the man engaged in supplying stock for the open market than the establishment of a large number of pure-bred herds in the hands of every farmer. It is one of the most encouraging signs that breed associations appreciate this fact and look to the time when every farmer has in use a pure-bred sire.

The improvement and development that has taken place in livestock since the eighteenth century has been due to the breadth of vision and inspiration of a few outstanding men. If the slogan as suggested in the opening sentence of this article receives the support that it warrants the next twenty-five years will witness a greater improvement than has been achieved during the past two hundred years. Give the good pure-bred sire an opportunity to accomplish this.



The Organization of the Farm Business.

Awarded Second Prize at the Public Speaking Contest.

By C. M. FLATT, '21.

SINCE Agriculture became of sufficient importance to be recognized as an industry in Ontario there have been several different forms of organization of the farm business, each the result of changing conditions over which the farmer had little or no control.

The pioneers grew on their clearings three main crops, namely, oats, barley and wheat. As horses were necessary for any form of farming, they grew oats to feed their horses. Because beer was deemed a necessary beverage in those days they grew barley for malting purposes, and, finally, that they might exist, themselves, they cultivated wheat. Their farms were organized for the production of these crops until the United States Government passed legislation prohibiting the importation of barley. As a result the Canadian farmers were forced to find a new outlet for their barley or cease to produce it. They turned to the breeding of live stock, feeding their barley to finish heavy steers for the export market in Great Britain. This form of organization in the farm business continued for a time, until another act of legislation, this time by the British Government, changed conditions. This act prohibited the importation of live stock on foot into the British Isles. For a time the live stock business was at a standstill, until a new export trade was built up in cured meats.

During the changes the population of the country was gradually increasing, and new phases of agriculture developed. The two most important of these were due to and at first largely dependent upon this increase in population. While later the export market for the product of these new lines of the industry had some influence on their growth, yet at no time was their development anything but gradual. The introduction of more varieties of crops and different products lessened materially the acreage in grain crops and resulted in the introduction of what is known as mixed or diversified farming.

This short sketch of the development of agriculture in Ontario shows that up to the present time the different forms of organization in the farm business were not selected by the farmer but rather forced upon him.

But when we examine conditions existing to-day we find a different state of affairs. With few exceptions there is a ready market for all farm products at prices very nearly equal, considering the cost of production. As a result, the farmer of to-day can practically choose for himself the form of organization that he desires his farm business to assume. No matter in what form his products are marketed they give fair returns. He can control the selection of crops and how they are

marketed. But why should the farmer of to-day spend any time over the matter of organizing his business even if it is within his power? In former times the farmer lived directly on the products of his own farm. Now he sells these products and with the money purchases products from practically all parts of the world. His business is gradually becoming similar to all others. Farming has already passed from being a mere means of existence to a highly commercial enterprise, and, as all lines of industry must be efficiently organized to be successful financially, so with farming.

A farm business may be said to be efficiently organized when the right crops, grown by the right methods are harvested and marketed with that degree of efficiency required to give the greatest gross returns with the least cost of production, and still maintain the soil fertility, thus allowing for the existence of a permanent business. There are many factors entering into the organization of the farm business, but we can only consider the most important of these over which the farmer has the most control. The first definite knowledge concerning the relative degree of influence each of these factors has over the labor income of the farm is furnished by the results of the recent Farm Survey, conducted by the Farm Survey Department of the Ontario Agricultural College.

One of the most obvious ways of increasing the returns of the average farm is by increasing the tillable area of the farm. There is on nearly every farm in Ontario some uncultivated land, used for pasture, or left idle altogether. To secure the

greatest returns from the farm business this waste land must be cultivated where possible. Out of a number of farms in a section of the Farm Survey were some twenty-five that averaged about thirty acres of waste land. Some of this was brought under cultivation, and it was found that for the first eleven acres cleared the labor income was increased an average of \$450 for each farm.

When the maximum amount of land is brought under cultivation, it can only give good returns when the greatest yield of each crop is secured, always providing this increased yield is greater than the extra cost of production. It is unnecessary to enlarge on methods of increasing the yield of crops. Information on this point is free to all, but few realize the amount of increase in the income resulting from raising the yield of crops. Results obtained during the Farm Survey show that in a certain section a number of farms growing crops considerably below the average had an average labor income of \$779 each. In the same section a number of farms growing average crops, with other factors the same, showed an average labor income of \$1,354, an increase of \$575, which can be credited to nothing but the difference in crop yields.

When the maximum yield of crops is obtained the selection of these crops must be considered. On the average farm in Ontario, live stock forms a considerable portion of the business. Where this is not the case it should be. It has been found advisable to grow roughages, such as roots, hay and corn, on the farm, and some concentrates in addition.

It is seldom possible to grow sufficient concentrates to supply feed for all the live stock. Results of the Farm Survey show that the cost of production of the marketable products was decreased considerably by growing some cash crops, such as potatoes, and selling it to purchase concentrates. Where milk was being produced this system resulted in an average reduction in the cost of production of 24 cents per hundred pounds. This system allows for better crop rotations and consequently it conserves the soil fertility.

The question of cost of production is important because at present it is the one great problem about which all farmers are thinking. It determines largely the net returns. The well organized farm business is carried on with the least amount of capital invested in machinery and buildings, because to a very large extent these things are not productive in themselves, but rather only facilitate the handling of those things which are productive. The employment of labor profitably determines to a considerable extent the profits of farming. In the small one-man business little improvement can be suggested. It is the large business that must be organized to employ labor to advantage. The expansion of the business by various means allows for the more profitable employment of labor. A system of farming, distributing the work over the entire year, results in better returns for the money invested in labor.

All the advantages gained by growing as large a yield as possible of the right crops are lost unless these crops are disposed of to the best advantage. In dealing with the

question of marketing, there is one fact that must never be forgotten, that is that the manufactured article always commands the most money. Wherever possible it is to the advantage of the farmer to manufacture his raw food materials into the finished products, beef, bacon, mutton and milk, through the medium of high-class live stock. Some indication of the general increase in returns resulting from selling manufactured products from the farm is shown by experiments conducted by Prof. G. E. Day. Increasing the figures in his experiments to correspond to those existing at present, we find that the sale of a ton of oats at 75 cents per bushel, would return roughly \$43.00. The sale of pork resulting from feeding the grain to hogs would be \$90.00, showing a difference of \$47.00. When the labor expenses involved and the interest on the money invested in the hogs are subtracted, the increased profits would still be considerable. This increased price is received in practically the same measure from the manufacture of other finished farm products. But it does not follow that feeding good crops to any kind of stock gives good returns. High class stock is essential in the manufacture of food products, even as high-class machinery must be used to turn out satisfactory products from the factories. Definite information, showing the influence of the quality of live stock on the returns of the farm business is furnished by the results from a section of the Farm Survey in Oxford County. Here it was found that there was a difference of \$1,500.00 in the labor income between those farms with

Farming as a Business

By AUGUSTUS BRIDLE, in the Canadian Courier.

JUST to prove that farming is not a business—put the Hon. Finance Minister on a common farm and ask him to operate it at a profit. Or the President of the Canadian Manufacturers' Association. Or the President of the C. P. R. Let us not be misled by the fact that hundreds of big - business experts and professional men are operating farms; men like Sir Edmund Walker, Sir Henry Pellatt, R. J. Fleming, Sir William Mulock and dozens of others. These men are not farming for profit, but for pleasure. And as a rule the two don't go together.

On the other hand, why is a Minister of Agriculture usually a farmer? What has practical farming to do with a ministry of Agriculture at all? We all know that Ministers are politicians, and the average farmer, if he is successful in the calling he has had thrust upon him by inheritance, has no time for politics. Hon. T. A. Crerar is a farmer; he was also a good organizing head of the Grain Growers' Association before he joined the Union Government. Mr. G. S. Henry, Provincial Minister of Agriculture for Ontario, is a farmer and a man of education. But

none of our Ministers of Agriculture will succeed or fail in this portfolio because they are practical farmers. To operate a farm is one thing; to operate a Government department is

quite something else. And unless the farmer who wants to be a Minister of Agriculture has a great deal better qualification for the post than being a successful farmer he will be a first-class failure — not because he is an ignoramus at politics, but because his experience as a successful farmer has nothing whatever to do with the operation of a big Department in a Gov-

We are so accustomed to reading the grandstand bosh that the majority of city editors court their urban readers with that it is a real pleasure to read the above article from the Canadian Courier.

Farming as a Business! Think what it means. Factory hours, factory wages, factory profits. In other words, a revolution so drastic that a great many of our all-wise city brethren who are more, much more, content to pay the piratic prices the avaricious farmer demands and holler, rather than live the quiet, hard-working farm existence, might possibly consider agriculture as a means of obtaining their living. Education and organization will make this Utopian dream a reality.

ernment.

Farming, as we know it in Canada up to the present, is not a business. The average farmer is not a business man. He has no time for business. He is too busy farming. But until farming becomes a business it will never occupy the place it should in the trade and the life and the overseas credit of this country. Modern business has outgrown the average farmer. In spite of that the amount of capital invested in farms and farming exceeds by several million the amount invested in any other industry. Farming is one of the big interests. It is the

biggest interest we have. And why not? The ultimate source of all wealth is the land, the mine, and the sea. And we have more land than we have water available for cultivation. Our farms are greater in extent than our fisheries. And the forest of to-day becomes the farm of to-morrow. Yet we are allowing the farm to slip back from its own first place in Canadian exports and the doctors of true progress would have us believe that if we are to bulge our exports commensurate with our national importance we must do it with commodities more valuable per bulk than wheat and cattle and fruit.

Well, farming is not merely a case for exports and experts. It's a matter for business.

Of course there are all kinds of farmers; the man who inherits a mortgage; the man who puts a few thousand dollars into a town-side farm and runs it as a side-line; the nabob who sinks a large fortune in a tract of land which he improves into a piece of landscape to entertain his friends and loses more in a year than the average farmer can make in a lifetime; the man who uses a farm as a convenient centre of operations for buying and selling stock; the man who buys a farm just to sell it again—and the man who takes a farm as payment of a mortgage. But did you ever hear of any town man investing money in a farm on the same principle that he would invest in a corner lot or a mine? Did you ever meet a man who paid as much respect to a hundred acres of land that produced wealth every year by adding to the world's eatables and wearables as he would to a corner lot downtown

that runs into more money every year because a thousand people pay car fares every day to do business around that corner.

The fact is that the townman has no use for the farm as an investment. In spite of the good prices of the past fifteen years and the fat prices of war he regards the farm as a place where a man is sure to lose money unless he has the experience of a farmer in spending it. All the average townsman knows about a farm is seeing it from a motor-car or spending a couple of weeks on a farm when he had nowhere else to go. Though in every town and city of eastern Canada there are scores and hundreds of men who were brought up on the farm and never admit it unless the talk at the club seems to gravitate towards farming. The town and the farm are divided by a great gulf. The farmer knows the town because it is his market. The townsman hates the farm because he believes the farmer of to-day is a member of a great combine to hold him up for high prices, and the farmer of yesterday was a man who barely grubbed a living.

There are prairie farmers who spend their winters at the Royal Alexandra Hotel in Winnipeg. These men know more about the town than the citizen of Winnipeg knows about the prairie farm. The average Manitoba farmer could get along as well at a town business as he does on the land. He often knows as much about the wheat pit as any member of the Grain Exchange. There are farmers in Ontario who know as much about common business as they do about the farm. There are others who prac-

tise business on their farms and know exactly why an acre anywhere in the vicinity between Oakville and Niagara is worth a thousand dollars in production, and why an acre not too far from Weston, Ont., might have been worth \$500 the other day as a speculation. There are general purpose farmers born on the farm who make the farm balance itself in the ledger down to the cost of a wire nail.

But all such businesslike farmers are the notable exception. And it is the whole essence of farming as it has been and still is that they should not become the rule unless there comes a revolution in the business of farming.

Farming, however, is a business. The man who inherited a mortgage is engaged in a business demanding as much financial treatment as a trust company. But he keeps away from that side of it. He goes on rotating crops, raising cattle, improving the varieties of his wheat and the breeds of his hogs, specializing in machinery that saves labor and costs money, and because a good percentage of his living comes directly from the land he keeps no books.

Until farms are operated on a direct profit and loss basis, farming will never be popular. Why is it that nine-tenths of our farmers had to be born on farms? Why should men drift away in thousands from the farm and spend money, educating themselves for business or professional life, or go directly into industrial life, when it's only once in a blue moon that we hear of a man born in town who becomes a farmer? The man I worked for this summer was the only farmer I ever knew at

first hand who was not born on a farm. He was the son of an English Church clergyman. But he always had a desire for the adventure of farming. He is an enthusiast who makes money as a farmer, and as a rule never joins in the chorus of croaking that comes so easily from the average farm community. He operates his hundred acres, one-half of which was originally owned by a man who had 8 sons. All these sons hated the farm on which they were born. They left it. One became a Christian Scientist; one went into chemistry, of which he is now professor in Toronto; the rest drifted into other businesses, some of them into real estate. The youngest, who seemed to be finally entitled to the Ontario farm, wrote to his father from out West.

"Please sell the old farm for whatever you can get. I don't want it."

Here were eight men who broke away from one Ontario hundred acres to go into something else. Where is the town family of eight or even less, of whom even one boy has broken away to become a farmer?

There must be a reason why men who were not born on the farm seldom or never become farmers. There are two. One is the lure of the town, and the crowd. The other is the fact that farming is recognized as having too much hard horse work for all the money there is in it. The lure of the town is an old one. It has come to most countries, England, France, Germany, the United States—and Canada—have all discovered that in order to boost national business the town must be built up. Labor is found to be more productive in places where labor is

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The Turning Point.

By GLEBAE ASCRIPTUS.

“**W**HERE in blazes is that three-horse evenner gone?” Deacon Brown was careful of his expletives and never directly alluded to the inferno except when addressing a group of sanctimonious skinflints on occasions when the minister was tied down with rheumatics. Neither would the deacon say “damn,” but he freely intermingled “dang,” when righteously indignant, in the imprecations he heaped on the head of dutiful John, his first-born. And John took it all, as his custom was.

It was a fine Monday morning in August, and the deacon had reckoned to begin cutting grain that day. Accordingly John had been warned to be ready for operations as soon as the binder was overhauled.

The cows being milked, John had returned from the pasture, where the fifteen heavy milkers were intent on laying in provisions for another good flow. John, soon had the horses arrayed in their haywire-reinforced harnesses and plodded out to the binder to hitch on.

The deacon was out under the big horsechestnut tree in the lane, tinkering with the binder that had stood in that same shelter since the last crop had been cut. The “danged” knife was rusty and two of the

sections were broken. Where in blazes could he get repairs? Last year the same thing had occurred and harvesting was held up for two days in consequence. Here was a

repetition, and it galled the deacon to think that he could blame no one but himself. And then that evenner—Oh! Yes, it was over at White’s. White had borrowed it last fall when cutting buckwheat.

Brown was mad! He met John with an evil stare as the latter brought his

attenuated beasts to a standsill. John, too, had blood in his eyes. The old man had brought him up in fear and trembling, and with the promise of neither earthly nor heavenly heritage in case or cases of disobedience. John had obeyed and plodded and had outwardly respected his father’s whims, but the pinnacle of endurance had been reached.

John knew that the farm had been on the downward trend for three years. Help was scarce and one hundred acres was a heavy burden for one man—yes, on one man—John! Hadn’t he been hired man, chore-boy and general servant ever since his dad had been made president of the local branch of the Rural Uplift League? Hadn’t he

“I Gather Too Many Goat-Feathers—Do You?” is the title of an article by Ellis Parker Butler in the American Magazine recently. Some men are so busy acting on school boards, farmers’ clubs, agricultural societies, township councils, etc., that they have not sufficient time to attend to the business from which they obtain their living. Every man should be broad enough to work for his fellows, but there is a limit, past which it is economic suicide for a man to go.

The Flax Industry in Ontario.

Awarded Third Prize at the Public Speaking Contest.

By F. W. STOCK, '21.

BY way of introducing my subject I would like to mention that at present the Canadian Government is endeavoring to encourage the growing of flax and more particularly the growing of fibre flax in Canada. A moist, cool climate with a long growing season is best adapted to the proper development of the fibre in the straw, and for this reason the United States and the Provinces of the Canadian North-West are not well suited to the purpose, though they do do grow large areas for seed only. Ontario, partly surrounded as it is by the Great Lakes, offers the closest approach to ideal conditions on the continent, and for this reason I chose as my subject "The Flax Industry in Ontario," rather than "The Flax Industry in America."

The plant is not a native, but was introduced by the early Irish and German settlers, who cultivated it and worked up the fibre within their own homes. Later, when the country became better settled, the business was specialized, and flax mills were established in various parts of the Province. About thirty-five or forty years ago, when the industry was in its most flourishing condition, there were upwards of sixty in operation. However, with the increasing prices of land and labor, it was steadily becoming more and more difficult to compete with the great flax growing countries of Europe, Ireland, Holland, Germany, Belgium, France, Austria-Hungary, and Russia, where wages are much

lower. Added to this was the fact that the Argentine and the Canadian North-West were annually increasing their production of seed, and this was helping to lower the price and render the business unprofitable for Ontario growers. As a result, in 1914, there were less than ten mills in operation. However, with the outbreak of the war, production in Europe was of a necessity greatly decreased, and the exportation of what was produced became out of the question. The entire North American Continent looked to Ontario for its supply of fibre, and prices began to soar, until last year linen mills were paying six to seven times the prices offered in 1913. Naturally enough, many of the old mills recommenced operations, and some new ones were established.

The time at my disposal is too limited to allow me to go into any great detail, but I shall endeavor to briefly describe the cultivation and handling of a crop of fibre flax. The seed is sown as early as possible, in order to give the young plants the benefits of the long cool spring days, and to have them well started before the hot weather sets in. It is sown at the rate of 1 1-4 to 1 1-2 bushels per acre, preferably on a friable clay loam that has been worked up to a fine state of tilth. As soon as the young plants are well up and have attained a height of three to five inches, all thistles and other weeds are removed. The presence of coarse heavy weeds makes the

straw difficult to handle during subsequent operations, and any one who has pulled flax can tell you that it is hard work at best, but becomes doubly so if there are many thistles.

When the first leaves begin to drop from about the base of the stem and the stem turns a pale yellow color is the proper time to harvest. Up to the present, pulling by hand has proved the only satisfactory method of harvesting. Mechanical pullers have from time to time been invented and put on the market, but they all had such serious deficiencies that none ever came into extensive use. The threshing is done with a special machine which will remove the seed from the sheaf without cutting the band. This avoids unnecessary cutting up and tangling of the straw. Retting is the next step in the process and may be done either by steeping the straw in large tanks or vats of water, or, else, by spreading it out in thin even rows on sod fields, and allowing it to ret by the action of the dew and rain. The purpose is to render the bast or fibre easily separated from the woody portion by bringing about a decomposition of the gummy matter which holds them together. When this has been accomplished, the fibre is easily removed by scutching, and is packed into bales and shipped to the spinning mills to be bleached, spun into thread, and finally woven into linen.

Considerable capital is necessary to grow flax on a large scale. In most industries a finished product is put on the market, and receipts are forthcoming almost as soon as operations are commenced, but not so with the Flax Industry. Outlays commence in the spring with the

renting of the land and the sowing of the seed. They continue through the summer and early fall months, since the workmen must be paid regularly for the harvesting and threshing. Not until October do the first receipts from the sale of the seed appear, then follows another long period of heavy expenditures. Retting and scutching generally occupies the fall and winter months and it is March or April before the fibre can be disposed of.

Considerable financial risk is also involved. Frosts in the early spring or prolonged drought during the growing season may render the crop a total failure. In the case of the ordinary farmer, if the grain crop fails he has the hay, roots and corn to fall back on. His income is not derived entirely from the one source, but the flax grower has so to speak, "all his eggs in one basket."

The labor question is, however, without a doubt the most difficult problem with which the flax grower has to contend. The matter of obtaining sufficient help would not be nearly so serious if steady employment could be offered the year round, but the greatest part of the work unfortunately comes just at harvest when there is likely to be but little help available. There is, not a great deal of work to be done in the spring, and once the crop has been harvested and removed from the fields, a much smaller number of men can perform all the necessary labor. Then, too, a large part of the work is of a necessity performed out of doors, and rain and adverse weather conditions mean lost time to the men and higher wages must be paid in order to compete

with the factories where steady employment is offered.

As regards the future of the industry, a great many of the growers seem to be of the opinion that it will only be a matter of two or three years before the agriculture of the European countries becomes re-established and that prices will then drop to their old pre-war level, once more rendering the business unprofitable to Canadian growers. There are, however, several new factors entering into the matter which render this extremely unlikely.

Flax-pullers and other kinds of labor saving machinery are being perfected, and we may soon expect to see much of the expensive hand labor performed by efficient machinery. There was a new pulling machine put on the market last year, which is said to be doing very good work. Personally, I have never seen this latest type of machine in operation, but some of the older models were certainly working along the right lines, and the inventor claims to have eliminated several of their undesirable features. The demand for linen and other flax products will naturally increase with the ever growing population of this continent. Aeroplanes are coming

into more and more extensive use, and while it is difficult to predict the future of the flying machine, the fact remains that linen has been found to be the only satisfactory material for aeroplane wings. A large spinning mill of 10,000 spindles is being established in the Province and this will open a home market for Ontario fibre, something we have heretofore lacked. At present, the only spinning mills of importance on the continent are located in the United States, and the Ontario grower finds it necessary to cross the line and pay a heavy duty before he can find a market for his fibre.

In view of these things the industry should continue to be a profitable one even though the abnormal prices brought about by the war are not maintained, and it is unlikely that they will be. At least two of the men who graduated from this institution last year are at present engaged in growing fibre flax on a large scale, and I have no doubt that others, possibly some who are present in the audience to-night, will in the near future direct their attention to "The Flax Industry in Ontario."



Money for Canadian Farmers.

By C. J. LYNDE, PH.D., IN MACDONALD COLLEGE MAGAZINE.

CANADIAN farmers, through Government co-operation, could borrow money at moderate interest which they could pay back in equal annual instalments through a long period of years. At the same time, Canadians who have been saving money to invest in Victory bonds could continue to save to invest in government farm loan bonds.

United States farmers, through Government co-operation, can now borrow money at low rates which they can pay back in equal annual instalments over a period of from ten to forty years, as they choose; and citizens of the United States can purchase farm loan bonds in denominations of \$25, \$50, \$100, \$500 and \$1,000. Similar opportunities should be open to the farmers and citizens of Canada, and in fact beginnings have been made in this direction in the four western provinces.

The table below shows the annual payments required in the United States to wipe out interest and principal on a farm loan of \$1,000 in from 10 to 40 years, at 5 per cent., 5½ per cent. and 6 per cent. interest.

Term Years	Rate of Interest		
	5%	5½%	6%
10	\$129.50	\$132.67	\$135.87
15	96.34	99.63	102.96
20	80.24	83.68	87.18
25	70.95	74.55	78.23
30	65.05	68.81	72.65
35	61.07	64.97	68.97
40	58.28	62.32	66.46

For example, if a farmer borrows \$1,000 at 5 per cent. he can pay back interest and principal in 20 years by

paying \$80.24 per year or a little over 8 per cent.; he can pay it back in 30 years by paying \$65.05 per year or a little over 6½ per cent.; or he can pay it back in 40 years by paying \$58.28 per year, or less than 6 per cent.

The interest rate charged to farmers depends upon the rate of interest paid on the farm loan bonds, but in no case is it over 6 per cent.

The United States System

In 1916 the United States Government established twelve Federal land banks throughout the country, with a capital of \$750,000 each. These banks are simply the government machinery for bringing together the lender and the farmer. They borrow money from those who have it to invest and give in return farm land bonds; then they lend this money to farmers and take in return first mortgages on the farms.

A farmer who wished to borrow money proceeds as follows: He first forms a local association with ten or more other farmers who also wish to borrow money, or he joins one already formed. He then applies for a loan to the Federal land bank of his district. His farm is appraised by three members of the local association who must agree unanimously, and it is then reappraised by the expert of the Federal land bank. He can borrow money to 50 per cent. of the value of his land, and to 20 per cent. of the value of the insured permanent improvements; for example, if his land is worth \$10,000 and his

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Warble Fly a Serious Pest.

Begin Examination of Cattle Now—Squeeze Out the Larvae.

By S. W. KING, '20.

THE dairymen and beef breeders are continually being confronted with the problem of cattle pests. The farmer realizes the importance and necessity of keeping his cattle free from vermin. Each summer he has to combat against the persistent horn-fly and stable fly by spraying and providing shade. The rancher is obliged to dip his range cattle so that the ravages of the mange parasite may be kept in check and within limited areas. In this article I wish to deal briefly with what points to be a most serious menace to Ontario farmers unless careful preventive measures are taken. I refer to the Warble Fly (*Hypoderma Bovis*).

Practically every farmer of Ontario is more or less acquainted with the habits and life history of the common species of warble fly (*Hypoderma lineatum*). He knows that an animal bodily infested with the grub or larvae is generally not in a thrifty condition. And he realizes the great loss in the value of hides due to the larvae puncturing the skin of the animals, through which they emerge. Though this species does rank as an important parasite upon our cattle, the loss is not merely so great as that caused by *Hypoderma bovis*. I shall therefore confine my remarks chiefly to the latter species, *H. bovis*.

Life History in Brief

Adult flies may appear during the months of May, June, July or August, depending upon the season and

locality. Eggs are laid, each one being attached singly near the base of a hair. When the eggs hatch, the young larvae work their way through the skin of the animal. By closely following connective tissue, the young larvae reach the oesophagus about the first of December, where they migrate through the submucosa, and finally work their way from the diaphragmatic end of the oesophagus to locate in the connective tissues along the region of the back. The skin is punctured at this point and when the larvae are mature they emerge through this opening. Mature warbles emerge during a period extending from the first of May to the fifteenth of July. The period of pupation is approximately thirty-five days.

Point and Methods of Attack

One very marked difference between these two species is in their method of attack at the egg laying season. The common warble fly does not produce gadding amongst the cattle, for it may lay its eggs while the cattle are resting contentedly. No particular torment is caused by its presence. The newer comer is vastly different in this respect. It is clumsy and persistent in its attacks and the animal, unable to scare the fly away by switching or kicking, becomes much frightened and runs frantically for shelter. The whole herd is often aroused by the infuriated actions of one pursued animal, and a regular stampede is the result. It is this

stampeding or gadding which causes the most serious loss to the farmer. A cow exposed to such fear and torment cannot produce as she should, nor will a bullock make profitable gains in flesh.

The favorite points of attack are the hock, behind the knee and along the flank.

The warble fly, *H. Bovis*, or "Heel Fly," as it is commonly known in the West, was introduced into Canada many years ago with importations of cattle from Europe. It has been a great nuisance to the ranchers and dairymen of our Eastern Provinces and is the means of much loss to the ranchers of Western Canada. Possibly this parasite was introduced into sections of Western Ontario by importations of cattle from infested areas of Eastern Ontario, the Lower Provinces or from the West.

Preventive Measures

What methods of eradication or preventive measures are we going to adopt? Possibly the best means yet known is to destroy as many of the larvae as possible. This can best be done by pressing out and destroying the grub about the time at which it would emerge. It would require to be done at fairly frequent intervals and during the months of April, May, June and part of July. To destroy all warbles likely to emerge during the period would entail a considerable amount of labour and careful attention, yet would it not be well worth while for each

farmer to safeguard his herd against this important pest?

Observations During 1918, in Oxford County

1. Mature larvae began to emerge about the first of May.
2. The last collection of warbles was made on July 8th, some, even then not being mature.
3. Cattle were first seen to gad on May 27th.
4. Gadding did not cease until the end of August.
5. Most of the larvae emerged between the 15th of May and the 15th of June.
6. Gadding or stampeding occurred only on bright days, and was not so bad in wet weather.
7. During the days of exceptionally hot, dry weather, beginning on the first of August, the torment was most severe.
8. Many farmers profitably stabled their cows on bright days, allowing them to pasture at night and on cold, dull days.
9. Animals which had been well fed during the previous summer and winter had fewer warbles than those poorly fed.
10. Plenty of shade, preferably a woods, water to stand in, or else stabling of cattle, was absolutely essential to safeguard the farmer against a serious direct loss.
11. Dairymen could materially lessen the number of flies by pressing out the warbles as is the practice in Denmark and Holland. This would be, a more difficult matter where cattle run on range.



*Happiness comes from striving—doing—loving—achieving—conquering
—always something positive and forceful.—Jordan.*

Some Suggestions on the Swine Industry.

*Strong, Thrifty Breeding Stock of Good Quality must
be Used and all Hogs Marketed must be Graded.*

By W. H. GRANT, '21.

IT is safe to say that at no time in its history has the future of the Swine Industry looked so bright as at the present time. For the past four years the demand for bacon has increased by leaps and bounds, while the stock in all the great bacon-producing countries of Europe has steadily decreased. At the present time we find Canada standing as practically the only country which has been able to keep up its breeding stock, and, if anything, increase it a little. The great market for bacon has been, and will be for some time to come, the British Isles. The demands of this market have been supplied from two sources, viz., Denmark and Canada. At the close of the war Denmark had two million head less swine than in 1914, while Canada had fully as many, if not more, than before the commencement of the war. It is only fair to think from this, that we are at present in better condition to compete with Denmark than ever before in our history. Added to this, we have the fact, that, for certain economic and political reasons, Britain will give the preference to Canadian bacon. The doubt sometimes arises as to the stability of the British market, but this is already assured, for the British farmers cannot, and do not wish to, raise enough bacon to supply the home demand.

The prospect for a brisk home market is also bright. We have

reason to believe that there will be a great influx of immigrants during the next few years, and while a great many of them will probably turn their attentions to agriculture, still it will take some time for them to produce a sufficient amount to influence the market one way or the other. So, as we look to the future, the prospect is bright, either from a national or individual standpoint—if we take advantage of it.

Individual effort will eventually influence the national output, for by the raising of more and better swine we will be able to seize the present market. How to raise more swine is a question for every man to decide for himself, though there is no doubt that, with the amount of grain and the amount of milk produced in this country, we can raise a great many more hogs than at present, and, with the labour question answered, grain marketed through hogs will bring from one and a half to twice as much per bushel as it will by marketing it straight.

There are several ways in which we can improve the quality of the hogs raised in this country. The first of these is probably by the use of better breeding stock. No matter what breed is chosen, care should be taken to get the best possible individuals. **Strong, thrifty, prolific animals of good quality will pay better in the long run than the usual haphazard choice of the average**

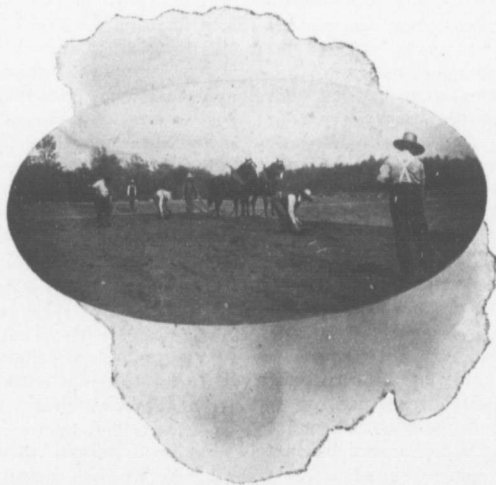
farmer. That breeding pays is a question that has been answered time and again in our agricultural papers.

From selection of breeding stock we pass on to the care of the young animals. Too often they are neglected until the time comes for finishing them, when it is too late to expect a "select" hog. From the time of weaning until he is marketed the young animal should be kept growing steadily, and in an active thriving condition. As the time for finishing approaches the condition of the market needs consideration. Generally it will pay to give the animal the correct finish. Too often on our markets we see hogs graded otherwise than "select" just for the lack of a little more care in finish-

ing. Too many of us are prone to market our hogs when it is most convenient, regardless of whether they are under-finished or over-finished.

A last point which is worthy of emphasis is grading. With every farmer aiming at producing "select" hogs our exports could be almost doubled in a short time, and the individual would be receiving from two to three dollars more per cwt. for his animals.

In conclusion, the market is open for Canada to step in, and her farmers can do this by marketing their grain by way of the bacon hog, by selecting better breeding stock, giving the young animals better care, and finishing their stock to grade as "selects."



Some Striking Western Birds.

By A. B. JACKSON, '20.

IT is always a question in the mind of the Eastern bird lover to know if many interesting birds inhabit the wide, windy and treeless prairie; what feathered friends are found by the brave settlers of this land where the summers are dry and scorching, and where only experience can give any reasonable idea of the coldness of the winters.

Birds seem to endure unpleasant

life. The innumerable sloughs and lakes of various sizes that dot the country each attracts a busy population of waterfowl and waders; while the insectivorous birds find shelter in the borders of dense shrubbery that invariably fringe these lakes and ponds. Besides, all that great wooded area from the prairies to the Arctic Ocean is the immense and chosen breeding ground of hosts



climatic conditions as well as man. Robins have been found in central Manitoba when the weather was continually at "40 below zero." Our own friends, the cheerful chickadees, the demure bohemian waxwings in their silky plumage, and the most beautiful evening grosbeaks all seem to enjoy Western winters.

At other seasons also we find birds in abundance, for the West is not without its attractions to bird

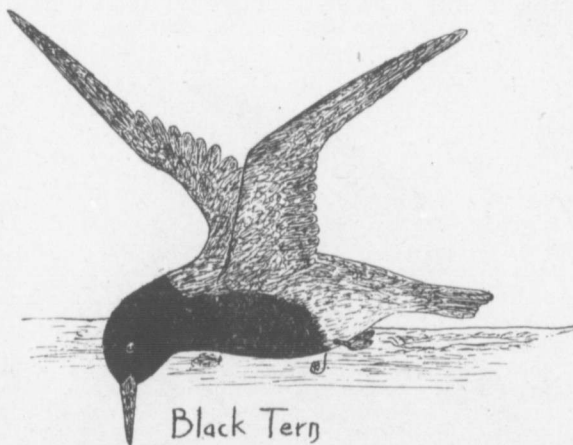
of North American birds. This makes bird life upon the prairies unusually abundant and varied during the migratory seasons. At that time warblers are especially numerous. Throughout May, and again in September, every lump of shrubbery is virtually a maze of bright coloured, industrious warblers, darting and dashing, turning and twisting, in wild confusion. They are never quiet for one moment, and the per-

son who wishes to observe their beautiful and exquisite colourings must look sharply and quickly, for good opportunities are rare and then only for an instant.

Three of the most striking Western birds are the rusty blackbird, the Franklin gull and the black tern. They are all summer residents and are so common that probably no one has turned a furrow of prairie soil without receiving friendly visits from them; for they find the newly

as the horses approach and wait till the plow has passed, then return in the same stately manner to resume their searching promenade. The male is glossy black and even though his mate is only dull gray in colour, yet she is not despised nor neglected by him, since their partnership seems to hold for every activity and for every hour of the day.

The habits of the Franklin gull differ from those of the rest of its family in that it is found in the in-



plowed ground a fruitful source of grubs.

The rusty blackbird is noted for its graceful and delicate movements. It is a bird of smooth, neat and compact outline, and also seems to enjoy doing things in keeping with its appearance. Very few birds move from place to place with greater deliberation and ease of flight. They are unusually tame and when feeding in a field that is being plowed they quietly step out of the furrow

terior, even at long distances from large bodies of water. Its nest is constructed in marshes and sloughs and its food gathered to a large extent from cultivated land. They always appear in small flocks and for hours at a time will follow a plowman around and around a field. In this way they continually hover just above the plow and compete with one another for the first glimpse of whatever may be unearthed that is edible. Nothing it craves for food

seems to escape either the eyes or the bill of this tireless little scavenger. Being naturally both greedy and pugnacious, a quarrel and chase always ensues when any bird finds a morsel too large to be immediately devoured. The finding of a mouse occasions great excitement. The unfortunate possessor is attacked from all sides and is forced to dodge and flee, followed by a whirling, twisting, tumbling flock of noisy gulls. And so the chase is continued for miles, sometimes high up in the air, then low down, until the mouse is torn to shreds, and has entirely disappeared. They are exquisite fliers and, for agility and lightness of motion, are conspicuous in a family noted for grace on the wing. The Franklin gull is fourteen inches long. Its colours are: a blue-black head, bluish gray above, with black wing tips, white below and bright red bill and feet.

The black tern is considerably smaller than the gull but has almost as broad a wing expanse. They nest in colonies upon the prairies but for the winter migrate as far away as possible, even to Brazil and Chile. Nothing is more beautiful than to see a jolly company of these birds skim and soar and hover over the prairies on a windy day; they are so swift, so graceful and buoyant, darting hither and thither without the slightest effort. The stronger the wind the happier they seem to be, and even after a long, strenuous day they still disdain to

alight in order to secure a beetle or grub, but, lightly hovering over the place, they pick it up with their long, pointed bills. Little or no part of the honeymoon is spent in building a nest, for any slight accumulation of drift or dead reeds will answer the purpose of these shiftless merrymakers. During the day they wander long distances from their nesting places, leaving the eggs to be hatched by the heat of the sun; but when the young emerge they prove to be devoted parents. The colour of this tern is peculiar, its head, neck, and underparts being pure black, while its wings tail and back are dark gray.

The Harris sparrow is strictly a prairie bird. The black crown, face, and throat, and splashes of the same colour on the breast give this sparrow a very unique appearance. They are quite conspicuous during migration, but in the nesting season they seem to hide away. The western meadow lark exactly resembles our own Eastern species in colour and habits, but greatly surpasses it in sweetness and volume of song. Robins are fairly common in Manitoba and Eastern Saskatchewan; while Prairie horned larks and vesper sparrows are abundant everywhere. The sweet little song of the latter is always heard coming over the prairie, not only in the early morning and in the cool evening twilight, but also throughout the hottest part of the day, and at that time it seems most welcome.



I can but trust that good shall fall—at last—far off— at last, to all—ana every winter change to spring.—Alfred Tennyson.

“And Now War Ends.”

We Need a More Civilizing Form of Education.

By one who “taught school” to make College expenses

“AND now War Ends”—it is a wonderful thought of Mr. Britling’s. “And now war ends.” It is the conception of the perfect accomplishment of education — the world at peace. The world at peace — with disease conquered by science and sane practice; with crime controlled by reason; with petty self-seeking schooled into worthy effort; without unending wars of nation against nation, class against class, party against party, sect against sect, interest against interest. But instead a world of plenty and at peace, a place of friendly energy and of harmony, a place fitted to form man’s mind for the better Great unknown.

And up to the present Education has not accomplished this—on the contrary it has failed dismally in its accomplishment, as the man knows best who moves most among the various classes of his fellow men.

True, every adult in a civilized country can read and write and calculate, most of them know some history and geography and grammar, and subjects of that sort—to teach such things seems to be the only responsibility Education accepts—and we are told to applaud the progress of Education; why do we not?

Surely the reason is obvious to every man who sees. He does not see the approach of the realization of Mr. Britling’s great thought, “and now war ends”—but he sees instead war always and everywhere.

It is in the newspapers—strife, unrest, dissatisfaction, distress, crime, want.

It is stamped in various forms upon the faces of the men he passes on the street, anxiety, suspicion, apprehension, avarice, cunning, sickness, overwork, ill-health, sometimes fear, sometimes hatred, sometimes crime.

He finds it in the after-dinner topics — labor troubles, political struggles, national menaces, sharp business, surgical operations, and many other such subjects.

And out among the working men it is not peace he finds — not harmony. Usually he finds himself analysing; analysing the cause of their grumblings and worries; analysing the psychology of obscenity and blasphemy; seeking the source of prejudice and suspicion, of jealousy and bitterness. He watches contention and sometimes violence; he sees sickness and overwork; he hears language and ideas which reflect anything but credit upon the teachings of the school, the home and the church; he hears complaints about high prices, minimum wages, and the hard struggle to live — he never hears the hearty laugh of carefree peace, and the wholesome generous conversation of working men’s minds at rest with themselves—but war, always war.

So much for the fruits of the copy book, the reader, the arithmetic, the geographys, wonderful mechanical invention, wonderful business meth-

ods—always some new luxury and never ceasing strife.

So stand the facts; now as to the factor, which is Education. Has Education failed in its conception of accomplishment; have we failed in our conception of Education's responsibility? It may be that mathematics and chemistry and physics and classics are not calculated to put man at peace with himself, at peace with his fellow man, at peace with his Maker. It may well be that in our strenuous endeavor to cram heads full of knowledge we have greatly succeeded in cramming in materialism—we have greatly succeeded in crowding out the soul of man—and smothered what of soul remained.

And so competition stifles co-operation; self interest kills self sacrifice; man's mind becomes but a machine for business; the strength of home love is sapped by the need and craving for money; and things of the earth blot out man's higher view as the city fog blots out the grandeur of the sun and sky.

Our prisons are full. Some of our churches are full also, but of a critical congregation who object to long sermons, poor music and a draught. The striker strikes or his children would starve; he strikes against the slavery of ten hours a day and overtime; he has to strike if he wants the abolition of filthy working conditions. Employer comes to death grips with employer, sect condemns sect, party denounces party, trade interests, menace the interests of the home, rugged health of mind and body is becoming obsolete under the stress of worry, of business and invention, and money—the power and absence of which

seem gradually to be usurping in man his thought, his efforts, and all his highest aspirations.

We allowed militarism to grow up under our eyes—we were most surprised when it suddenly flew at the throat of civilization, drenched it in blood, made it writhe under every form of torture and mutilation.

And still we shut our eyes to this growth of materialism. We have won a people's bodily safety by force of arms. Education must face its responsibility now — it has two things to do, one to realize the situation, the other—to win a people's mental safety by force of brain.

Not very much is done by fighting unhappiness with mathematics, crime with physics, bad citizenship with grammar, lack of honor, lack of idealism, lack of home love and ignorance of the sanctity of those things sacred with the weapon of elementary drawing.

But much could be done. Everything could be hoped, if we could teach some things forcefully, clearly, cunningly—if we would teach them to give them all the lively right and lifelong importance that is their due—if we would so teach citizenship, and honor, and morality; chivalry, cleanliness and sportsmanship; clean health as a public duty; religion as a practical code; community spirit as a deep human obligation. These are entitled to more, very much more, than the "word in passing." Exercise, fresh air, sunshine, scenic beauty, and good music supply contentment, stimulate the growing mind and give it balance. A man to play a man's part must carry much with him into the world outside.

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Ginseng and its Cultivation.

By J. A. McFARLANE. O. A. C.

GINSENG is a plant closely related to the parsley family, in which family are included the parsnip, carrot and celery. The root of this plant is the Chinese cure for "all the ills to which the flesh is heir." The wild root found in the forests of America is a near relation of the Chinese and Korean root (Panax Ginseng). Ginseng is a Chinese word meaning man-shape. This root was first found in Canada, near Montreal, in the year 1716, by Father Lafitan, a missionary among the Iroquois Indians, after a description of the plant and samples of the root had been sent to Canada two years prior to that date by a brother missionary in China. Soon after its discovery the French began to gather it for export to China, where the demand was increasing yearly. It became such an important article of export and such energetic hunting began that the plant was in a fair way to become extinct, no effort having been made to see that reproduction took place.

Up to 35 years ago no one even thought of cultivating this valuable root. When it was first gathered in Eastern Canada it sold for 40 cents a pound at Quebec, and for ten or twelve times this amount in China. The company of the Indies, which controlled the trade between Canada and China at that time, raised the price to \$10 a pound, which caused Canadian hunters to gather it out of season, to imperfectly clean and dry it and to send somewhat

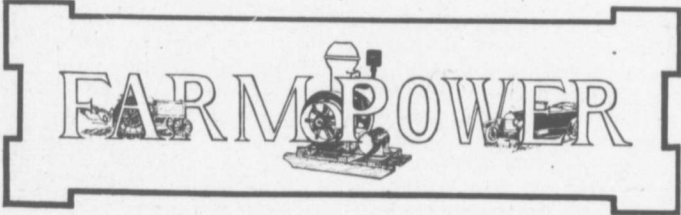
similar roots, until the Chinese refused to buy it at any price.

The plant reproduces from seed, but the seeds are unusual. They will not germinate until the second season or about 18 months after harvesting. During this time they have to be kept moist, but not too wet, and not too dry, or they lose their vitality. One method of caring for the seeds is to stratify them in moist sand, in the following manner:

A box not more than one foot deep is used, with holes bored in the bottom. Then alternate layers of sand and seed are placed in the box, a layer of sand about one inch in thickness, then a layer of berries, which may touch each other, but another layer must not be placed immediately above. Then another stratum of sand, which must more than cover the seeds, is put in, and so until the box is filled, allowing at least three inches of sand at the top, with a layer of moss to hold the moisture. The top of the box should be covered with a fine wire screen to prevent mice from eating the seeds, and to allow moisture to enter the box. The box should be buried in a shady place where the water will drain off, care being taken not to have it too wet, and during the summer months too dry.

The patience of the ginseng grower is further tried by the fact that after the seed germinates and the little plant begin to grow it takes

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FARM POWER

The Ignition System of a Gasoline Engine.

By STUART D. IRVINE, '21.

AS spring approaches, thousands of gasoline and kerosene engines will be brought into operation through the farming districts, as stationary and portable engines operating all kinds of farm machinery, and as automobile, tractor and truck-propelling engines. Two-thirds of the difficulties encountered in operating a gasoline engine are due to defects in the ignition system. The ignition system is the vital part of the gasoline engine and must be thoroughly understood by the operator.

There are two forms of ignition in practice at the present time, the make-and-break low tension and the jump spark or high-tension system. The former consists of two contact points arranged in the cylinder, one of which is movable and can be turned away from the other by a mechanical device on the engine. The two points are connected in circuit with a battery and a coil. The coil is very simple in construction, consisting only of a number of turns of medium sized, insulated copper wire around a soft iron core. When the two contact points are separated the momentum of the current is forced across the air space and in doing so produces an electrical spark

which ignites the mixture of gasoline and air.

The make-and-break form of ignition is dropping out of prominence rapidly because it cannot be used satisfactorily in high-speed or small motors. But, it has one great advantage, in that a much hotter spark can be obtained with the make-and-break because of a greater flow of current.

The jump-spark form of ignition is the one principally found in use to-day. In this the contact points are stationary with a fixed distance between them. They are connected in circuit with the secondary wires of an induction coil. This coil consists of two windings, primary and secondary, a vibrator and a soft-iron core. The primary is made up of a few turns of coarse wire and is joined to the battery. The secondary consists of hundreds of turns of very fine, insulated wire. Because of the greater number of turns of wire in the secondary, the pressure of the current passing through the latter coil of wire is greater than in the primary. The principal disadvantage of such a form of igniting system is the high voltage used, because of the necessary precautions which must be taken in wiring. The vibra-

tor which is used to make and break the primary circuit is also often a source of annoyance as it may become clogged with dirt or be incorrectly adjusted. Magnetos are common in the igniting system, the low tension being joined to the make-and-break system in place of the battery, or it may replace the primary of the jump-spark design. The high tension is generally used to replace the induction coil and battery,

this slowness of combination, the spark circuit must be closed a little while before the piston reaches the position where it is desired that the explosion take place. In the driving of an automobile, due to the changes in the richness of the mixture, the point of ignition must be accordingly regulated so as to obtain best results. Therefore, with an increase in the speed of the engine the spark must be advanced.

An Avery Tractor at work, at Oka, Quebec



it being built in contact with the spark plug.

In all these forms of ignition, the completion of the electrical current and the point of greatest pressure set up by the explosion are instantaneous. The time between each of these depends on the density of the mixture in the cylinder head. The less gas vapour in the mixture, the more instantaneous will be the explosion and vice versa. Because of

On the other hand, if the engine is being started, the piston is travelling slowly and the sparks must be retarded. That is, the circuit must be closed when the piston is just past dead centre, and care should be taken that the explosion shall not occur before the piston reaches this position or knocking of the engine will result and much power be lost. Many an operator has had

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Spring Saws.

By E. L. EATON, '20.

Now that the spring is here plans should be under way for a large acreage of roots again this year, especially in those sections of the province where ensilage cannot be grown. Most careful feeders realize the value of a plentiful supply of roots in lessening the cost of beef and dairy products. Young cattle and old alike readily respond to an addition of succulent food to the ration. Now is the time to get ready for next winter's supply.

If the members of your farmers' club "didn't stick," who was to blame? Remember that the men on your executive are only human beings, so don't expect them to perform miracles. Give them a lift when you can. We recently heard of a club which was unable to buy a thousand dollars worth of clover seed just because the members did not think it worth while to hand in their orders in time. That sort of co-operation is most discouraging to the executive and gives knockers a chance to find fault.

Have you treated your grain for smut this year? If you have, so much the better. In any case keep your eyes open this summer and compare fields sown with treated and untreated seed. Walk through an untreated field and count the proportion of infected plants on a small space, say a rod square, then figure the grain in a clean field. The results will surprise you.

Remember that not every kernel of corn will produce a vigorous plant and it is the plants that get away to a good start that resist mid-summer droughts. By germinating a few kernels from each ear see if your supply is good. If your home grown corn was immature or the germ is weak from any reason, it will be wise to feed it to the hens and buy some that is up to the mark.

Buy your turnip and mangle seed early. It will pay even if the supply does happen to be larger than last year. You will have a better chance to get it from a high grade lot and also save yourself one more thing to worry about when the rush is on.

Did you have any leaf roll or mosaic in your potato patch last year? If so don't feel that Northern Ontario seed is too expensive. You buy it from some other farmer anyway and this is one thing you don't have to pay $37\frac{1}{2}$ per cent. duty on.

Are you going to have a good big garden this year? If the farm can't afford a plentiful supply of fresh fruit and vegetables for his table who can? That is one compensation for living in the country and should be made the most of.

Was your farmers' club able to handle your fertilizer this year, or did you again pay a substantial commission to some local agent?

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Eight Day's Leave.

BY THE OBSERVER.

HIS pass read "Edinburgh." It was raining as it can only rain in London. He paced the platform at King's Cross, undecided whether to board the Scottish Flyer or risk being picked up on the Strand by the ever-present Red Caps. With a true soldier's dislike for reasoning a matter out, he flipped a half crown to decide. It came down "heads." He was destined to see "Auld Reekie."

ed, and soon after the train pulled out. His companions were, as is usual in these little compartments, a mixed crowd. A shrewd Scotchman in the civil service, an Australian private, a petty officer of the navy and a Scotch "Jock" were his travelling mates. The Australian had imbibed rather too freely of "fifteen bob a bottle" whiskey, and insisted on buying coffee and buns for the crowd at every stop. Out-



Here was a girl like those back home, he thought, as he kissed her good-bye.

Slinging his haversack over his shoulder and picking up his kit bag, he stepped into an empty compartment and settled down for a long wait. The platform was crowded. Soon the vacancies of his compartment were fill-

ed, and soon after the train pulled out. His companions were, as is usual in these little compartments, a mixed crowd. A shrewd Scotchman in the civil service, an Australian private, a petty officer of the navy and a Scotch "Jock" were his travelling mates. The Australian had imbibed rather too freely of "fifteen bob a bottle" whiskey, and insisted on buying coffee and buns for the crowd at every stop. Out-

It was just breaking dawn as the train bustled into the Waverly Station. Cramped from sitting in such a con-

fined space, the Canadian stumbled out of the stuffy coach and started up the hill towards Princess Street. There had been a heavy snowfall, and it was now raining. He tramped heavily through the slush, keeping a watchful eye for a likely billet. A blue sign reading "The Victoria League Club for Overseas Men" caught his eye. He turned and went upstairs into a comfortable sitting-room with a cheerful fire in the open grate, around which were gathered men from all the overseas Dominions. Satisfied, he went into the office, registered, showed his pass, paid his half crown for bed and breakfast, and was settled for eight days in the modern Athens of Europe.

It was Saturday. The rain had turned to driving sleet. Disgusted, the Canadian spent the day sewing on his badges and divisional colors, polishing his brass, and making general preparations for the morrow.

It was still raining on Sunday morning, but he went to the nearest church and came back feeling blue. Hungrily he turned into the dining hall and took a vacant seat.

He brightened immediately on seeing the charming waitresses. Perhaps, after all, his time would not be wasted.

He spent the afternoon polishing up again and prayed for a clear sky.

It rained harder than ever, but after tea he turned up street among the crowds which are always to be seen on Princess Street, no matter what the time or conditions. Coming to a bend in the street, he crossed over and started toward the Braid Hills. His greatcoat was getting heavy as it became soaked. Far below on the left there shone the lights of a little kirk. He heard the tolling of its bell calling to worship. Turning down a stone stairway, he directed his steps toward the church.

Crossing the churchyard by a winding path, he found himself abruptly entering the building. He went up the worn stone steps into the gallery and took a seat in the rear.

There were only a few people inside, for it was still early. After the driving rain and the darkness, the quaint interior of the chapel with its veiled lights and the steady stream of incoming worshippers impressed him. The service commenced and the first ceremonies ushered in a number of late-comers. Among them was a girl, who took a seat beside the soldier.

The first hymn was announced. He had no song-book. With a pleasant smile the girl offered hers. Leaning over the velvet cord which separates the two sides of the seat, he accepted with thanks. Prayer followed and their hands met, as each sought to let down the cord which alone separated them. Their eyes met and he felt that fate had turned the coin he had tossed in London.

The minister was a young man who had been a chaplain. He spoke of the soldier's life in France. Although the Canadian had just returned from that life, he listened attentively, except on those occasions when his glances wandered to the girl at his side. During these moments he studied her. She was small, and dark, with those deep brown eyes and tantalizing lips, common to many Scotch maidens.

After the service he spoke to her, and suggested a walk, to which she did not object. It rained. After half an hour his great coat was saturated. He suggested returning, to which proposal she naively replied that she just loved walking in the rain. She had a raincoat. But the fascinating smoothness of her delightful Scotch accent was so pleasing that he would have

walked very far rather than miss it.

But at last it became late and reluctantly he left her at her home, after making an engagement for the following evening. Entering his room, he threw his great coat on the floor, and lighting a candle he sat on the edge of the bed to think over the events of the evening. Proudly he thought of the Scotch blood in his veins, given him by his grandfather. He almost felt now that he was all Scotch. After the pretty girls of France and the red cheeked daughters of England, this Scotch girl appealed to him as something new.

He went to bed to dream of dark brown hair circling a face as winsome as he had ever seen. He arose at nine, had breakfast and, going out, found that it was still raining. In spite of this he explored the old Castle and Holyrood Abbey. When he came in, his great coat was wetter than ever, and it was no use polishing brass.

Always punctual in an appointment, he was at the girl's house half an hour early. Not daring to enter he paced up and down on the pavement awaiting the girl's appearance. She lived on a street leading to the Braid Hills, and almost directly at the foot of the Castle hill. As he walked up and down he thought of those of whom he had read, who had paced perhaps these same roads. Sir William Wallace, the Douglas, or even Bruce, himself had perhaps marched up this same hill on some chivalrous errand. He wondered at the strange movement of fate which had brought him, a native of a far off dominion, here to wait at the door of a strange house in Scotland.

His thoughts were abruptly ended by the arrival of the girl and soon they were on their way to the theatre. It was the season of pantomime's, for

which England and Scotland are famed. So gorgeously rich and pleasing are these attractions that they run for a whole season in the same house, drawing at every performance a large crowd.

Arriving at the entrance he threw down a pound note, and requested seats in the dress circle—for a Canadian on leave is a millionaire and the best is none too good for him. He led his lady to the front of the house, gathering from her exclamations that she had never been within the select dress circle.

He was charmed with her company, and fascinated by the wonderful scenes in the pantomime. This was better than London. His lucky star was in the ascendant when he tossed that coin in London.

After four hours of solid enjoyment the show closed and once more he left the girl at her home in the shadows of the castle.

It was raining. His great coat had long ago reached the point of saturation. Entering his room he threw the coat on the floor and lit a fag from a new package. He was still excited by his recent experience and decided moodily that he did not want to smoke. So he nipped the burning end off the cigarette and replaced it in the box. Then he threw the whole packet out of the window. It fell at the feet of a street urchin who picked it up, and looked heavenward to see where it came from, and, seeing no one, concluded that the days of miracles was not yet past.

The Canadian spent the next day exploring the city and seeing the many sights for which Edinburgh is world-famous. Eight o'clock saw him again on his beat before the same stone house up on Fountainbridge. No doubt the

passers-by wondered why a picket had been placed before this particular house.

When she came they went once more to see a pantomime. They were getting acquainted. She told him all the history of "Auld Reekie," at which he marvelled. He told her stories of Canada and the Canadians, at which she became very eager to visit this wonderland over-the-sea. She told him, as every other girl he had met overseas had done, that in the rosy future "après la guerre," she was going to Canada and would visit him. He was delighted, but wondered vaguely what he would do if all the girls who had said the same should arrive at his home at the same time. Still he would take a chance on one more, so he begged her to come, saying to himself, "the more the merrier." When he left her this time it was only after meeting her parents and two sisters. He did not mind the rain now. He had been wet before.

And so for a few days he lived in dreamland. His funds were plentiful, but his pass was nearly up. He had only two more days and he had promised to go down to a little town in Berkshire where he had been in a convalescent home, and so he told the girl that he must go.

That last evening he felt nervous. They went to a picture show. She took him home and insisted on feeding him. No one could speak too highly of the hospitality of the Scotch people. The whole family waited on him and, when he said good-bye to them in their humble home, before starting for the station, it was with real regret. He thought of his own home thousands of miles away and realized that home is home no matter where it is situated. He was leaving a real home, now, here in Scotland.

The girl went with him to see him off. The station platforms were crowded and his train nearly full. With difficulty he succeeded in getting a seat. He placed his kit bag on it to hold it. He placed his kit bag on it to hold it, then went out and stood on the platform.

Though he chatted light-heartedly, he was feeling blue. He had met many girls since leaving Canada, but here was one like those at home. He was leaving her to return in a couple of days to the monotonous routine life in the army, and when he kissed her good-bye and boarded his train, he felt almost as badly as when he had left his Canadian home.

The Scottish flyer makes good time between Edinburgh and London. Berwick was soon passed, and it only seemed an hour or so before Hull was reached. This was the half-way stop between the two terminal cities. The Canadian had been thinking of the little girl he had left in the north. He looked out and saw the name of the station and remembered that this was half way to London.

In the morning he would be going down to that little town in Berkshire. He saw once more the fair-haired little V.A.D. with whom he had taken such nice long walks. She would meet him on the station steps. The regrets of his late parting were gradually melted away in the anticipation of the pleasures of this coming meeting. Leaning back against the plush-covered seat, he fell asleep to dream of a girl in the uniform of the Red Cross.

Far away to the north a dark eyed Scotch maiden wended her way slowly toward her home up on the hill. She wondered if Australians were as nice as Canadians. She hoped to meet one and find out for herself.—Such is life.

Nitro-Cultures for Legumes

Among the forage, cover and soiling crops in Canada, one family of plants is of special interest to farmers. These are the legumes or Leguminosae, which include clover and vetches, beans and peas. Botanically they are remarkable for their high nitrogen-yielding qualities, as being constantly associated with bacteria in the soil.

These bacteria—minute living organisms only visible under high microscopic power—form colonies living on the smaller rootlets of the legumes, and produce thereon small lumps or nodules varying in size from a pin head to a small pea. Each kind of crop, whether clover, alfalfa, pea, etc., is greatly benefited by its own particular strain of bacteria culture.

When these bacteria are present in the soil, experience shows that growth is more vigorous, and earlier development takes place. These factors are important in Canada. With alfalfa, robust and early stands have a better chance of resisting winter killing; and in the case of field peas, reports from the Western Provinces show increased yields per acre from the use of nitro-cultures.

Where a crop has once been successfully raised with nodules on the roots, the bacteria survive in the soil for some time, and a subsequent crop is more easily obtained. To give a crop the best chance of succeeding, the appropriate strain of bacteria should be introduced into the ground.

This can be done by transferring soil from ground where that crop has succeeded, and scattering it broadcast over the new field. This method is labourious and expensive,

and besides often introduces undesirable weeds and the germs of diseases. Equally good results have been obtained by using pure bacterial cultures. The method of procedure is to mix the culture material, on which are millions of bacteria, with some fluid, generally skim milk. Then empty the seed on to a clean floor or cloth, and treat it with the fluid, thoroughly stirring the seeds, so that a film of moisture with its bacteria may stick to each seed. The seeds are then spread to dry, out of direct sunlight, which would kill the bacteria. When dry, and on the same day as treated, the seed should be sown and covered up. A cloudy day is the best for this purpose.

Cultures may be obtained commercially from seedsmen, or Agricultural Colleges, at charges ranging from twenty-five cents upwards. The Experimental Farms system, at the Central Farm, Ottawa, prepares cultures for alsike, red clover, alfalfa, peas and beans. Each bottle put up contains sufficient material for the treatment of about sixty pounds of seed. Bona fide farmers and settlers who wish to raise one of the above crops, will be supplied free with a small quantity to assist in establishing that crop in new districts. The recipient is requested at the same time to report results on a form sent with the culture.

Applications should be addressed to the Dominion Botanist, Central Experimental Farm, Ottawa, stating the kind and quantity of seed to be treated. Letters should be mailed as early in the season as possible, to avoid delay. — Experimental Farms Note.

THE OAC REVIEW

REVIEW STAFF

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C. M. FLATT, '21, *Associate Editor.*

C. F. MACKENZIE, '19, *Agri.*

R. ALEX BRINK, '19, *Exper.*

T. H. JONES, '19, *Horticulture.*

C. F. LUCKHAM, '19, *Poultry.*

J. A. HALL, '20, *Query.*

A. W. MEAD, '20, *Alumni.*

W. L. CURRIER, '20, *Athletics.*

W. C. HOPPER, '20, *Col. Life.*

K. MACARTHUR, '21, *Locals.*

M. C. JAMIESON, '21, *Artist.*

M. BARBARA SMITH, '19, *Mac.*

MISS OLIVE GARDINER, '20 *Junior Representative.*

EDITORIAL:

Concerning Date of Issue and Typographical Errors.

DURING the past four months the staff has been aiming, for various reasons, to publish the Review on the first of the month. This endeavor has proved exceedingly difficult in accomplishment. Various circumstances have always arisen at the printing office to delay the publication of each number. These included influenza, shortage of help and a burnt-out motor.

Not only have they prevented us from putting the magazine out on time, but they have indirectly and unfortunately caused several typo-

graphical errors, especially in the January and April issues. Perhaps the readers will overlook this apparent carelessness, however, in view of the fact that much of the proof has been read "on the run" and that the printers in attempting to hasten publication have neglected to make certain corrections.

Beginning with this number we hope to publish the Review on the first of each month, and to have it free from such errors as have occurred in the past.



Failure is often that early morning hour of darkness which precedes the dawning of the day of success.—Hodges.

Canada's Must be Largely an Agricultural Policy.

“ON the efforts of the farmers will depend whether or not Canada is to take her place as a world-power in trade,” said Mr. H. S. Arkell, Dominion Live Stock Commissioner, some months ago.

The truth of this statement is beyond question. Canada possesses millions of acres of fertile land, unexcelled by any nation in the world. Her soil has made agriculture Canada's basic industry. Our timber areas are immense, our deposits of ore are great, our fisheries annually return us millions of dollars and our manufactures are no inconsiderable item; but not one of these, nor all, can give Canada a great position in the world. Agriculture is the industry to which Canada must look for her future greatness.

A survey of the past plainly indicates that Canadian agriculture does not require nursing. It is not a feeble child that must play within a high board fence, so that the neighboring children will not punch its face in; it is a sturdy, undeveloped youngster which, if properly nurtured, will make Canada's name known by every merchant and vendor of

agricultural products from Liverpool to Shanghai.

For a while it began to look as if Canadian agriculture was to regain its heritage. The war has shown the people of this country the great importance of agriculture. But more than a realization of the fact is necessary. Action, strong, unbiased action, must come. The development of our agricultural industry is too vital to Canada's commercial growth to be made an election issue. Such procedure has too long been the curse of Canada. Why men should stunt the growth of their country simply because such a policy is not a part of their party's platform is but an example of the line: “Oh, what fools these mortals be.”

Legislation that will assist in the development of agriculture should be the policy whatever party is in power. Patriotism demands it. During the past five years the slogan, “Your Country First,” has been much used by politicians, newspapers and party men. If we are to believe that they really meant what they uttered we may expect to see every encouragement possible given to agriculture.

*Blood Counts.*

THERE is probably no person possessing average intelligence who has not observed and does not believe that like begets like. Everywhere about us there is ample evidence of the truth of this statement.

Go where you will, you are still confronted by that undownable truth.

Yet, with all the evidence daily staring them in the face, many farmers, whether from a lack of business instincts, a fear of losing money or

plain inertia, still pursue indifferent methods in the breeding of farm animals. They use scrub sires and breed haphazardly, apparently forgetful of the fact that calves, little pigs and lambs are "chips off the old block."

We are rapidly returning to normal conditions. When they do arrive competition is either going to crowd out the man who fails to follow business methods or is going to give him such a precarious living that he will lie awake at night.

Some cows naturally give more milk than others; some steers fatten more rapidly than others. Moreover, these characteristics are transmitted from parent to progeny. Such being true, it naturally follows that animals which possess these qualities, proved by their ancestors and progeny, should be used in breeding.

A scrub sire may possibly pos-

sess such very desirable qualities, but he is an unknown quantity, having no records behind him, and therefore dangerous to experiment with. A farmer can't afford to experiment; that remains for experimental stations. His policy is to use sure methods. One sure method is to use a pure bred sire for breeding purposes.

A farmer does not hesitate to invest hundreds of dollars in labor-saving machinery, yet he fails to buy a pure bred bull. The stock on a farm is the chief factor in its success. Therefore, it shows poor business on the part of a farmer to continue using a scrub sire, especially when he does not hesitate to invest hundreds of dollars in other improvements.

If farmers are to meet the competition that will result from normal times they must use pure-bred sires of proper type on their farms.



Remember the Annual Prize Competition.

TRUE, seven months will elapse before we begin to compile our 1919 Christmas number, but even this is by no means too early a date to begin discussing certain phases of it. The greatest interest of this issue centres around the annual prize contest for the best short stories and poems.

This year, as usual, we wish very much to learn who possesses the greatest ability in building plots and rhyming words—in which, of course, there is a big idea. In addition we are offering prizes for the best agricultural stories.

Prizes of the same number and

value as last year will be offered in each of the three classes—agricultural story, short story and poem. In each case these will be: first 10, second 5, third 3 and fourth 2 dollars.

The short stories and agricultural stories are not to exceed 3,000 words in length. The poems may be of any length. This year preference will be given to the stories and poems dealing with farm life. Dark city streets, the deep blue sea, and the Rocky Mountains are by no means the only source of exciting romance and dreamy verse, although a large number of people, including

too many ruralites, seem inclined to think so. There is love—good true love—, there is adventure, there is humor in abundance everywhere in our townships. There are blue-eyed lassies, sparkling brooks and collie dogs to use as themes for excellent poems. They are there if you care to look for them. Don't forget that distant hills look green. We want everyone to use rural themes for their stories and poems.

There is practically nothing impossible to the man or woman who tries. The power of writing or versification is not entirely a divine gift. Although we cannot all become O. Henry's or Tennyson's, yet we can, if we practice enough, become good average manipulators of words. Last year there was keen competition in every class. This year we want it keener still. Make up your mind that it shall be. You may not win a prize, but you will even then be the richer for having tried, richer in that you will have increased your knowledge of putting your thoughts on paper in a decent manner. The desire to construct your work properly, to use the best words, to punctuate it correctly, the writing and re-writing of it will mean a great deal to you in your college course.

Begin early. Search in real life for plots and themes. The life around you bubbles with them. The best short stories are not mere concoct-

ions of the imagination; they are expanded items of real life. Study short stories and poems by the best writers. Go to such papers as *The Country Gentleman* for typical agricultural stories. Read O. Henry if you wish to study the best type of short stories. Commune with your favorite poet for insight into style and metre, the latter being where most amateurs fall down. The main thing, however, is to write and re-write your work. Don't be superfluous. In short stories especially long descriptions are fatal; make them chiefly action, by means of dialogue. Read your story or poem out aloud to impartial friends. The mere reading of them to someone else will cause you to see mistakes in the construction, wording, etc. Avoid too much deep sentiment in writing for the Review. Such stuff is fine for *Cosmopolitan*, etc., but should be avoided in a publication like the Review. It is fine to use such an idea as a setting for your story, just to give it a flavor.

In later numbers of the Review we will publish articles which shall give you an idea of how to proceed in the writing of an agricultural story, short story and poem. Watch for them. And lastly, start early; don't think you can wait until November 1st to become a contestant and hope to win a prize or even write a decent scribble—unless you are now a participant in the game.



What organization has done for manufacturers, labor and Western farmers it can do for Ontario farmers.



B. J. Bourke wrote recently from South Africa. His address is:

Karookom,
Private Bag.,

P. O. Vierfontein,
O.F.S.P., South Africa.

He expects that there will be an O.A.C. Reunion at Johannesburg Show this year. Any news of South African Alumni will be gratefully received by the Review.

W. E. Hare '16 wrote recently from Mons. He has for some time been looking after the Agricultural Branch of the Educational Classes there, and reports that the Classes are very popular and successful. He expects to complete his course at the O.A.C. after his return to Canada.

H. R. Hare '14 is taking classes in Edinburgh University until his discharge from the Royal Garrison Artillery comes through.

C. S. Peren '15 wrote recently from England, stating that he expected to be back in Canada very shortly.

E. E. Carncross is in Edinburgh University studying Old Country Agriculture and Economics. In June

he and Cotsworth hope to visit Holland in the company of the Secretary of the British Holstein Association.

An open letter to John G. Glavin.
Review Office, O.A.C.

Dear Mr. Glavin,—

I wish to thank you for the cutting which appears in our columns this month. I am taking the liberty of publishing below your letter, and this my reply and acknowledgement, because I realize that you point out a great weakness in our Alumni Department.

The cause of the weakness is of course not far to seek. It is impossible to publish news unless we receive the news. I may say that I read four daily papers and six periodicals in search of news of our old boys, but naturally our department cannot rely on this alone. I am therefore publishing these letters in the hope that other readers will take the hint and help correct this point.

I assure you that any further items of news from our old boys will be most thankfully received at this office.

Yours sincerely,

ARTHUR W. MEAD,
Alumni Editor.

The following is Mr. Glavin's letter, my reply to which appears above.—A. W. M.

April 14th, 1919.
A. W. Mead, Esq., "O.A.C. Review,"
Guelph, Ont.

My Dear Mr. Mead,—

I realize as I read the "Review" from month to month, that the news is more about those who have graduated in the last few years.

In order to help to correct this point I am sending a news article about a man of "Class 1910," and hope that you will be kind enough to have it published.

Wishing you success in your new position! (Ed.) I am,

Very truly yours,

JOHN G. GLAVIN '16.

Rex Merrick, M. C., '18, spent a few days at the College recently. He was wounded in France in 1916, and was lately employed with the Canadian Branch of the American Munitions Board at Ottawa. He is now living in Toronto.

C. M. Lee '17, who went overseas in 1915, has returned, and expects to join Year '21 in the Fall.

W. F. Geddes '18, who was until recently chemist with the Aetina Chemical Company, at Drummondville, P. Q., is now with the Kellogg Corn Flake Co., at London, Ont. He spent a few days at the College recently.

A recent visitor at the College was Mr. W. E. Forrester, late of Yorkton, Sask., now of Morewood, Ont. Mr. Forrester has been for some years in the West with the International Harvester Company, but is

returning East to take over the home farm near Winchester, Ont. He has also a six hundred acre ranch in Haliburton County, from which he expects great things. Mr. Forrester entered the O.A.C. in the Fall of 1898, and left before completing his second year. He was a classmate of W. J. Black, now Soldiers' Settlement Commissioner.

George Patchett '20, is now manager of a Branch Dairy Produce Store at Innisfall, Alta. He was married in December last, and hopes eventually to return to the O.A.C. to complete his course.

F. A. W. Boyd, B.S.A., '12, has been with the Forestry Department of the C.P.R. on their Western lines, engaged in Horticultural work, and since the resignation of W. J. Strong (Associate '11), who has returned to the O.A.C., to complete his degree work, Boyd has been appointed Assistant Horticulturist in his place. Boyd was married about two years ago, and became the father of a boy in December, 1917.

Professor R. B. Cooley, who has spent four years as head of the Department of Animal Husbandry, and two years as livestock extension specialist at Rhode Island State College, has accepted animal husbandry extension work in Massachusetts Agricultural College, Amherst, Mass. His duties commenced April 1st. Prof. Cooley graduated from Ontario Agricultural College in 1910, and for some time past has acted as editor of the Rhode Island Farm Bureau News, an official monthly publication of the County Agents throughout the State.

It is rumoured that "Blondie" Wilson '16 and "Kenny" Welton '16 have gone into partnership on a farm north of Toronto.

"Froggy" Scott '14 is engaged in work at the Horticulture Department at the O. A. C.

N. D. Dow '16 who went overseas in 1915 with one of the University Companies of the Princess Pats and saw over three years service was here recently. He intends coming back for his fourth year next Fall.

H. F. Rowlands '16 who went over with the College Battery is back and intends returning to College next Fall.

P. Vahey '16 has received his discharge from the R. A. F. and intends returning to complete his course next Fall.

M. L. Hancock '18 M. C. who went over with the P. P. C. L. I. was a visitor at the College recently.

H. Curran '16 is now Assistant to William A. Ross at Vineland.

W. R. Bennett '16 who went over with the College Battery has returned and is now on the Poultry Department at the College.

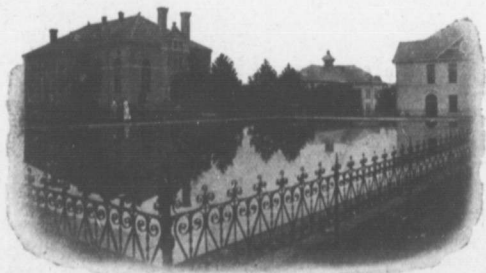
Dan McKee who was at one time on the Chemistry Department at the College and is now on the staff of the "Canadian Countryman" was at the College recently.

We wish gratefully to acknowledge a recent letter from Allan I. Brown '18 expressing appreciation of the policy of the Review, and wishing us continued success.

A quiet wedding took place at 12.10 p.m. today, in the vestry of the Church of Our Lady, Guelph, when Pendon Francis Love, younger son of the late Police Magistrate Francis Love, of London, was married to Marie Antionette, elder daughter of the late Dr. James H. Kennedy and Mrs. Kennedy, 187 Norfolk street, Guelph, the Rev. Father Wáfer Doyle performing the ceremony.

The bride and groom left on a short wedding trip, and on their return will reside at "Loveholme," London, Ont.

Love was a member of Year '16.





CONCERNING THINGS YELLOW

What other colour is so opulent, so suggestive of wealth and prosperity, so cheerful and exultant? Whether in a clump of daffodils, gleaming against the brown earth, or in a golden carpet of dandelions covering the broad lawn, how it holds the eye and gladdens the heart! Many familiar, friendly flowers are yellow. The primrose, the tulip, the sunflower, the leopard's bane, the marigold, the nasturtium—any of these, or even the humble buttercup will produce a feeling of joyousness which rarer blossoms will fail to awaken. They will brighten a dim hall or shine in a dark corner as no blue or red blossom can. There is something in yellow which works directly on the brain. Perhaps this is because it is the colour of sunshine, of all things the most cheering. It is impossible to be pessimistic in a room with yellow walls, or yellow curtained windows. The sense of sunshine is there and acts upon the spirit.

What is more cheerful than a canary? And, any bird with a few yellow feathers in its plumage will arouse interest and curiosity.

Consider, too, how many of our best and richest foods are yellow! butter and honey, cheese and egg-yolks, bananas and pine-apple, lemons and apricots, marmalade and pumpkin pie, bread crust and john-

nycake offer a wide range in which all the food constituents are represented. It would be no great hardship to be restricted for a time to yellow foods.

In the matter of personal adornment yellow should be reduced to a minimum. A string of amber beads makes a delightful ornament for a girl, whether the dress be white, black, grey, brown or green. The topaz and the cairngorm are not highly valued, but they offer great decorative possibilities.

Polished brass gives a light and warmth that are lacking in the white metals. Yellow, moreover, is the colour of ripened grain, and the "golden fields of harvest" stand unequalled as a figure for prosperity and plenty. Finally we come to the precious metal itself. Probably no adjective has had to do such strenuous duty as the word "golden."—Golden days, golden dreams, the golden age—they thrill the soul with delicious, expectant, mystery. Gold is not the rarest or most costly of metals, but it has been given a unique, fictitious value, has captivated the imagination of man, and is a synonym for all that is materially most desirable—just because it is yellow!

Short Course Student (at supper)
—"Who teaches manners here?"
Senior (shortly)—"No one."

Short Course — "That's strange! At all the boarding schools I know manners are always taught!" (Proceeds to plant her elbow in her apple sauce. Delight of senior is evident).

SOME RECENTLY DISCOVERED FUNGI

Genus, *Saccharissa Macdonalda* Sprangium; spherical and brownish: colour otherwise usually blue, but varying in different species. Each sporangiophore has two superior, dependent hyphae, the terminations of which branch like hands, also two inferior hyphae, usually provided with spool-like projections. Found in colonies which develop rapidly in September, January and April. Thrive upon cranberry juice, prunes and figs.

Species I. *Saccharissa Macdonalda* Freshinova. Mostly noticeable in September. Columella slightly swollen. Nuclei healthy. With suitable initiatory treatment, usually develops well.

Species II. *S. M. Culinaria*. Colour, blue and white. Found in proximity to kitchen utensils. Usually grouped in a hollow square. Products, highly delectable concoctions of all sorts.

Species III. *S. M. Athletica*. Colour, upper portion white lower black. The spool-like projections are lacking. Extremely active. Most frequently attached to some spherical body which is projected entire into the atmosphere. Requires considerable space to develop, but will thrive both in the open air and under cover.

Species IV. *S. M. Terpsichorea*. Collective. Colour varied, usually light and brilliant. More fluffy than other varieties, with a rather feathery sporangium. Highly sensitive to

the vibrations of sound waves which render it very active. Most conspicuous on Friday evenings. The next day can be observed in the resting stage. Thrives on coffee and sandwiches.

Species V. *S. M. Philanderosa*. Has many points of resemblance with above. Usually in evidence on Friday evenings, Sunday afternoons and Lit. nights, but never absolutely lacking between September and April. Sporangium varies remarkably in shape and colour. Has a great attraction for Aggies. Thrives on ice-cream and chocolate.

Species VI. *S. M. Cantatoria*. Colour, black, with a narrow white band immediately below the columella, which collapses to a curious flat rectangular shape. Habitat, Massey Hall, on Sunday afternoons, during the winter half of the year. Also sensitive to sound waves. Usually found adhering to hymn books. Two sub-divisions, soprano and contralto. The latter are less numerous but more frequently present.

Species VII. *S. M. Purificanda*. Color, all blue but the sporangium, which is brownish and frequently rough. Found in warm damp situations in the vicinity of laundry tubs, pails and dish pans. Very active in the presence of soap and bath brick. Produces an enzyme which decomposes dirt. Highly beneficial.

Species VIII. *S. M. Studiosa*. Numbers increase noticeably towards the end of the term, when they may be found beneath electric light bulbs after 11 p.m. Frequently discovered in libraries where they feed upon books and pamphlets. Produce an enzyme which digests information.

Species IX. *S. M. Demonstratoria*.

Found in single isolated specimens, clinging desperately to a demonstration board. Regarded with sympathy and commiseration. Clearly visible to the naked eye, but will bear microscopic inspection; colours being unusually clear and well marked. Previously washed eggs always to be found near. Products, satisfactory results.

Species X. S. M. Graduata. Sporangium hard and cool. Colour, all white. Found everywhere in positions of trust and responsibility. A highly desirable variety.

THE DANCE

The last, and, in many ways, the most enjoyable dance of the year, was that of the evening of April 11th. In many respects it differed from the previous dances in the Hall this year. The idea that there should be a "Farewell Dance" for the departing O.A.C. students gradually grew until it was suddenly decided that it was possible. For this reason, the preparations were hurried, and there were practically no decorations except the usual rugs and cushions, and yet the very informality of the dance contributed to its success. Moreover, the company present was not too large and was composed almost entirely of students, so that the gym was not crowded for dancing. This fact, the unusual privilege of being allowed to dance until two o'clock, the orchestra with its generous encores, and the general feeling that this was the last dance of the season, all combined to make it a fitting climax for the social events of the year.

By eight o'clock on the evening of the dance, the "well" on both second

and third floors was surrounded by groups of light-frocked girls, who from this vantage point watched the guests as they arrived and were received by Mrs. Fuller. Later, came the usual rush in filling programmes and then music, which was not to be resisted.

Under the able management of Miss Lewis, delicious coffee and sandwiches were served between the twelfth and thirteenth dances by girls who had volunteered for the duty. Two o'clock came all too quickly, and hardly had the last farewell been said and the last man departed before "lights out."

THE SHORT COURSE STUDENTS

On opening day, April 3rd, Macdonald Hall welcomed the new Short Course Students. This term they are fewer than usual, being eleven in number, so that the Hall is not so full as during the winter months.

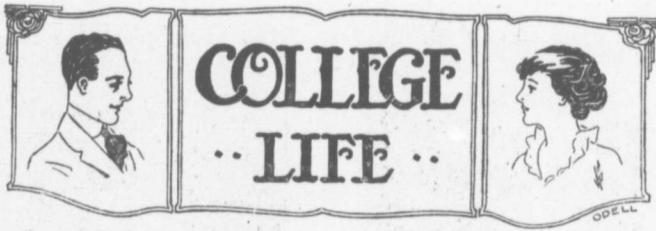
The new girls come from various parts of Canada, and the States, some from the country and some from cities, but all are united in the common aim of solving the mysteries of cooking a la Macdonald.

It was rumored that there was to be a course this Spring for English brides of Canadian soldiers who might be unfamiliar with the management of Canadian homes, but up to the present, none have availed themselves of this opportunity.

"Nick" (after a very severe teasing by the Dean)—"Watch out, Art, I won two spoons with my shooting."

Art (indignantly)—"Well, I'm no spoon!"

Continued on page 456.



The Graduates of 1919.

ANOTHER quota of men has qualified to assume the dignity and responsibility of a Bachelor of Scientific Agriculture. After four years of grinding and polishing, the naive freshmen of the fall of 1915 will soon be dispersed throughout Canada as leaders of agriculture, either in professional roles or as educated practical farmers. As such the men of nineteen-nineteen will undoubtedly perform their share in the concerted effort of raising the agricultural status of Canada.

During the years they have spent as undergraduates of the Ontario Agricultural College, year nineteen has earned recognition in various fields of activities. Undoubtedly their greatest achievement was the winning of the Bronze Bull at Chicago by the stock-judging team representing the year. Moreover, as a whole, they are live-stock men of merit. Despite war conditions this year has always managed to place strong representatives in the different athletic competitions. In public speaking and debating, musical and social events, the men of nineteen have always conducted themselves in a highly applaudable manner. As a

year they have developed a wonderful class spirit and, if their energies are directed in the future as they have been during the past, they should be a considerable factor in making farmers "stick."

As men the student body are sorry to see them depart. They are true farmers at heart, sympathizing with the difficulties confronting the man who tills the soil and eager to assist in controlling the chronic and parasitic diseases of agriculture. As associates they are very agreeable. Anyone wishing a fight, an argument, a game of billiards, or a song, was able to have his desire gratified by calling on one or other of year nineteen. In outstanding characters the year is rich. Practically every kind and degree is to be found, from the affable Munro, to the unaffected Mackenzie, to the comedian, Stillwell.

To the graduates of nineteen-nineteen, all unite in wishing success, firm in the belief that they will always be true to agriculture, ever ready to aid in its progress and strong to oppose any resistance to its advancement.



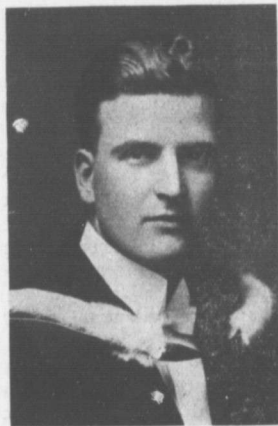
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Horticulture



DAVID F. AYLESWORTH
Agriculture



ROBERT E. BEGG
Agriculture



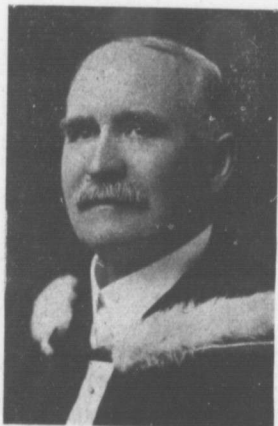
R. ALEX. BRINK
Chemistry and Physics



WILLIAM C. CALDWELL
Agriculture



MILFORD F. COOK
Agriculture



J. D. EDGAR, Ph.D.
Agriculture



GERALD S. GRANT
Agriculture



FREDERICK G. HUNTER
Agriculture



TOM H. JONES
Horticulture



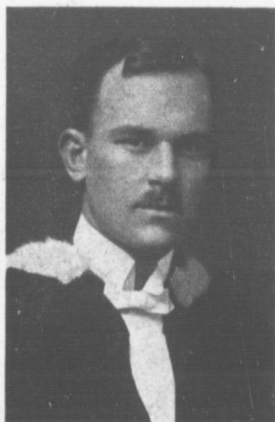
CAMPBELL LAMONT
Agriculture



CLARENCE F. LUCKHAM
Agriculture



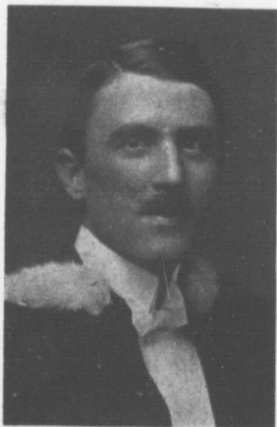
WALLACE R. GUNN
Agriculture



E. C. HESSEL
Agriculture



J. ROSS HIGGINS
Agriculture



HUGH C. HUCKETT
Biology



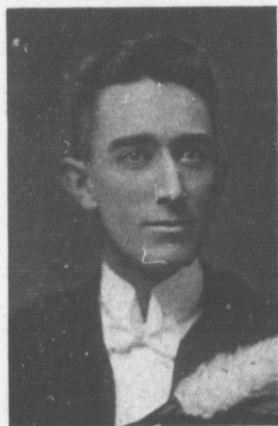
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Agriculture



JOHN B. MUNRO
Bacteriology



GEORGE W. McCALL
Agriculture



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Agriculture



PHILIP L. SANFORD
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Bacteriology



ERWIN C. STILLWELL
Agriculture



CECIL TICE
Agriculture



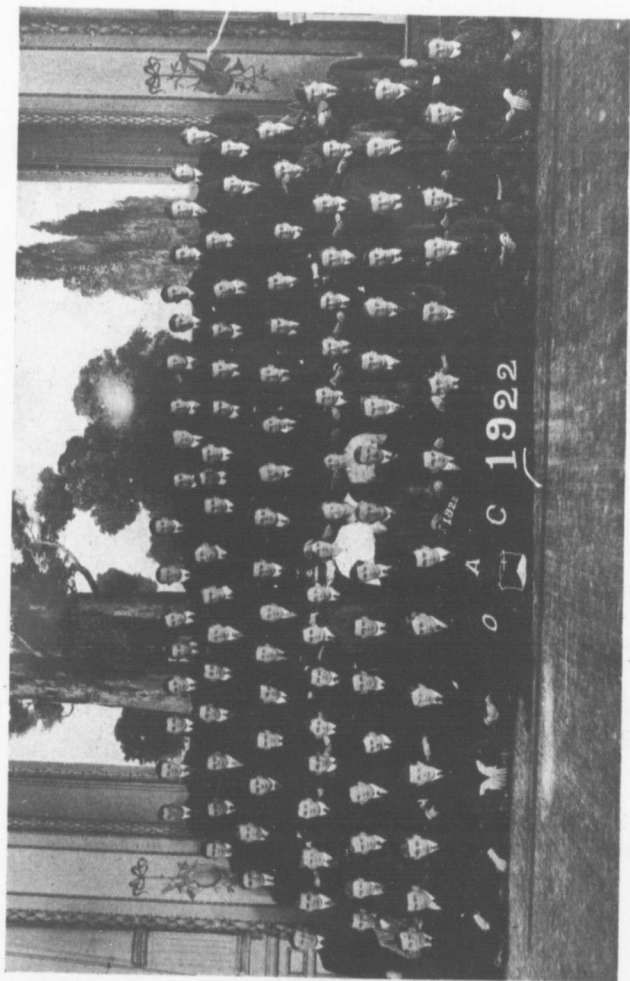
International

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Judging

Team





CONVALESCING

Examinations have come and gone except for the unlucky—nay, lucky Seniors, who must toil on for another month.

The examinations this spring were harder than usual because in many cases the papers covered both fall and spring work. The questions asked were, however, very fair, and covered the year's work well—too well perhaps for some of us.

What a strenuous two weeks it was, and what a thankful feeling takes possession of you when you realize that the exams are over for another year! (Hear! hear!) No one knows the seriousness and anxiety of that period better than the man who has let his work "slide" until the last night.

During the period in which the brains of our dear students work overtime, the college parlour is continually occupied, except for a few hours between about two and five a.m., the library becomes a favourite haunt, the homely oil lamp works overtime, books hitherto unopened become popular, blue covered bulletins are greedily read, and information absorbed, soon to be forgotten—and the *Cosmopolitan*, the *Red Book* and the *Saturday Post* are forbidden literature. Time is the greatest factor of success, and the last half hour before the exams begin is the most valuable space of time of the day.

The conversation during meals, in the reading room, when student meets student, anywhere is about

the exams. The very air seems to contain a new constituent, not "ozone," but possibly "examizone."

What a weight seems lifted from our shoulders when the last examination book is handed in and what a feeling of satisfaction fills us when we feel we have done our best and no "sups" are visible in the distance.

O. A. C. AGAIN VICTORIOUS

In the good old days before the war O.A.C. had a habit of monopolizing the points at the inter-faculty track meet held each fall in Toronto. What is going to happen in the future at such displays of speed and strength was demonstrated at the recent Assault-at-Arms held in Toronto. O. A. C.'s white hope's were not content with gaining more points than any other faculty, but boxed and wrestled their way to seven points out of a total of thirteen.

Manager Art Musgrave had his battlers in the pink of condition, and this fact materially aided the O. A. C. representatives in gaining decisions over their opponents.

Musgrave won the middle and heavy-weight boxing events with comparative ease. Jack Steckle captured both the middle and heavy-weight wrestling. George Lindala won the lightweight wrestling, while Jerry Grant was victorious in the lightweight boxing. No one appeared to try the dexterity of C. C. Edit's sword arm, so he won the fencing event by default.

Meds. were second with 3 points.



Smile and the world smiles with you; weep and you weep alone.

—Ella Wheeler Wilcox.



The night before the '22 Chemistry exam, wild scenes of rejoicing were enacted in Upper Hunt. D. G. Stuart and Ruwald had discovered a new element! Family B. of Group VI in the Periodic Law Table now reads as follows:

Sulphur
Selenium
Tellurium
Delirium

The new element—the last-named—was found after fifteen uninterrupted hours of research by those one-time bright students of Upper Hunt.

In the first year—You don't know but you don't know that you don't know.

In the second year—You don't know, but you know that you don't know.

In the third year—You know, but you don't know that you know.

In the fourth year—You know, and you know that you know.

They say a man's never missed; there's always someone to fill his place. We have an exception to the rule; no one could possibly fill the illustrious, the one, the only Mike Stillwell's shoes.

There are rumors that Scotch is to be more plentiful next year. We can substantiate this gossip — Doc Fraser is coming in.

Don Kimball is not so noticeable since he shaved the Irish hairs off his upper lip.

One man of the graduating class will be replaced next fall. At least we hear that Bill Courier is going to cow-punch on a ranch this summer.

However, when it comes to real noise, Sippel has a mighty strong claim to the championship.

Many of the poor freshmen were so eager to occupy their own little beds at home that they were up at 4 a.m. Friday morning, thumping around.

Romantic

Bill Fleming to Archie Porter, while preparing for the examination in Meterology—"Tell me about the moon-songs in India."

Well, anyway, there's consolation in the fact that many great men were not high up on examination lists.

Glorious

Just think, next autumn, we'll have a fresh crop of verdant freshmen to pull jokes on. However, the opportunity cannot possibly be greater than has existed during the past few months.

Bert Hopper was sorry to see the term close.

No matter where Gilbert goes, he's bound to meet all the girls.

Eidt, too, has the cane fever.

We Wonder

How it happened that Doc Edgar was overlooked in the trip to Chicago.

Those men who put hot air into Cold Storage do not stand to gain much. It was simply a waste of energy.

Watch old Mac put the farmer in Farmers' Magazine.

When Frank Tinney misses a shot at billiards—Sh! we won't say it.

Who has ever seen a sheep tick, an ox warble or a saw fly?

"How has the world been using you, Susan?" said a young man to his old friend in a hobble skirt.

"Oh, I can't kick," she replied blithely.

After listening to the lesson telling about the children of Israel worshipping the golden calf, we couldn't help thinking how the practice has well nigh become universal since short skirts were introduced.

Now 'tis the Spring, and
weeds are shallow-rooted;
Suffer them now, and
they'll o'ergrow the garden,
And choke the herbs
for want of husbandry.

—Shakespeare.

Dr. Reed, having placed a class of horses for the Fourth Year, told the boys to ask any questions they wished regarding the class.

Gunn—Doc, what's that sort of lump on the ankle of No. 4?

Hunter (disgustedly) — A wrist-watch.

Get your boots on—if you want to leave deep footprints on the sands of time.

Clancy Caldwell's favorite song: "My Bonnie lives over at . . ."

Even a genius has to plod. Some people think success is sometimes instantaneous. It is never instantaneous, except in the same way that electric lights come on instantaneously—after the power house is up and the wires are in. — American Magazine.

Too Bad

The jokes are very few and poor, just for the reason that: we've been hitting poor Gil pretty hard, and Wally too, and dear old Mat; we have scorched the sweet-toothed Sip until at the ed. he has cussed, we've spread abroad Bill Hendrie's fame, and we have told how Morley fussed; Arch has never had any spite, Bill Currier we've not let alone, we've treated Mike as a super joke, and at '22 much dirt we've thrown; at Don's red mus. we've poked much fun, also at Fergie's pubescent growth, and jokes, at Painter and Ikey, to hurl we've never been loathe; now though the term may be over, we'd like very much to atone, just because nothing new's turned up, I suppose we may as well own.

Macdonald

Continued from page 444.

After the results of the recent exams were made known, one Junior was heard bemoaning the fact, that, during the term, she had been interested in feeds rather than foods.

Mr. Fulmer discovered this interesting statement on one of the Chemistry papers: "Iron is separated from sulphur with a magnate."

Fergie and Marshall are taking lessons over at the Lewis Gunnery—at least so rumor hath it.

DEATHS

News has been received of the death of Miss Margaret Innis, at Kentville, N. S., Homemaker Class 1916-17, which occurred recently in Halifax, after three days' illness from pneumonia.

Also, of Miss Olive Buchan, of Vancouver, Homemaker Class 1910-11, which took place on March 21st.

I Wonder Where

Campbell Lamont was heading one Saturday night recently, carrying a box with a couple of bees darting after it?

Man learns from his own mistakes, but he never lives long enough to complete his education.

Don. Kimball—Here's hoping that those men who plugged so terribly hard to grab the flag at the top of the year standing may get what they deserve.

Duke Mead—I'll drink heartily to that.

Archie—Me, too.

Bill Fleming in his room with Archie after practical entomology exam.—"I'll have nothing more to do with bugs, present company accepted."

Archie starts the charwoman stunt.

Hunter says he prefers Flo-Flo to Flowed-Flowed.

A great ancestor would be all right if so many outsiders didn't butt in.

Bert Hopper says that, in playing billiards with Luckham, time is saved in two ways—(1) Luckham generally makes big runs; (2) When he doesn't, all one has to say is, "Hard Luck."

To the men who have departed, and are now gambolling as freely as lambs (?) we who are staying would like to tell how much pleasure it gives us to watch members of the fourth year surveying the list of examinations, a yard long, which now occupies a conspicuous place on the bill-board in the reading room. Really, it is like a tonic to a convalescent!

The other day we sauntered in, and there was big Mac, his face screwed up in super fashion, a notebook in one hand and a pencil in the other. Beside him, Wally Gunn, his face also registering delight, was painfully copying the list, while Roy Allan and Ross Higgins, both busy scribbling, peeked up from below their arms.

We smiled. We could not help it. It was naughty, but it was nice to be able to smile—the fourth year couldn't.

Spring Saws

Continued from page 429.

How about that bathroom your wife has been waiting for all these years? Isn't it time to do something more about it than just listen to her discuss the matter? The O.A.C. has published a new bulletin on farm sewage disposal that may be had for the asking. Look it up and see if you can't install a bathroom and septic tank when seeding is finished. Times are not too hard for the farmer to have a few of the comforts of home.

The turnip flea beetle will be on the look out for early sown turnips again this year. By waiting until late in June, in most localities, before sowing, most of these little chaps will be disappointed in their breakfast.

Remember the best seed of any sort is always the cheapest in the end.

We bet Bert Hopper wishes he were back in Guelph for a week or so, with nothing but Mac. Hall to bother him.

D. J. Matheson has recently installed a vest pocket edition cap. The idea is that, when he leaves his room with scorching brain to go over for a game of billiards, his head will cool without the danger of catching La Grippe Ebonitum.

If Doc Fraser keeps on chasing golf balls around the campus for another ten years as faithfully as he has during the past few weeks he'll be usurping Chick Evan's title.

Ginseng and its Cultivation

Continued from page 426.

from three to five or six years before the root (which is of greatest importance) is matured sufficiently for market. From analyzing the different soils where wild ginseng has been found it is claimed that almost any sort of ground can be made into proper ginseng soil. That which is most easily prepared is of rather a coarse texture, a sandy clay loam which drains naturally, being the ideal soil. As the area required is small, sand can be added to heavy clay ground to make it porous and mellow.

The transplanting of the small roots is very important, as is also the digging of the mature roots for the market. After careful digging the roots are washed free from soil, the safest way being to spray them gently with a hose. They are then placed in a warm room with plenty of air. All the fibrous rootlets will become brittle as the ginseng dries and can finally be rubbed off without injuring the skin. Roots that are hard command a poor price. A short, stubby root is preferred, rather light in color, sponge-like to the touch and light in weight, compared to the size. Different ginseng growers and authorities claim returns ranging from fourteen thousand to thirty thousand dollars per acre for marketable roots.

Chestnuts from Von Lyeel

(Hamilton Collegiate Institute)

The good die young. This may be true

Regarding folks;

But the editor would like to say,

It isn't true of jokes.

"And Now War Ends"

Continued from page 425.

Education must "carry on"—but with eyes open to the needs, a new capacity to shake off the shackles of habit, with enthusiastic brains worthy of a sacred work, with keen sight that watches the world for its welfare.

We have had too much of the short sight which sees only the ten questions on the examination paper. Education must adjust, and add, and expurgate, and conceive, and idealize—it must face its great and daily growing responsibility—and it must very greatly improve; for so war ends.

The Ignition System of a Gasoline Engine

Continued from page 428.

his thumb disjunct while cranking an engine which had the spark advanced too far. If the explosion, on the contrary, occurs too late, the engine will become overheated and power will be lost.

The above mentioned facts point to us three rules which any engine operator should keep in mind:

1. Always retard the spark before starting the engine.
2. Always advance the spark as the engine gains speed.
3. Always retard the spark when the engine slows down under a heavy load.

The object of spark control in a running engine is to get an explosion at the moment when the crank has passed the dead centre and the piston has started back on the return stroke. Such an adjustment will give the maximum power and the most economical operation.

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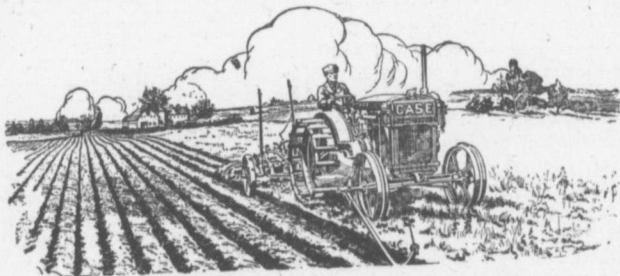
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Farming as a Business

Continued from page 411.

most concentrated among raw materials of industry. The idea of a hundred acres for one man and his hired help has been abandoned. Men do not want land. They want wages, and the crowd. The wages of industry are bigger than those of the farm, because industries are run on business principles.

Just as I write this comes a letter from a man in Oshawa, Ont, saying, "I am now back to the land, having bought an acre and a little ranch house here a month ago to-morrow. My wife and I had planned to endeavor to make a living and a competence on a home in a garden, and after she died early in the year I determined to follow out our mutual plan. So here I am working hard with my rabbits, poultry and garden and from present indications will be able to exist until my first crop comes in. It is delightful work, and I believe this plan of a little land for a living will help solve some serious economic problems."

That man used to be for years an editor in Toronto. His acre of land is not a farm. He does not expect it to get him a living; only to help solve his economic problems. He would go all to pieces on a real farm, because the work of farming is altogether different from anything he ever knew. An acre is only an expanded back yard to be worked mainly by hard labor. A farm is a big thing requiring costly machinery, horses, wagons, cattle, hogs, and barns. There is more difference between a farm and a frugal acre than there is between the acre and the

Continued on page xiv.



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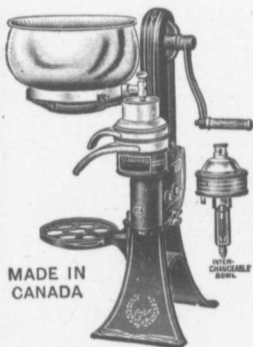
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Farming as a Business

Continued from page xiii.

back yard. The farm takes a man clean into another world. The change is one that no townsman will face because it is so devilishly unfamiliar.

And one big reason why the farm does not lure men to it is because farming is not a business. Living is better, wages lower. Life is more isolated, and in most cases more strenuous. The profits of the farm in normal times do not compete with the profits from business.

And until farming becomes a business this handicap will always keep it unpopular. When farming becomes a real business it will pay dividends on capital equal to those paid in any other average business; wages to compete with the best average wages

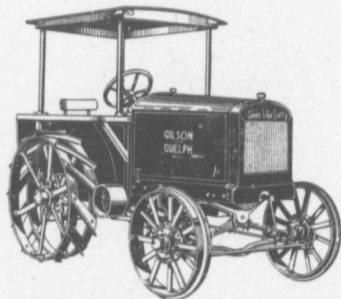
under any scale of a union; a better living to offset the comparative isolation; hours no longer than in the factory; a winter of comparative ease to balance a summer of hard work.

The farm is too important a part of any nation's life to be kept in the category of things not run as a business. Canada will be a more prosperous country with a higher average of well-being when a return comes to the land; when the back-to-the-land is not a mere exodus of townspeople to suburban acres, or of nabobs to money-losing show farms; when the farmer is no longer regarded as a Rube—who in turn looks upon the town-man as a ridiculous and parasitic greenhorn; when labor will go to the land be-

Continued on page xviii.

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A lot of the boys, like Doc Fraser, Munnie and Lucky, are making the most of the beautiful spring days, and the lack of male at Mac Hall. In fact, there is not much time for anything else by the time they take their morning walk, a round of golf and afternoon tea, and pay their evening call.

Between Year Book and examinations Jack Shales has difficulty in keeping Murray these fine days.

Overheard in the Co-Op.

Note—A box of chocolate bars were being unpacked, when the following exclamation was heard:

"Why, here's another box all chewed through! 'Tis strange it should happen again! But, still, since it looks like mouse work, I guess 'twas some second year men."



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This brand of fertilizer is noted for high plant food value and the analyses are guaranteed by us and by Government regulation to be full strength. We have the right Fertilizer for every soil and every crop. Make your farm a good farm; make your yields big on every acre and for every crop. You can do it by judicious use of Best-by-Test Fertilizers. Get your order in early; don't take a chance on a shortage. Farmers should club together and order in car load lots.

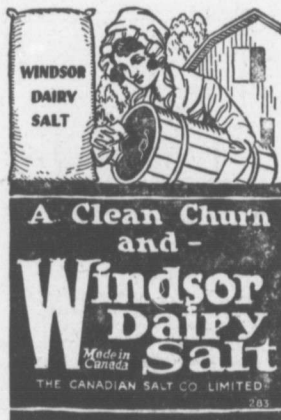
Write particulars of your soil and the crop you will plant, and we will give you the best advice we can, as to the kind, quantity and price.

Write For Booklet—FREE
CANADIAN FERTILIZER CO.
LIMITED
20 Market Chambers
CHATHAM, ONT.

Driver O'Flannigan to his horse, which refuses to get up after falling: "Well, of all the lazy spalpeens. Get up or oi'll drive right over yez."

Recently Griffin's featured a picture taken from the book, "Little Women." One of the little women, Jo, saw Meg being kissed by her sweetheart. She rushed back to her mother and cried out in wonder: "Why, mother, Meg's being kissed, and she seems to like it!"

We bet there weren't any Percy Shorey's, Garlick's, Sam King's, Cecil Tice's (?), Connor's or Charlie Butt's around that quiet village or such far-fetched innocence would not have been allowed to run rampant. Munnie says he never yet met such uncorrupted morals in any modern maiden.



WINDSOR
DAIRY
SALT

A Clean Churn
and -
Windsor Dairy Salt
Made in
Canada
THE CANADIAN SALT CO. LIMITED

Guelph Business Directory

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

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

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

Farming as a Business

Continued from page xiv.

cause it pays, and when capital will hunt for investment in farm properties.

The town and the country must forget their differences and work together for the good of all. The farmer should not require to be organized as a class or a political party. His interests are everybody's. If he fails, none of us can long succeed. A nation that depletes the farms and imports food for the sake of building up big industries is on the wrong economic track. And when farming becomes a real business, no nation that is worth while will neglect its farms for the sake of building up its other industries. Farming is not an act of Providence, or a curse of inheritance. It is a manufacturing industry. It calls for as much brains and science and organizing enthusiasm as any other industry and more than most. And when brains and labor and capital turn to the land, the true source of all national wealth and individual well-being, we shall all be better off. That will not be until the man who manages a farm has been trained in business; till the education given to farmers at the agricultural colleges has for one of its biggest items farm management.

The Turning Point.

Continued from page 412.

done the seeding alone while the old man was down in Toronto and Ottawa, trying to raise Cain with the Government? Hadn't he kept silence and the Ten Commandments long enough?

"Where the blazes is that dang-ed—," but the deacon didn't say

it all. John wasn't accepting guff any more. His mind was fixed and his father grasped the meaning of John's flow of ordinary vernacular. Figuratively the old man took the posture of supplication while John poured out an eloquence of meaning that even the constitution of that august organization, the Rural Uplift League, failed to express. Rhetoric and argument were combined in logical array with derision and profanity, and the whole was productive of the desired effect.

There was no binding done on Brown's farm that day. The deacon and John had repairs to get for the binder—and an agreement to complete at the notary's office. John runs the farm now while the old man directs the neighboring farmers.



CLEVELAND TRACTORS

Do more than Plowing
They prepare the seed-bed without
packing

The Cleveland Tractor Company
of Canada, Limited

WINDSOR

ONTARIO

The Young Man's Best Recommendation



A Savings Account is more than a start towards financial independence—it is a mark of character.

One of the strongest recommendations in the world of business that a young man can present, is a Merchants Bank Pass-Book, showing a record of consistent savings.

A Savings Account may be opened with \$1.00, which shows how highly we regard the accounts of those who desire to save.

THE MERCHANTS BANK

Head Office: Montreal. **OF CANADA** Established 1864.
GUELPH BRANCH, - - - J. G. DEWAR, Manager.

The Branch solicits the accounts of Students. The Merchants Bank with its 115 branches in Ontario, 37 Branches in Quebec, 1 Branch in New Brunswick, 2 Branches in Nova Scotia, 27 Branches in Manitoba, 41 Branches in Saskatchewan, 49 Branches in Alberta and 8 Branches in British Columbia serves Rural Canada most effectively.

ESPECIALLY FOR MACDONALD GIRLS

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

MRS. ALLEN'S COOK BOOK

Bran' new, and authorized by Food Controller Hoover.

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

\$2.00 POSTPAID.

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the best that is made
to the cheapest
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With Spraying You Get Bumper Crops

If you could spray one tree properly, and leave the one next to it unsprayed, you'd be horrified at the great loss represented in the unsprayed tree. With a Spramotor you can double and treble the yield from orchard or field. There is an efficient

Spramotor

It isn't a SPRAMOTOR unless we made it

for every need: fruit trees, row crops painting, whitewashing, disinfecting, etc. The Spramotor, in open competition against the world won over 100 Gold Medals and First Awards, and proved itself the best at all points. Write for FREE treatise on how to know, fight and conquer Crop Diseases.

J. H. HEARD SPRAMOTOR
5804 KING ST. LONDON, CANADA

Army Officer to Recruit—Have you seen service?.

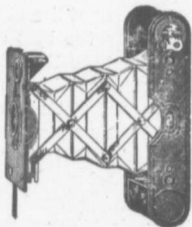
Recruit—No; but I've read his poems.

Mark Twain had his double (in facial contours). Archie Porter has double in literary ability—which is a still greater coincidence.

"That is an eight-day clock madam," explained the dealer; "it will go eight days without winding."

"Gracious," exclaimed the customer, "and how long will it go if you wind it?"

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



**Vest Pocket
Autographic
Kodak**

Price, \$8.50

Pictures 1½ by 2½ inches

As small as the hand—
big enough for the oppor-
tunity.

CANADIAN KODAK CO., Limited

Toronto, Canada

your dealer's.

Organization of the Farm Business

Continued from page 408.

the poorest quality of live stock and those where only the best class of animals was kept, so that this factor alone is sufficient to double the income from many Ontario farms.

There is at the present time one definite form of organization of the farm business where the farmer concentrates on the production of one special product. For example, in Oxford County, the greater percentage of returns from farms results from the sale of milk. To arrive at a definite conclusion as to the place this form of organization should hold in Ontario we have only to examine again the results from the Farm Survey in Oxford. Here it was found that the average farmer who derived only from 60-70% of his income from the sale of milk, in other words the farmer who practiced mixed farming, made a larger labor income than those who practiced specialized dairy farming, in spite of the fact that neither their crops nor their live-stock were as good. This increase resulted altogether from better organization, largely for the purpose of reducing the cost of production. On the other hand the few specialists who had their farms properly organized made larger returns than any other class. The Survey revealed the fact that that there were some farmers in Oxford County selling farm products for less than the cost of production, and many others making a very small labor income, while in the same district were farmers on farms equal in size and natural fertility, who were deriving good incomes from the farm business.

Taking these facts into consideration we must arrive at the following conclusions:—

That there is a need for better organization on nearly every farm in Ontario.

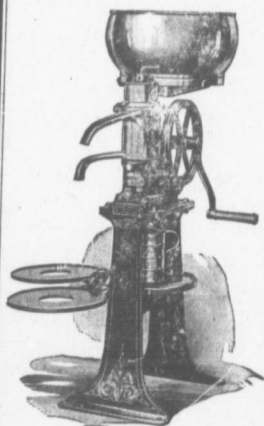
That specialization is an expert job and does not give the best returns for the average farmer.

That the efficient organization of the farm business offers the only opportunity to increase the labor income of the farm, without the investment of more capital for the expansion of the business.

Just how much difference all the factors in a well organized business have over the labor income of a farm is shown in a general but convincing manner by the results of the Farm Survey. In this it was found that a 100-acre farm efficiently organized produced double the returns of one of the same size poorly organized, and equal returns to a 250-acre farm lacking organization.

Realizing as we must the importance of having the farm business efficiently organized, how can we secure this desired organization? As with all great movements the change must be gradual. Little can be done with the present generation. It is true a few of the more progressive farmers have already recognized the value of a well organized business. A few more will pay more attention to this question when they read the results of the Farm Survey. But it is to the coming generations that we must look for greater results. These results can only be obtained by teaching the children of to-day—the farmers of to-morrow—not only the scientific facts of agriculture, but the business end of the industry as well.

Continued on page xxiv.



OF COURSE

We use only high quality materials and employ expert workmen in producing

A Cream Separator

that has many distinctive and exclusive improvements

But

the one main feature in the ANKER-HOLTH that puts it in a class by itself is the ability of the bowl

To Balance Itself

See your agent or write

SILVERWOODS LIMITED

Ontario Distributors of
Anker-Holth Separators

London

Ontario

COMPLETE PROTECTION

Pure, wholesome and unadulterated milk and milk products are very nourishing foods. And as such require adequate protection from harmful bacteria and infections. Upon the food value of these products depend the price and the demand, consequently no nutritive quality should be lost.

The sanitary cleanliness evolved by

Wyandotte
Dairyman's
Cleaner and Cleanser

insures separators, milk cans, churns and milking machines free from objectionable and injurious matter, and a milk product of the same original high quality produced by the cow. Odors, flavors and sourness that are so easily transmitted to the absorbant milk and its co-related products will also be prevented by the thorough and effective cleanliness produced by this material.

Indian in Circle



On Every Package

The low cost of using this cleaner places it within the reach of every dairyman and creameryman.

Your supply man will fill your order.

IT CLEANS CLEAN!

The J. B. Ford Co., Sole Manufacturers. Wyandotte, Mich.

Organization of the Farm Business

Continued from page xxii.

When this is done we can hope for a future generation of farmers managing their business efficiently, and holding their own in competition with all other industries. For those who fail to benefit by the experience and teaching of those who have studied this problem there is but one ending. They will be eliminated from the industry, even as the inefficient business man is eliminated from all lines of commercial enterprise.

In the great to-morrow of strenuous competition when the people of the nations of the world will be engaged in a great struggle for existence, those who fail to use every means within reach to gain efficiency must eventually go under. It will truly be a "Survival of the Fittest."

Money for Canadian Farmers.

Continued from page 416.

improvements \$3,000, he can borrow \$5,000 on the land and \$600 on the improvements, or \$5,600 in all. When he secures his loan he is required to purchase stock in the Federal land bank to the extent of 5 per cent. of his loan, for example, on a loan of \$5,600 he would be required to purchase \$280 worth of stock.

The security for each loan is: First, the farm of the borrower; second, the bank stock of all the members of the local association; third, an amount equal to the bank stock of all the stock of all the members. That is, a farmer is liable for his own loan, and for the loans of all other members of his local association to the extent of 10 per cent. of his loan, for example, on a loan of

\$5,600 he would be liable for this loan, and for the loans of other members of his local association to the extent of \$560.

Benefits to Canada

We Canadians are faced with the task of paying our war debts; to do this we must produce more and save more.

Our farmers are the great producers of the country, and if long term loans were available they would be able to increase their production. On the other hand, thousands of us have learned to save money for Victory Bonds, and if farm loan bonds were available we should be encouraged to increase our savings.

As a result of this increased production and increased saving, Canada would carry her own burdens lightly, and every business in the country would prosper.

Daughter (having just received a beautiful set of mink skins from father)
—What I don't see is, how such wonderful furs can come from such a low, sneaking, little beast.

Father—I don't ask for thanks, my dear, but I insist on respect.

Belle—Time separates the best of friends.

Jack—Yes; eleven years ago we were nineteen together; now you are twenty-four and I am thirty."

"My but you will be glad when your time is up, won't you?" said a sweet eighteen-year old miss to a prisoner in jail.

"I can't say I'm very keen about it. Miss," was the answer, "I'm in for life."