

PAGES

MISSING

THE O. A. C. REVIEW

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

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No. 10

A Memorial Hall for the O. A. C., Guelph.

SERVICE has always been uppermost in the minds of students and ex-students of the Ontario Agricultural College, Guelph. When the Great war came, over seven hundred of the best of these men answered the call of their country and joined the armies of the Allies in humanity's fight to the finish against the horrible Hun and the unspeakable Turk. These men risked all that the ideals which they held most dear should not perish. They were willing to lay down their lives for their friends, and of the number who crossed to the blood-soaked fields of France and Flanders, who fought in Mesopotamia, in Africa, on the Eastern Front, or aboard His Majesty's ships on the High Seas, and in the Air Forces, one hundred, one in seven, are numbered in the lists of the "unreturning brave." They were in the thick of the fight. They acquitted themselves like men. They fought. They died. They won. They did their bit and their best to ensure permanent freedom for all. The greatest effort of the man at home, who served his country by increased production and by giving of his time and his money to the cause, paled into insignificance beside the sacrifice of those who risked their all and gladly gave their lives. Their deeds

live after them. They have given vastly more for the cause of humanity than all other O.A.C. men combined. Their memory must be perpetuated. Students, ex-students, staff and friends of the Ontario Agricultural College and Macdonald Hall realize that they can never pay the debt they owe those who fought and died for them, but they see their duty clearly, and will deem it a privilege to give till it hurts, that an appropriate memorial be erected to commemorate the lives and the deeds of the best of their brothers who stood between them and the Hun and cracked the "Kultur" of the Kaiser and his war lords.

It has been decided to build a Memorial Hall on the College campus, and every student and ex-student of the College, and of Macdonald Hall, together with all those who have taken any of the Short Courses at the Institution, and all friends of the College, are asked to subscribe to the fund for the erection of this ornamental, yet useful, monument, to the memory of our noble dead. A committee has already been formed with Dr. Creelman, President of the College, as Chairman and Treasurer, and Prof. D. H. Jones as Secretary. The purpose is to erect an Assembly Hall to seat at least 800,

the architecture of the cut stone building to be modified gothic in design with tower and chimes, the interior to be fitted with a large stage, pipe organ and everything which goes to complete a modern Assembly Hall.

The men who lie beneath the poppies in Flanders fields were big men. They accomplished a big task. They lost their lives that others might be saved. The saved must do their biggest and best in honor to our glorious dead. The building will cost \$100,000 or more. The Ontario Government has voted \$40,000 as their contribution to the cause. The committee in charge desire to raise, by popular subscriptions, the remainder of the money necessary to complete a building in which all of those in any way interested in the Ontario Agricultural College should have a part. This includes students, and ex-students, graduates, staff, friends and acquaintances. Every individual must play his part and by team-work, such as that shown by the boys who stemmed the tide of

German field gray as it flowed toward Paris and the Channel Ports, the fund will go over the top and there will be erected a fitting memorial at the O.A.C., sacred to the memory of those who fell daring to do their duty and with the undying faith that Right would finally prevail.

Subscriptions should be sent to Dr. G. C. Creelman, Treasurer Memorial Hall Fund, O.A.C., Guelph, Ont. Make them as large as possible. Affection should bind all together in this cause. Together O.A.C. and Macdonald Hall students and ex-students are strong. The committee requires the assistance of all in locating ex-students. Send in your donation and names and addresses of other ex-students either of the regular or short courses.

The staff of the O.A.C. has already been canvassed and Heads of Departments are giving \$100.00 each, Associate Professors \$75.00 each, and Lecturers and Demonstrators \$50.00 each.

WADE TOOLE,

Chairman Publicity Committee,

O.A.C. Memorial Hall Fund.



Notes on the Agriculture of Northern France.

By CAPT. S. G. FREEBORN, M. C.

Any Canadian farmer-soldier who trained in England will be fairly well acquainted with the agricultural aspect of the southeastern counties where the depots, hospitals and convalescent camps used to be, Kent, Sussex, Surrey, East Hants, as well as that spot for leave between seasons, Cornwall, with its pleasant climate. If he followed the fortunes of "The Corps" on the other side of the English Channel, took his share of hospital, rest-camp, training behind the lines, lorry "joy-rides," French leave, and tactical movements up and down the front, he will know something of the agricultural aspect of Brittany, Normandy, Picardy, Flanders, and possibly Champagne. Several or all, of these provinces of Northern France have been familiar country to a number of young Canadian farmers during the war. Climate, soils, and, apart from the immediate effects of war, basic agricultural conditions generally are fairly comparable to the south of England. The vineclad slopes of Champagne are not the cultured counterpart of the Kentish hoplands, but Kent, Sussex, or Cornwall reproduce themselves to a certain extent in the departments nearer the sea.

The south of England small-holder is much talked about on paper, but less in evidence on the land. On arable land, truck-gardening, with his pigs and his pony, or on a few acres of meadow, with his chickens, a cow, and maybe a donkey, he

shows up conspicuously in a setting of large holdings. Compared with their neighbours across the Channel, small-holders are not a characteristic of English rural economy. It is a country that features ancestral estates, large holdings, that require the ancient feudal land tenure to account for their origin, and a system of landlordism, at the root of many social and economic troubles of the present moment, requiring a people who have been most conservative and stable to apologise for its existence.

Small-holdings are cited as the leading feature of French rural economy, encouraged by their laws of inheritance, determination and being determined by the course of French agriculture.

The writer was billeted one night last October in the home of the manager of a large pottery factory in a village west of Valenciennes. Inquiry as to the passenger service in the district that would warrant the rural electric car service which had existed elicited some interesting information of the numerous city and town factory workers and local miners who had rural homes on small holdings. Some statistics came out during the evening's discussion, and the writer finds the following in his notebook. The excellence of the evening hospitality is our only apology for a slight mathematical discrepancy in the approximations.

Just previous to the war France estimated her land-holdings of all

sizes at 5 3-4 millions, comprised of holdings under 2 1-2 acres- 2 1-4 millions, 2 1-2 to 12 1-2 acres-1 4-5 millions, 12 1-2 to 25 acres-3-4 million, 25 to 100 acres-5-7 million, 100 acres or more-1-7 million. Of these holdings, 75 per cent. were farmed by owners and averaged in size 11 acres, 19 per cent. farmed by tenants averaged in size 29 acres, and 6 per cent. farmed on shares averaged in size 26 1-2 acres.

Contrasting statistics for Great Britain for holdings over 1 acre show 11.7% owned by the cultivators, 3.8% partly owned and partly tenanted, and 84.5% occupied by tenants. The average size of owned and partly owned holdings is 58 acres. Not only are there fewer small-holders, but ownership is not implied as is generally the case in France.

To the agricultural economist small holdings may suggest evils as great as the evils of large landed estates. But the saving grace of agricultural co-operation has stepped down here and there and restored a more favorable balance for the French small-holder. There must be some good economic grounds for small-holdings when through these provinces of Northern France we find the tenant farmers looking forward to purchasing the land they have leased or planning with the profits of fewer years of tenancy to purchase a moderate sized holding. Laborers are encouraged by the ambition to own a small-holding, and from many small lots of a fractional character comes the best class of agricultural labor, spurred to further effort if there is an opportunity to add to their allotments.

Observing signs of a pre-war

plentitude of labor in well settled rural districts of Northern France, one is apt to suggest that large estates would be most remunerative investments. But the methods of cropping, fruit, grapes, sugar-beets, potatoes, cabbage, onions, tobacco, require so much more labor than we are accustomed to utilize, that labor lacks in season on the large farms. Apparently through lack of seasonable labor large holdings tend to be divided into moderate sized ones. We are informed that, where labor has been difficult to obtain, the establishment of small-holders on fractional allotments has been a consequence and a remedy for the situation. In the vineyards there is no time of the year when timely labor may not be required, and a vineyard no bigger than the small-holder can insure with the labor of himself and family has a minimum of risk in maintenance. Even in the cultivation of cereal grains the timeliness of the tillage and husbandry gives the crops of the small-holder an advantage over the cereal crops on large farms which depend on the same hands hired to sow and harvest them.

The poorer classes of land seem to make the best exposition of the benefit of small capital investments in land. The incentive to possess land of his own results, frequently, in the least fertile areas being obtained because least desired by large land-owners, of mixed areas and offered cheapest. This small-holding will get a relatively greater amount of cultivation. The land is the small-holder's capital, and the improvement of that land, of that capital, that he may realize greater returns

A New Rural Community.

Speech Delivered in Massey Hall.

By R. E. BRGG, '19.

WE have had many discussions during the last few years, both on the platform and in the press, on the Rural Problem. Have we a Rural Problem? As we travel up and down our concession roads in Older Ontario and see all the vacant farm houses, and compare the rural population with that of thirty years ago, we plainly see that we really have a Rural Problem.

What is the reason for this decrease in population? Why do rural people leave the farm? I believe that our system of rural education is largely to blame. Has not the farm boy and girl as much right to a good education as the city boy and girl? Parents are leaving the farm and moving to the city to give their children a good education. Under the present system of rural education it is only a privileged few who can obtain a high school education.

The education of our rural children is a question of national and world importance. The food of future generations must come from the same soil that grows our food. The maintenance of soil fertility is a question of paramount importance, therefore our rural population must have access to the best system of education. To this end we must have a new rural community.

We will select as our site for this new community a rural district in old Ontario of about 35 square miles. We would purchase a 200 acre farm in the centre of this community and build on it a large consolidated

school, to accommodate all the children of that community. This building would be modern in every respect, with well ventilated classrooms, a proper heating system, a water supply for wash and bathrooms, and a large assembly hall to serve for all public and social meetings. The school grounds would be made the most beautiful spot in the community. A large part of the ground around the school would be laid out in lawns, drives and flower-beds; suitable planting would increase its beauty—such environment would result in great improvement of our farm homes.

During the war organized games kept the men fit for life's most strenuous work. Organized athletics and games will be a great factor in making a healthy, happy rural population. Thus ample room would be provided on the grounds for various games. To stimulate interest an athletic meet would be held and records kept from year to year.

An agricultural college graduate would act as manager of the farm in connection with the school, and also as instructor of agriculture in the school.

A four-year high school course would be conducted in addition to the public school training. This would permit every boy and girl to obtain a high school education. The high school curriculum would include domestic science, household practice, agriculture and manual training. A competent staff of teach-

ers would be employed, who would live in a teachers' home amid these congenial surroundings.

A school garden would form the practical side of the agricultural education. Live-stock, seed and poultry judging, market grades, values of live-stock and farm products, the principles and practices of cultivation would be demonstrated as well as taught.

Our school fairs have shown us the opportunities for agricultural extension work for rural children. O.A.C. 72 oats and O.A.C. 21 barley would not be so widely grown except for the work of the school fair; also, the school fair has been an important agency in introducing the Barred Rocks into rural Ontario. Pig clubs, calf clubs, poultry clubs, etc., have assisted in improving live-stock.

The crops grown on the farm would be the ones most suitable to that locality. Clean, registered seed would be supplied in limited quantities to the farmers. The live-stock kept would be of the breeds most suitable to the district. This would develop community breeding. In poultry, the breed specialized in would likewise be the one most adapted to the needs of the community.

The O.A.C. has proved that we must have greater winter production of eggs, and to obtain this we must have early hatched chickens. Artificial incubation is thus necessary. Early chicks would be hatched at this farm at less expense than if hatched in small incubators operated by amateurs.

Extension work would be carried out among the farmers. If it was a dairying district, a cow-testing as-

sociation would be formed and the milk samples tested at the school, the results being used for class-room work. This work would be directed by the agriculture instructor, who would be the agricultural representative of the community. He could come in personal touch with the farmers which the present county representatives are unable to do.

The school would be the centre of the community. Here would be the co-operative creamery, etc., where the produce would be graded. The principles of co-operation would thus be instilled in the children.

Let us now see what the social conditions would be. The young people would have a much wider acquaintance. They would be better educated and broader minded. The literary society would develop public speaking and musical ability, which would result in better socials and entertainments. The Farmers' Club and Women's Institute would hold their regular meetings at the school. Every person would feel that they were a part of the community. Thus there would be developed community and national pride and spirit.

Let us picture the O.A.C. with a student body composed of boys developed in such a community. Every boy would have four years of high school training, and most of the rudimentary agriculture now taught in the first two years at the O.A.C. Just as the city high schools are preparatory schools for the universities, so these community schools would be preparatory schools for the agricultural colleges.

What would be the result if Older Ontario was composed of such com-

The Land of Evangeline.

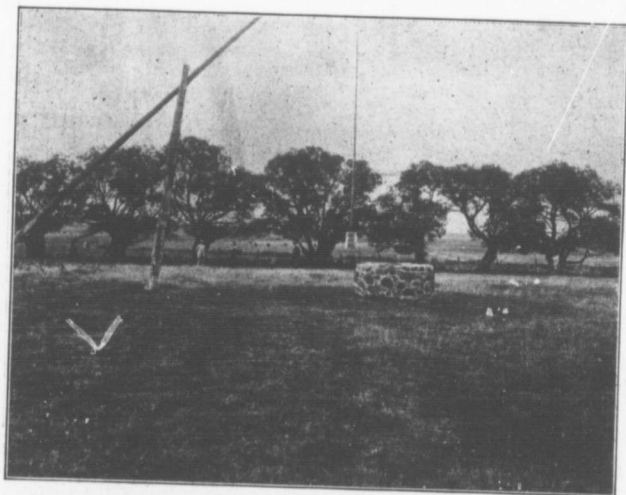
An Appreciation.

B. E. L. EATON, '20.

“**O**WING to their natural sympathy with the French cause representatives of the British Government decided that it was inexpedient for the French Acadians to be allowed to remain longer in the country. Accordingly in 1755 the people of Grand Pré and vicinity were gathered together, placed upon ships and deported to various portions

Stand like harpers hoar with beards
that rest on their bosoms.
Loud from its rocky caverns, the
deep-voiced neighbouring ocean
Speaks, and in accents disconsolate an-
swers the wail of the forest.

In the Acadian Land, on the shores of
the Basin of Minas,



The site of the French village of Grand Pré

of what is now the United States.”

Historical Reference.

This is the forest primeval, the mur-
muring pines and the hemlocks,
Bearded with moss, and in garments
green indistinct in the twilight,
Stand like Druids of old, with voices
sad and prophetic,

Distant, secluded, still, the little village
of Grand Pré

Lay in the fruitful valley. Vast mead-
ows stretched to the eastward,
Giving the village its name and pasture
to flocks without number.

Dikes, that the hands of the farmers
had raised with labor incessant,

Shut out the turbulent tides; but at
stated seasons the floodgates
Opened and welcomed the sea to wan-
der at will o'er the meadows.

—Longfellow

This is a poet's picturesque description of the Acadia of one hundred and fifty years ago. Picturesque it is, and yet to-day in various parts of Nova Scotia one witnesses scenes which continually call to mind the vivid picture which Longfellow's imagination has drawn.

and low-grade lumber. But a few of the outlying districts, situated at a distance from the railways and the sea, still possess fairly large areas of virgin forest. Here are lakes and streams abounding in that gamest of all fresh water fish, the trout; here the industrious beaver builds his endless dams; and here in the fall the moose call and the bears prowl at random just as they did in the days of the French occupation.

“The deep-voiced neighbouring



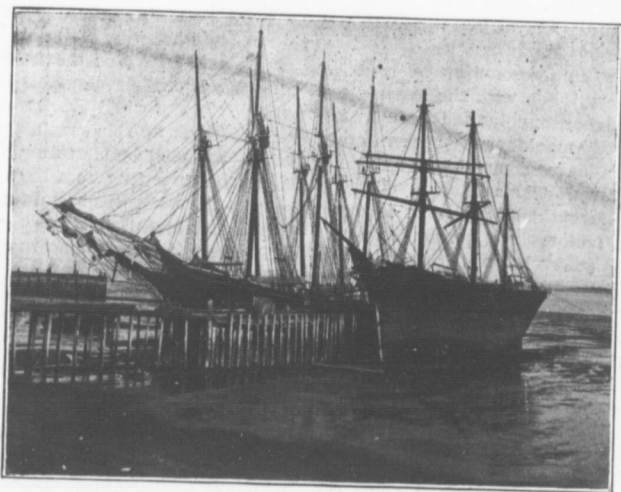
“The fruitful valley” from the Look Off. Pereau River and dikes in the foreground. Minas Basin in the background Grand Pré marked X.

“The forest primeval” no longer covers the mountains within view of Grand Pré, it is true; for the relentless hand of the lumberman during the past fifty years has stripped this portion of Nova Scotia of its wonderful heritage of timber. In place of the “pines and the hemlocks” are farms dotted here and there with patches of second growth birch and spruce which serve only as a source of fuel, barrel staves

ocean” still washes the shores of the Basin of Minas and is still laying up its fertile alluvial deposits for future generations to reclaim. Vessels continue to sail up the tidal rivers, bringing coal to the people of town and country, carrying lumber, hay and potatoes to the United States and West Indian markets. The old fashioned weirs for shad and herring are to be seen in many places on the mud flats, for Nova Sco-

tia's fisheries are one of her greatest resources. To-day west of Blomidon, at the opposite end of Mines Channel, "the sea fogs pitch their tents" upon the site of an electrical project as unique in principle as the harnessing of Niagara. The Cape Split Development Company aims to use the tremendous force of the tide race, caused by the fifty foot Bay of Fundy tides, to furnish power for all the cities, towns and villages within a radius of one hundred miles. With such an unlimited supply of cheap power the future of manufacturing in the Maritime Provinces is assured.

one can ride for fifty miles under apple blossoms." Since that time the orchard area in the Annapolis and Cornwallis Valleys has been more than trebled. Traces of the old French village may still be seen. Indistinct mounds indicate the position of the village street, the village church and the village blacksmith shop. The old willows furnish shade for the herds and flocks, and the old well is also in use. Here and there are a few isolated survivors of the old Acadian orchards; many of these trees having been grafted in recent years to provide improved varieties of fruit to feed the descendants



Low tide at Kingsport. A familiar scene around Minas Basin.

"The little village of Grand Pre" has been replaced by a prosperous farming community of the same name. "The fruitful valley" of which this is a portion, was spoken of by the Hon. Joseph Howe on a visit to New England nearly half a century ago. In these words, "Why, I know a valley where

of the English people who usurped the country.

"Vast meadows" stretch not only to the east but also to the north and west, every river flowing into Minas Basin having its strip of marsh land. As the years have passed, through the process of

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By Their Works Are They Known.

By W. A. FLEMING, '20.

RECENTLY I called on an old breeder of Holsteins who is turning the business over to his stalwart sons after half a century on the farm. I went with him through the well kept stable and heard the story of some of his favourites, and of the difficulties with which he had to contend.

In the old days when labor was cheap and plentiful the work was done by hand, or with heavy, cumbersome machinery; then with the lessening of the labor supply had come improved machinery, greater crops and a larger demand for products of the farm. The avenue of selling on this farm had been milk delivered to a factory in a nearby town.

It soon became apparent that greater efficiency on the cows' part was necessary to make the business a success, so after much consideration and with some timidity, a pure-bred Holstein bull was bought. In this community a pure-bred animal had been a rarity and the owner was censured for "putting on airs." The venture, however, proved a success, and after the first bull's usefulness was over, another was purchased, and some females, which laid the foundation for the present

herd. Careful, systematic breeding and the culling out of all those not paying their way has made this herd a success at the pail and in the show yard. My old friend had the honour of breeding and developing a Canadian champion cow in the three day test. Though this record has been beaten more than once, it is the sign by which advancement can be measured; it shows that the highly bred cow has the ability to produce, and the feeder by



close study can develop this latent power.

The secret of this man's success is not difficult to understand or follow; it is in setting up a high ideal and in the patient, unremitting effort to attain this goal.

To the faithful pioneers in the selection and breeding of live stock we must acknowledge a tribute of thanks, for it was by their steady, stubborn searching for the best that we owe our present highly-developed herds. **The day of the common cow of unknown lineage or attainment has passed forever.** The cow of to-day must measure up to a standard our forefathers thought impossible, and the improvement will continue if we follow in the footsteps of the passing generation.



The years glide by; stand strong and true; the good thou canst do, quickly do! Let gentle words soothe woe and pain, we shall not pass this way again.

Problems of Rural Reconstruction.

Speech given at Massey Hall.

By R. D. ALLAN, '19.

THE problem of reconstruction involves the principles of adjustment to new conditions. This explanation is essential because I do not wish to convey that rural Ontario requires a building up process from a shattered mass of ruins.

Everywhere about us energy is being spent to develop new conditions to meet the needs of the times. There are two schools of thought that have their respective plans in connection with economic reconstruction, and these vary widely. The first school is headed by the Canadian Manufacturers' Association. This school is firmly of the belief that the only economic solution for Canada's financial burdens comes through the maintenance of the present tariff.

Opposed to this school is another which pins its faith on far-reaching rural reconstruction. They point out that the protectionist system has been carried in Canada to excess and even to a point of danger. Already one-third of the population have been attracted into the great cities. The rural population in Ontario had shown a marked decrease. It was contended that the economic tyrannies of the manufacturers, bankers and railways weighted the balance so heavily against the farms that agriculture no longer presented any great attraction.

The advocates of rural reconstruction contend that Canada's best chance of recovery will come through energetic development of

her natural resources and agriculture. They want to see the co-operative idea in agriculture extend till it embraces the whole of Canada in one vast organization.

They mention that energetic development of natural industries would result in the increased growth of country towns. The crying need is for the betterment of rural conditions, both from an economic and social point of view. It is the dreariness of the long winter in our country districts which drives so many people from rural Ontario. What is needed above all things is the creation of rural community centres such as have been so successfully established in Denmark.

The time has come when each individual must value his prosperity upon a larger scale than the boundaries of his own farm. He must think of his relationship to others about him. We are not living upon our own independent resources, but rather are we very much dependent upon those with whom we come in contact. We must, therefore, break down the barriers of independence which separate us from our neighbor. A broader vision of the economic and social necessities will be revealed and an improved community will be the result. I have pointed out that rural depopulation was largely due to the unattractive farm life. With a new rural community centre there would be plenty of activity for young and old.

Literary meetings, amateur con-

certs and social evenings could be held at regular intervals. At other meetings educational addresses, dealing with agricultural improvement, could be introduced, and these illustrated by the modern moving picture.

The problem of a rural community centre therefore lies right at your own door, awaiting your own initiative to work it out.

Let us now turn to the educational problem. Education is far from being in a satisfactory state. Rural schools are deficient in equipment and well trained teachers, and too much stress is laid on providing a window dressing of knowledge rather than good, mental training. The community centre might be the rural school, and this would necessitate a drastic improvement in the rural educational system. Consolidation of schools will in many cases solve this problem. A higher standard of efficiency must be attained to meet the needs of an improved education for our boys and girls in rural Ontario.

Co-operation is another problem of vital importance. It has made Denmark a great agricultural country, while in Ontario it is yet in the embryonic stage. About 1906 the farmers in the West organized grain growers' associations. Since that date they have made extraordinary progress, until to-day their co-operative organization controls one-third of the grain trade in the West. They are breaking out into the other departments of trade, and selling such commodities to their members as coal, fruit and agricultural implements. They have acquired a timber limit of their own, and will soon

supply all the lumber required by their members.

For a long time Ontario was unresponsive to the co-operative idea, but within the last two years the infection has spread, and a sister organization, consisting of over 20,000 members, has been organized.

The whole question of reconstruction must in the final analysis resolve itself down to one paramount factor of co-operation. Co-operation in our buying and selling; co-operation in our social problems; co-operation in our national life. It is the inevitable solution of all the big issues at present confronting agriculture.

The last problem which I consider to be of grave importance is the farmers' attitude to the national life of his country.

The farmers of rural Ontario have in the past lacked vision. Commercial manufacturing organizations have organized very extensively and as a result become very powerful. They have carefully and accurately studied national problems, until they know exactly what position they hold in the industrial world. The farmers must organize so that they will be on an equal basis with the manufacturer. The one needs the assistance of the other. Disraeli has told us that the secret of success in life is for a man to be ready for his opportunity when it comes. Never has there been a greater need in the history of Canada for the Ontario farmer to come out to the front and display his ability to participate in the national life of his country. Let it not be said that agriculture is forever going to remain in the background. While in office

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Economical Feeding of Hogs.

First Breed Properly—Then Feed Properly.

By C. M. Flatt, '21

THE production of a marketable class of hogs, as with all other lines of market stock, begins with the breeding. Assuming that hogs are bred from a strain that makes rapid and economical gains, the balance of the problem of securing these rapid gains rests on the skill of the feeder. While the finishing period is important, the real cost of producing pork is decided largely by the method of feeding practised during the growing period. The fact that the cheapest gains are made with the young pig, and that these gains increase in cost as the pig reaches the finishing period must be kept in view.

Begin Feeding Early

Considering this fact the good feeder starts his young pigs early by feeding a little skimmed milk or buttermilk in a separate trough, where the sow cannot get at it. This may be done any time after the pigs are three weeks old. As the pigs learn to clean up the milk, a small amount of middlings may be mixed with it to form a paste. This amount can be gradually increased as the pigs grow. To make this supplementary feed a little more fattening, chopped oats may be sifted and added to the slop. The hulls are objectionable owing to the fact that very young pigs require an easily digestible concentrated ration. Soaked whole corn spread around the pen may be used instead of the oats.

When the pigs are weaned at from six to eight weeks, they should be

eating well and should suffer very little from the immediate effects of weaning. The slop can now be increased both in strength and amount, using about equal amounts of middlings and chopped oats mixed with the milk or buttermilk. Whey can be used to advantage where it can be easily obtained, but requires a heavier grain ration than when skimmed milk is used. Corn should never form any considerable part of the ration of growing pigs; it is low in protein, thus being a poor flesh former, and lacks in mineral matter, tending where fed in too large quantities to produce weak-boned hogs, which make poor feeders.

Where mangels are available they can be used to advantage in reasonably large quantities. Other feeds, such as alfalfa, clover and green peas and oats can be used similarly, and they materially reduce the cost of making gains.

Where it is impossible to secure dairy by-products, high grade tankage can be used as a substitute, providing it can be secured at a reasonably low price, along with a guarantee of quality. In feeding tankage it should never form more than from one-tenth to one-fifteenth of the grain ration.

Exercise Necessary

With all growing pigs, whether they are destined for breeding stock or slaughter, exercise is essential, if thrift is to be maintained and the highest percentage of feed utilized.

Pigs that are carried along and kept fairly well without exercise fall down in the finishing period, because they are unable to stand heavy feeding.

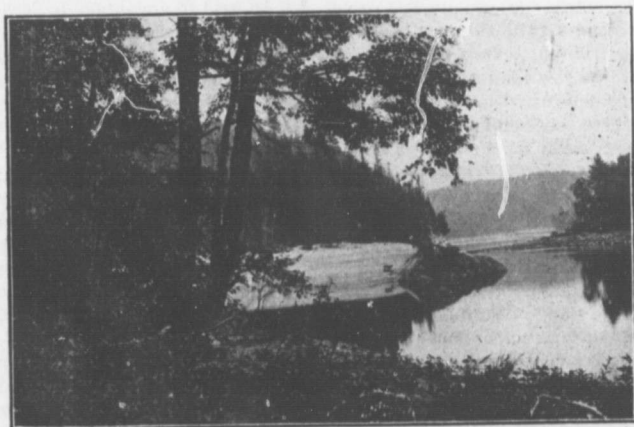
Mineral matter must be supplied in some form to build the bone of growing pigs. It must be supplied as a supplement to the grain ration because it is seldom that feeds can be secured or fed in the right proportions to supply at all times a sufficient amount of mineral matters. For this purpose a mixture of charcoal and wood-ashes is satisfactory, and should be accessible at all times.

Finishing Hogs

As the finishing period approaches the grain ration should be gradually changed. The addition of corn or ground barley, or a mixture of both, and the gradual reduction of

the amount of middlings and oats, results in getting the hogs on the finishing ration without putting them off their feed. Finishing should be rapid. To this end the pen space should be reasonably limited, restricting exercise. If the pigs have been carried along as outlined above, they should be in shape to finish in a short time. Once that stage is reached where the gains made are diminishing so rapidly as to be negligible, the maximum finish for profit is secured, and further feeding is at a loss.

We have only covered the essential points in the economical production of pork, when pasturage or a soiling crop is not easily available. Where pasturage or green feeds, along with a grain ration are used, for growing pigs, the cost of production can be materially decreased.



Every Hen Should produce at least 120 eggs per year.

By G. B. SNYDER, '21.

THE flock of the average farmer usually contains a number of hens that eat a large amount of feed, but do not produce many eggs. Quite naturally, the hens do not pay for themselves, and the owner is led to believe that there is no money in chickens. If he would use the proper methods of culling, he should have a flock of hens in which every hen was a 120 egg producer. This is the number of eggs necessary to pay for feed, etc., of a hen for one year.

When to Cull

Culling of the old flock should start in June or July, just as soon as any of the hens stop laying. Culling should continue until the flock is reduced enough to make room for well developed pullets in the fall. Under most conditions it is preferable to carry one-half or two-thirds of the hens over winter, rather than raise pullets to take their place. By beginning to cull in the summer, a big saving can be made in feed, and the culls will bring more if sold then than later on in the fall. Occasionally a fowl that stops laying in June or July will molt and start laying in October or November. This, however, is the exception. Nearly always the fowl that stops laying early does not begin again until after the fowl that laid late in the summer. The late layer molts quickly, while the early quitter molts slowly. If only one culling is made, it generally can be done best early in Sep-

tember. At that time all hens that have quit laying should be culled out.

Picking out the Culls

The method of culling depends on the conditions of the fowl, and the method of housing. If the hens are tame, it is a comparatively easy matter in a small flock to pick up the non-layers. If the flock is not tame enough for this, they may be gone over at night while on the roost. In the case of large flocks, that cannot be handled at night, it is best to drive the hens into catching crates by means of wire alleyways. Care must be taken not to frighten the hens.

In selecting the layers: In the first place the hen should be a fair specimen of the breed; secondly, she should possess laying indications, and, thirdly, she should possess the desirable points indicative of egg-laying capacity and constitutional vigor. These points are manifested by a clear face, free from wrinkles, a bold, bright eye, tight feathering, shanks short and set well apart, a well developed crop, width across the saddle, and a deep full abdomen. It is necessary that the keel be short and the legs stand well apart. The skin surrounding the abdomen must be soft and of fine texture to allow the necessary expansion and contraction which takes place in laying and non-laying seasons. A well developed crop is imperative, for it is obvious that a heavy laying hen

must have the feeding and digestive power to use a large amount of food in maintaining body waste and keeping up her high egg production.

In order to accommodate this large quantity of food, the intestines must be large and elastic as compared with the period when she is not laying heavily. Careful measurements have been taken at Cornell which have shown that the intestines practically double their normal size during a period of heavy production.

At the same time that the intestines are becoming large, the ovaries and oviduct are also decidedly increasing in size and weight. As soon as a hen stops laying, a layer of fat is deposited nearly all over the body just underneath the skin, and also a thick mass of fat is formed in the abdomen. A hen is able to form this fat only when she is not forming yolks, at a rapid rate, since they are composed very largely of fat. In fact during seasons of heavy production a hen draws on the reserve of fat held in the body.

Of course such a change in fat disposition could not occur without becoming manifest externally. When a hen stops laying, fat is deposited around the pelvic bones, so that they feel stiff as compared with those of a laying fowl. The thicker the deposit around the pelvic bones, the longer it is since the fowl stopped laying.

The back of the shank fill up with fat and become round and fine, after a hen has stopped laying for some time. The face fills out and the back part of the wattles drop down, giving the face a full coarse masculine appearance. All these changes in fat deposition, because

they are slow, are of value in telling long periods of production and non-production. When extreme coarseness is found it is nearly a positive proof that the hen has not been laying for weeks, or perhaps months.

Fortunately while it takes several weeks for sufficient fat to accumulate to be apparent in the yellow skinned breeds, the yellow pigment or xanthophyll, that accompanies the fat is noticeable when only a small amount of fat is deposited or withdrawn. In such yellow skinned varieties as Rocks, Reds, Wyandottes, Leghorns, and Brahmas, it is possible to tell by the color of certain parts, whether the hen is laying or not. A heavy laying hen shows a lack of this yellow secretion in the vent, beak and eye-ring, while a hen that is not laying is distinctly yellow in these regions. The rate at which the yellow pigment disappears from any section, depends mainly on the rapidity or amount of the circulation through the part affected, the nature of the food supply, and the amount of fat stored in the section. Because of the circulation, the skin just within the edges of the vent is the first to take on this yellow color, then the eye-ring, the ear-lobes, the beak, and the shanks are affected in the order named.

The heavy breeds, because of their coarseness, carry much larger supplies of fat, and hence do not bleach out so quickly as the light breeds. This difference is especially noticeable in the shanks. The color of the skin just within the edges of the vent changes very rapidly with egg production. The color of the eye-ring, since it also is plentifully sup-

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The Requirements of an Ideal Silo,

And the Efficiency of the Monolithic Type.

By S. W. KING, '20.

THE time is coming in our prosperous dairy sections when we must have more regard for the aesthetics and the amenities of life on the farm. The log houses and the small frame houses have been replaced by permanent structures. The old style of barn and even the old type of silo have had their time and place. These old type makeshift buildings do not beautify our farmsteads. They do not provide for permanency, hence are not satisfying. There are, of course, instances in certain localities and under certain conditions where the cheap building may be constructed, but in well established dairy or beef sections, the time is past for cheap construction and temporary inefficient buildings.

The history of the silo in Ontario does not date back so very many years, yet sufficient tests have been made to teach us that good silage is possibly the cheapest and most staple foodstuff now fed to our dairy and beef herds. Therefore, it behooves us as Ontario farmers to learn the requirements of an ideal silo.

The foundation must be strong enough to withstand the weight and pressure of the walls. The depth of excavation necessary is determined by the nature of the subsoil and lay of the land. The walls of a silo must be air-tight and water-tight, with no joints. They should be non-absorbent and circular in shape. The inside surface of wall must be

smooth and perfectly perpendicular. It is wise to have a structure that is rot-proof and wind-proof, one that is fire and rust resistant. It must be durable and of sufficient depth to secure economy in capacity.

To be air-tight a silo must be built of such material as will not warp or shrink, thus causing cracks. As far as possible it should be constructed of one solid material so the changing temperature and weather will not tend to tear it apart and cause openings. The material should not corrode or decay when exposed to the air. It should be of a hard substance so that rats and other vermin cannot gnaw into it nor gain an entrance by any means. It should require a minimum of care in order to reduce the maintenance cost.

It is imperative that a silo be durable, for often farmers keep silos filled or partly filled the year round. This makes it very difficult, aside from the expense incurred, to replace any defective parts. The greater the durability of a silo the better is the investment. The cost of a silo makes it imperative that returns be made for a considerable length of time.

A silo is essentially located in close proximity to the main barn which is built of highly inflammable material. Why not construct a silo that will withstand the heat produced by a near-by burning barn? Why not construct a silo with a low or moderate initial cost, one that has proven to be highly durable and

which incurs the minimum of up-keep expense? Why not do away with the danger of rusting reinforcement? It is wise to eliminate the bother of tightening up and letting out of reinforcing bands, replastering, painting. Why have decaying wood parts and twisted hatchways? Do away with the nuisance of having any rods fastened to every building and post about the yard. Do away with the inside ledge which is too frequently seen in some types of silos.

There is probably no greater defect in what is termed our modern silo than the inside projection. Judging from the use of such projections in various types of wooden silos, and the fact that certain silo manufacturing concerns give cuts in their illustrated advertising material of such projections, would lead us to believe that it is difficult to overcome this objectionable feature. We know from our own experience — I am sorry to say—and from observation, that a two-inch or even a one-inch projection, no matter how neatly it be beveled, does not give perfect satisfaction, and the four or six inch ledges are decidedly unsatisfactory. The ensilage does not settle uniformly in such structures. This allows an air space, thereby causing much mouldy silage in a part of the silo where every cubic inch of space is of the utmost value under proper conditions. The Monolithic concrete silo has overcome this defect in construction by being able to continue its walls from the foundation in a perpendicular position. The wall is continuous and free from joints.

In view of these facts, and after getting the opinions of many farmers from various parts of Ontario,

it would seem that the concrete type of silo is better than the other type.

The monolithic concrete silo is in effect one solid mass, having a uniform temperature, uniform expansion and contraction. Rats and other rodents, woodpeckers, and all wood-boring insects have no effect upon the concrete silo. It not only protects its contents against loss, but protects itself as well.

Any farmer in erecting a silo will expect that within a comparatively short time it will repay its initial cost. Yet we must not overlook the fact that its period of usefulness and consequent profit are indefinite, limited only by the durability of the silo itself. Consequently, no builder of a silo should begrudge a higher original cost in order to make it a permanent structure. But we are not advocating an expensive silo. If there is good sand and gravel within a team's hauling distance, the monolithic concrete will be the cheapest form of silo.

Objections Raised Against the Concrete Silo

One is, that on account of its porosity, absorption of silage juices is permitted, thus causing the outer portion of silage to become so dry as to mould. This may be the case in poorly constructed silos, but if proper care is taken in building the wall and washing it both outside and in, there is no trace of mouldy silage.

Another argument advanced against the concrete silo is that the acid in silage disintegrates the concrete, weakening the walls and also making the silage unfit for food. One needs only to inspect properly constructed concrete silos which

Continued on page xx.

Can You Recognize the Good Dairy Cow?

How to Select the Profitable Dairy Cow—The Heavy Producer is Usually a Good Breeder.

By A. F. HANSULD, '20.

THE dairy breeds in common are characterized by their ability to change food into milk. Some breeds of course possess this ability to a greater extent than others. So also is it a fact that no two animals of the same breed have this ability in the same degree. And just here is where a knowledge of the proper type of dairy cow comes in handy, regardless of breeds. The big problem for most of us is to know the profitable dairy cow when we see her—yes, even in our own herd—to know her from the poor cow that hardly pays for her feed. It has been discovered by many tests that a great proportion of dairy cows in Canada barely pay for their feed, and a good many do not even do that much. It just proves how much we must yet learn about the best type of dairy cow for our particular needs.

To begin with we must recognize the fact that milk production is not merely a question of quantity. Milk consists of certain solids contained in water. These solids are butter-fat, casein and sugar. The proportion of butter-fat varies in cows of the same breed, but certain breeds are noted for the high average percentage of butter-fat. Casein is the more important solid for cheese making. The quantity of sugar is usually in constant proportion, and varies only slightly in different

breeds. It is a notable fact that every cow seems to set a standard for herself as regards these solids, and that their percentage can scarcely be influenced, no matter how old she may be, or how soon after freshening, or what kind of food she may be getting. Remember that we have thus far been speaking of proportions or quality. Quantity, of course, is the first essential, and since every producer recognizes this we will not discuss it here.

The Cow as a Machine

The dairy cow can readily be compared to a machine which turns out a certain product. The value of the machine primarily depends on the durability of the material with which it is made. The same is true of the dairy cow. Her whole make-up must show a strong and rigid constitution in order that she may withstand the strain of production. Indications of a strong constitution are usually found in the cow that has a large barrel, a strong straight top line, and a fair amount of bone. It is not generally known that a good healthy nervous system, too, is one of the outstanding indications of constitutional strength. Efficiency of control in a machine is necessary if it is to do its best work. So with the cow. An animal with a good nervous system is able to stand labor beyond what would be expected from physical appearance. The

outward indications of a good nervous system are: A bright prominent eye, a thin soft skin and these accompanied with alertness and plenty of activity, though not excitable. Easy excitement in an animal indicates failure of nervous control rather than strength.

Must Have Capacity

After securing a machine that can do its work well, we want a machine with a large capacity for work. So, too, with the dairy cow. One of her good points therefore is to have a large body cavity for the stomach and digestive organs. To have this capacity the ribs must be long, well sprung and well spread. The cow should also be deep through the heart, showing that she has a large circulatory system, as well as a large digestive system.

Her Milk System

The udder of the dairy cow is, of course, very important. It should be carried well up behind, and well forward underneath, close to the body. Such an udder never becomes pendant, and the cow that carries her udder in this way shows constitutional strength. The teats should be placed well apart. A wide escutcheon indicates a broad, large lead from the circulatory system into the udder. This is the area above the udder on which the fine silky hair grows upward and outward. The veins from the udder that run along underneath the body should be long and large, and in the heavy producer are often quite crooked and leading to a well, which will allow the insertion of the thumb.

Her General Form—the Three Wedges

It will be understood from what has been said above that there are four main centres of activity when the cow is performing her function: the digestive system, the circulatory system, the milk secreting system, and the nervous system. It is because of extreme activity in these centres that the dairy cow inclines toward a given type. She tends to become lean and wedge shaped. Certain parts of her organization have an undue amount of work which tends to their extreme development, while other parts are not so well nourished or developed, and this results in a type that is inclined to be narrow in front and deep and wide behind. These two wedges are seen from the side and from above. The third wedge is discernible from the front. The sharp edge of this wedge points upwards, terminating in the prominent thin line of the spinal ridge, from which the sides spread out gradually to the lower chest and barrel.

The Heavy Producer is Usually a Good Breeder

Naturally the production of milk is for the purpose of rearing the offspring, and thus the process of secreting milk is inseparably associated with reproduction. The heavy producing cow with the long lactation period is usually a prolific breeder. She gives the least trouble and puts the most money in her owner's pocket.

Co-operation Will Do It.

*Canada can Produce her own Sugar if Beet Grower and
Manufacturer Co-operate.*

By JOHN STECKLE, '20.

IF we do not wish our patriotism to fall to much lower and more sordid levels in reconstruction days than during the war, it is the duty of all Canadians to work hand in hand with each other, and in this way to meet competition. Competition and strife among the people of one country can result in only one thing. People of other countries who have sense enough to co-operate will win out against us in world competition, and finally take the trade of our home country. This is only one of the ways nature has to bring about the survival of the fittest. If a country or an industry cannot work for the best interests of itself it deserves to perish.

The Sugar Industry of Canada stands in just such a position at the present time. During the war we had little or no foreign competition. Now, however, we must again meet competition from the West Indies for cane sugar and also from the United States for beet sugar.

We can grow just as good sugar beets here as can be grown anywhere in the world, Germany included. In some parts of Ontario beets testing as high as twenty-one or twenty-two per cent. are fairly common. Beets of this high test make sugar manufacturing pay. These beets do not require nearly so much work to produce a pound of sugar as is required to make the same amount from low testing beets. When Germany first endeavored

to produce beet sugar she failed, owing to the low percentage of sugar contained in them, and it was not until beets containing a higher percentage of sugar were developed that the beet sugar industry in Germany could be placed on a paying basis. It would seem then that the most businesslike method of setting the sugar industry on its feet would be to pay a premium for sugar from high testing beets; and also to grow and sow seed from beets selected for their high test in sugar. At present this ideal in the sugar industry is very far from being realized. Low testing beets are much better paid for according to sugar content than are high testing ones.

The contracts under which beets were grown in Ontario in 1918 and will be grown in 1919, if no change is made, pays ninety-seven cents for each percent. available sugar under twelve percent. and thirty-three and one-third cents for each percent. over twelve percent. It is estimated that three percent. of the sugar in any beet is unavailable. This is admitted to be true both by sugar manufacturers and experiment stations. It is also assumed that sugar is selling at eight dollars per hundred weight, whereas this year it sold for nine dollars and thirty cents. Figuring from this latter price the manufacturer paid ten dollars and five cents for nine per cent. available sugar (that under twelve per cent.) or one dollar and eleven cents for

each per cent. available sugar. For beets giving eighteen per cent. available sugar (twenty-one per cent. test) they paid only thirteen dollars and five cents. According to what they paid for a twelve per cent. beet (nine per cent. available) this price should have been twenty dollars and ten cents, or seven dollars and five cents more. In other words they paid one dollar and eleven cents for each per cent. of the sugar that was least valuable to them, and thirty-three and one-third cents for each per cent. of the sugar that was most valuable to them.

It is possibly owing to this fact, that in districts growing high testing beets not so many are grown. Quality and quantity in beets cannot be produced on the same ground at the same time. The highest testing beets rarely yield over ten tons per acre, and often less, whereas, on low heavy soil, crops of from eighteen to twenty ton are not unheard of. Their test, however, is much lower.

It is this condition that gave rise to the Waterloo County Sugar Beet Growers' Association. In nineteen-eighteen the grower received not one-third of the price for the test over twelve as he did for available test under twelve. Although this condition has existed for some years it has never been so pronounced as it was in nineteen-eighteen. The growers of low testing beets had organized previously and forced up the price of beets testing twelve per cent. and under, while the price for test above twelve was left the same as it was when sugar sold at four dollars a hundred-weight—about seventeen years ago.

The object of the Waterloo Asso-

ciation is not to get an unfairly high price for their beets, but only to obtain the same price for the sugar they produce as is paid to growers of low testing beets. They also think that the price of sugar used to determine the price they are to receive for their beets should be the price they pay for the sugar they consume. This could be done if they were allowed to buy direct from the factory. At present, growers and other employees of the sugar company, must buy through the regular channels. Thus a grower's bonus is figured this year from the first wholesale price (nine dollars and thirty cents) while the grower actually pays as high as twelve dollars for his sugar. In nearly all other industries the employee is given the product of his labor at cost.

If some of these wrongs are righted there can be no reason why the sugar industry should not flourish over all Ontario, and Canada would soon be able to produce all her own sugar. The Hun would thus be beaten out of his sugar trade in Canada.

If beet growers and manufacturers do not co-operate and give the men producing both high testing and low testing beets a square deal as well as the sugar manufacturer we cannot expect as many beets to be grown. While this may not seem to affect the country at large it will throw the balance of trade against us if we do not produce our own necessities. While the manufacturer would not make as much profit on high testing beets as at present he would still make more than he does on low testing ones. He would also be able to run his factory for a

Continued on page xiii.

The Dairy Farming Business in Ontario.

The Findings of the Surveys conducted in Oxford and Dundas Counties are:

IN OXFORD COUNTY

1. That farm profits of the average farmer increase as the size of farm increases.
2. That many farms can be profitably increased in size by clearing and draining rough land.
3. That there are many opportunities for increasing profits without increasing the size of the farms.
4. That the greatest opportunity lies in increasing returns from live stock.
5. That this increase can be most effectively obtained by better breeding methods.
6. That an increase in crop yields brings greater profits, but only if accompanied by keeping up and improving the quality of the live stock.
7. That efforts should be made by dairymen to produce at least 40 per cent. of their milk in the six winter months.
8. That the best organized farm business for the average dairyman is that which gives about 70 per cent. of the total revenue from dairy cattle and the balance from other sources, crops, hogs, horses, etc.
9. That the dairy business offers large returns for men specially fitted for specialising in high producing cows.
10. That the cost of milk during year of 1917 was \$2.20 per cwt.
11. That the farmer should have received an average of \$2.52 per cwt. for milk to give him a reasonable profit on his year's business.

IN DUNDAS COUNTY

1. That while the average large farm produces a larger Labor Income than does the average small farm, it is possible, by proper organization, to raise the Labor income of a farm of 75 acres or more to a reasonably substantial figure.
2. That the clearing up or draining of waste land on a farm already established, is a profitable investment at as high a cost as \$90 per acre.
3. That the quality or producing capacity of the farm live stock is the most important factor in the dairy farming business.
4. That a high crop yield tends to produce a high Labor Income, but may easily result in a loss if fed to poor stock.
5. That the grade herd sire will be doomed by all stockmen who study Table No. 6 of the pamphlet issued.
6. That all-year dairying permits of a better organization of farm business than does summer dairying—with profits increased accordingly.
7. That the most profitable degree of specialization in dairy farming is governed entirely by the selling price of milk:—
 - (a) If that price be more than \$2.00 per cwt. specialization up to 90 per cent. of the total income is profitable.
 - (b) But if the price be less than \$2.00 per cwt., side-lines must be

Continued on page xxii.

Two New Records.

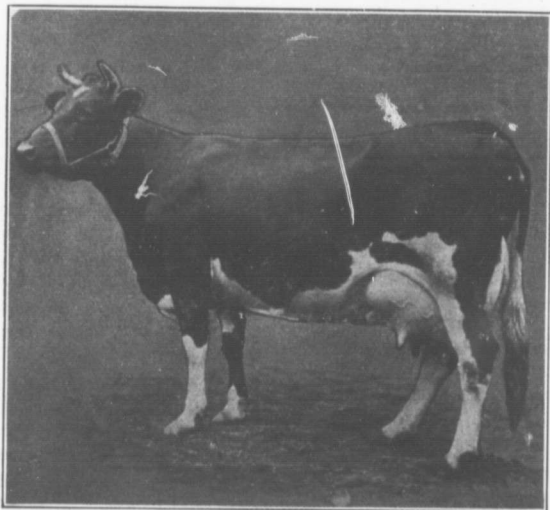
*J. B. Hanmer's Rolo Mercena De Kol, Champion Butter Producer
in the Seven and Thirty Day Tests.*

WHAT may be accomplished by careful breeding and proper care has been emphatically illustrated in the records established by the Canadian-Bred Holstein, Rolo Mercena De Kol, when she produced 51,928 pounds of butter in seven days and 200,728 pounds in thirty days. Mr. J. B. Hanmer of Norwich, Ontario, is the owner of this great cow.

lbs. fat, 342.117 lbs. butter (80% fat); Best 1 day (Apr. 7) milk, 119.1 lbs. milk, 6.379 lbs. fat, 7.934 lbs. butter (80% fat); Best 1 day (Apr. 6) fat and butter, 105.2 lbs. milk, 6.409 lbs. fat, 8.011 lbs. butter (80% fat).

Several points relative to the history and production of Rolo Mercena De Kol are worthy of note.

That the keeping of good stock great-



Rolo Mercena D. Ko.

The official records are:—

Best 7 days (Mar. 31—Apr. 7, 1919), 738.7 lbs. milk, 41.543 lbs. fat, 51.928 lbs. butter, (80% fat); Best 30 days (Mar. 9—Apr. 8, 1919), 2928.4 lbs. milk, 160.583 lbs. fat, 200.728 lbs. butter (80% fat); Best 60 days (Feb. 7—Apr. 8, 1919) 5698.5 lbs. milk, 273.694

ly assists in holding young farmers' interest in agriculture is upheld by Mr. Hanmer's statement that he became greatly interested in their dairy herd upon the acquisition of Rolo Mercena De Kol's dam by his father.

When Mr. Hanmer began farming for

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FARM POWER

When Should a Farmer Buy a Tractor?

By S D IRVINE, '21.

THE purchase of a tractor calls for considerable investment. Satisfaction from the investment demands that the owner get back, through the service of the tractor, all the money that he expends, together with profits in proportion.

questions for his own benefit and satisfaction. We will take as our example a young farmer of a mechanical turn of mind, who works a farm of average soil conditions. The first question he will likely consider is:



Farm Power in Palestine, from a snapshot sent by G. S. Hirst, '14.

For instance, we would consider it a poor business proposition for a farmer to purchase a tractor for "average" farm work that would run as high as eighteen to twenty per cent. in depreciation per year. The life of this machine would only be a little better than five years. The tractor the farmer purchases should be a dependable profit-maker.

Every farmer when debating with himself whether he should buy a tractor or not must answer several

1. Will a tractor do work more rapidly than horses?

The tractor will do work more speedily because it is not necessary to stop for a rest at intervals during a hot summer's day, as is necessary with horses. Moreover, the principal advantage of the tractor is its ability to do work quickly, thus covering the desired acreage within the proper season.

2. Will a tractor do as good work?

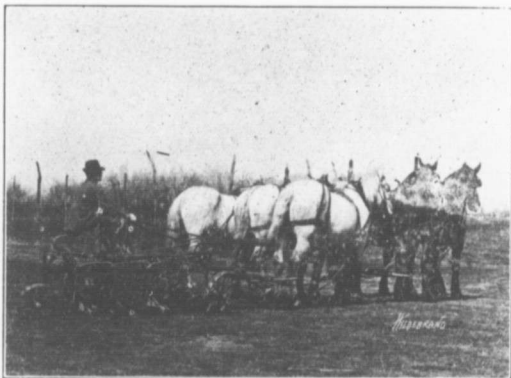
The answer to this question must

be based on the experience of owners. Nearly all farmers who operate tractors and are careful and exact in their work find that better work is possible with a tractor because greater uniformity may be maintained, and where necessary the subsoil turned up. The quality of the work depends more on the adjustment and operation of the implements than the tractor. Since these are usually in larger units, and the rate of travel more uniform, the quality of the work is generally better on larger farms than is accomplished with horses.

acres were cultivated during the last four years. It is a question whether the growing number of tractors which are employed on Southern Ontario farms will very materially increase the number of acres cultivated. However, we may look for definite figures on this matter in coming years, and, if it is once proven, its significance will greatly boost the tractor in a province where the possibilities of increasing the acreage is limited.

4. Can hired labor be saved by using a tractor?

A small tractor, 10-18 H.P., and



A more modern form of Farm Power than illustrated on the preceding page.

3. Can more land be farmed with a tractor in Ontario?

It has been proved in the State of Illinois that farmers increased their acreage by the use of tractors to such an extent that many farmers paid for their tractors by growing one valuable crop. Now the question of farming more land is slightly different in Ontario, because of the fact that a very large percentage of the total number of

one man, on suitable soil conditions, will plow as much as two drivers with two-horse teams can do in the same period of time. Labor on the farm is saved in two ways by the use of a tractor: By the use of large farming implements, and by the longer hours which are possible with the tractor. From this we deduce that the amount of labor saved will depend on the size of the farm and the co-related size of the tractor.

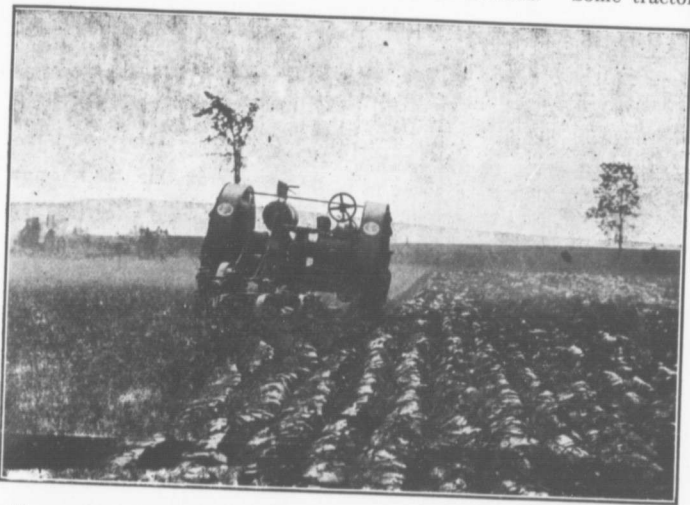
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Another point worthy of notice is that the hired help, unless they are of the pioneer Scottish type, much prefer driving tractors to caring for horses.

5. What fields are adapted for the use of a tractor?

The factors or characteristics of the fields which make them possible to be tilled by means of a tractor are, size and shape of the field, and freedom from surface or hidden rocks, uneven and hilly land and slopes.

ffects the operation of the tractor to the extent that the load must be adjusted to those conditions. For every ten per cent. increase in grade, the draft or pulling force decreases by one-tenth, as the tractor meets with greater difficulty in propelling itself, up this grade. The load should never exceed that which the tractor can handle under the most severe conditions, which might mean a smaller load than ordinarily would be handled. Some tractors



A still more modern form of Farm Power. A Happy Farmer Tractor crossing a field without the usual operator.

Rectangular fields are the most satisfactory shape, although fields of the regular shape are almost as easily worked, especially with the small tractor, if properly laid out. Farmers, when laying out their fields, should give this feature special attention, as a great deal of extra labor in turning, as well as, fuel and wear of the tractor may be saved. Uneven or rolling land af-

do not work satisfactorily on hilly ground or on slopes, because they are easily tipped over, or so balanced that the steering is made difficult. The tractor which will work best against the adverse conditions mentioned above, is the four wheel type, two steering wheels and two driving wheels. All fields which are greater than eight acres in size can be tractor-tilled if they are not too

hilly or the land is not filled with a great number of hidden rocks or roots.

6. Will a tractor displace any of the farm horses?

This will depend largely on the nature of farming followed. On the average grain farm where upwards of eighty-five acres are cultivated, a three-plow tractor will displace from two to five horses. Closely connected with the partial displacement of horses by the use of a tractor is the comparative cost of each mode of farming. The cost of tractor-farming is not less under ordinary conditions than the cost of horse-farming, so far as the actual cost per acre of putting the crop in the ground is concerned. It must be borne in mind, however, that on account of being able to do the work more speedily and more thoroughly the returns from the acre will naturally be greater; hence, the result of tractor farming as a whole, through the increased production, gives better results. When the self-binder was put on the market, it did not decrease the cost of harvesting wheat to any considerable extent, but the acreage which one man could handle was increased about eight times.

The question may be asked, will not the fertility of the soil rapidly diminish if the usual number of horses be lessened? No, with good system and management the roughage may be fed to other live stock, as cattle or sheep. The mere substitution of the tractor for two or three horses will not decrease the amount of manure sufficiently to mean very much to the total annual

production of crops, and what decrease may be noticed can be easily offset by the application of artificial fertilizers.

Perhaps the last question our farmers will have to consider is the use he can put the tractor to other than plowing. This will, of course, depend on the size of his farm and the machinery and equipment he operates. On average farming conditions, where the necessary equipment is kept, we would be fairly safe in saying that the tractor may be advantageously and economically used for discing, seeding, harvesting grain and corn, spreading manure, digging potatoes, filling silos, threshing, baling, sawing and miscellaneous short hauling.

So we see from this that a farmer is confronted with many questions when he is considering the purchase of a tractor as a paying investment. His best plan is to get a safe distance from the salesman and carefully study his farm, the soil conditions, general contour of the land, the number of days which he can use per year, its use besides plowing and his knowledge and mechanical skill, or, at least, his capability of acquiring the same. The home of the tractor in our estimation therefore would be on a farm of one hundred and fifty acres or larger, reasonably free from stones, hills and wet land, and under the operation of a man who is capable of utilizing his mechanical skill and brains as efficiently as the tractor handles gasoline, and who has heavy work to keep it usefully employed for a period of at least fifty days per year.

Continued on page xxii.

Can You Blame Her—or Him?

Occasionally a Factor other than Education causes a Young Man to Exile himself in the City.

By LUSUS NATURAE

"JIN, I love you."

Jin didn't gasp, "Oh, how sudden." She didn't blush. She just dropped her eyes modestly and remained silent.

They reached the dairy corner before the somewhat embarrassed Harry accumulated a sufficient charge of momentum to press the case.

"Jin, do you hear? — Jin — dear."—(softly)—"I love you."

She raised her eyes. "How much?"

"Ugh-er-r- enough to want to marry you."

"That must certainly be a lot."

"It is, Jin."

"Yes, it will have to be, Harry."

"Why? How do you mean?" he inquired, with rather pained surprise.

"Don't get worried, Harry, I'm not going to turn you down—that is just yet. What are you going to do when you graduate this spring?"

"Why, me! I'm going back home to farm of course. We've got one of the finest two hundred acre farms in Ontario. Dad's going to give me full swing, and I'm going to put my science into practice; I'm going to show the farmers around home that a college training means something. Also, I'm going to be a leader in the community."

"You're going to be a big man among a lot of people who don't know much. Is that it?"

"Why, no, Jin. I don't consider the farmers in my district a bunch of know-nothings."

"All right; we won't argue that point. At least, you are asking me to go away out there, about forty miles from a town of any size."

"Well——"

"Don't you consider you are asking a mighty lot?"

"Oh, I don't know. That is—it all depends on whether you think enough of me. You haven't said."

"You've hit it, Harry. I'd have to think considerable to do such a thing."

"Do you?"

"Suppose I do. Do you think you have any right to demand such a huge sacrifice on my part?"

"I don't see why."

"You don't! Just consider a moment, Harry."

Three grinning idlers sitting on the Cosmopolitan Club stoop distracted their attention for a few seconds.

"Why, Harry, look at what I've been accustomed to. I've lived in the city all my life. I've always been used to mixing with people and having a good time; teas, dances and all the other gaities of city life. Don't you think it would be too revolutionary a step for a girl who has always had all these things to bury herself among a bunch of quiet, old farmers? Imagine me tripping across the fields to have afternoon tea with Mrs. Hiram Brown," she laughed. "Think of me being swung off my feet in a square dance by some husky Reuben Smith. Pic-

ture me getting up at five in the morning to prepare the men's breakfast. Consider what a figure I'd cut as a farmer's wife at all." She stopped short in order the better to laugh.

Harry smiled dryly.

"Jin, I love you; but I love the farm too. I don't want to be stuck in the city, nor do I wish to be an opinionless government employee. I want to occupy such a position that I can come out openly and say what I think, and work for what I believe to be right, without running the risk of losing my job."

"That sounds very fine. But, Harry dear, it's not in my line."

"You mean you won't go back to the farm with me?"

"Yes."

"You're not willing to let me do something real for agriculture—to be a real leader—to live a man's life?"

"Can't you be a real leader without going back to the farm? I should imagine that being a professor, a commissioner of agriculture or a newspaper editor would help the farmers considerably. Anyway, they don't need help. They're making money enough as it is. I've heard father say they're just coining money."

The immediate effect of her last speech was the same as that of an icicle touching his spine.

"But, Jin, it's a long, slow—in the majority of cases—a hopeless task climbing into one of the berths you suggest."

"Well, anyway, if you want to marry me, you've got to get a position that isn't going to waste all my education. Yes, and what charms I possess. A girl that's been brought up as I have has a right to continue living accordingly."

They had reached the steps at Macdonald Hall. Silence reigned.

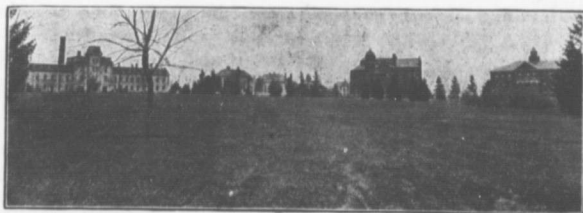
"Well, Harry?"

"You won't go?"

"No."

Two months later a neighbor said to Harry's father: "I told you, Henry. I knew once the boy went to that Agricultural College the farm would lose him. Education and be-in' a hard-workin', nobody farmer don't go together."

Harry's old dad gazed back over the fertile fields. "Well, Jim, I thought education would never spoil Harry. I'd have bet my farm that nothing would have separated him from the old place, but I guess I was wrong."



THE O.A.C. REVIEW

REVIEW STAFF

- | | |
|--|--|
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EDITORIAL:

Our Opportunity

THERE is to be erected on the campus of the O.A.C. a Memorial Hall, as an ornamental and useful monument sacred to the memory of one hundred O.A.C. boys who paid the supreme sacrifice in the Great War. This will be one of the finest buildings on the College Campus when completed, and the committee in charge are anxious to raise by private subscription from the students, ex-students and friends of the institution enough funds to build and equip an Assembly Hall to seat at least 800 people. The Ontario Government is contributing \$40,000.

It will require at least \$60,000 more. This will be the biggest memorial of its kind erected in Canada by those primarily interested in agriculture.

Every student and ex-student of the O.A.C. appreciates the great sacrifice made by those one hundred boys. An opportunity is now given everyone to show such appreciation in a material manner. We have no doubt whatever but that all who have had the honor of attending the O.A.C. or who have benefited by the work done at the O.A.C. will respond heartily and generously.



An O. A. C. Alumni Association.

WE need an alumni Association. Mention was made of this fact at the last annual meeting of the Experimental Union. As yet no progress has been made towards that end. A suggestion has been made that the Review Staff make some effort. However, this is not likely to be acted upon, chiefly because the Review Staff has neither the necessary time or power. We are, however, very willing to do what we can in forwarding such an

excellent scheme. Thus we are bringing the idea before the readers of *The Review*.

We invite discussion on the matter in the editorial columns of the Review. The interest thus displayed will serve as an indication of the possibility of organizing such an association. Moreover, it will arouse interest amongst those readers who have not given the subject thought, and thus may result in some action.

*The Standardization of the Bacon Hog.*

STANDARDIZATION is a difficult problem. A discussion of the subject with various people assures us of that. Let us take for example the Swine Industry. We all know that to compete with Denmark on the British market we must standardize the bacon hog. Mention such an idea to the hog raisers of Essex and Kent and immediately great opposition is aroused. With their corn they naturally and profitably produce a semi-lard hog.

In spite of this fact, however, we are up against the problem of attempting to capture our share of the English bacon trade. We can't do it without standardization, and, if we standardize hogs, we will do so against the strong opposition of the farmers of Essex and Kent.

To obtain standardization a premium would necessarily be paid for the proper bacon type. This might seem unjust, and yet, it really is not. The semi-lard hog of Essex and Kent can be raised more cheaply than the strictly bacon type, and the premium paid for the bacon hog would not be altogether unjust.

Can we successfully compete against Denmark in bacon; great obstacles such as distance favor the latter country? Yet suppose we can overcome those natural difficulties, one thing is certain, namely, we must standardize the bacon hog. It is a case of the English market against the raisers of hogs unsuitable for that market. Which are we to bow to? That is the problem with which we are confronted.

*Is the Present Generation Impossible?*

MANY people boldly assert that the present generation of farmers are too deeply rutted to be converted into progressive farmers. They claim that the only hope is

that of impressing better methods upon the youthful minds of their children. This is no doubt a plausible way; but it will require more than one generation. In the mean-

time Canadian agriculture is going to miss many golden opportunities that it might otherwise have grasped.

Is the present generation of farmers impossible? Sometimes we would almost believe not, especially when we see them with their telephones, cars and multiplying organizations.

The average weather-beaten farmer has sense beneath his hardened shell of unbelief and conservatism. A chat with him will satisfy the skeptic on that point. A man with sense can be reached if approached in the proper manner. A good commercial traveller can sell

goods to a hard customer—because he uses the proper method.

Selling scientific agriculture to the farmers of Ontario is not one of long standing. Might it therefore not be possible that the present, impossible generation of farmers have not had the subject presented to them in the right manner. It may be that the majority of the present generation are impossible, yet it would perhaps be well if we who believe in scientific agriculture scrutinized our present methods of reaching the farmers before we give them up to their unprogressive ways.



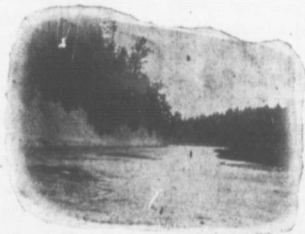
Our Student Body Should Be Much Larger.

THERE is no doubt that once we have enough ex-students of the O.A.C. operating their own farms, combining theory with practice, and making a success of it, that it will have a tremendous effect upon the agricultural progress of Ontario. Up to the present the number of College men who have gone back to the farm to prove that progressive methods pay has been negligible.

"Seeing is believing." Therefore the sooner the O.A.C. has ex-students planted in every section of Ontario, men, of course, who are successful, just that much sooner may

we expect a revolution in farm management.

The faculty of the O.A.C. each year lectures to a very very small percentage of Ontario farmers' sons. The size of our student body must be multiplied many times before it reaches the number it should have. Ex-students and rural school teachers can assist in increasing the size of our student body. Whenever opportunity presents itself they should avail themselves of it, by presenting the need and advantages of education. We must all be leaders in such a movement.





Capt. S. G. Freeborn, M.C., '15 does not forget that the Review requires the co-operation of the old boys. He has sent us a short letter accompanied by two articles, one—Notes on the Agriculture of Northern France and the other on the British Milk Trade. These will appear in the main section of the Review.

Capt. Freeborn is lecturing in the Khaki University. His address is:
 Capt. S. G. Freeborn, M.C.,
 c/o Textile Dept.,
 Bradford Technical College,
 Bradford, England.

In part his letter reads:

Am having a most interesting time under the benevolent auspices of the Khaki University. Was up in Scotland during February and March, among the Cheviots, Border Leicesters, Clydesdales and Ayrshires and enjoyed it very much. There's just one thing that approaches in its thoroughness a Scotchman on a foreign heath, in a fighting mood, and that one thing is his hospitality when at home. Down there in Yorkshire it's a bit lonelier for I'm resident in the city. However, it doesn't take a motorcycle long to climb out and away over these Pennine Hills and Moors, the backbone of England they are called.

Just came back from an auto trip among the dalesmen of Cumberland and North Lancashire with the manager of the firm, where I put in a good deal of time wool sorting.—The pride those shepherds take in their hardy little Hirdwicks, a heritage of Spanish Armada days, is a joy for many sheepman.

Henry W. Neff, '17 has moved from Newmarket to Walkerville. He has engaged with Walker Sons, Ltd., of the latter place, as Orchard Manager. They have an 80 acre orchard. In addition to this they have a farm of 2,500 acres on which they run a large dairy business. They have some 600 head of dairy cattle, of which about half are milking. Their equipment is entirely up-to-date.

A pretty event took place at the home of Mrs. Abigail Wall of Aughrim, on Wednesday, April 30th, when her daughter, Christene Estelle, was united in marriage to James H. Buchanan, of Thamesville.

Jim is an associate of class 1913 and has settled on the homestead at Thamesville.

Dr. Creelman is in receipt of a letter from Sgt. R. B. Hinman, of the Canadian Khaki University, Ripon Camp, Yorks., Eng., in which he says:—

"If nothing unforeseen occurs we should be finished here by the middle of July. As you doubtless know I am here in charge of the Animal Husbandry work, and incidentally am seeing some of the finest herds, flocks and steeds of the British Isles. At present we are very busy training for an Inter-Dominion stock-judging competition in connection with the Royal Show at Cardiff in June, and we are hoping to see Canada "bring home the bacon."

Mr. Donald Douglas, former farm manager at the O.A.C., who left to take a similar position at the Experimental Farm at Olds, Alta., has been appointed superintendent of the farm, with headquarters in the Parliament Buildings, Edmonton.

A. D. Munro, '18, has recently been appointed associate editor of The Ottawa Farm Journal.

In the April issue of the Review an item appeared regarding J. E. Smith, '11, which Mr. Smith has courteously informed us is incorrect. He is still on the staff of Farm and Dairy, Peterboro, in the capacity of Advertising Manager.

Lieut. Cooke Wins M.C.

Word has come that Lieut. Ed Cooke, a graduate of the Ontario Agricultural College in 1909, whose home is in Jamaica, has been awarded the Military Cross. He was a first contingent man, and served with the 8th Battalion in France. He was wounded in June 1916, and mentioned in despatches in June, 1917, and January, 1918.

Townsend-Swayze Nuptials.

Of popular interest was the marriage at high noon on Wednesday, the 19th inst., of Miss Olive Alice, second daugh-

ter of Mr. and Mrs. B. W. Swayze, and Mr. Douglas G. Townsend, son of Mr. and Mrs. Geo. Townsend, Dundas. The ceremony was performed by the Rev. E. A. Pearson, pastor of Norfolk Street Methodist Church, at the home of the bride, 139 Cambridge Street, in the presence of the immediate relatives. The bride was given away by her father, and was attired in grey crepe meteor. She was attended by her sister, Miss Lyla. The groom was supported by his brother, Mr. Kirkby R. Townsend. During the signing of the register the bride's brother, Master Frederic, rendered a piano selection. After an appetizing luncheon which was served at quartette tables, the bride and groom left with the heartiest wishes of all for points east. It may be of interest to know that the groom and groomsmen have recently returned from overseas, after three years' service, both winning their commissions on the field.

Death of Lieut. Alfred Cleeves.

Word has been received at the O.A.C. from Vancouver, of the death of Alfred Cleeves, who graduated from the College in 1914, and who was very well known both in college and city circles. Alfred Cleeves was born in England, his father being a large operator in coal and iron in South Wales. Alfred came to the College in 1910, and graduated in 1914, after a successful career, having specialized in horticulture. After war broke out, he enlisted in the 16th Battery, but was later transferred to the 4th Artillery Brigade Headquarters, and saw service with that unit in Belgium, in the Ypres salient, and, later, at the Somme. Later on he returned to England, having been recommended for his commission, and after a course at the Officers Training Corps, received

his lieutenancy. So successful was he in his training course, that he was immediately made Adjutant of the Canadian School of Gunnery at Witley Camp.

Much against his own wish, he was kept in England as indispensable, although he volunteered to go back to France. After the armistice was declared, he succeeded in getting back to Canada, and about three months ago spent two weeks in Guelph with his wife and baby daughter. While in England, in the spring of 1917, Alfred Cleeves married Janet, the eldest daughter of Vice-Admiral and Mrs. Storey, of Guelph, whom he had met while she was a student at Macdonald Hall. The young couple had gone to Vancouver Island, about 15 miles north of Victoria, only this spring, where Mr. Cleeves was engaged in fruit farming. The deceased had just got nicely settled there, when he was seized with a sudden attack of an old trouble, which called for an immediate operation. In hospital all that surgical skill could do, failed to save his life, and within two weeks of being stricken, Alfred Cleeves passed away, leaving his young widow and little baby girl, and a large number of relations and friends, both in England and in Canada to mourn his loss.

The deceased was a young man of about 27 years, and while at the O.A.C. distinguished himself, not only as a student, but in all the other branches of student activities. He was a keen sportsman, a clever football player, a cricketer, and a very good swimmer.

Vahey-Chisholm

A very pretty wedding was solemnized at the bride's home, 289 Queen's Avenue, London, Ont., on Saturday, May 10th, when Miss Doris Chisholm was united in marriage to Mr. P. E. Vahey,

'16. They will reside on College Heights, Mr. Vahey having received an appointment with the Poultry Department.

Recent Appointments

J. B. Munro, Associate Editor of the Agricultural Gazette, Ottawa.

C. F. Mackenzie—Associate Editor of the *Farmes' Magazine*, Toronto.

J. M. Shales—Supervisor of Agricultural Education, Langley, B.C.

R. D. Allan—Assistant Manager of the Lambton Co-operative Association.

R. A. Erink—Fellowship in Chemistry, O.A.C.

C. F. Luckham—Department of Farm Management, O.A.C.

M. F. Cook—Potato Inspection in Ontario.

P. L. Sanford—Potato Inspection in Ontario.

H. C. Hockett—Entomology Department, O.A.C.

Allan T. Brown, '18 is farming in Eastern Ontario. His address is—R.R. No. 9, Peterboro, Ont.

Genial Bill Michael, '18, was a visitor at the College recently.

The following mysterious letter was addressed to us. Seeing that Alex. Brink is now of the Alumni, we publish it in these columns.

Dear Buddie:

I am just anxious to know why the Eastern Star (R. (our) Alex. Brink) did not take part in the swimming contests, after all the patient training he received from the Northern Lights, at Loon Lake Summer Resort, last season. Has he ever dived for you? Did you ever see a boat launched side

ways And did you ever get caught in the spray? Oh! He's a Sta(h)r.

This is all I wish to know,

Cheerio,

"Timber Toes."

H. Keith Revell, writes us from Goderich, Ont., R.R. No. 2. He farms "Ridgerest" and lectures on poultry at Farmers' Institute meetings in winter.

Bill Gardiner, '17, has discovered while lecturing in agriculture at Cannon Falls Minnesota what B.S.A. means. Bill has decided that B.S.A. stands for Beginner in Scientific Agriculture.

F. Eric Millen, '18, is Associate Professor of Apiculture at the Iowa State College, Iowa. As well he is State Apiarist. Mr. Millen intends visiting the O.A.C. about June 15, 1919.

At the Iowa State College are three other O.A.C. men: John Buchanan, '22, Superintendent of Farm Crops; Eric Atkins, '12, who is Extension Specialist in Apiculture; and L. K. Merkley, '13, Instructor in Dairying.

Big "Mac" Macdonald, '12, having returned from the front, is writing a series of biographical sketches in the Guelph Mercury under the name of "Apres La Guerre." Part of one of these relates an incident in H. Wearne's, '11, career overseas and will be interesting to our readers.

It was in the late fall of 1916, when the Somme battle was raging, and a rush order came into the horse lines that an ammunition wagon had to make its way through. The German fire was very heavy, and concentrated on the

roads leading to the gun positions.

A rush order, a terrible risk, for wagons were being hit and blown to bits all along the line, and the dead were strewn by the wayside, where the fire was too severe to warrant the unnecessary hazard of their removal for burial, while the dressing station were taxed to the limits, and doctors and stretcher bearers were doing 24 hour shifts.

Such was the situation, when driver "Happy" Harpin received his orders. It was because he was "Happy" that he was chosen no doubt. He always had a smile, always cheerful, and when the danger was greatest "Happy's" smile was the most pronounced.

Through a perfect Inferno of bursting shells, he made his way, saluting the dead as they lay unheeded in large numbers by the dressing stations dodging the big shells, where ear judgment would help, through that awful hail of whizzing shrapnel, which wounded his brave horses, and fragments of which were afterwards found, in the spokes of the wagon, but always forward, till he reached the guns, unloaded, and returned, himself unscathed through what seemed an almost impassable barrage.

While "Happy" was cheerfully explaining how he had made his way through, and recounting the gruesome sights he had seen, the order came to water horses.

There was a lake near by, a large stretch of submerged land, where the artillery were wont to water their horses, and into this rode "Happy." He must have gone in too far. The horses came out swimming, riderless, but "Happy" brave as a lion, after dodging German shells, through a trip that seemed certain death, was, in his heavy

clothes with his leg irons on, an easy prey for the sullen waters of the lake.

Old O.A.C. men remember the great work that "Bunny" Wearn used to put in at water polo, when at the college. "Bunny" then linesman for the 16th Battery, seeing what had happened, immediately stripped, and for over thirty minutes, dived in that ice cold water in the bitter November cold, but in vain. "Bunny" was finally exhausted, and would himself have perished from exposure, had not a very liberal rum supply been available with which the boys pulled him round.

"Happy's" body was located an hour afterwards in a shell hole under the water where it was found, all tangled up with barbed wire.

Driver Happy Harpin, than whom no braver man ever drew rein over a horse, lies buried on the Bapaume-Albert Road, and a cross, made by Wheeler McPherson, marks the spot. Driver Harpin was a Fergus boy, I think, but he was very well known in Guelph.

I do not wish to bring back grief to those who have suffered loss, by my reminiscences, but I do wish to pay my little tribute to a very brave man and a very gallant soldier.

Bunny Wearn was recommended for his brave action in this incident, but nothing was heard. That is one of the sad things of this war, the men we knew deserved recognition and received none.

Bunny afterwards joined the Flying Corps, and I believe did some great work in that branch of the service.

Review Office,

May 15, 1919.

Dear Ex-Students:—

We admit we are taking a liberty in repeatedly asking you to help us make

the Alumni Department of interests to all. However, we know you will receive our continued requests in the proper manner.

We realize that, once the actual College ties are broken, a man, though always retaining a strong attachment for the O.A.C., has too many other interests to continue much active connection with the College. No blame can be laid against any ex-student for not sending us occasional news—for even past Editors of the Review seem to forget its existence, and in whose footsteps most of us will no doubt follow.

However, we hope that, by drawing the existing deficiency to your attention, you will co-operate with us. We realize that one man's interest in these columns is practically limited to the men of seven years, the three ahead of his year, his own year and the three after his year, and for that reason we must cover much ground.

Is our Alumni Department worth while? An opinion on the matter would be out of order.

True, we can obtain limited information regarding our ex-students, where they are situated and what they are doing, but much of this gives too much "sameness" to our columns. It would not make a very big demand on any man's time for him to write us a short letter once a year, giving us a few of the more interesting details of his life, to enclose a snapshot, or even a short article. If all would do this the Review could be made what it is intended to be a real College Magazine.

Thanking those who have assisted us and hoping that other ex-students will give this matter their attention, we are,

Sincerely yours,

Review Staff,

GEO. B. HOOD.



MACDONALD

"THE OLD ORDER CHANGETH, YIELDING PLACE TO NEW."

By a Junior.

The school year is drawing to a close, and in spite of other crowding thoughts, there is one uppermost in the mind of each Macite—the graduation of the Seniors.

Somehow all through the year, which in some ways has seemed so long, and in other ways so short, we have always taken the Seniors for granted; they were always there to take responsibility, and it was for us to follow; they it was who shared our troubles and our joys, whether our first cakes had come from the oven a black lump of dough or wonderful news had come from home; they sympathized or rejoiced according to the nature of the case; they squelched us when we grew conceited, and bucked us up when we underrated our own value, and as cases presented themselves administered justice impartially.

As a result of all these things, a complete metamorphosis has gone on in our minds concerning our Seniors. At first they seemed so different, remote, and to be held in awe, now as our freshman year passes, our relations have changed somewhat, for after we have washed in the laundry with a Senior, have sat under a night light with one, or have stood together outside the locked dining-room door, with the aroma of breakfast coffee in the air,

we feel that they are not entirely different, and that a common bond unites us. The awe in which we held them is slowly replaced by respect, tempered by a deep-rooted affection.

Moreover, we see that in spite of responsibilities which to us seem so over-burdening, they find time for college activities and recreation, and we mentally treasure up that thought for next year's reference.

And now they are leaving, but their influence will live in the Hall, and may we be to the Juniors of next year what Year '19 has been to us!

BENEFITS DERIVED AT MACDONALD

A few of the less obvious benefits derived from a two years' course at Macdonald have been set forth by some of the older students. Though not guaranteed by the calendar, they appear to be quite as valuable as the power to define a calorie, or an intimate acquaintance with yeast.

One student feels that she has laid up an unfailing source of happiness for the future from her experience at Macdonald. The knowledge she has gained has fitted her to enjoy life more thoroughly, and given her greater capacity for ministering to the needs of others. She finds that working with a definite aim, and with an intelligent knowledge of the "how, when and where" to work, results in happiness.

Another has improved in physical health, in self-control and poise. One, who used to worry herself, wondering whether she was doing things in the right way, now feels confident, having been shown the right methods and having practised them until they are performed with ease.

One thinks that the friendships she has formed are the most valuable results of her course. Another finds she has developed an unspeakable gratitude to her ancestors, and especially to her own parents, for having endowed her with mental and physical health, and trained her as a child in habits of reverence, self-control, order and industry.

The broadening of ideas and a larger outlook on life, gained by meeting and mingling with so many different dispositions, personalities and eccentricities, give cause for thankfulness to many.

One who was formerly easily distracted and disturbed has learned to concentrate her attention on the work in hand, and to ignore surrounding noise and confusion. One considers that she has learned to be tactful, yet honest, just, yet kind and gracious. Some school marms who had developed an exaggerated idea of their own importance and authority have climbed down and ranged themselves with ordinary mortals.

Another finds her views of life considerably modified, and feels that she will go out into the world with enlarged sympathies. She has also learned the value of system and order, and is filled with admiration at the way in which Macdonald Institute affairs are organized and controlled, and at the equal and impartial treatment meted out to all.

Yet another has gained a deeper insight into the dispositions, needs and cravings of girls, which has made her very anxious to promote the welfare and unravel the perplexities of girls in general, and especially of those who have no mother to understand and guide them.

Several realize that before they came to Macdonald they frittered away much valuable time in frivolous pursuits, and are resolved to put it to a better use in future. One who had a good practical knowledge of household methods is glad to have learned the reasons and principles underlying them, and will be able to teach others more intelligently and clearly in consequence.

And finally one sums up the change in herself in these words:—

"From being parasitic,
Became more analytic,
And therefore an asset,
And not a liability."

And the above are only a few of the thoughts that are surging in the minds of the prospective graduates as their course draws near to its close.

THE HYGIENIC HOME

Volumes might be written, and have been written, upon the hygienic home, but perhaps a brief summary of some important points therein may not be out of place here.

The prime essentials for a sanitary dwelling are a well drained soil, pure water, fresh air, sunlight and good plumbing. The general construction of the building is too big a subject to enter into such an article as this.

Windows should be wide, sufficiently numerous, and should open

freely at the top and bottom. It is a good rule to have every window in the house opened every day, even if it is immediately closed again; this will ensure the possibility of opening it at will. Fresh air may be admitted between the upper and lower sashes without causing a draught, by fixing a three-inch wide strip of wood on the lower sill, so that the sash may be raised that much without causing an aperture. If this is done before painting, it will not be noticeable. Admit all the air and sunshine possible.

Dark, close cupboards are undesirable. Closets are better ventilated. A shelf, with hooks beneath, and curtains to protect and conceal the hanging garments, is really more sanitary than a closet, as it allows the free access of air to the clothing.

Corners, grooves, cracks and carvings all hold dust, and wherever there is dust there are bacteria. They may not always be of a harmful variety, but where the innocent kinds are found, there the deadly ones can easily penetrate.

The top of a high cupboard is a dust trap. If it can be made to slope down to the front, without a cornice, there need be no accumulation of dust.

Non-porous, washable surfaces are desirable. The best floors are of hardwood, and should be waxed and polished. Some semi-hard woods can take the same treatment, but soft woods must be coated with a floor varnish before being waxed. Shellac is not a success on floors, as it chips and cracks off. The old fashioned painted floor can be easily washed.

For a kitchen, when tile or mono-

lithic flooring is out of the question, a heavy inlaid linoleum cemented to the floor, and varnished with spar varnish, will prove desirable. It is most important that no water should find its way under the linoleum. Scrubbed wooden floors are not satisfactory. The wood alternately swells and shrinks, then splinters. Both the surface and the cracks absorb dirty water, which favours the development of undesirable micro-organisms.

Carpets should not extend under heavy furniture. Rugs that can be easily lifted and carried out to be beaten and swept are preferable. In sweeping pile carpets, the stroke must go with the pile, and not back again, whether a broom or a sweeper is used, otherwise dust is swept into the rug instead of out of it. Brussels carpet should be swept across the warp. When the dust has settled, a slightly damp cloth should be used to wipe all wooden surfaces; thus the dust will be removed and not scattered. All dust taken up in dustpans must be burned. The vacuum cleaner prevents the dust from filling the air, and is undeniably sanitary; it is said, however, that it shortens the life of carpets and curtains.

Pure wool does not retain dust and dirt as other fibres do. This can be proved by its freedom from offensive odor. Furnishing fabrics and clothing made of cotton soon smell unpleasant and must be frequently washed. If the woollen fabric is well shaken and brushed, and hung on the line, it need not be washed very often. Pure woollen blankets make the best bed coverings. The old-fashioned home-made quilts are heavy and impermeable. Bed clothes

should be light and porous. Heavy spreads used for appearances' sake should be folded up at night.

Furniture is better plain, without carvings or fretwork. The insides of drawers, bureaus and cupboards should not be left unfinished to absorb impurities. A coat of varnish everywhere will enable the surfaces to be kept perfectly clean by a damp cloth. The best finish for draining boards is marine spar varnish. Water will not injure it. Chairs and settees of wood, cane or wicker, with loose cushions, whose covers can be removed and washed, are very cleanly. When upholstered, folds and buttons are to be avoided. Removable chintz or cretonne covers for upholstered furniture are good. The old fashioned horse-hair cloth was dust resisting. It has recently been revived by English manufacturers, and made in several pleasing colours and designs. It is not as costly as leather, and more suitable for some rooms.

The children in the home are too often allowed to play with highly insanitary toys. The same rule of non-porous, washable materials holds good here. Balls of celluloid, glazed earthenware, rubber and polished wood, floating toys for the bath of hollow china or celluloid, dishes, blocks, can all be kept clean. Some admirable stone building bricks were on the market some years ago, but seem to have disappeared. Doll's clothing must be frequently renewed or cleaned; the face and hands should be washable, and "real" hair is not desirable. A child should not be allowed to play with any objects small enough to be swallowed or introduced into the ear or nose. Half a dozen empty

spools threaded on a strong cord will keep a small child busy and happy, and can be scrubbed when necessary. In every department of the home the aim should be to allow no resting place anywhere for dirt or bacteria, and to let the blessed sunshine in.

A DISAPPOINTMENT FOR DAISY

When we returned from the spring vacation I noticed that Daisy unpacked her suitcase with more care than usual.

"What treasure have you there?" I asked, as she brought out a little cardboard box, and tenderly lifted the lid.

"It's going to be a cecropia," she said impressively.

"But what is it now?" I asked. "Trust no future, however pleasant."

"It's a cocoon," said Daisy. "A perfect beauty," and she held the open box before my eyes. I saw a thorny looking thing, with something clinging to it that resembled a roll of dirty cotton batting, about 3 inches long.

"Well, that's the worst yet," I said. "I hope you'll chain it up securely."

Did I ever mention that Daisy is an ardent collector of moths and butterflies? She is really very clever at setting them, and has quite a good collection, I believe. I don't take much delight in bugs myself. She had a number of cocoons in our room last summer, some of which hatched out satisfactorily, but she had never before inflicted such a large, fierce looking specimen as this upon me.

"What I hope is that you will treat it with proper care," said Daisy. "I'm just longing for a perfect

cecropia. With a large pin she proceeded to fasten the thing to a calendar that hung beside the mirror.

"Now, remember," I said, "that you must put that in a safe place every Saturday morning. When I clean house I don't leave any rubbish around."

Of course she didn't, and equally of course I hadn't the heart to destroy her treasure, though I knew it was getting loaded up with bacteria. I used to threaten to use it as a pin-cushion or a hair pad, which made Daisy very angry. The girls who frequented our room took a tender interest in the weird thing, and would inquire affectionately how it was getting on, and when it was likely to develop into a cecropia.

Our special friends were fond of dropping in to tea after lectures were over, because our room is large and sunny. Some one usually had some cake or cookies to devote to the general good, and we took turns in making the tea. One unpleasant result of these frequent tea parties was that the mice somehow found out about them, and would come prowling round at night in search of crumbs. I had to buy a mousetrap. Daisy is very sensible about most things, but she is afraid of mice, so the task of exterminating them fell to me. I had great luck. I caught one every night for a week. Then there came a lull, and we thought we had wiped them out. Of course the tea parties went on as usual.

One Friday afternoon I was showing Daisy my successor as stock room clerk, that it was possible to weigh more than five lbs. on the scales, and pointing out that it was useless to look for flour in the soda

barrel, or for needles among the raisins. We had sent Judith Dalton on to get the tea ready.

(No, I know there isn't a student called Judith Dalton, but in this kind of story you can't call people by their real names. Daisy isn't really Daisy, and I am not really I. Do you understand?)

"And, now, where's the soap?" asked Daisy. I pointed to the top shelf. "How am I going to get up there?" she asked piteously. "Perhaps you would like me to go and call Mr. Stauffer," I suggested with mild sarcasm, but Daisy had discovered the step-ladder and was half way up when Judith appeared in the doorway breathless and with her eyes popping out of her head.

"Daisy! Your cecropia!" she gasped. "It's out! Come quick before it moves. I'm afraid to mix the klim or put out the cake."

Daisy came down the ladder more quickly than she went up, and they both disappeared in a flash.

With a sigh of relief, for I thought something serious had happened, I finished the work, shut the door and made my way, with my usual deliberation, to our room.

An excited group stared at a huge moth which seemed to be languidly stretching itself on the calendar. It certainly was a brilliant and striking object. I will spare you all the things they said about it. You know the kind of adjectives that girls use. Daisy was delighted. She coaxed it into a box and put the cover on to keep it safe while we had tea, and afterwards she inflicted upon it what she declares is a perfect painless death. I don't see how she knows.

Later she transferred it to the

setting board, where it proudly extended its six inch width.

The admirers returned in great force.

"Wouldn't it make a lovely hat ornament?" said one. "Why couldn't you cover it with georgette or chiffon so that it wouldn't break?" asked another. "Give it a coat of spar varnish," suggested a third, "and then the rain wouldn't hurt it."

At last Daisy grew a little tired of showing off her prize, and looked about for a perfectly safe place in which to keep it for the night. Finally she decided to hang it on a hook in the clothes closet, and eventually went to sleep.

Next morning I went to the closet to take down a shirt waist.

"I thought you hung your cecropia in here," I said.

Daisy bounded to the door. An empty setting board dangled before our eyes! Very carefully we searched, removing all our dresses and coats, and gradually clearing the floor of the numerous objects that had their home there. There was no vestige of the cecropia.

Daisy was in tears. "Such a perfect specimen!" she lamented; "it's a shame!"

"I only hope," I said, "that there was enough cyanide in it to kill that mouse!"

THE NORMAL PICNIC

On Friday, May 9th, the Junior Normals gave a picnic in the Dairy woods in honour of their class seniors. In spite of clear weather, the air was chill, and the roaring camp fire was welcome for heat as well as for toasting rolls and "hot dogs" and making coffee.

-After a hearty picnic lunch the

Juniors sang a pathetic song entitled "Wrap me up in my old cooking apron," and being encored by the Seniors, rendered another equally touching song, which told of their future aims, and which ended in this wise:

"And so we'll gain a good repute,
Bring honour to this Institute."

Stories, jokes, games and more songs followed, and after a stroll in the woods for flowers, the party packed up and returned to the Hall with empty baskets, smoky sweaters and that jolly feeling that picnickers alone know.

Athletics

As the Spring advances, swimming in the college swimming pool becomes more and more popular. This privilege is allowed the girls on Saturday mornings and Tuesday afternoons, and at both these times the tank is well patronized, both by beginners and those expert in the art.

With the warm weather, the "outdoor" fever has seized the school, and every evening after supper there are groups of girls on the campus, most of them at baseball, some playing golf, and others on the tennis courts.

THE HOUSEKEEPERS' PICNIC

An entertainment which will for long be a pleasant memory in the minds of the guests, was the picnic given by Miss Boughner on Tuesday, May 13th, at which most of the ladies of the Macdonald staff, and the Senior and Junior housekeeper classes were present. It was not necessary to go far beyond the car track to find a pleasant open space among the pines and spruces, where

a table was set up, and where rugs and cushions on the grass accommodated the cheerful crowd. After tea, songs, recitations and games provided much healthy merriment, and ringing cheers for the hostess, and the singing of Auld Lang Syne formed the climax to the general feeling of geniality. The relentless eight o'clock bell put an end to a delightful party.

TO THE SUPERVISOR OF HOUSE PRACTICE

An Appeal

Madam, I know that all my work
Is portioned out for me,
And the practice that is sure to come
I do not fear to see;
But I ask thee for an easy task
That I may soon be free.

I would not have a stove to clean,
For that is dirty work,
Nor yet an ice-chest nor a sink,
Where germs unseen do lurk;
I'd like a little thing to do
And yet I would not shirk.

Wherever in the world I go,
To whatsoever estate,
I'll feel a fellowship with those
Who scrub and wash and wait,
For I have learned with smiling face
To do the thing I hate.

And yet to-day I'd really like
An easy load to bear;
Next week to clean or oil a range,
I'll cheerfully prepare;
To-day my uniform is clean,
And I have washed my hair.

M. C.

Billie (in practice teaching) —
"What effect has boiling on the contents of an egg?"

Pupil—"It kills the endosperm."

Housekeeper (going through Institute Stock-books)—"Can anyone tell me what a Walnut Curate is? I've looked under "Clerical Services" and can't find him there. Where shall I put him? He's walnut, you know."

Recipe for a Spring Tonic

Halve your food,
Double your exercise,
Treble your sunshine,
Quadruple your fresh air.

Happiness does not come by success, but success comes by happiness.

Why do I find a hair in the honey
and not in the apple sauce?

Because the hair came out of the
honey comb, but the apples were
bald ones.

Some people are like eggs — too
full of themselves to hold anything
else.

Choose eggs an hour old,
Choose fish ten hours old,
Bread, a day old,
Wine, a year old,
A friend, thirty years old.

Student—"Will tannin cure our
stomachs as it cures leather?"

Professor—"Well, we have different
meanings for the word cure."

Instructor in Normal Methods
(criticizing a demonstration)—"The
demonstrator used the expression 'I
think' very frequently."

Demonstrator—"I think that's a
bad habit of mine."



MARY ELIZABETH BAILEY
Senior Housekeeper



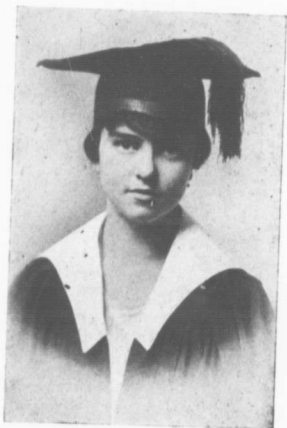
LILLIAN I. BEAMAN
Senior Normal



R. MURIEL BROWN
Senior Housekeeper



ELIZABETH CRAWFORD
Senior Housekeeper



HATTIE ENGLISH
Senior Normal



DORTHY FALCONBRIDGE
Senior Housekeeper



JEAN FRASER FLATT
Senior Normal



JESSIE WOODBURN GERMAIN
Senior Housekeeper



MARY GRAESSER
Senior Associate



JESSIE DE GUERRE
Senior Normal



MARJORIE KATHARINE HARLEY
Senior Housekeeper



FRANCES HILLIARD
Senior Associate



IRENE HYDE
Senior Associate



KATHLEEN LETHBRIDGE
Senior Housekeeper



LORA LEWIS
Senior Associate



MRS. J. F. LUMSDEN
Senior Housekeeper



EVELYN MACLEAN
Senior Normal



CARITA MCKIEL
Senior Associate



IDA MOGG
Senior Normal



DONA MURRAY
Senior Associate



ETHEL NICHOL
Senior Housekeeper



LENA REID
Senior Housekeeper



A. BERTHA SCHOFIELD
Senior Housekeeper



LILLIAN SHERIDAN
Senior Normal



MABEL BARBARA SMITH
Senior Housekeeper



MABEL ISABEL STRACHAN
Senior Housekeeper



WINNIFRED SUTTABY
Senior Normal



LAURA BESSIE TIPPET
Senior Housekeeper



GRACE TOTTEN
Senior Associate



ADA WILLANS
Senior Associate



MARY WISMER
Senior Housekeeper

Junior Housekeepers



Top Row—AGNES COLLIER, ELSIE WATT, ETHEL HAMILTON, CLARA ROBERTSON,
 Middle Row—ETHEL de HAVILAND, ANNA MacCALLUM, JESSIE DAVITZ, ANNIE DIXON, GERTRUDE ZAVITZ, GRETA MacFARLANE,
 Bottom Row—EVELYN FERGUSON, MARION BRISTOL, MURIEL CASS, HELENA TAYLOR, FLORENCE RICKARD.

Junior Normals

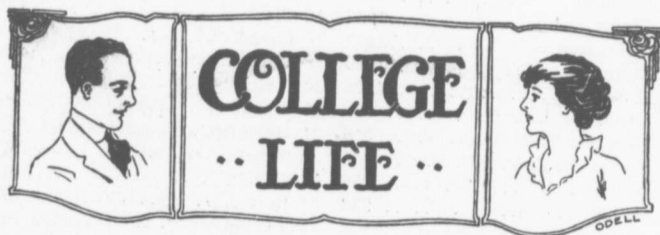


Third Row—R. FOUCHE, O. GARDINER, B. DICKINSON, F. MORTON,
Second Row—L. ARMSTRONG, I. van der MERWE, R. McMILLAN, L. REID, W. MARTIN,
First Row—M. BARKER, J. ROGE (S), M. STAPLES (President) A. SHARPE, B. GRANT.

Junior Associates



M. FRANK, J. H. THOMPSON, H. SCOTT, G. WILLIAMS, G. REBBICK, A. BLAIN,
E. DILTZ, E. BILLOTT, G. BIER, E. NEILSON, J. McDONALD, M. McCALLUM, M. WHITE, M. TWEDDLE,
G. WARNER, H. BURROWS, L. CARTER, K. HAMILTON, D. DUFF, E. INGERSOLL, M. HOPPER, G. FELLOWS



Ontario Agricultural College Examinations.

Year Standing 1918-19.

FIRST YEAR

Maximum—2000.

1 Sheppard	1590	31 Armstrong, T. M.	1254
2 Shaw	1532	32 Ruwald	1243
3 Whiteside	1523	33 Harvey	1237
4 Leaver	1505	34 Toner	1227
5 Graham, Miss.	1460	35 Heming, Miss	1218
6 Welland	1460	36 Gray, J. A.	1199
7 Wilcox	1458	37 Richardson	1193
8 Claus	1437	38 Davidson, Miss	1192
8 Cockburn	1437	39 Reder	1182
10 Raithby	1426	40 Bratt	1180
11 Emigh	1381	41 Sutherland	1163
12 Moore	1354	42 Armstrong, A. E.	1142
13 Page	1351	43 Cowan	1139
14 Oldfield	1349	43 Dyer	1139
15 Matheson	1346	45 Cook	1138
16 Pearson	1343	46 Wildman	1131
17 Hocking	1337	47 Malkin	1117
18 Shore	1336	48 Osborne	1108
19 Ellsworth	1324	49 Hadden	1106
20 Davidson, J. G.	1322	50 Painter	1100
21 Fraser	1321	51 Griffiths	1099
22 Magee	1319	52 St. John	1098
23 Birks	1316	53 Baldwin	1088
24 Waugh	1302	54 Brennand	1079
25 Fleming	1297	55 McMillan	1077
26 Disher	1290	56 Harley	1070
27 Casselman	1284	57 Jackson	1065
27 Stuart, D. G.	1284	58 Copeland	1061
29 Hartley	1263	59 Lightbourn	1059
30 Stewart, C. H.	1259	60 Watson	1056
		61 Worlsey	1051
		62 Nelles	1041

63 Burrows	1037	15 Stirrett	1734
64 Ripley	1036	16 Clark	1725
65 McLennan	1029	16 Coon	1725
66 Tolton	1020	18 Christensen	1703
67 Hicks	1008	19 Matthews	1685
68 Disbrowe	990	20 Sippel	1683
69 Graham, T. R. G.	966	21 Howarth	1681
70 Stuart, R. C. V.	963	22 Cohen	1675
71 Glavin	956	23 Collier	1674
72 Bichan	938	24 Butt	1673
73 Halpenny	928	25 Thompson, D.	1646
73 Sanders	928	26 Laing	1642
75 Smith	924	27 Thompson, G. J.	1620
76 Hannam	921	28 Snyder	1616
77 Riley	916	29 Young	1587
78 Alp	914	30 Barber	1548
79 McMullen	908	31 White	1518
80 Blakely	884	32 Alexander	1517
81 Elliott	862	33 Sirrs	1507
82 Fulton	857	34 Rilett	1496
83 Lucas	846	35 Webster	1482
84 Johnston	844	36 Taylor, H. H.	1479
85 Bach	829	37 Goodier	1451
86 Start	817	38 Lowrie	1450
87 Cross	788	39 Taylor, W. D.	1406
88 Ings	763	40 Stott	1403
89 Garbutt	761	41 Lindala	1400
90 Innes, G. H.	735		
91 Rivera	734		
92 Leek	723		

SECOND YEAR

Maximum—2800.

1 Jukes	2341
2 McCrimmon	2224
3 Flatt	2149
4 Grant, W. G.	2148
5 Ferguson, C. M.	2055
6 Frith	2011
7 Eldt	2002
8 McCague	1959
9 Irvine	1928
10 Deneau	1921
11 Clemens	1912
12 Jamieson	1890
13 Shoemaker	1876
14 Ireton	1845

THIRD YEAR

Maximum—1900

1 Hopper	1483
2 Eaton	1440
3 Hansuld	1408
4 Currier	1401
5 Strong	1378
6 Porter	1362
7 Fleming	1358
8 Tinney	1328
9 Hood	1324
10 Curtis	1313
11 Mead	1294
12 Chase, Miss	1264
13 Kimball	1230
14 Stewart	1221
15 King	1211
16 Hurst	1160
17 Shorey	1000

SPRING ELECTIONS

The spring elections resulted in the following men being elected to fill these positions:

Union Literary Society

Honorary President—Prof. Wade Toole.

President—Frank Tinney.

Treasurer—N. A. Marshall.

Secretary—L. O. Magee.

Athletic Society

Baseball Manager—Prof. W. J. Squirrell.

Basketball Manager—Mr. A. W. Baker.

Aquatic Manager—Mr. G. H. Unwin.

Hockey Manager—Mr. R. C. Mofat.

Review Staff

Associate Editor—C. M. Flatt.

Alumni—G. C. McCrimmon.

Agriculture—W. A. Fleming.

Experimental—E. L. Eaton.

Horticulture—Miss S. Chase.

Poultry—W. P. Shorey.

Query and Farm Power—Stuart Irvine.

College Life—S. G. Collier.

Athletics—H. R. Clemens.

Locals—H. E. Ruwald.

Artist—C. Y. Connor.

APPOINTED PROFESSOR OF PHYSICS

Wm. C. Blackwood, Director of Physics, at Toronto Technical School, has been appointed Professor of Physics at the O.A.C., to fill the vacancy caused by the resignation of W. H. Day, B.A. Mr. Blackwood is a comparatively young man. He was raised near Harriston, Wellington County, and educated in the High School there. Later he taught in rural schools for several years, afterwards taking a course at the

School of Practical Science, Toronto. Upon graduating he was appointed Demonstrator in Physics, later Lecturer of electrical and mechanical engineering, and for four years he has been Director of the Department of Physics.

INDUSTRIAL CANADA SCHOLARSHIPS AWARDS

1. Dr. J. D. Edgar.
2. C. M. Flatt.
3. F. W. Stock.

FIRE AT THE CHEMISTRY BUILDING

A small but rather spectacular (in one respect) fire, in the Chemistry building, created a fair amount of excitement among the residents of the O.A.C. recently. Slight damage to building and contents occurred from fire and water.

The fire broke out about 10 a.m. Luckily most of the staff were absent from the building at the time, so that no one was suffocated or singed in the rush for the doors. However, a considerable quantity of reagents became very active, with the result that a portion of the stock of chemicals will have to be replaced. The flames burned out a small portion of the quantitative laboratory floor, but the fact that the building was largely fire-proof, prevented considerable damage being done.

As soon as the fire was discovered, it was seen that the hose kept in the building was not capable of drenching the flames. Accordingly a call was put in to the Guelph Fire Department, who answered with their usual promptness, and, in a short time, had the fire under control.

Our old friend, Alcohol, was again

to blame. However, this time it was not good-natured in more ways than one. The denatured liquid from a broken bottle caught fire.

As ill-fortune would have it, Doc Fraser and Bill Stanley were, conducting some scientific investigations on the top flat. Doc Fraser's pipe, having gone out, he struck a match to relight it, and, in so doing, happened to look out the window. To his great surprise he espied a gaping crowd of O.A.C. professors and lecturers bunched round the front of the building. Then Bill Stanley gasped that he heard the alarm of the fire wagon.

They rushed to the window, saw where the seat of the fire was, and raced to the door.

They had not descended many steps before they ran into a dense, rolling cloud of smoke. They were trapped. But, no; Bill Stanley's pale face suddenly brightened. They turned, sped up the stairs and up on to the roof.

There, to put it in Doc Fraser's own words, they chattered with the shivering chicadees, and gazed over the edge of the roof in consternation.

Seeing the dreadful predicament of the two freezing chemists, Professors Toole and Squirrel united their efforts in raising a ladder to the roof. However, by the time they managed to elevate the ladder that great distance, the fire had been quenched, the smoke had wafted out through the doors and windows, and the two roofed scientists were able to descend in gentlemanly fashion to the warmer regions below.

PROBLEMS OF RURAL RECONSTRUCTION.

Continued from page 470.

Food Controller Thompson said in a speech once that the first six inches of Canadian soil must pay our national indebtedness. The standardization of farm products will raise the financial status to a higher level. It is to Canadian farms that we must look largely for the exportable surplus which alone can save us from national bankruptcy. Such statements as these convey to the average mind that agriculture is the all important industry of Canada. But are we as farmers satisfied to sit back and receive such flattering remarks without attempting to establish a real backing for these statements?

The premier of Ontario made the statement that if farmers wished their occupations to receive due consideration they should send representatives of their own calling to legislative. My worthy friends, be up and doing! Don't wait for someone else to take the lead. Be the leader of your own community. Elbert Hubbard once said that one awakened soul in every community would actually reform the world. Will you be that great soul in your community?

"They are not going to cut me up if I go to the hospital, are they?"

"Of course not. when you're going just for a rest. What makes you think they are?"

"Because when I called up the hospital, a voice said, 'Operator.'"

The late Cy Wagner told this story at a luncheon not long before his death:

A Scotchman came upon an automobile overturned at a railway crossing. Beside it lay a man all smashed up.

"Get a doctor," he moaned.

"Did the train hit you?" asked the Scotchman.

"Yes, yes; get a doctor."

"Has the claim-agent been here yet?"

"No, no; please get a doctor."

"Move over, you," said the Scot, "till I lie down beside you."

"I worship you, my love!"

"Psst, not so loud!"

"Why not? We are alone in the middle of the ocean."

"Yes, but my papa is a Marconi operator."



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Three Requirements for Good Butter
Good Cows A Clean Churn & Reliable

Windsor Dairy Salt
Made in Canada

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FERTILIZERS



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

Are the product of fertilizer experts who have had years of experience with Canadian farm needs. In Gunn's "Shur-Gain" Fertilizers they have produced the perfect blends of nitrates, phosphoric acid, and potash that insures greater crops wherever it is used.

Gunn's "Shur-Gain" Fertilizers are the best and cheapest plant food you can buy. Ask your dealer for it. If he cannot supply you with the genuine "Shur-Gain" write to us and we will mail you the interesting booklet "Bumper Crops" and get you the supply you need.

GUNNS Limited, West Toronto, Ont.



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

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

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

NOTES ON THE AGRICULTURE OF NORTHERN FRANCE.

Continued from page 462.

for future labor than past or present, induces him to put the most exacting labor on it that he may realize to the utmost its value. Land is pointed out that not long since grew only rye and buckwheat, and on which, frequently, even these poor-land crops failed. The improvement noted on the basis of cropping possibilities amounts in some instances practically to reclamation. The thrift and plain life that many of us are acquainted with among the French peasantry has for its main incentive the saving of money for the purchase of land.

Climate, in its diversity and kindness, has of course most to do with inducing a grateful soil to a growth of fine fruits. But if Genius is the infinite capacity for taking trouble, then, the variety of fine wines, the numerous and excellent varieties of soft cheeses that grace with zest the finest dinners, the choice produce of one of the most intensive systems of market gardening ever brought to our notice, and the products of many other equally important enterprises of the French small-holder, may well be called the "Fruits of Genius."

CO-OPERATION WILL DO IT.

Continued from page 480.

longer period owing to increased production. This longer run would more than make good the loss he would incur in giving justice.

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

100 Yards of Ditch in Three Hour

—a better, cleaner and more satisfactory ditch than one dug with pick and shovel.

C. X. L. Stumping Power

dug this ditch—it is digging ditches for hundreds of farmers. Whether you want to drain or irrigate, the C. X. L. way is the most practical. Use C. X. L. for stumping, clearing and planting fruit trees—it does the work economically.

Our book "Farming with Dynamite" tells how. Write for your free copy to-day.

Canadian Explosives Limited

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Simplicity is the foundation of efficiency. EMPIRE Milking Machines are supremely Simple and correspondingly Efficient.

They do their work perfectly, with the least possible effort on the part of the operator and the greatest possible comfort to the cows; they get the most milk, of the best quality in the least expensive way.

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Perfection

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Renfrew

not only outskims others, it gets cream that makes the firmest and of butter quality that other machines cannot produce. It has an easy to clean, wide open bowl, curved wing centre-piece, exclusive interchangeable capacity and automatic oiling system.

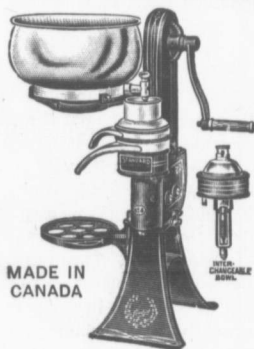
Write for catalogue describing all these features.

The Renfrew Machinery Co., Ltd.

HEAD OFFICE AND WORKS: RENFREW, ONTARIO.

EASTERN BRANCH: SUSSEX, N. B.

Agencies almost everywhere in Canada.



A NEW RURAL COMMUNITY.

Continued from page 461.

munities? We would have a community life second only to that of Denmark. Co-operation would be second nature. The standard of our agricultural products would be raised and would hold a high place in the world's markets. The community life would foster democracy.

The Anglo-Saxon race is one of pioneers. Our forefathers hewed homes out of the vergin forest. Let us be pioneers in building up a new rural life. It is a worthy object.

FOR THE TOURIST

Your baggage is luggage in England,
Your trunk is your "box" you will find,
You'll avoid quite a bit of confusion
By bearing these changes in mind.

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

Locomotives draw "coaches" in England,

Not conductor but "guard" is the word,

A train isn't switched, it is "shunted,"
The street cars are "trams," as you've heard.

A cop is a "bobby" in England,

A cane is a "stick," don't you know!
You must call it "jug," not a pitcher.
Don't say: "Have a drink"—"Have a go."

Overshoes are "galoshes" in England.

Not faucet, but "tap," you must say;
If you're cooking, and say, "Fetch a spider,"

They'll shrink from you startled away.

They don't mail their letters in England,

But always they "post" them instead;

Molasses they speak of as "treacle,"
And Z isn't zee, it's "zed."



**CLEVELAND
TRACTORS**

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

**The Cleveland Tractor Company
of Canada, Limited**

WINDSOR

ONTARIO

THE MACDONALD GIRL

Queenly, fair and blooming lassie,
Garbed in gown of sky blue hue,
Stately mien, and pose triumphant,
Embryo queen of rare menu.

Goddess of the spoon and platter,
Mistress of man's ways and miens;
Fairy nymph of kitchen clatter,
Caterer of pork and beans.

Enemy of germs dyspeptic,
Mistress of all household arts;
Minster of domestic comforts,
Soft'ner of hardened hearts.

Like a sunbeam across the campus,
Trips she fair as thistle down,
Pure as sparkles on the grass blades,
In her light-blue college gown.

Men shall falter at thy footstool,
For thy hand kings deign to sue;
Peerless, bright, Canadian lassie,
Queen of the Macdonald blue.



THIS
TAG
IS THE
TRADE MARK

Get Good Harness

Any goods put out by this firm and bearing our yellow ticket trade mark are guaranteed. The Imperial Brand Harness is well known as high grade, and the makers stand behind it. We have never adopted any make-shift methods to cheapen our product on account of the high cost of material, but stick

to the good old standards of fifty-two years ago, when this house was established. If there is anything you need in harness, ask your dealer for the Imperial Brand, or write us direct for it. Ship same day order is received.

SAMUEL TREES & CO., Ltd.

Mfrs. Harness & Saddlery

Established 1866

42 WELLINGTON ST. EAST, TORONTO

**SPECIAL
BUGGY HARNESS.**

Handsome, light road buggy harness, rawhide lined, track style, 56 in. traces. Shaft wrap, belly band, beaded line; folded and padded breeching seat and breast collar; three-quarter inch buckle over-check; track blinds; traces double and stitched throughout; trimmings are finished in genuine hard rubber and near gold. This is the dandiest harness for the price in Canada, strong and reliable, every inch of it. Price only \$35 Special. Ask your dealer or order from factory. Our Guarantee—If it does not satisfy you, return it at our expense.

\$35

CATALOGUES
BOOKLETS
FOLDERS
CIRCULARS
COMMERCIAL & SOCIETY
STATIONERY



Anything in printing from
the best that is made
to the cheapest
that is
good



The Advertiser Job Printing Co.,

LIMITED

London, Ontario

CORNER YORK AND WELLINGTON STREETS

PHONE 247 - 248

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.

**EVERY HEN SHOULD PRODUCE AT LEAST 120 EGGS
PER YEAR.**

Continued from page 471.

plied with blood, changes very quickly with production. The yellow eye-ring, denoting a hen that is not laying, is very noticeable. The yellow goes out when the hen starts laying, and stays out until she has stopped laying for a few days.

The beak and the shanks fade out slowly because the circulation is slow, and conversely the color comes back slowly. In the beak, the color fades out at the base first, and then gradually extends to the tip. Color on returning appears first in the base and gradually extends to the tip. If the whole beak is pale, the hen has been laying for some time; if yellow she has not laid recently.

Besides the change in the shape of the head and shanks, due to fat disposition, there is a decided change in the outline of the body. A hen that is laying has an enlarged abdomen, due to the enlarged intestines, ovary and oviduct. The body is deeper in the rear than at the front of the keel. This condition is reversed when a hen stops laying. The pelvic bones are well spread in the laying hen. The pelvic arch and the abdomen increase in size, depending on how heavily the hen is going to lay.

At the same time that the abdomen grows larger and softer, the vent also does the same. A heavy laying hen has a full moist vent as compared with the small puckered vent of a non-laying hen.

The same looseness that is noticeable about the vent is true of the skin all over the rest of the body. A laying hen is soft and flabby, and the bones are readily felt. A non-

laying hen is hard and plump and the bones are not evident.

The secondary sexual characters, ear lobes, comb and wattles, respond directly with the primary sexual character, the ovary, when a fowl is in heavy laying condition, the earlobes are large and full. As production decreases the earlobes contract.

With large combed breeds, such as the Minorcas, Leghorns and Campines, the comb is a remarkable indicator of the laying conditions of the fowl. Of course the same differences are true of the smaller combed breeds, but are much more difficult to see. The comb expands or contracts according to the conditions of the ovary. If the hen is prepared to lay very heavily the following week, the comb is very full, smooth, stiff and shiny.

It is so enlarged that it feels waxy. As the ovary decreases, the comb loses its stiffness and becomes soft and pliable. Little excrescences begin to stand out, and the comb feels a little rough to the touch. When comb is rough, it will mean that the hen will only lay lightly the following week. If the comb shrinks until it is hard and dry, and is covered with yellowish white scales or dandruff, the ovary is dormant. When the hen begins to lay, for instance after being broody, the comb enlarges, breaking up the white scabs have formed, and bright glossy areas can be seen through the white patches. While the comb is enlarging, it feels warm, probably due to increased blood supply. At all other times, the comb is comparatively cold.

While depending largely on color and body changes, one should never

Continued on page xx.

FARMERS' BUSINESS



25

For the past 54 years, this Bank has given particular attention to the business of Farmers

We have helped many over the rough places, and have added many more to the highest plane of success.

We are prepared to extend you every aid within legitimate banking practice.

Come in at any time and talk over your affairs with us. You are always welcome.

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 119 branches in Ontario, 37 Branches in Quebec, 1 Branch in New Brunswick, 2 Branches in Nova Scotia, 27 Branches in Manitoba, 4 Branches in Saskatchewan, 6 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.

Order from:

Library Department

WILLIAM BRIGGS

PUBLISHER

TORONTO

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

**EVERY HEN SHOULD PRODUCE AT LEAST 120 EGGS
PER YEAR.**

Continued from page xviii.

lose sight of the differences in action of the layers and non-layers. A laying hen is wide awake and active. She is continually scratching and digging. She does not hang around the edge of the flock at feeding time. She wants to be friendly, and by her continual singing asks to be saved and appreciated.

THE REQUIREMENTS OF AN IDEAL SILO.

Continued from page 476.

have been in constant use for a period of ten to twenty years, and to interview the owners of such structures, to learn that these arguments have not just foundation. The writer recently visited one of the most prominent dairy farmers in Western Ontario, and found that his monolithic silo, which has been in use for thirteen years, was giving perfect satisfaction. This silo had not been washed over since it was built. The concrete silos at the O. A. College beef barns furnish another illustration. These silos have been in use for twenty years, yet are now as efficient as when first constructed.

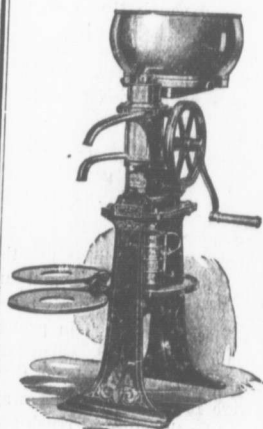
There are as many different opinions expressed about the power of a silo to withstand frost as there are silos. In December, 1917, when the thermometer was registering from zero to twenty degrees below, the writer observed the amount of frozen silage in various types of silos and in different forms of the same type. Needless to say, there was a

great variation. Many silos of different types were found to be carefully protected against frost. A large number were roofless. In other instances the chutes were at fault, or perhaps the hatches were not kept in place, allowing for a circulation of air. For instance, one monolithic concrete silo, placed at an exposed north-west corner of a barn contained an unusually large amount of frozen silage. Could one expect anything else, since it had no roof, the hatches were not in place and the chute was poorly built. Moreover, the farmer had not yet learned how to take off the silage. We have no type of silo that will protect its contents against severe frost under such conditions. The properly constructed chute and roof are essential to any outside silo. The hatches must be well filled and kept in place, and care exercised in the removal of silage. The amount of frozen ensilage is governed more by the degree of perfection of the above factors than by differences in type of silo.

A good roof gives the silo a finished appearance, protects the silage from rain, snow and frost. It keeps out pigeons and sparrows: If the roof is well pitched, and with a gothic, or better still, a hip-roof, valuable space is supplied at filling time.

The intermittent hatch-ways allow for a stronger wall, and the danger of draughts is lessened by keeping the hatches in place. The chutes should be made of matched, tongue and grooved lumber, or else of the concrete. It is important that a chute have a window or two in it.

NEXT MONTH—The Construction and Cost of the Monolithic Silo.



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

AFTER ALL IS SAID AND DONE

what is the true purpose of the study of agriculture as regards the dairyman? Is it not to better educate the individual as to the vast opportunities that exist in the Dairy Industry, whereby better milk and milk products can be produced, thereby, elevating the Dairy Industry to the high level which it justly deserves.

Numerous factors enter into the application of scientific dairying, most important of which are choice of brood for individuality, feeds and feeding for production, handling and marketing for quality and profits.

Without the latter, the two former factors would be of little value, because the income upon which your business exists is dependent upon profit.

You have heard, or possibly you already know what the slightest unsanitary condition throughout your dairy signifies. It means the possibility of inferior quality, waste and low price.

Is not

Wyandotte
Cleaner - and - Cleaner

worthy of your highest consideration, if it protects the quality of your milk, eliminates waste, and is indicative of a fancy priced dairy product?

Indian in Circle



On Every Package

Thousands of prosperous dairymen, as well as all the agricultural colleges use this cleaner, because they realize that it not only cleans clean, but that it also saves time and cleaning material.

Write us for further information, or order from your nearest dealer.

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

THE DAIRY FARMING BUSINESS IN ONTARIO.

Continued from page 481.

utilized to produce at least 30 per cent. of the total income.

(c) No matter what the price the dairyman cannot afford to neglect all side-lines.

8. That the average producing capacity of the dairy herd determines whether or not it is advisable to increase the farm expenses for labor and feed. The Labor Income may be kept up by extreme hard work on the part of the operator, but good cows will more than pay for the hiring of extra help, and thereby lessen the amount of work per man to be done on the farm.

9. That the cost of producing milk on 194 Dundas County Farms ranged from \$1.00 to \$4.00 per cwt., depending on the farm efficiency.

10. That the average cost of production of milk could be reduced by better breeding, more careful feeding and proper utilization of side-lines.

FARM POWER.

Continued from page 486.

TRACTOR FARMING

The tractor on the farm arose

Before the dawn at four;

It milked the cows and washed the clothes,

And finished every chore.

Then forth it went into the field

Just at the break of day;

It reaped and threshed the golden yield,

And hauled it all away.

It plowed the field that afternoon,

And when the job was through,

It hummed a pleasant little tune
And churned the butter, too.

For while the farmer, peaceful eyed,

Read by the tungsten's glow;

The patient tractor stood outside,

And ran the dynamo.

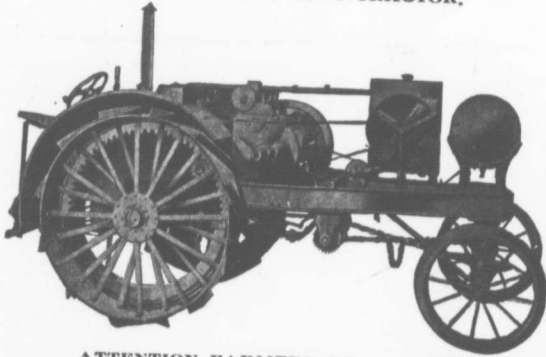
THE LAND OF EVANGELINE.

Continued from page 467.

wearing down and building up, the marshes have stretched farther and farther out beyond the fields already taken in from the sea, as though in protest against being left behind when the people who understood and loved them so well were forcibly carried away. Dikes raised by the sturdy French peasants still shut out the tides in many places. In other locations newer ones have been erected to include larger areas. But the miles and miles of old running dikes will long remain as a memorial to the industry and perseverance of the early settlers. Some idea of the labor entailed in their construction may be obtained from the local stories of the building of the Wellington Dike, situated diagonally across the Basin from Grand Pré. In this feat, twice attempted, once abandoned, but finally completed about 1720, nine out of every ten loads of material were washed away by the tides. What greater discouragement would be possible? Even the tale of Bruce and the spider is equaled; and people like these were considered unsuitable subjects of the British Crown!

In summary one can say no more than this: Acadia, New Scotland, Nova Scotia, a land with a history of romance, a present of importance, a future of wonderful promise, and best of all a true home to her sons and daughters.

WATERLOO BOY 12-24 TRACTOR:



ATTENTION FARMERS OF ONTARIO

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

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

DESCRIPTIVE CATALOGUE FREE, WRITE FOR IT AT ONCE.

THE ROBT. BELL ENGINE & THRESHER CO. LTD.

SEAFORTH,

Ontario Distributors WATERLOO BOY

ONTARIO

TWO NEW RECORDS.

Continued from page 482.

himself, he not only possessed Rolo Mercena De Kol but certain ideas. He did not set out to establish great records but to obtain maximum production. To obtain this, he used the proper method; he weighed the milk, tested by means of a Babcock tester and kept records. He then used these results to eliminate the poor producers and in increasing the producing power of his herd.

Rolo Mercena De Kol proves the fact that production and dairy type are complimentary. She is a typical Holstein, of good conformation, straight lines, with a well-balanced udder and, in general, those points which are accepted as indications of high production.

Lastly, this cow is simply one of a good herd. Her records are the result of careful breeding by selection and by judicious feeding. Yet, it must be remembered, that, while Rolo Mercena De Kol did not come from a line of record producers, yet she has been bred from good producing ancestors.

The kindergarten had been studying the wind all week—its powers, effects, et cetera—until the subject had been pretty well exhausted. To stimulate interest, the kindergartener said, in her most enthusiastic manner:

“Children, as I came to school to-day in the trolley-car, the door opened and something came softly in and kissed me on the cheek. What do you think it was?”

And the children joyfully answered: “The Conductor!”

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

