

# THE O.A.C. REVIEW

JULY, 1911



# WINDSOR<sup>TABLE</sup> SALT

Salt goes in or on practically everything we eat—which shows the importance of using only pure, wholesome salt.



Windsor  
Table

Salt is pure  
salt—all salt—and nothing  
but salt. It is the standby in  
all Canadian homes.

35

Your grocer is sure to have it.

# You'll Get Best Service — from the — IHC Line of Wagons

**Y**OU get best service from the IHC line of wagons because they are quality wagons. They not only look well, but they wear well. Built for the exacting farmer who demands the best. They are not built for a day. They are built for a lifetime of service. They are built to carry heavy loads and for continuous hard usage.



Petrolia and Chatham farm wagons are wagons of the IHC line. They are sold by a company that cannot afford to hazard its reputation by foisting wagons of an inferior quality on the public. From Petrolia and Chatham farm wagons you get more than a dollar's worth of service for every dollar you invest. Buy one and you will buy a dividend. You can be absolutely sure of getting a dividend wagon in a Petrolia or Chatham because they are wagons of the IHC—the quality line.

## Petrolia and Chatham

wagons have been the choice of thousands of Canadian farmers for many years. They are made especially for the service the Canadian farmer requires.

The wood entering into the construction of Petrolia Wagons is selected with great care and thoroughly seasoned. The iron work is designed to insure durability and strength.

The paint and varnish with which they are handsomely finished covers no defects in material and workmanship.

Chatham Wagons have a long record for satisfactory service. Made with hard maple axles, white oak bolsters, sand boards, rim, spokes and oak or birch hubs, second growth white ash trees and yokes—all this material being dried under cover and carefully inspected before being used—they represent the highest possible standard of wagon construction.

Call on your local IHC dealer and see the various styles in which these wagons are made. You will find one among them that will meet your exact need. Or, if you prefer write direct to nearest branch house for booklets and full information.

**EASTERN CANADIAN BRANCHES:** International Harvester Company of America, at Hamilton, Ont.; London, Ont.; Montreal, Que.; Ottawa, Ont.; St. John, N. B.

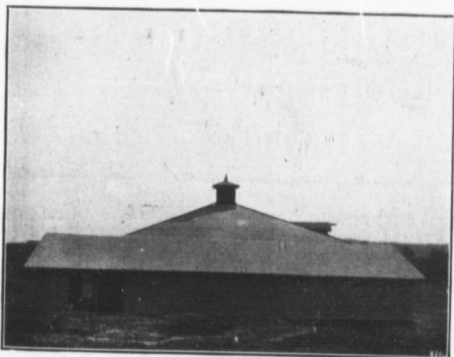
**INTERNATIONAL HARVESTER COMPANY OF AMERICA**  
(Incorporated)  
Chicago U S A



THE  
**I-H-C LINE**

LOOK FOR THE I. H. C. TRADE MARK. IT IS A SEAL OF EXCELLENCE AND A GUARANTEE TO QUALITY.

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# Asbestos Cement Shingles



We illustrate this month a concrete barn with Asbestos-Cement Shingle roof, making entire exterior fireproof.

Watch for the photograph showing the rear of this same structure with large shed in next month's issue.

**The Asbestos Manufacturing Co. Limited**  
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# The Rural Telephone



NOBODY AT HOME  
BUT THE DOG  
"AND WE'VE COME ALL THIS  
WAY FOR NOTHING"



"WHY YES  
WE'LL BE HOME, COME RIGHT OVER."

The above sketch is one of 32 which appear in "Canada and the Telephone," a book intended to illustrate the value of a telephone in the rural home and a copy of which we will send you on application.

It is generally recognized now that a telephone on the farm or in the rural district is of more real value to the subscriber than a telephone is to the man in the city.

Hundreds of localities throughout Ontario have appreciated this and are to-day operating their own telephone systems. A local telephone system changes the complexion of both business and social life in the rural district.

We manufacture telephone equipment in the City of Toronto, and we also handle everything in the way of construction material for the building of a telephone line. Everything we send out is guaranteed as first-class.

Our Canadian made telephone we believe is the superior of anything on the market, and as a Canadian industry we are proud of the fact.

If you are interested in the building of a telephone line or the establishing of a telephone system, write us. Our engineers will gladly furnish full information. Our No. 2 Bulletin tells how to construct and equip rural lines. It will be sent free of charge upon request.

## Canadian Independent Telephone Co. Ltd.

DUNCAN STREET, . . . . . TORONTO.

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**A GOOD CREAM SEPARATOR SHOULD BE DURABLE.** The average cost per Empire machine has been but 17c. per year for repairs (outside of rubber rings and brushes) during twenty years of service.



## The EMPIRE Line

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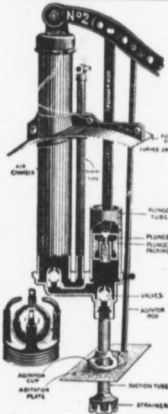
CATALOGUE  
No. 9

of cream separators embraces all sizes in Frictionless Empire (cone method) and Empire Disc—EVERYTHING THAT'S GOOD IN CREAM SEPARATORS. Every Empire separator carries with it a guarantee as good as a gold bond. Some day you'll own an Empire—the sooner the more money you'll make.

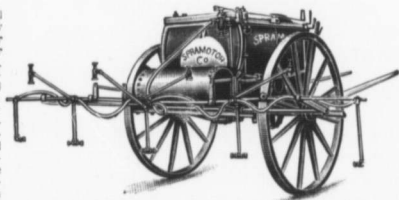
—A big book giving all the facts about cone and disc separators. A book worth money to you.

**The Empire Cream Separator Company of Canada, Limited**

SUSSEX, N.B.      MONTREAL      TORONTO      WINNIPEG



The sectional cut shows why **The Spramotor Hand Sprayer** is so effective, simple and durable. It will last as long as required for painting, white-washing, orchard, potato, and mustard spraying. There are more Spramotors in use in Canada than all others combined. It has agitator, which thoroughly mixes the paint or chemicals before they are applied, which acts independently of the motor. It has brass independent ball valves, which remain tight in use. The plunger has stood ten years' test. Free catalogue.



This shows another style of **Spramotor**, arranged for spraying potatoes four rows at a time, with three nozzles to a row, two from below, and one from above, for each row. Arranged for one or two horses. Will be found most economical, efficient and durable tool for this purpose. Can be also arranged for vineyard, orchard, or weed destruction, by a simple change of accessories. It has more genuine points of merit in it, and is capable of doing a greater range of work, than any other device of its character. Full particulars on application.

# Spramotor Works

68-70 King Street - London, Canada

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## GIVE MOST POWER AT LEAST COST AND LAST LONGEST



**Y**OU know there's a great difference in horses—and it isn't all in the size and looks either. One horse will start in willingly and pull strong and steady for hours. He'll take the hard stretches with a dash that always gets over them. He'll stay on the job from the time he's hitched till he's sent to the barn.

Another horse that's just as big—looks just as good—starts out just as well—can't hold the pace. He hasn't the stuff in him. He usually gets stuck in the mud or half way up the hill—is always tired out before the work's done.

It's the same with a gasoline engine. You can't go just by looks. Because an engine starts out well is no sign it can hold the pace. That must be proved.

The I H C line offers engines of proved ability. Through years of service, everywhere, under every condition,

### I H C Gasoline Engines

have stood the test. They have demonstrated by actual experience that for every use they are just the kind of engine you want.

I H C engines are made in various styles and sizes, from 1 to 35-horse power—for pumping, spraying, sawing, grinding, threshing, and operating machines about the house and dairy.

Why experiment when you can be sure?

It doesn't take an expert to see the many great advantages of I H C construction. You can see at a glance how I H C cylinder construction gives more power on less gasoline—how the I H C style of governing gives steadier power and economizes fuel—how the I H C cooling system prevents deterioration—how, in every way, I H C construction is simplest, strongest, and best.

Go to the I H C local dealer and let him prove to you why an I H C engine will give you most service, most satisfaction, with least attention, and at least expense. He will show you just the engine to meet your requirements. Talk it over with him next time you go to town. Or, if you prefer, write nearest branch house for catalogue and full information.

**CANADIAN BRANCHES**—International Harvester Company of America at Brandon, Calgary, Edmonton, Hamilton, London, Montreal, Ottawa, Regina, Saskatoon, St. John, Winnipeg, Yorkton.

**INTERNATIONAL HARVESTER  
COMPANY OF AMERICA**  
(Incorporated)

**CHICAGO  
U S A**

### I H C Service Bureau

The Bureau is a center, where the best ways of doing things on the farm, and data relating to its development, are collected and distributed free to everyone interested in agriculture. Every available source of information will be used in answering questions on all farm subjects. If the questions are sent to the I H C Service Bureau, they will receive prompt attention.



## Schumacher Feed for Hogs

This is the season of the year when you are confronted with the problem of selecting the feed you are going to use for your spring pigs. If you are to obtain the very best results from your feeding, care must be taken to secure that feed which will provide the most nourishment and growing powers. You may possibly have been a feeder of Middlings or other such feed and have obtained fairly good results. Would you be willing to give another feed a fair trial, which can be had at a lower price and which will give you better satisfaction. SCHUMACHER FEED (corn, oats and barley) is without doubt the best hog feed that is to be had to-day, price considered. Read the letter we received from one of the most prominent feeders in the Eastern townships.

The Quaker Oats Company, Peterboro, Ont.:

Ulverton, Quebec, March 8th, 1911.

Dear Sirs,—I have used large quantities of SCHUMACHER FEED the past three years for hogs, and recently fed six spring pigs on Middlings until they were four months old, then on SCHUMACHER, killing them at ten months, and they dressed four hundred pounds each.

Yours truly,

(Signed) A. ELLIOTT.

P. S.—I now have eight fall pigs six months old, fed entirely on SCHUMACHER that will dress two hundred pounds each.

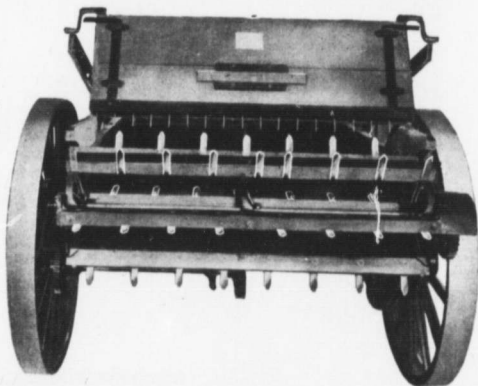
We give you the above just as we received it. You may think the weights mentioned are excessive but we have every reason to believe they are correct. It looks to us that SCHUMACHER FEED was so good that the six pigs could not help but make real hogs of themselves.

It's worth a trial. Ask your dealer for some to-day?

**THE QUAKER OATS CO., Peterboro, Ont.**

## THE KEMP MANURE SPREADER

Equipped with the Graded, Reversible, Self-sharpening Flat-tooth Cylinder. One-third lighter in draft than any other spreader. Let us send you a booklet about it; free. Write to-day.



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Stratford Ontario.

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 HEAD OFFICE A. WORKS WALKERVILLE CANADA BRANCHES TORONTO MONTREAL A. ST. JOHN

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NORTH WEST DISTRIBUTOR  
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## LONDON Cement Drain Tile Machine

This Machine MAKES ALL SIZES OF TILE from 3 ins. to 15 ins. in diameter, and from 12 in to 24 ins. long.

All Tile are packed perfectly hard. Our Patent Packer does the work.

There are large profits in the manufacture of concrete tile.

If you are interested let us give you full particulars.

We also manufacture Concrete Mixers, Concrete Block Machines, Concrete Brick Machines.

Sill, Step and Window Gap Mould, Sewer Pipe Moulds, Gasoline Engines, and a full line of Concrete Machinery.

**London Concrete Machinery Co., Ltd.**  
 19 MARMORA ST., LONDON, CANADA  
 Largest Manufacturers of Concrete Machinery in Canada

A HIGH GRADE  
 ESTABLISHMENT FOR THE

# PRINTING

OF CATALOGS, BOOKS and  
 COMMERCIAL JOB WORK

Society and College  
 Work a Specialty.

## R. G. McLean

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 TORONTO, - - ONTARIO

Telephone, Main 657 93.

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**FREE WIND POWER****Canadian Airmotor**

Did it ever occur to you just how much power you can get from the wind if you have a wind mill that is so constructed that it will use all the power of the wind. That is what the Canadian Air Motor will do. You should know about it.

Write for our big new illustrated Catalogue. It's FREE.

**Ontario Wind Engine & Pump Co.**  
LIMITED  
WINNIPEG, TORONTO, CALGARY.

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COATS  
AND  
SWEATERS**

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VETERINARY  
COLLEGE**

Temperance Street, Toronto, Canada



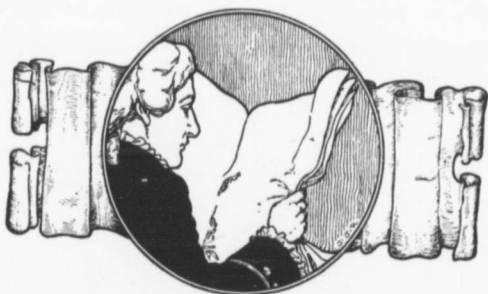
Established 1862

Controlled by the Provincial Government of Ontario. Affiliated with the University of Toronto. The course of study extends through three college years.

Calendar with information will be mailed free on application.

**E. A. A. GRANGE, V. S., M. S.**  
Principal.





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# Root Crops for Farm Stock



We make a distinct specialty of **ROOT SEEDS**, and are careful to see that our stocks keep pace with all the advancements being made from year to year. Anyone wanting the best should insist on

Steele, Briggs' "Royal Giant" Sugar Beet.  
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 Steele, Briggs' "Giant Yellow Globe" Mangel, and  
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No other Root crops produce so large an amount of desirable cattle food for winter feeding. Insist on having them—they're the best—refuse substitutes and others said to be just as good.

Sold by leading Merchants everywhere in Canada.

## Steele, Briggs Seed Co. Limited

HAMILTON

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WINNIPEG

# THE O. A. C. REVIEW

THE DIGNITY OF A CALLING IS ITS UTILITY

VOL. XXIII.

JULY, 1911.

No. 10.

## "God Save the King!"

FREDERICK DAVY, EDITOR, CENTRAL CANADA CITIZEN.

"SIRS, I here present unto you KING GEORGE, the Undoubted King of this Realm: Wherefore all you who are come this day to do your homage, are you willing to do the same."

Those were the words by which the Venerable Archbishop of Canterbury began, after prayer, the solemn and impressive service of coronation of our King. And the throng assembled in the historic Westminster Abbey in the words of the ceremony: "signified their willingness and joy, by loud and repeated acclamations, all with one voice crying out."

"God Save King George."

The shout of the hundreds there assembled but faintly expressed the sentiment in the hearts of millions of the King's loyal subjects in the supreme hour of his solemn bond of faith with his many peoples.

There is something deep and soul-stirring in the simple yet expressive coronation service of the British Empire's Sovereign. It touches the innate human love for the personal element in government and goes moreover to the bedrock of man's existence, his dependence upon the bounty, sufficiency sympathy and love of his Maker. To merely read with seriousness the words of the coronation service is

sufficient to stir the heart. To hear them devoutly spoken by the reverend archbishop in the gorgeous setting of the ancient abbey and its brilliant throng is enough to shake heart and mind to their very depths. So simple are the words, yet so mighty in their simplicity. The fundamental ideas are so great that only the dignity of simplicity can rightfully express them.

And, monarchical though it be in form, the coronation service is the quintessence of safe democracy. For in it the King acknowledges the responsibility placed in him by his people, and promises to govern them in the way they shall decide.

This promise the King makes immediately after expressing his willingness to take the oath. Then he promises to his power "To cause Law and Justice, in Mercy, to be executed in all his judgments."

When later he is presented with the sword of justice he is admonished to "stop the growth of iniquity, protect the Holy Church of God, help and defend widows and orphans, restore the things that are gone to decay, maintain the things that are restored, punish and reform what is amiss and confirm what is in good order."

After receiving the sceptre he is admonished thus:

"Be so merciful that you be not too remiss; so execute Justice that you forget not Mercy. Punish the wicked, protect and cherish the just and lead your people in the way wherein they should go."

Further on in the service the King is presented with the Bible with these words:

"Our Gracious King, we present you



THE CORONATION PROCESSION.

with this Book, the most valuable thing that this world affords. Here is Wisdom; this is the Royal Law; these are the lively oracles of God."

Such is the character of the great service which weds the British King to his people. And it is because it contains the highest conceptions of earthly government and of the nation's adherence to them that such a

vast multitude of diverse peoples assembled to do the new sovereign homage.

And all the while this reverend and dignified procedure is going forth the hundreds of thousands of people wait outside listening anxiously for the first sounds of the returning procession. Along the miles of procession the soldiers of many loyal lands and sailors from the great navy stand quietly at ease yet alert for the sharp word of command that will pass down the line calling them to attention long before the advance guard of the procession shall arrive.

No scene the world affords can equal that seen at the time of the crowning of the British Sovereign. London has done it so often that it knows how to decorate. The best designers in the world are pressed into service and always the effect is wholesome and inspiring. Public taste is well educated in the matter, and anything glaring or hideous is not likely to be tolerated. But nothing that can be combined of bunting, flags, pennants, banners, festoons, wreaths or artistic mouldings can surpass the living lines that line the route of procession. Diverse as the colors and designs of uniform were and whether worn by black or white or brown each had something to commend it.

Most prominent of all the troops in the procession were the regimental Royal Escorts of Life Guards. With their huge size, brilliant cuirasses, red tunics, glittering saddlery and magnificent chargers, they made a wonderful spectacle. Less brilliant in color perhaps but of far greater significance was the escort of troops that had come from the many distant Dominions to thus express their fidelity and loyalty not only to the person of the King, but

to the glorious institutions of freedom and justice that had their origin in that little group of islands that we call the Motherland.

But though the glitter of uniforms and harness attracted the eye the

The procession itself before and after the Royal Carriage was a scene of a character never to be forgotten, comprising, as it did, the greatest kings, princes, statesmen, generals and political leaders of the age. But



WESTMINSTER ABBEY—WHERE ENGLAND'S KINGS ARE CROWNED.

enclosure of both eye and thought was the person of the King and Queen in the great gilt carriage drawn by eight cream colored horses in purple harness. They answered the shouts of the multitudes with the utmost cordiality and grace.

equally interesting must have been the sight beheld by those who were privileged to move along the route. A greater diversity of troops it would be difficult to conceive and only the British Empire could assemble such a multitude at such a time. One had

but little difficulty in singling out the Australians, New Zealanders, South Africans and such troops as the North-west Mounted Police by their distinctive uniforms. But such as the Jamaica Royal Artillery, Fijian Constabulary, Royal Malta Artillery, Hong Kong Infantry, Bengal Cavalry, Jeypore Transport Corps, Royal Niger Houssas, Borneo Dyaks, Sikhs, Gurkhas and many others could only be distinguished and identified with the assistance of military experts. And well-drilled they were to a man. One only had to watch the precise motions as the "Present Arms" was given to note that. Before and after the parades wherever they walked these men were objects of curiosity and admira-

tion. Everywhere they went they were received as guests of the nation. Collectively and individually they were treated with the utmost consideration and when they put off for their respective shores they did so not only with a bigger and broader idea of the Empire and its and their responsibilities, but with hearts warmed by the genuineness and sincerity of British hospitality.

Naught but good can ensue from such a pageant and such a service as the British peoples are called upon to express at a crowning of their sovereign. But happy as may be its effects it can come too often and that is why the Empire sings with heart and voice "God Save the King."

---

#### DAWN.

With folded wings of dusky light  
 Upon the purple hills she stands,  
 An angel between day and night,  
 With tinted shadows in her hands.  
 'Till suddenly transfigured there,  
 With all her dazzling plumes unfurled,  
 She climbs the crimson-flooded air,  
 And flies in glory o'er the world.

—James M. Carroll.



## East and West

PROFESSOR J. B. REYNOLDS.

I HAVE been asked to write my impression of the Canadian West, and to make some comparisons, chiefly relating to agriculture and its possibilities, between West and East. My actual acquaintance with the West is limited to a month's Institute trip in Manitoba ten years ago and a hurried transit last summer to the coast, where I spent two weeks, and a day or two among the wheat fields of Saskatchewan on the way home. One's knowledge of a country, however, is not wholly, not necessarily chiefly, derived from seeing. From what one hears and from what one reads, it is possible to construct in one's mind what may be the fashion of things in other lands—an impression which stands to be revised in some particulars, of course, and enlarged by travel, but which may nevertheless be correct in the main. My knowledge of the East, so far as travel and residence are concerned, is chiefly confined to Ontario, and it is with Ontario that the comparisons will be made.

The first characteristics that impressed me in last summer's trip were the variety of mould and the vastness of scale in which everything was constructed. So far as scenery and physical surroundings have an influence in the making of mind and character—and the history of nations shows that these influences are considerable. Canada has an immense moral asset in the variety and the sublimity of her scenery. Men are often too stupid, or too busy, to give themselves up to such control, but one must be physically blind not to be influenced sometime or other by the

ever-changing aspects in the face of nature. To one accustomed to the fertile fields and the mild, well-ordered landscapes of Southern Ontario, a surprise comes with the view of the rugged, bold and barren rocks of the north shore. As a Yankee said when he first travelled from North Bay to Fort William, "All this rock must have been left over when the world was made. But never mind, it'll be here when its wanted." The first view of the prairie—the real prairie of Manitoba—not the small patches of it one sees in the Kenora district—brings another surprise, and a sense that even level land, if it is level enough and the view intensive enough, may be impressive. And the prairie is impressive not so much by reason of what the eye sees, impressive though that is,—

While the dilated sight  
Takes in the incircling vastness.

The prairie, even more than the mountain, conveys a suggestion of infinity. You can generally see to the top of a mountain, but the limit of the prairie you cannot see. But the eye wearies of the level of prairie just as it wearies of the endless succession of swells that intervene before the mountains are reached. Our train touched Banff on the way West just at sunrise on an early August day, and from then till darkness closed in we saw mountains. The Rockies and the Selkirks cannot be adequately described or imagined. They must be seen. Two features of these magnificent ranges impressed me: Their vast extent and the massiveness of the single peaks. More than that I shall not

venture to remark, for I had no time to stop over, and what I saw, I saw from the train, or during the brief stops at stations. The coast scenery in topography, in color, and in flora, is as different from that of the prairie as one can imagine. As to the vastness of Canada one gets the impression numerically in starting at a point 1,000 miles from one coast and travelling continuously four and a half days in a fast express train to reach the other coast. The impression is intensified by particulars on the journey—by the far-flung stretches of prairie, the endless succession of mountain peaks, and the knowledge that in the prairie soil the mountain rocks and the western forests are unlimited natural resources waiting for man to come. We have a goodly heritage.

There is an atmosphere of youthfulness all through the West. In the western towns one sees very few old people. That is particularly noticeable in Vancouver. Comparatively few who are now in the prime of life have been born there. The natural question to ask a Western person is "What part do you come from?" On my way to church on Sunday morning in Vancouver (I generally go to church when away from home) I casually met on the street a man whom I knew from Port Elgin, two men from Guelph and I listened that morning to a sermon from a Guelph minister, preaching in his brother's pulpit, natives both of Simcoe County. On Monday evening I addressed a meeting at which fully one-fifth of a good-sized audience was composed of O. A. C. ex-students and their wives. These young men and women of the West are characterized by a hopefulness and confidence in themselves and in the country that is very reassuring. They train them-

selves with equal readiness to all sorts of occupations. Trained expertness and special education do not count in that land of abundant resources and opportunities so much as general fitness and natural aptitude. Old acquaintances whom you knew in the East years ago are equally likely, when you meet them settled in the West, to be farmers, lumbermen, prospectors, storekeepers, real estate agents, or politicians, and generally doing well in any of these occupations.

Ontario, and especially rural Ontario, has made a heavy contribution to the life of the West. In doing so, she has simply been completing history. "Westward the star of empire takes its way." Ontario in the past thirty years has been doing for the Canadian West just what, previous to that period, Britain had done for Ontario. And it is well that it has been so—well not only for the West, but for the whole of Canada. It is needful if Canada is to remain British not merely in name, but in fact, that the political and social ideals, the love of order and government, devotion to the public welfare, jealous care of family life and of social purity, a belief in the need for education and in the uplift of religion, all of which have been handed on to us by our ancestors of British stock, should be handed on with equal devotion by us to the new provinces of the West. This has been done, and done unstintingly, by Ontario and the other Eastern provinces. It is not necessary that a man in going to the West to take up land should be conscious of being also a missionary. It is better perhaps that he should not be conscious of any such thing. But the effect is none the less patent. Wherever a man goes he carries with him the character and the ideals that he

has acquired, and the West has received unmistakably the stamp of the East. One finds in the West quite as much as in the East good government and a love of good government; public-spirited men; a wide interest in education and generous provision for schools and colleges; and the same moral ideals.

Ontario has been driven to pay her moral debt by force of economic pressure. Agricultural depression here, and seductive prospects in the West, fully account for the migration of the last thirty years! The debt is now in a fair way of being paid, if it is not already paid. At the same time economic conditions are changing, and the attractiveness of Ontario agriculture is rapidly becoming equal to that of agriculture in the West. Up till now, and even now in some measure, the Ontario farmer has been and is working at a disadvantage. His land has been dearer than land in the West. But Ontario land, with the exception of that in the fruit districts, near the cities, or other favored localities, is less in market value today than it was thirty years ago by ten to forty per cent. I have in mind a farm for which the owner asked \$10,000, 150 acres, mostly cleared, in good condition, with a good house and barn. Yet he had been compelled to accept a rental for that farm for five years continuously of \$300 a year. According to the rent value the place was worth in the market not more than \$6,000. On the other hand land in the West is rapidly advancing in values. Between the greed of speculators and the ambition of landless immigrants, prairie farms in many of the desirable localities have already touched their utmost value from the point of view of profitable farming. In British Colum-

bia, especially in the Okanagan Valley and on Vancouver Island in the vicinity of Victoria, land has reached fancy prices. Englishmen with some private means and a notion for gentleman-farming in a congenial district have been buying up the farms about Victoria, and paying \$400 to \$500 an acre for uncleared land, and as high as \$750 for cleared land. With the equalizing of land values that is taking place Ontario agriculture is regaining the advantage that has been lost.

Another disadvantage at present existing in Ontario agriculture results from the system of mixed farming that is almost universal here. The typical Ontario farmer grows a little hay, a little corn, a few acres of roots and potatoes, and some wheat, oats, barley and perhaps pease. He raises a few hogs, a few cattle, perhaps a colt or two a year, or some sheep. Besides, he may have an acre or two of orchard which he generally neglects. What are the results? First, he has to maintain a plant in the form of stables, barns, fences and machinery, that is expensive out of all proportion to the revenue-producing capital he has invested. Secondly, owing to the multitude of his interests he is unable to become expert in any one line of production. He is not an expert agriculturist, or stockman, or fruit grower. Thirdly, owing to the small quantity he has to sell in any one line of produce, and owing also to the only average quality of that produce, he cannot command his market. Possibly if he follows a rotation of crops and cultivates his land intelligently he is maintaining the fertility of the land unimpaired, but he is maintaining it at too great cost. At the same time, he is in competition with regard to the profits of his labor, both with the Western

farmer, who has little or no concern about the fertility of his land, and who has few fences, few outbuildings, and comparatively little machinery to maintain; and with the specialist whose capital is mostly invested, not in buildings or in machinery, but in orchards, vineyards or pure-bred farm stock. For every hundred dollars invested in land, orchards and stock the man on the mixed farm invariably has more capital invested in non-revenue-producing plant, than the specialist has. Mixed farming, especially on a small farm, is relatively unprofitable, and it is the attempt to make a living at mixed farming that has discouraged so many Ontario farmers and driven them, not to special farming on their own land as yet, but to special farming perhaps on a large scale, but generally after the simplest fashion of growing wheat and oats in the West.

The Ontario farmer, following his plan of mixed farming, has not yet awakened to the possibilities of the market right at his door. In Muskoka last summer while addressing an Institute meeting at Bracebridge I inquired how many, in company of about fifty farmers, were making any attempt to supply the local summer trade in fruit, vegetables and meats.

Many thousand dollars worth of these supplies are shipped in from the south every year to supply the tables of summer tourists. I found out of all that company only one who was making any such attempt. And yet the soil and the climate in that vicinity are highly favorable to the growing of small fruits and vegetables. Poultry, lambs, and veal are in great demand there in the summer, and all can be raised with comparative ease. Sheep do especially well in that country. But forty-nine out of the fifty were en-

gaged in mixed farming, apparently oblivious of the local demands. On Manitoulin Island a week or two ago I saw fifty or sixty cattle loaded on a boat at Gore Bay, mostly stockers in rather poor condition. If they were fed on the rich grass of the island for the summer and then fattened for the early winter market the lumber and mining camps would pay high prices for them. The farmer of Ontario is badly in need of definite economic instructions if he is to remain contented and prosperous on his Ontario farm.

Ontario has an extent of 220,000 square miles of which about one-fourth is within the area at present under cultivation. The remainder, north of North Bay to James Bay and west to the Manitoba border, is generally known as New Ontario. It is divided into six districts, Nipissing, Sudbury, Algoma, Thunder Bay, Rainy River and Kenora. From Lake Nipissing north to the latitude of James Bay is nearly 300 miles; from the Quebec border on the east to the Manitoba border on the west is about 700 miles. The southern part of this immense area, extending at least from the extreme east to Fort William, is a strip of country averaging perhaps a hundred miles wide north and south that is for the most part rocky and untillable. North of this rocky strip is a tract of land known as the clay belt of Ontario. The clay belt at its eastern extremity in Ontario comes as far south as Lake Temiscaming, below the 48th parallel—at least the soil at New Liskeard is identical in character with that of the so-called clay belt—and extends north nearly to the 50th parallel. Westward it stretches nearly 400 miles. Along the north side of the clay belt, towards James Bay and the Albany River, the land is low and swampy in

places, but there are some large tracts of good agricultural land close up to the Albany River. This clay belt, from 100 to 150 miles wide and 400 miles long—lying mainly between the 48th and the 50th parallels of latitude, is bound sooner or later to attract home-seekers in large numbers. The total area it is impossible to estimate, for it is broken here and there by swamps, ravines and watercourses. 40,000 square miles of good agricultural land would be an estimate rather under than over the mark. The soil is a whitish-gray clay and clay loam, alternated here and there with sandy loam and gravel. The clay is remarkably mellow in texture and pulverizes under the influence of weathering as a soil would that contained a large percentage of lime. It is fertile—wheat, pease, clover, timothy and potatoes growing particularly well. The rainfall and snowfall are somewhat higher than in Southern Ontario. Here, then, we have a tract of virgin soil in Ontario more than one-sixth as large as the Province of Saskatchewan, with its southerly limits from fifty to one hundred miles south of the southerly limit of Saskatchewan and its northerly limit extending as far north as Regina. Owing to its more southerly position, its average climate is less extreme than is the climate of Southern Saskatchewan, and its higher precipitation is more favorable to agriculture. Its soil is fertile, and on account of its abundant grasses and its suitability for the growing of clover and pease, it should be a first-rate live stock country. And through the centre of this great fertile tract of land runs the Grand Trunk

Pacific Railway, from east to west, and the government road, the Temiscaming and Northern Ontario, runs north and south along its eastern end and from North Bay to Cochrane.

Just at this point in the writing of the present article the Toronto Globe of June 10th has come to hand, containing in its magazine section 20 pages of illustrated matter on Northern Ontario. Enough said. Those who are interested may read those articles, those who are not will not read this. The chief purpose of the present article has been to remind readers that Ontario, New and Old, is offering first-class chances for intelligent and enterprising men to take up farming. No others need apply. As to Old Ontario a responsible agricultural journal in Ontario said a little while ago: "Never could land be procured in Ontario at such advantage as it can be procured today. Never were the profits from farming in Ontario greater than they are today." Skilful farming and good business methods are finding opportunities in Southern Ontario today such as never offered before. There is nothing wrong with Ontario agriculture, so far at least as opportunities are concerned. What is needed is the adapting of methods, and of production, as in any other business, to suit the changed and changing conditions of labor and markets. To those who are driven by the wander-lust, whose desire is to be pioneers, New Ontario, with its excellent climate, fertile soil, its railways and water powers, is, holding forth prospects that rival those of the great West.

## The College Campus in Summertime

D. H. JONES, B.S.A.



"And sitting muffled in dark leaves,  
You hear the windy clanging of the Minster  
Clock."

"Not wholly in the Busy world, nor  
quite

Beyond it, blooms the garden that I  
love.

News from the humming city comes to  
it

In sound of funeral or of marriage  
bells;

And, sitting muffled in dark leaves,  
you

Hear the windy clanging of the Min-  
ster clock;

'Altho' between it and the city lies

A league of grass washed by a slow  
broad stream,

That, stirred with languid pulses of the  
oar,

Waves all its lazy lilies, and creeps on,  
Barge-laden to three arches of a bridge  
Crowned with the minster towers."

—Tennyson.

ALL who have been privileged to spend a summer working about the college, and have, in their spare time, taken the opportunity to observe, to appreciate, to drink in, to be saturated with the many natural and acquired beauties of the campus and its immediate surroundings, will readily recognize that, with a few minor modifications, the preceding selection from "The Gardener's Daughter" may be very fittingly applied to the College grounds. For they are nothing more nor less than a garden enclosing extensive lawns dotted with a variegated shrubbery, graceful trees, and many colored flower beds with the city about a mile away from which it is separated by the River Speed.

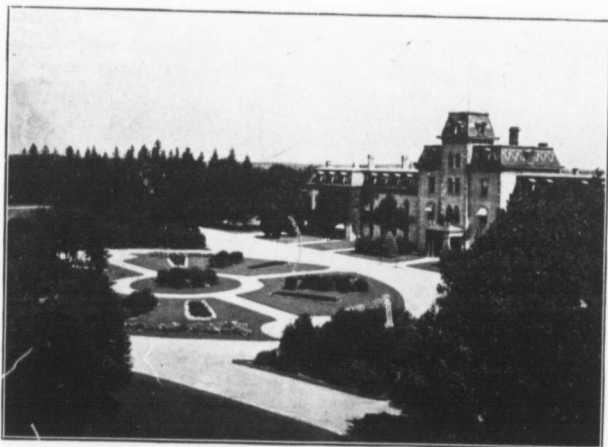
In the early summer the lawns have or their freshest green and the shrubs are all abloom—"The summer home of murmuring wings." To walk across the campus in the morning at this sea-



SNOWY SPIREAL.

son is to have a feast of delight for the eye, the nose and the ear. The flowering currants with their yellow tassels, the bird-cherries and the spirea with their clusters of spotless white, the warm-tinted honeysuckles and pea

black-and-white, the Maryland, and others may be met with, flitting about among the branches, feeding and making a joyous medley. Now and again a flock of cedar wax-wings may be seen and heard in among the trees.



OUR ALMA MATER.

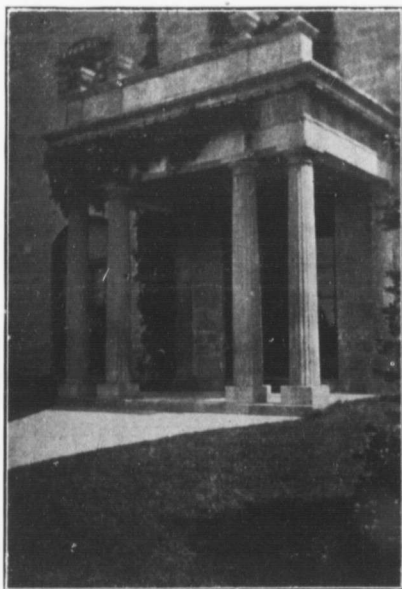
shrubs, the pink and white flowering crab, the deep red Japan quince, the lilacs white, heliotrope, and purple are all in blossom and exhaling odours delicately sweet and strong; and the bees and wasps and soldier flies are humming around them in great profusion seeking for their hidden sweets. The satisfied full-throated chuckle of the robin is heard on every hand, for the turf provides a luscious breakfast for this hearty feeder. The whirr of the flicker and the plaintive notes of the meadow lark may occasionally be heard. Hidden in the shrubs or trees the catbird alternates his sweet and rollicking song with his feline imitations. The warblers: the yellow, the

The sweet and happy notes of the song sparrow and the excited chirp, chirp, chirp of the chirping sparrow are constantly in attendance; and the wistful, fading away pipe of the white throated sparrow, and the high-pitched trill of the Savannah sparrow are now and again for those who have ears to hear. With the deep blue sky above and the velvet greensward beneath, its blades glistening with dew drops in the sun, all Nature seems exultant with joyous life.

Later in the season, when the shrubs have lost their flowers and the dandelions have come and gone in all their golden glory—then, in the cool of the evening, when the hot day's work is

over, and the atmosphere is all suffused with the golden rays of the setting sun, it is most refreshing to lie upon or leisurely stroll about the campus. Overhead is heard the high pitched, piercing twitter of a thousand chimney-swifts whirling and darting in a prolonged dance preparatory to

beds in front of the residence are a blaze of brilliant hues. Masses of geraniums of various shades of red, golden calceolarias, gorgeous petunias, bright blue lobelia, the sombre but variegated leaves of the coleus, all show off to perfection in the extensive frame of well kept green sward, soft,



FRONT ENTRANCE—MAIN BUILDING.

swooping down into the library chimney for their night's repose. Night-hawks scream as they swoop around getting their evening meal. Robins and cat-birds again are heard and occasionally a rabbit may be seen jumping about, until, startled by some noise he hops once more to cover.

At this time of the year, the flower beds are in their prime. The carpet

green and velvety, by which they are surrounded.

To the south of the campus proper are the two flower borders which skirt the path at the east end of the kitchen garden. These are now a feast of delight to lovers of flowers. On one side of the walk is the perennial border, the rear of which is composed of stretches of the brilliant crimson rambler climb-



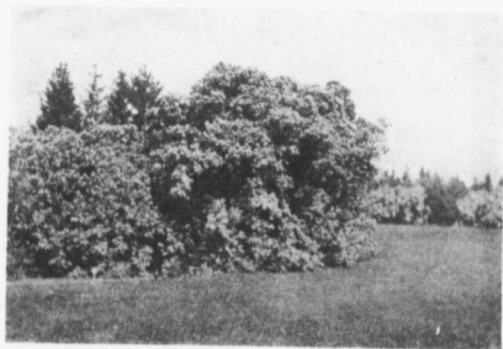


PERENNIAL BORDER.

ing along a wire fence which it hides. Here and there are bunches of tall and stately hollyhocks, single and double ranging in hue from white and pale yellow to the deepest red. Here and there are masses of delphiniums almost as tall as the hollyhocks and quite as graceful, and these are all shades of most exquisite blue. Clusters of golden glow are true to their name. Purple-red peonies, sturdy pyrethrum, gorgeous Oriental poppies, graceful columbine, modest foxgloves, and os-

tentatious canterbury-bells abound, with forget-me-nots and daisies and many other small hardy perennials scattered amongst them altogether making a border which is pleasure-yielding in the extreme to all who behold.

The annual border on the opposite side of the walk is a riot of gorgeous color with its sweet peas and sunflowers, its nasturtiums and asters, its poppies and stocks, its portulaca and mignonette, its candytuft and zinnias,



WHEN THE HONEYSUCKLE IS IN BLOOM.  
"The Summer Home of Murmuring Wings."



THE LIBRARY.

its marigolds and phlox-drummond, these together with others provide us all the colors of the spectrum and all the dainty perfume of the pharmacopea.

Scattered around the campus forming a suitable background, imparting an air of dignity to the scene, are the College buildings. They perhaps have no very striking architectural features, but they are solid and massive and are,

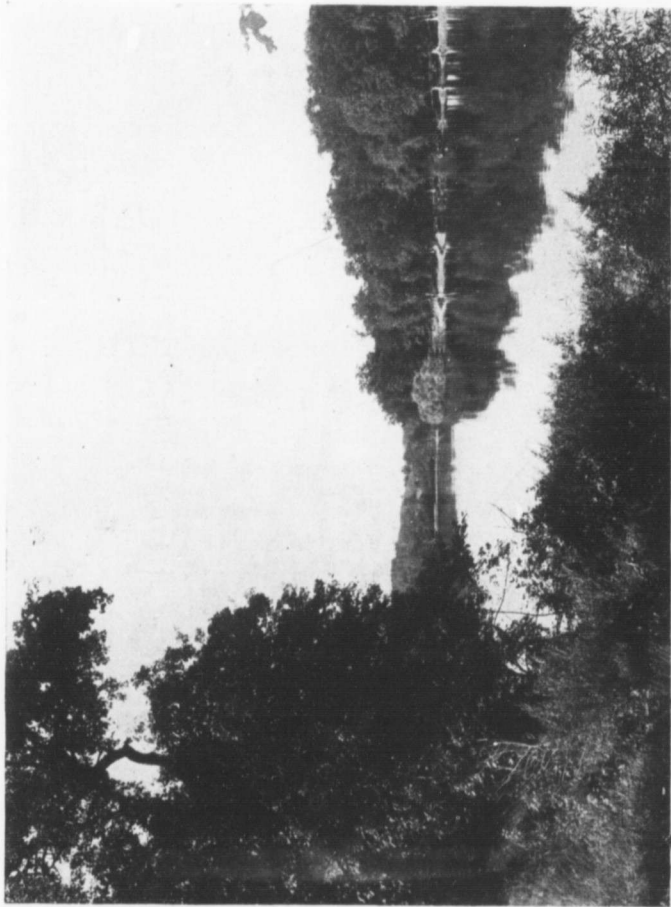


"RESTING IN PEACE."

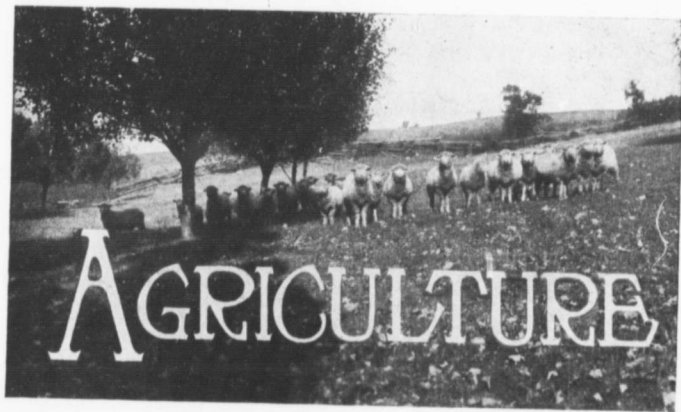
in their repose, suggestive of erudition and mental activity. They, as it were, supply the human element to the more complex portion of Nature's manifestations. Any one who has spent the winter within their walls in study, and thus has become acquainted with the various natural sciences there expounded, has got into intimate relation with the multitudinous forms of plant, animal, and insect life, and the intricate laws which govern the development of these, will appreciate their significance more, perhaps, than those who have not had this privilege. To such a one the campus speaks with many voices, soothing, inspiring, energising, until unconsciously, the man-

LOOKING ACROSS THE SPORTS  
GROUND.

nerisms, the affectations, the artificial limitations of modern so-called civilization fall away from him and once more Man takes his proper place as a part of Nature and spontaneously, consciously or unconsciously, joins in the chorus of praise and thanksgiving which is chanted by the thousand and one voices around him.



"A DELIGHTFUL SUMMER SCENE."

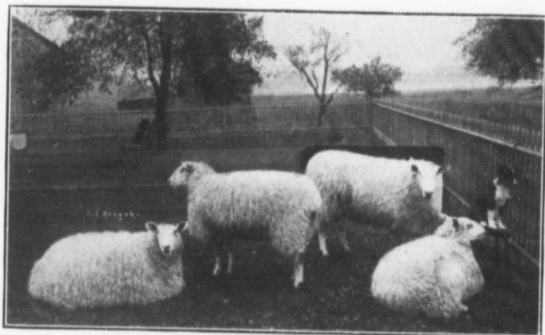


## Ontario and the Sheep Industry

W. TOOLE.

**S**HEEP breeding has been on the decline in Ontario during the past few years. There does not seem to be any very good reason why this is so, but nevertheless the numbers of this very valuable class of live

be gained by keeping at least a small flock of sheep, and are laying the foundation for the flock; but there are very many farms in the province on which there has not been a sheep kept for many years.



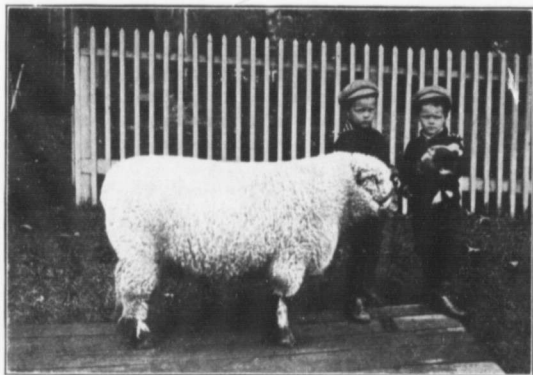
A GOOD QUARTETTE FOR FOUNDATION STOCK.

stock are growing less and less. Where will it end? Many farmers are beginning to see some of the advantages to

Several reasons are put forward why sheep are discarded. One man will say that the dog nuisance caused him

to give up the business; another will tell you that sheep do not pay; another will say that he does not understand their management; and some will say that at the prices obtained for wool and mutton the profit is not large enough to warrant their investing in even a small foundation flock. To the mind of the writer none of these, or even all of them together, is sufficient reason for not keeping a small flock of sheep. All these disadvantages, if they do exist, are more

as effectively and much more economically than it can be done by manual labor. Few, indeed, are the weeds that sheep will not eat and they feed so closely that they, besides preventing flowering and production of seed, often destroy the plant entirely by cropping off its leaves so closely that it dies because unable to assimilate the carbon dioxide of the air which is essential to plant life. Watch a flock of sheep on a pasture in which is found such weeds as quack grass, perennial sow thistle,



A GOOD TYPE TO HEAD THE FLOCK.

than outweighed by the advantages of having a flock on the farm.

All farmers recognize the fact that weeds are becoming more numerous from year to year, and that it costs them every year a considerable sum of money in order to keep down the many troublesome pests which have gained a substantial foothold in their fertile fields. Labor is scarce and high-priced and often hard to get at any price. Why not let the golden-fleeced sheep have a chance in the keeping down of noxious weeds? They will do it just

or many other troublesome weeds, and it will surprise you to see how the sheep attack them. Sheep will eat almost any kind of weed and many of them in preference to grass. If this was their only strong point it is sufficient to warrant their being reared in increasing numbers in Ontario; but they not only eat the weeds but while eating them they are producing two necessities of human life, that is, food in the shape of a palatable meat and at the same time wool which is a necessity in the manufacture of clothing.

Thus sheep destroy the pests of our fields and turn them into two profitable necessities of the human race.

The dog nuisance has been a drawback but the loss from this can be largely averted. True it is a sickening and discouraging sight for the shepherd on visiting his sheep-yards or pasture fields in the morning to find his flock scattered and in a panic while some of them have been killed and others worried beyond description. If the sheep are yarded near the buildings this destruction seldom occurs. Dogs usually attack them during the night thus if they are brought to the yard at night the danger is at a minimum. After a few times they will come to the yard at night of their own accord.

Some farmers place open bells on the sheep's necks, and they claim that these have been useful in preventing attacks from wandering dogs.

The dogs that do the most mischief are the wandering half-starved, homeless brutes that are always to be found around villages and small towns. The recent law with regard to muzzling did away with a large number of these and it is a pity that the remainder could not be destroyed; however, at the present if reasonable precautions are taken the loss from this cause will not be very great.

As to the profits to be made from the flock little need be said. Ask any of the large sheep breeders if there is any money in sheep and they will tell you that they are the most profitable class of stock they have. It is estimated that six sheep can be kept with the same cost as one cow. This being true, and the six sheep raising nine lambs each year, which is a very good average number, and producing wool besides, and at the same time destroying weeds enough to more than

pay for their feed, surely a flock of sheep would be a paying investment for the average Ontario farmer.

In starting a flock it is always advisable to begin on a small scale. Select a few good ewes and mate them with the best sire you can get. It is generally advisable to begin with good type grades and use only pure bred rams on these as this will improve the flock. Aim to produce the very best possible mutton type and to get it on the market at as early an age as possible.

After a few years experience with the grades most breeders feel that they would like a flock of pure bred. This is generally a good investment as it costs no more to feed a pure bred than a grade and they sell for considerably more money for breeding purposes.

There is no BEST breed. Any of the standard mutton breeds are valuable and it is simply a matter of the breeder's fancy as to which breed he chooses. True some may be better adapted for certain districts and certain conditions, but it is generally found that the breeder makes a greater success when working with a breed for which he has a particular fancy. Do not let fancy run away with utility. Always choose a strong utility breed but as before stated all the standard mutton breeds have their strong points.

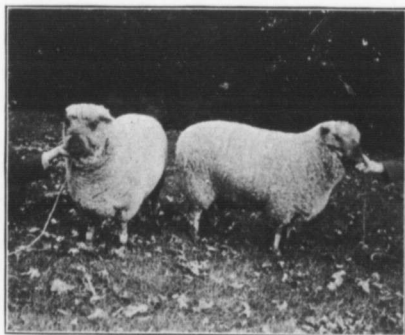
The care required to keep the flock in good condition is very little. In summer good blue grass, clover or permanent pasture together with shade, salt and fresh water is all that is required. In winter, abundance of exercise, good water, a few turnips, clover hay and a small quantity of oats will keep the breeding stock in good shape. Do not keep too closely housed as exercise is necessary to secure good success with breeding stock. A little

extra care is required on the part of the shepherd at weaning time, and a warm pen is also necessary at this time. Good ventilation, fresh air, dryness and cleanliness are essential with sheep as with all other classes of live stock.

A branch of the industry that has not been so far developed to any great extent in Ontario, is the hot-house lamb trade. In the United States, especially in the neighborhood of large cities, many farmers are making large profits from this business. Hot-house lambs are lambs sold off the ewe when

probably the most advantageous method of marketing them because they are slaughtered before they are old enough to ship well alive. The greatest demand for them is experienced from Christmas until Easter.

In order to produce these lambs it is necessary to have ewes which will breed early in the season in order to have the lambs dropped early so as to catch the early market. It is also necessary to have heavy milking ewes which will furnish the lambs up to required weight at an early age. For this purpose the Dorset Horn is highly



A PAIR OF DESIRABLE YOUNGSTERS.

weighing from 40 to 55 pounds. They must be fat and have a finished appearance. They are sold from January to about the middle of May, the earlier the better as the price is higher in the cold months.

The men engaged in this business are making more out of it. The best specimens of these lambs sell as high as \$12.00 each. They are used for the high-class trade in the large cities, and the breeders usually contract them to be sent in small shipments of dressed carcasses direct to the retailer. This is

recommended. These ewes are good heavy milking mothers, will breed early and produce quick growing lambs. These ewes are often crossed with rams of the down breeds where the market demands black legged lambs.

This seems to be a very profitable phase of the sheep industry, especially where the farmer is situated near a large centre of population, and with the great increase in the population of our Ontario towns and cities, and the increased facilities for the quick market-

ing of such produce, I see no reason why some of our Ontario farmers could not reap large profits from the hot-house lamb industry.

Ontario is known as a live stock province. Stock from this province has been winning prizes in competition with the best from the other provinces and all the United States, and our sheep breeders especially have brought

honor to the province; and it is to be hoped that our farmers will take up the sheep business to such an extent that we can boast of our large numbers of sheep just as truthfully as we now boast of the high degree of excellence of our flocks, and that with the increase in numbers there will be a corresponding increase in quality.



"SUMMER ON THE RIDEAU."





## Economics of Horticulture

P. A. FISHER, '11.

WHAT does it cost to grow apples? What is a good yield? Is there any money in it? These are questions which I find none who can answer them very satisfactorily. In looking for information on this subject I am unable to find anything published previous to



A GRIMSBY MANSION. —Photo by Prof. H. L. Hutt.

should be of great interest to every apple grower and fruit grower and yet about two years ago and since then there has only appeared a few

articles in fruit and farm papers, which were written more with the intention of awakening interest in the subject than of giving information.

I have gathered together all the figures which I could find, and although they vary somewhat, still they are instructive. Many of them are actual figures from our own fruit farm at Burlington, and in every other



PICKING THE LUSCIOUS FRUIT.

—Photo by Prof. H. L. Hutt.

case I state my authority. I do not expect that these figures will lead many in to fruit growing solely as an investment. That is not my desire. I wish rather that they may set those fruit growers, who see them, thinking about the subject for themselves, and actually figure out where their pro-

fits come from. I know from experience that we have grown many crops at a loss. Even now we have some varieties of fruit that never have paid, and in every orchard there are trees which never have borne and which never will. Our neighbors are all doing the same thing, but many of them have never even stopped to think over it. When you think of the farmers throughout the province who are only making a living, and a poor one at that, you cannot but think that there is little profit in farming. Many of these men own a few acres of orchard which they consider to be the most worthless part of their farm because they never take care of it. But it has been proven most thoroughly during the last few years that these orchards can be made the most profitable portion of the farm with just a little care and outlay.

I will give here some figures showing yields and profits in winter apples as gathered from the report of the Orchard Survey work in Northumberland County:

Treatment of orchard	3 years aver. yield in bbls.	3 years aver. price per acre	3 years aver. price per bbl.
1. Cultivated, fertilized and sprayed, 15 best	86.5	\$125.10	\$1.45
2. Cultivated, fertilized and not sprayed, 15 best	67.3	81.35	1.20
3. Cultivated, fertilized and sprayed . . . . .	55.1	73.00	1.32
4. Cultivated, fertilized and not sprayed . . . . .	40.9	45.16	1.10
5. Sod . . . . .	37.9	38.32	1.02
6. Cropped . . . . .	35.9	39.25	1.09

Returns from Duchesse apple orchard at Burlington:

No. of Trees.	Yield in Baskets.				
1910	1909	1903	1907	1906	
200	1429	2710	2360	1985	2663

They have been sold f.o.b. tree run at 22½¢. per basket.

Returns from 144 Wealthy apple trees set ten feet apart or at a rate of 435 per acre. (Some of these trees have died). Planted 1896.

Net profit per acre	1896-1904	\$487.16
	1905	103.13
	1906	112.80
	1907	37.54
	443 bskts. 1908	104.34
	504 bskts. 1909	108.98

\$953.95

Average net profit from date of planting, 1896-1909, \$68.14.

Average net profit from date of fruiting, 1899-1909, \$100.36.

Yields and prices from a Pear Orchard at Burlington for 1910:

Variety	No. of trees	Yield in baskets	Yield per tree	Selling price f. o. b.	First date of ripening
Clapp ..	125	517	4.1	35c.	Aug. 18
Bussock .	150	788	5.2	25c.	Aug. 27
Bartlett.	700	1121	3.1	30c.	Aug. 23

No. 1.

1065

No. 2.

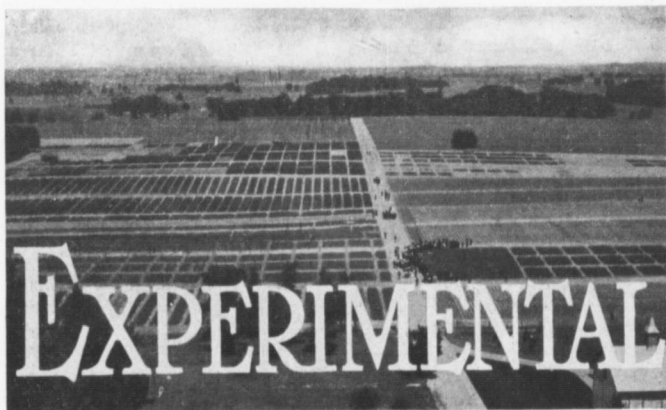
The following table shows the figures from ten good peach orchards in the Niagara Peninsula. These are not the very best but are by no means poor orchards. These are reliable figures and give a good idea of what is being done in all orchards which receive reasonable care. The prices are f.o.b., baskets not deducted, neither is the labor.

Peaches.		
No. of Trees.	Yield in Baskets.	Net Returns.
400	950	\$ 507.50
1200	11,000	5,600.00
800	5,000	2,000.00
500	2,200	1,070.00
500	2,750	1,364.29
800	5,120	2,232.00
3500	19,886	7,200.00
475	1,960	1,050.00
7000	23,000	8,624.00
1400	8,000	3,300.00

The figures speak for themselves, no comment is necessary.



BEAUTIFUL FARM HOME OF MR. J. L. HILLBORN, A PROMINENT FRUIT GROWER OF LEAMINGTON. —Photo by Prof. H. L. Hutt.



## Wheat Breeding at the Kansas Experiment Station

PROFESSOR A. M. TEN EYCK.

THE Agronomy Department of the Kansas State Agricultural College is breeding cereal grains by the "head-row" method, similar to the "ear-row" method of breeding corn. The plan is to make a large selection of choice heads from the best plants. These heads are carefully examined as soon as the grain is well dried and many of the inferior ones are discarded. Perhaps two hundred of the choicer heads out of a thousand or more are saved and each of these is shelled separately on a piece of white paper and the number of grains counted, and the quality of the grain observed. If there are a relative large number of kernels and the grain is plump and of good color, form, and size, the grain of this head is reserved for planting, certain records being made as to the length of head, number of kernels, color, grade, weight of grains, etc. Finally, perhaps

fifty heads are selected out of the two hundred saved, and thirty grains of each head are planted on separate adjacent rows, one seed in a place six inches apart in rows six, or twelve inches apart. (The writer prefers the wider rows with cultivation.)

Various notes are taken on this grain during its growth, and at harvest time, a careful inspection and judgment is made as to which rows are the most desirable to save. Several choicer plants are marked in each of these rows and the whole product of each row is then harvested and bound together in a bundle. Several of the choicer heads from selected plants and selected rows are reserved for further study and selection to secure heads for future "head-row" planting. By careful threshing and grading the grain, the best producers are determined.

The product of all the low producers

is discarded, while the product of a few of the best producers is reserved and the grain planted in separate plots, or in combination, for increase.

Only a few heads of the best producing rows are planted in the "head-test" the next season, but a larger selection of heads is again made from the field as described above.

This method of breeding wheat or other grain does not aim to train the grain or improve it by a long process of breeding and selection; it aims rather to discover the great individuals, which, at once, merely by separation may become the foundation stock of a pure and improved strain or variety.

The department has completed only one "head-test" with seven different varieties of wheat and barley, but the results are remarkable. With Kharkof wheat, for instance, the yield varied from 179 grams to 376 grams per "head-row," while the grade of the grain from the several "head-rows" varied all the way from No. 3, 80 per cent. soft wheat, to No. 1, 98 per cent. hard red winter wheat.

The writer is convinced that this method of breeding has two great advantages over the centgener method. First, it is possible to start with a larger number of individuals, and the selection of new individuals from the general field is continued each year, thus greatly multiplying the chances of discovering mutants or great producing individuals. Second, this method is much less cumbersome. By the centgener method, a comparatively small number of individuals are chosen at the beginning, but the succeeding centgeners, all from these few, original individuals, soon multiply into hundreds before the process of elimination begins; while the "head-row" method

is largely a process of elimination, the breeder being able usually to discard a large number of the more inferior selections after one test.

By the "head-row" method of breeding, if the product (300 grams weight) of a single great producing head of wheat is planted each year, and yields at the rate of thirty bushels of grain per acre, there will have been produced 8,910 bushels of wheat of the improved variety in four years after the first "head-test" which discovered the great producer.

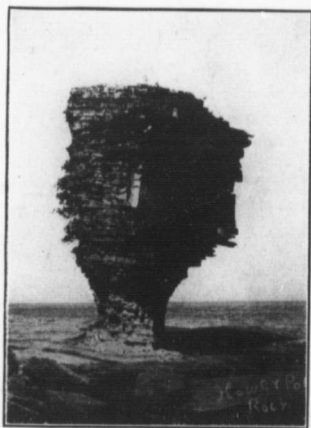
The writer prefers straight selection as described above, and does not think it necessary to carry on artificial crossing within the strain as sufficient crossing doubtless takes place naturally. Selection discovers the great individuals and it will be observed that this plan of selecting from the field gives the opportunity of choosing the best heads from among thousands of individuals, and thus the chance of securing a great individual is much greater than by the centgener method, which starts with comparatively few plants, which become the foundation stock from which future selections are made, largely with the idea of improving the grain by long years of training, rather than by the discovery of great individuals which may at once become the parent stock of pure and greatly superior strains of the variety.

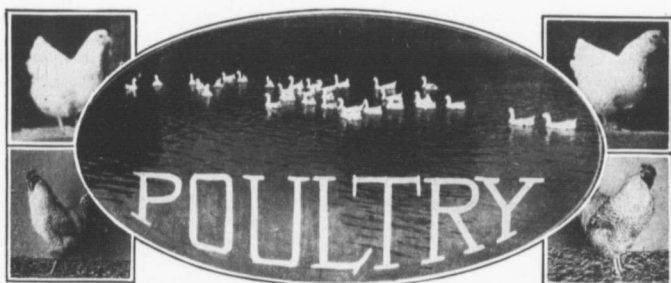
The writer also doubts the efficiency of "out-crossing" between the different varieties of wheat or hybridizing with emmer or spelts, unless the crossing is done with a definite object in view. For instance, a certain variety of wheat may be a great producer but the chaff does not hold the grain well. By crossing such a variety with a variety having tighter glumes it may be possible to produce individuals hav-

ing the desirable characteristics of both of the parent plants, and these individuals may become the foundation stock for a new and improved variety.

The work of crossing and selection to produce new varieties is in the charge of the Botanical Department at the Kansas Station; the work of the Agronomy Department being largely to secure pure and improved strains

of the established and best producing varieties with the purpose of propagating the more desirable selections as rapidly as possible, and distributing this pure and improved grain among the farmers, since the ultimate purpose of plant breeding is that the farmers may profit by the growing of grain of better quality and greater productiveness.





## Co-operation on Poultry Work and the further Development of the Work along Association Lines.

Address given by Mr. A. Brown, Professor of Poultry Husbandry, University of Maine, before the Connecticut Poultry Association at the time of their annual meeting, Hartford, Conn., January 24th and 25th, 1911.

**I**T has been stated that we will never have co-operation in agricultural interests in the New England States as they have in the West, because our farmers are too independent, too jealous of their interests and their own ways of thinking. That may be so but not likely. As a matter of fact, we have more co-operation to-day in New England than in any other section of the country. Not actual business co-operation, but co-operation in the form of associations, clubs, and brotherhoods, organized for the elevating of social interests, etc., made possible by the great uniformity of our social caste. In no other section of the country are the words "My Brother," "My Sister," so frequently heard on the lips of a speaker even when addressing an utter stranger as in the New England States.

Actual business co-operation is and will be a matter of education. In the past the energies of our agricultural Colleges our Experiment Stations, our Institute workers, the agricultural sec-

tion of granges have been largely devoted to a discussion of the methods of production. In the future, in part, the methods of cheapening the cost of production but mainly the markets and methods of marketing must be considered. A small part of the produce will always be marketed direct to the consumer but the bulk of it will pass through the regular trade channels.

How many of you know the actual course your eggs and poultry take in reaching the consumer, the condition that it is in when received, and the price per pound or per dozen that is paid? You ought to know, not so much for the sake of the consumer, but for your own. It would be an object lesson. It would reveal to you that the great army of middlemen are making about as much out of the article as you the producer, are doing. The farmer ought to control the market and not the market, the farmer.

Business men, many of them New England farmers' sons, realize the value of combination. Look up the

history of the great trade corporations. At one time making a scant living through keen competition, but now combined. Is not their wealth due to their control of trade? Let anyone try to get a reduction in price on many lines of goods. The answer "impossible the trade says so and so." No doubt many ills arise from such business relations but the principle is good and that is what we should apply to our agriculture. The farmer ought to be in a position to tell the commission man, the jobber, what his commission shall be and what he shall charge the consumer.

The farmer will have many things to learn before he will be in such a position. In the first place he will have to learn and study market requirements; he will have to learn to grade products accordingly and put them up in neat, attractive packages. As a rule no one man has enough of any one article to properly grade it and place it on the market in a fresh condition. He and his neighbors must work together.

This movement must not be spontaneous, its growth must be gradual. There are many difficulties in the way. It must be founded on a sound business basis. It must be guided by a business hand. There will be failures, set backs of various kinds, but these must be used as stepping stones to something better. Already the movement has begun for have we not the different farmers' telephone lines; co-operative creameries, cow test associations, different breeders associations, etc., and in close proximity to the New England States "The Long Island Vegetable Growers' Association."

Work must be planned along two lines, educational and commercial, at first mainly educational. In Maine, in

poultry work organization has begun. Already a number of local organizations have been formed and requests have been received for the organization of a great many more. It is proposed to have poultry associations in every part of the state where the interest is great enough to make it worth while. The organizations will become members of a larger state organization on the payment of a small per capita tax and their members will be given a vote on matters of state interest.

Whenever a number of interested persons get together to discuss any special subject, good, almost invariably results to some one from ideas brought forth by another. We need to study the poultry business. As a matter of fact very little definite knowledge is known. Our Experiment Stations are doing a good work. The field is large. The poultrymen ought to work in co-operation with the station. We need accurate data on all phases of work; what system, what method of housing is best adapted to a certain locality? What feeds can be grown and fed to the best advantage? What is the practical application of breeding? Is artificial incubation practicable? Does it pay to fatten our stock? If so, how and to what extent? We need to study the markets and market requirements. What is the cost of producing a dozen of eggs, a pound of poultry? How can we reduce that and still retain our quality? We need to apply business tactics to the hen business. Some people keep poultry for fun, but the majority keep poultry for profit, therefore, we should endeavor to make the difference between the cost price and the selling price as great as possible. The poultryman should keep a set of books, not complex but a simple form that will



tell him where he stands without too much work and worry.

The Extension Department, University of Maine, has already prepared a set of these forms and will send them out to the secretaries of local associations for the use of the members. The forms will be furnished in triplicate and at the end of each month the member will retain and hand two to the Secretary, one of which will be forwarded to the office of the Extension Department. It is proposed that the associations hold semi-monthly meetings, between the months of September and April, and that in addition to this there will be held in various parts of the State district meetings and annual field days, such as the State Poultry Associations in Connecticut and Massachusetts are doing at the present time.

#### **The Commercial Aspect of Co-operation.**

There are at least five ways in which actual co-operation can take place in the poultry business.

1. The co-operative marketing of eggs, formation of egg circles, etc.

2. The establishment of central killing-packing houses.

3. The development of home markets.

4. The establishment of central hatching stations where Mammoth Incubators could do the hatching of a neighborhood.

5. The co-operative buying of feed.

Co-operation is not a new thing in the poultry business, it has existed many years, notably in the British Isles, Denmark, Belgium, in the Petaluma district in the United States.

1. The marketing of eggs affords an excellent opportunity for co-operative work. Nearly every farmer, 88.8% of all in the United States, has a few hens

that produce some eggs. Some have a private trade, others ship to a commission house or jobber, but the great bulk of the stock finds its way into the market through the medium of the country store. A very uncertain product it is too that finds its way after a delay of two or three weeks into the hands of the consumer. It is estimated that about 17% of all such eggs marketed are unfit for human food. This does not represent all the loss because there is an even greater loss through the curtailed consumption on account of the knowledge of presence of bad eggs in the product.

Not only do the poultrymen need to league together to check this menace, but it would pay them to co-operate in placing a fresh high grade product on the market. As a rule it does not pay to ship any great distance in lots of less than thirty dozen. It would take the man with a small flock quite a while to fill a case and even then there would be quite a marked variation in the size and quality of the product. Now, supposing there were ten or fifteen persons in a community just so handicapped, would it not be a good plan for them to bring their eggs together to a central point and there grade and pack them for the distant market? It would be well to have some disinterested party who knew the market requirements test, grade and pack those eggs. In the associations in Maine where they have tried it this winter, they have received between six and seven cents a dozen more for their eggs after paying express charges than they would in the local market.

2. At the present time great quantities of our poultry go into the markets alive. This should not be. It should be fatted, killed, dressed, grad-

ed and neatly packed at home. It is doubtful if the average farmer will ever become sufficiently proficient in killing and dressing for him to kill his own. But if all the farmers in the community who have poultry for sale could come together and have a bee or employ an expert to kill and dress it for them, they could receive nearly double the price they do at present. It is time too that the poultrymen of the New England States took note of this fact, for if they do not exert themselves they are going to lose their best trade just as the New England fruit growers did. There is being established in the middle west great fattening-killing stations, and with the aid of cold storage houses and cars they are plying on the markets not necessarily a better grade, but a more uniform, even lot of chickens put in suitable boxes. The poultrymen of New England can grow better poultry than those in the middle west. They know more about it, having been longer in the business, but to demonstrate the superiority of their product they will have to take notice and establish a brand that will be distinctly superior to the western cold storage stock. This is a greater work than a local association would care to undertake, it needs the poultrymen not only of a state, but of the whole New England States behind it.

3. In but few communities are the poultrymen exerting themselves to make the most out of the home markets. In many places a select trade might be worked up with a little judicious advertising and considerable profit made thereby. In some of the local associations in Maine a tentative plan of co-operation, something similar to what is in use in the Connecticut Poultry Association, is being worked

out. The association furnishes to the members at cost uniform cartons for dressed poultry and eggs. These cartons have the association seal and are sold under a guarantee. If quality is found to be not as represented it is reported to the Secretary and a fine imposed on the offender. If such happens more than twice the offender is expelled from the association. The greatest opportunity for home development exists however, in those states where there are large summer resorts. Into Maine, for instance, large quantities of eggs and poultry are shipped from Boston. In many instances it is the same stuff that has been shipped out of the State that is returned. An instance came to the writer's attention last summer where a shipment of live broilers from Maine to Boston was returned dressed to a large summer hotel only a few miles distant, in which the hotel management paid a price per pound just twice what the producer received. If the producer had attempted to sell direct, he probably would have been refused because he would not have a sufficient quantity. These larger summer hotels do not want a dozen today and a dozen next week. They want probably several dozen every day. The small producer cannot supply them, but a co-operative association in a community like that would be in a position to take large orders and fill them. So desirous are these men to secure home grown products that one man at least to the knowledge of the writer has contracted for several hundred dozen eggs a week the year round, and markets himself the surplus he secures in the late winter and early spring months.

4 For centuries central hatching stations have done the hatching for large numbers of people in Egypt and

China. Why the people of America should have been so long in taking it up is probably because we have had no Mammoth incubators until recently. They are being manufactured in the country today and from pre-ent indications it would appear that they are giving just as good results in hatching as the smaller machines. They can certainly be operated with much less labor and at a great saving of fuel. A Mammoth incubator might well form part of the equipment of a central co-operative association.

5. Probably the subject of co-operative buying of feed has been written about and talked about more than any other phase of co-operation. As a matter of fact the poultrymen should talk so much about buying feed, they should raise it. Such feeds as beef scrap, oyster shell, gluten, linseed, wheat screenings, etc., will have to be purchased, however, and in so doing the poultrymen of a community should get together and order a supply in quantity.

In conclusion I will quote what Mr. Wm. Harris, Secretary Petalunia Edd Exchange, says, "Producing the goods is not the whole thing. Knowing how to sell what you produce is about half the battle. Co-operation is of value also in that it begets confidence in each

other and tends to broaden our view of life. True there crops up occasionally the short-sighted, selfish individual who wants to grind his axe at the expense of the association; but he is generally more than offset by those generous, broad minded fellows who see beyond today or tomorrow and know that right and truth will in time prevail.

Without some organization the farmer has to sell at whatever price the dealer wants to pay. Properly organized the farmer has the dealers competing with each other for the goods, and it makes a difference in the price. Competition is a fine thing sometimes, but a little co-operation is a good thing all the time. Try it, and you'll soon find out. This great law of supply and demand that we read so much about is not as remorseless as you might imagine, if you know how to work it. By systematic co-operative marketing of his produce the farmer can, if he will, secure much better returns for his labor than he will as an individual. If you put your product up in good shape; get a good, live salesman, not necessarily a farmer, but one who knows the trade and knows what is a good egg as well as what is a bad one; you will in time be amply repaid, and you will not have to wait so very long, either.



# THE O. A. C. REVIEW

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## Editorial

We are pleased at this time to give our readers an extra number of The Review. This is the first time in its history that a mid-summer number has been attempted, and in making this attempt we feel that for many reasons a step forward has been taken. During the past few years The Review has reached a high position in the ranks of college or agricultural publications. This fact is largely due to the whole-hearted support given the students, ex-students, members of the faculty and our many contributors. Thus, we can truly say that our college magazine has been enjoying prosperity and we rejoice that we are in a position to put forth special efforts to please our subscribers. For some time past the students at present in charge of The Review have felt it incumbent upon them to publish this number at this time. We say incumbent for many reasons. In the first place we

### A Mid-Summer Number

cannot help but realize that we must consider ourselves as being in the magazine business, the demands of which we cannot satisfy unless we have our issue running every month of the year. By publishing this mid-summer number we feel that we have taken a step towards satisfying that demand. Again, we believe that the day is not far distant when The Review will be published not only in July, but in August and September. To the subscriber this will undoubtedly be an advantage, and having the three extra numbers will produce more genuine satisfaction.

It has been stated that no newspaper or magazine could exist if it did not carry a strong line of advertisements. We are not here to voice our opinion as to the correctness of that statement, but if such be true, then we must cater to our advertisers, many of whom much prefer to advertise during the entire year instead of nine months, from October until June, inclusive, and

thus leaving out the busiest months. To the advertiser then, this number will prove of great advantage. Moreover, by increasing our orders we can secure for ourselves a better printing rate. This is a fact worthy of much consideration and one which we believe will eventually prove a boon to our finances and will in time augment the Press Fund. These are some of the main points which were considered by the staff, and which justified the publication of this mid-summer number, and we trust that it will prove acceptable and pleasing to all our readers.

"Competitions in judging live stock and farm crops are now much in favor

### **Stock Judging Competitions**

amongst the Agricultural Colleges of the United States. Many State Fairs hold inter-collegiate competitions in the early fall, and later these competitions assume an international character at Chicago. This opportunity for a try-out at the State Fairs gives American Colleges a great advantage over Canadian Colleges at the International. Naturally, then, comes the suggestion: why not hold a competition for Canadian Colleges at Toronto Fall Fair or at Guelph or Ottawa Winter Fairs? The competition could be made an important feature of the Fair and would arouse much interest in agricultural education. It would be an incentive to the best efforts on the part of our agricultural colleges which have so much in common, and the students would receive untold benefit from their preliminary training and from coming together at the grand finale. Professor J. H. Grisdale, as Director of Agriculture for Canada,

should be in a position to promote this Canadian competition. Let the colleges get together and formulate the scheme, and we believe that in this time of large revenues, the Government will provide the wherewithal. Canada's future is largely based on the improvement of live stock and farm crops, and the leaders in this movement must come from the agricultural colleges. How important it is, then, that students should receive the best possible training for their work, and what better means to this end could be devised than the organization of this Canadian Judging Competition. Its inauguration would quite fittingly usher in the second decade of the twentieth century, and in agricultural Canada the expenditure would meet with the hearty approval of the people."

The foregoing appeared in the editorial columns of the May number of the Macdonald College Magazine. The idea is an excellent one. From time to time suggestions of a similar nature have been made through the columns of the O. A. C. Review, so that we need not say here that we are heartily in sympathy with our contemporary in this matter.

One of the crowning events of our college year is the sending of a judging team to Chicago, there to compete with teams from other Canadian and American colleges. Each year the cry goes up we lacked not only experience, but a knowledge of the American breeds of stock, and the handicap is one of no small dimensions. Would, then, such competitions, as suggested, not help to overcome the ever-existing difficulties and make the road to success in international judging more easy and more certain. We doubt not that Prof. Grisdale is the one man to undertake the task of ar-

ranging for Canadian competitions, but we believe that should the men at the heads of the Animal Husbandry departments in our Canadian Colleges take this matter up seriously with Prof. Gridale, the desired end would be attained in a very short space of time. With this accomplished the way should then be clear for the holding of international competitions. For this, the men standing highest in individual judging could be formed into a team and pitted against the best our neighbors to the South could produce. This may seem like making a leap in the dark and presenting ourselves with an impossible task, but we think not. In the world of sport we find such

events being held annually. In the "Festival of Empire" games held recently in London, athletes from Great Britain, Australia and Canada competed in friendly rivalry, and a large share of the prizes offered fell to Canada's representatives. If it is possible to hold such contests in sport. Why then can they not be held in stock-judging. To win, in such a contest, would not bring glory and honor alone to the competitors, but to our fair Dominion. We trust that "ere" long Inter-Collegiate judging competitions will be a feature at the Toronto Fall Fair or at Guelph or Ottawa Winter Fairs and that international competitions will follow.

## Coronation Song

Today all earth rejoices,  
For England's king is crowned;  
Then let us join the anthem,  
Which o'er the hills resound;  
See George the King majestic,  
In peace and equity,  
Enthroned amid a nation's love,  
On this most gladsome day.

### Chorus.

Then here's to England's king,  
Long life and happiness,  
That he may o'er us reign,  
And generations bless,  
God save the King, we cry,  
In all sincerity,  
And bless the reign so well begun  
On this most gladsome day.

Old England's fame most glorious,  
Is merged in one glad song,  
And o'er the earth his message  
Is quickly flashed along,  
To all my loving people  
This life I dedicate,  
And by God's help, my stand I take  
To wisely rule the state.

And now we pledge again  
Our duty all to do,  
To God, to King, to men,  
That none this day may rue  
The day King George was crowned,  
The king of Britain's realm,  
With mercy as his consort,  
And justice at the helm.

—R. O. Dawson, Ottawa.



**I**N his curt business-like way the Editor informs me, that all material and photographs for the midsummer number of "The Review" must be left in the office not later than May 25th. It is now May 24th and I have nothing done. Circumstances have been against me. Fully expecting that "Review" affairs would arrange themselves after the orthodox fashion I returned from a business jaunt in the country. Dreaming still of meadows and clover blooms, we reached Guelph, and lo! this thunderbolt. Clearly something must be done and done quickly, to save my own reputation and that of the department which has been entrusted to me.

Now I am always taken up with the idea of writing something really fresh and original for this department, but just at this moment I cannot think of anything in the least original. When it is too late brilliant ideas will formulate themselves from the mental chaos which at present exists within my disordered brain, but then it will be too late for them to be of any use. It is always thus in this wholly unnatural world. Affairs are all at sixes and sevens. They are a tangled puzzle which we cannot unravel, and frankly I could wish "College Life" at Jericho

or some equally remote place. Yet it is here staring me in the face, clad in dainty draperies or white flannels, and looking wonderfully sweet and cool. There seems to be more real life in the college and its immediate neighborhood than at any other time in the academic year.

During the winter months college life is perforce confined to the near neighborhood of clanking steaming radiators, which produce a cannonade at stated intervals and give a dry exhausting heat in excessive quantities. I never could away with radiators. They are too stealthy and secretive. Now an open fireplace has an honest look about it and one can tell how the heat is produced, but these radiators—

In early summer, however, college life spreads itself abroad, both male and female; the average proportion, I am told (for of actual experience I have little or none), being as one is to seven. This life spreads I say to all the shady and delightfully peaceful nooks in the quiet college neighborhood. Now it need not be stated which are in the majority, males or females. Ask any Senior for full particulars. So it is up the river or over the campus or through the woods, driving, picknicking, etc., until one

who knew little about it might be led to believe that this was all. But alas, for the Seniors, if this were all.

To some the whole college life might be summed up in the constant mowing of the dandelion lawns.

Others might consider the whole life to embrace little more than the arts of dressing and flirting, the more necessary processes of eating and sleeping, and tacked on to these a constant round of excursions into the broad

feeling which stirs the heart of the graduate at the conclusion of his final term. We can hardly call it a victory, for such a word suggests an aggressive attitude. In a sense it is a moral victory, for to achieve we require those qualities which, when a man possesses he is said to have sand in him, or grit, or some equally indigestible poultry food. So that our Seniors must have lots of sand and grit. They are Seniors however, and so have learned



"O. A. C. NORMALITES AT GARDEN WORK."

realm of nature. Beneath all this, however, there is a deep undercurrent. It rushes along with a strength and force which only the ablest can resist. We trust that every man who faces this ordeal and fights to a finish will reach the smoother waters beyond without being seriously handicapped for what lies still farther ahead. We speak of the degree exams.

#### The Degree Exams.

There is always a sense of satisfaction in a completed course. When we know that the goal is reached, the end won, the aim achieved, what a delicious feeling of personal satisfaction we experience. It must be some such

sense. Thus in intervals between exams they wield the tennis racket or the paddle. If sport and study could only be alternated in the same methodical way during the college term, we would have fewer cases of exam room repentance.

There are in every graduating class a few who are known as "chronics" because of the persistent way in which they try and retry their degree exams, but the present graduating class is conspicuous for its studious men and should produce no such undesirables. Lord Beaconsfield returned from the Hague Conference bringing "peace



with honor," but the best wish we have for every Senior is that he may return from his exams bringing "a pass with honors."

#### Valedictory Sermon.

The farewell sermon which is preached to the Fourth Year at the conclusion of their academic course is a yearly event. It was preached this year in St. George's Church, Guelph, on Sunday, the 14th May, by the Rev. G. F. Davidson. We interviewed many Seniors with regard to the substance of this sermon, but they all at first professed utter indifference to things religious. A prominent Biolog., when interviewed, directed me to King as the only one of his fraternity who had been present.

The concensus of opinion amongst the Seniors was that the message of the speaker, combined with his attractive personality, made the affair a memorable success. We would urge upon the Seniors, however, a deeper interest in things religious.

#### The Seniors Banquet.

It seems that no year can finally scatter without the orthodox banquet. Thus it was that Thursday evening, May the 25th, found the members of the Senior year gathered around the festive board in the Dominion Cafe, Guelph.

There is a feeling abroad that the present graduating class is in many respects an outstanding one. They say so themselves, so we are bound to believe them. In any case they are a remarkable looking collection of men and any one who could have seen them gathered in this social way would have borne me out in this statement. The banquet proceeded in the usual way. The eatables being disposed of, cigars

and speeches were in order. The speech of Mr. W. Toole, the class president, was one of general interest. Covering a great deal of ground in a short time, Mr. Toole cordially welcomed the men who had returned as guests, and listed the members of the class who belonged to other years.

The redoubtable Harvey of Knox Church fame, next took the floor, and spoke for those men who did not belong to the year. Mr. Webster indicated the pleasure it gave him to belong to class '11 and having restated this pleasure, sat down.

In a witty, racy speech, undoubtedly the speech of the evening, Mr. W. H. Porter spoke for the Nova Scotians. In a graphic, masterly way he described the cloudburst which heralded their arrival in Guelph, but since they are departing peacefully, we would assume that they now have themselves well in hand, and do not dissipate their energies as they then did. Mr. Porter had all the humour of the evening.

From Parson Light the class expected something humorous in the way of a class prophecy, but his speech developed along the lines of seriousness, for according to this prophetic parson little parsons' cares and sorrows would multiply in the matrimonial future of each and every Senior. A recitation from E. A. Howes, given in his characteristic style, followed by the half-hearted singing of "Auld Lang Syne," closed the evening. In their usual staid, sober, philosophic way the grave and revered Seniors wended their way home, and thus we have another graduating class, another final parting, and a final scattering.

#### The Normalites Reception and Dance.

The rapid development of friendship between the members of the Senior

year and the Normal students has been quite noticeable within the last few weeks, and has produced many comments. It is a perfectly reasonable, natural and ideal friendship. Having in mind the inevitable parting which must follow the Degree Exams, the thoughtful Normalites arranged a reception on the evening of Friday, May 26th. In the roomy gymnasium the floor of which had been waxed for the occasion by a troop of industrious Normalites and their male allies, slip-

who was present reported a pleasant evening.

#### May Day Celebrations.

After the scorching heat which they were forced to endure on the afternoon of May 27th, it is quite likely that many of our fair Macdonald cousins will have their complexions permanently ruined. Statistics as to the increased use of cold cream and cosmetics might prove interesting, but these are not to hand, so we merely suppose that there was a decided increase.



"A HAPPY PICNIC PARTY."

pery games were entered into with slippery enthusiasm until 9 p.m. Dancing which was monopolized by about half a dozen perspiring couples, continued till 10 p.m. An interval followed, during which light and very sweet refreshments were served (the number of cups of sugar is uncertain). Thereafter the dancing and games continued until the witching midnight hour. The former was ably sustained by C. V. P. and Grandpa, assisted by a few others, and the latter were carried on by all and sundry under the capable direction of Prof. McCready. Everyone

Far be it from us to criticize the form of these celebrations "Dainty, Pretty, Graceful" these are the words which are most applicable. The arrangements reflect great credit on the organizers, and were indeed typical of that perfect arrangements which seemed to be the crowning virtue of the inmates of Macdonald Hall.

As for the peculiar graces of "The May Queen" and all her followers are they not written in the hearts and imprinted on the memories of the O. A. C. students. So we admired the pretty dresses and graceful dancing, saw the

tree well and truly planted, and turned away to think it over.

Following the afternoon celebrations a reception at which there was a little dancing, was held inside and outside of the hall for the melancholy Fourth year. Tea was served on the lawn about 6 p.m., and the evening largely taken up in games and dancing. Away beyond the city bounds we gazed upon the lovely after-glow of a sunset, and on turning saw rockets shooting skywards from the College Heights. This we afterwards learned formed part of the evening's entertainment.

#### The Faculty Banquet.

It is never without reason that the Faculty meet together. There must be something in the wind really worth while, before they can be induced to leave the office chair and the laboratory, the experimental plot and the garden, for each member of the Faculty is the head of an organized community, and as such their time is precious.

On one yearly occasion they assemble in cold blood to deal with those luckless youths—the quitters, the non-studiers, the failures—and dispose of them in summary fashion. It was in a peaceable social way, however, that they were gathered together on the evening of Monday, May 29th. The war paint had been laid aside, “scalping” and “plucking” were hardly even thought of, and the big chiefs sat in circles, as if at a serious pow-wow. The occasion was the annual Faculty Banquet.

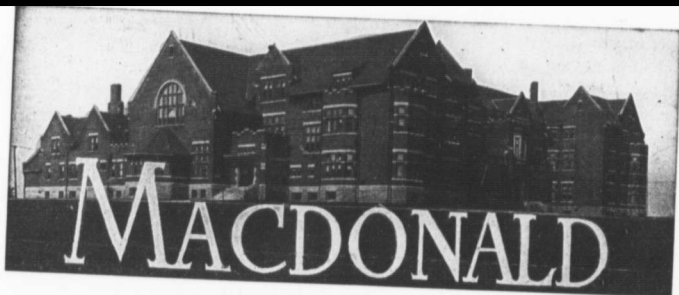
The English Class Room of Macdonald Institute, the bare walls of which have so often echoed back the refreshing candour of Professor J. B. Reynolds, and the cold logic of Mr. H. H. LeDrew, was transformed for the oc-

casion. It was as if the days of fairies had returned and by magic art the drab orthodox class-room had been transformed to a modern banqueting hall. The walls were draped in carmine, the platform occupied by a fireplace in imitation marble, and the four daintily set tables were decorated with large snowballs and carnations.

This banquet is given by the graduating class of the Home Economics Department to the Faculty, and the entire arrangements are in the hands of these young ladies. As stewardess, Miss Seaborn did able and efficient work. Great credit is due to the graduating class as a whole and to Miss Seaborn in particular. It is evident that Macdonald Hall training produces capable cooks as well as tasteful decorators. Happy must be the man who weds such a skillful home economist. His sleep must be sound and his digestion perfect.

The banquet proper was concluded at a reasonable hour and presently Miss Arnold, Dean of Simmons College, Boston, Mass., was introduced by Dr. G. C. Creelman. Miss Arnold, who was the guest of honor, has an attractive personality and speaks with conviction. It is noteworthy that she has been honored by being made a member of the State Board of Education of Massachusetts.

In a speech which was listened to with deepest interest, Miss Arnold spoke of the modern self-supporting woman, and the various ways in which she could make a living, drawing for illustrations upon the courses of instruction given at Simmons College. The speaker held the attention of her audience for over half an hour, and a graceful word of thanks from Dr. Creelman brought this interesting evening to a close.



### The May Day Fete.

At the close of the school year at Macdonald Institute, numerous paths lead from its open doors to the great outer world of opportunity and achievement. Some paths lead the successful graduates to positions of honor and trust in other educational

necessarily mean several viewpoints of the school life, and to a certain extent a division in interests, but there is one day in the year above all others when the students are as one, when classes, courses and viewpoints are ignored and Normals, Housekeepers, Homemakers, and Short Course unite



THE GRADUATING CLASS.

Photo Taken Immediately after the crowning of the May Queen.

institutions, some to the school room from whence the wave of knowledge flows and spreads, and a great many other kindly paths lead to the homes.

The different courses which the girls must take in order to qualify themselves for their chosen work

in honoring their chosen May Queen, and participating in that charming old festival of the spring May Day.

Although the first day of May has been observed in England from the time of the Romans as a day of festivity and frolic by the gentlefolk and

lowly, it has never been as widely celebrated in this country and age; and it was only last May that this pretty custom was first adopted here at Macdonald Hall. On account of the tardiness of our summers we cannot depend as they do in England on the first day of May being favorable for out-of-door games, and the absence of the beautiful and necessary wild flowers makes it practically impossible to hold the fete until later in the month.

As in the ancient festivities the main feature of the day is the crowning of the 'May Queen. The conferring of

ty-sixth, the girls returned from the woods laden down with nature's most beautiful offerings.

At 4:30 o'clock, on May Day, the Macdonald girls in dainty white frocks all assembled in the gymnasium and after forming in a line two and two they marched out to the campus where the events were to occur. First came about twenty of the girls each carrying a brown and gold shepherd's crook and butter cups. The crooks were joined together at the right distance by a slender rope which when each girl took her proper place, marked off



#### THE RHEILANDER,

A Unique Dance Given by the Homemakers' Class.

the honored position of May Queen rests with the students. The girls are at liberty to choose her whom they all love, all admire, all respect. This year Miss Wink Frank was selected as the most worthy to fill this role, and those who know her, readily understand how by her kindly gracious manner and dignified mien she has won a place for herself in the affections and respect of her fellow students.

The name "May Day," synonym of spring, was ever kept in mind, and the evening before our May Day, the twen-

a large space on the green for the dances and crowning of the Queen. Then came the rest of the Juniors carrying blossom covered boughs and wildflowers. Following these came the May Pole bearers, who carried out, and placed in position the May Pole. The girls formed in a long double line through which the Queen was to pass followed by her maids of honor.

Two tiny tots—dainty little flower-girls—led the way strewing the path to the platform with blossoms. How sweetly gracious and stately looked

the Queen as she went to her crowning followed by two train bearers! The Queen took her place, her maids of honor grouped about her and she knelt to receive the crown Miss Watson placed on her queenly head.

After the May Pole had been decorated and the several dainty dances were finished, President Creelman and the May Queen led the way to the spot chosen for the planting of the 1911 graduation tree, and the time-honored class ceremony was performed.

"Macdonald searchlight" which was worthy of its editors, the Homemakers, was read by Lena Herrington. Millea and Patti selections on Mr. Graesser's Victrola proved a rare treat, Martha Corrigan prophesied glowing futures for the members of the graduating classes. Vera McHarg and Amy Clarke delighted all with their vocal solos, and last, but in no wise least, Jean Hutton, who has in the past given so much pleasure with her sweet voice, sang once more, and the continued en-



THE MAY-POLE DANCE.

Tea was served on the lawn at the east side of the Hall. Gaily colored cushions, comfortable wicker chairs, the pretty light frocks, welcome shade and happy young voices made the scene both animated and enjoyable. The Housekeepers, as usual, proved the most charming of hostesses, and that tea on the lawn must ever prove a happy memory to every Macdonald girl who was there. To add to the happiness many out-of-town friends were present to participate in the day's pleasures.

The evening programme, which had been prepared by the students was rendered from the east entrance. The

coring to which she responded once, showed how her kindness was appreciated.

A fitting and delightful wind-up of the day's sport was a line display of fireworks which Dr. Creelman kindly had put off from the top of the Institute. When the last sky rocket had made its majestic flight and fallen into a shower of glowing stars the students and their guests went to the gymnasium where the festivities were drawn to a close by an enjoyable impromptu dance, and the second "May Day" became one more pleasant memory of Macdonald days.

### The Seniors.

When one mentions "Seniors" in July, there being no present ones, the reader naturally asks, past or to come?

Past, this time, just to take a brief retrospect over the last two years, and then the class of 1911 will be mere history in regard to Macdonald Hall.

We arrived one September evening, two years ago, along with a great many other Freshies, were assigned to strange rooms, and strange room-mates. Those who were lucky enough to have their trunks arrive

directions went around by the chemistry building, Massey Hall, and the Dairy, before arriving at our destination. Seeing the bell on the door, we pondered long if it were necessary to ring it before advancing with our five cents.

Events came so quick and fast then that it seemed all a confused jumble, the Initiation, First Prom., Hallowe'en Masquerade, Exams., Holidays, Home, Back again, and then to the new Short Course at any rate we were "old girls."

The winter and spring terms went



TEA ON THE CAMPUS.

Photo taken on evening of O. A. C. Normal Class Garden Party.

also, unpacked, hung up their clothes, and arranged the pictures of father, mother, and the family group prominently on the dresser.

Those of us, whose trunks did not arrive, spent the evening downstairs, with our labels firmly clutched in our strong right hands to see "if they had not come yet," and getting lost in the corridors on the return journey.

The next day we wandered around to lectures, invariably walking into three wrong ones before we struck the right one. We were told there was a tuck shop, and carefully following

even faster. The first real responsibility came with the Senior Dinner, where there was really something we were to do without a Senior at the head of things. It certainly was delightful and gave us sweet foretastes of the joys to come after the summer holidays.

The summer holidays sped by almost as quickly as the short Christmas and Easter ones had done, and lo! in some miraculous way, we had become Seniors. We had the much desired front bedrooms, we, the insignificant Juniors, were on Literary, Athletic,

and Y. W. Committees, and we marvelled at and admired our predecessors more than ever, for having run these complicated affairs so smoothly and with apparently so little effort.

Dems. and teaching and marketing, heretofore, spoken of with bated breath were now ours to grapple with. When the Juniors murmured something about their being worked to death, we said—"Work, my child, you don't know what work is. Just wait till you're a Senior and have to Dem.

Teach,

Look after the Loan Cupboard or whatever our bugaboo was at that particular instant.

But now it is all over, the May Day, Graduation Dinner, and even the sixth and last set of exams. are things of the past, so we make our farewell bow, and the class of 1911 takes its place as mere history.—M. M. M.

#### The HomeMakers.

Of them are the east,  
 Of them are the west,  
 Of them are the worst,  
 Of them are best,  
 Of them are sweet singers,  
 Of them are musicians,  
 Of them are the scandals,  
 Of them the traditions,  
 Of them ballerenas—  
 Of them soubrettes;  
 Of them are the shy ones,  
 Of them the coquettes.  
 Of them are the French maids,  
 Of them the grand dames;  
 Of them are the champions,  
 Of them baseball fans;  
 Of them are the tallest,  
 Of them are the shortest,  
 Of them are the quietest,  
 Of them are the sport'est;  
 Of them not one ugly  
 But ever the prettiest.

Of them not one stupid  
 But ever the wittiest;  
 Of them are the claimed  
 And the still unclaimed treasures;  
 For them are the trials  
 And for them are the pleasures,  
 Of them are the fashions,  
 The latest of styles;  
 Of them are the laughs  
 And the brightest of smiles.  
 Of them not one ugly  
 But ever the prettiest;  
 Of them not one stupid  
 But ever the wittiest.  
 Now, judge, you dear reader,  
 Could any surpass  
 The nineteen-eleven Homemaker class?

#### The Tennis Tournament.

The annual mixed doubles Tennis Tournament commenced on Tuesday, May 23rd. There were twenty-four entries and the keenest interest and enthusiasm was shown by all. Energetic players were to be seen at all hours practising on the Macdonald courts, and also on the clay court. As the weather was ideal and the courts in good condition, nothing was wanting to make the matches interesting, and the skill and swiftness of the contestants provided fine entertainment for the admiring audience.

The semi-finals was the most exciting match, the players being Miss Shaw and Mr. Newhall vs. Miss Ever-son and Mr. Shibley. The games were so closely contested and the players so evenly matched that it was only after a hard-fought set, in which the games were 10-8, that Miss Shaw and Mr. Newhall gained the victory. The final match was played on May 29th, at 6 a.m. on the clay court between Miss Shaw and Mr. Newhall and Miss Lightbourn and Mr. Hutchinson. Unfortunately there were few specta-



ters at this interesting match owing to the early hour, but now and again a sleepy voice was heard from a window, inquiring the score, or admiring a skilful stroke. Miss Lightbourn and Mr. Hutchinson were victorious, the score being 6-4, 6-2. Amid hearty congratulations the players departed to their well-earned breakfasts.

### Macdonald Ginger Snaps vs. O. A. C. Hickory Sticks.

Sir Francis Drake was bowling on the sands of the Plymouth coast, when the avenging floating squadron of the Spanish Main, hove in sight. History repeats itself. The O. A. C. skirted baseball team were laying tables with fragrant coffee and kitchen mysteries, as dainty and dangerous as a maiden's smile, when the Macdonald team and fans swept in dazzling linens, of colors various and many, across the green sward that has witnessed no more historic battle, than was shortly to be fought upon its war scarred bosom.

Time passed and the meal has been safely dispensed with. The wind falls, as if holding its sweet scented breath in anticipation of impending events. The sun in modesty, sinks in silent adieu, beyond the western horizon. The grey haired patriarch of class '11 stalks with dignity and a sense of dependency in every measured step, toward the sanctuary of the umpire.

The game commences with the following introduction by the umpire. Batteries, Ginger Snaps — Pitcher "Billy" Barron, catcher; "Roly" Davis. Hickory Sticks — Pitcher "Spuds" Avery; catcher, "Lonely" Wilson. Hickory Sticks up to bat. "Crippen" McComb first wielded the willow, snapping out a low drive for a first base hit. "Lonely" Wilson followed

with a mighty lift over mid-field for a two bagger, "Crippen" McComb sliding home for the opening score. "Harven-Steck" Countryman fanned the Ozone for the third time of asking and Leather Henry made a good sacrifice bringing in Lonely Wilson for the second run. At this time owing to the effective rooting of Doc. Baker, who stood near home plate gesticulating wildly the while, the pitcher went up for a trip to the clouds but recovered when the gasometers around home plate ran out. Wags Taylor took three pretty short jabs at the ball and returned to the bench. Side out! The Hickory Sticks took to the pastures. Spuds Avery in the box and Lonely Wilson in the neat cover.

"Salome" Jackson fouled the ball for a triangle and returned to the bench. Artie Corrigan picked out a good one and got to first—after the ball. Kelly Clarke swung a wicked crack on a medium high and landed safe on first base. "Lo!" Monroe took two strikes, three fouls and fanned an incurve and the umpire yelled batter out. "Wags" Taylor stepped up to the plate and drove Billy Barron over left field for two sides of a square. Slinger Fletcher smacked the ball on the face for a single, "Wags" making third in good time. Hefty Binnie landed out a daisy cutter bringing first and third and making second with comparative ease owing to a fumble in the field. "Pepper" Stirret hit nothing on three separate occasions and sought the timbers. A mighty heave in the direction of St. George's Square brought "Hefty" Binnie to the end of the journey. Lonely Wilson landing on third, to be brought home by "Spuds" Avery on two strikes, third bat, two baggar. "Crippen" McComb hit the pitcher for an home bringer

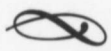
and a rest on second and "Leather" Henry fanned three times, Harven-Steck Countryman, smiled a peach to the right field relieving "Crippen" on second, thus bringing in another run. "Wags" Taylor and "Hefty" Binny brought home "Harven-Steck" but Hefty was left just the wrong side of first. Slinger Fletcher rolled a lazy one to short stop and landed safe on first, "Wags" making third and landing home on a pass ball. Ripper Stirret failed to connect with the ball and the side was out with ten runs in all to their credit.

Macdonald at the bat. "Slide" Staebler handed "Spuds" to the timber territory for a two bagger. "Lot" Monroe following with a single, backed up by "Tiny" Shaw with a three bagger which landed "Slide" and "Lot" at home. "Roly" Davis took two strikes at the ball and fouled the pitcher on the third for a single bagger. This brought "Tiny" home in great haste. "Speed" McNair tipped two fouls over and landed number three for two sections. "Billy" Barron, hurt the ball on two strikes and broke its heart on the third for a single, "Speed" landing on third to be brought home shortly before "Billy" on a single by "Salome" Jackson. Now began a

series of two baggers. "Artie," "Kelly," "Lot," and "Speed" McNair and "Tiny" landing safe at home. Next up went "Slide" and on a fine hit by "Roly" she made her spectacular foot slide underneath the lady on third. "Roly" followed with a repeater, on a nice hit by "Kelly" Clarke, and "Salome" Jackson assisted "Kelly" to third, bringing in "Roly" with a grand slide. (The writer forgot to mention that some one fanned during the revival.) "Lot" and "Speed" were caught napping on first and third respectively and the side was out, with fourteen runs to their credit.

Darkness enshrouded all, but still they played. The Hickory Sticks landed six runs with two out, and the game was called on account of no moon. The score went back to the former innings, landing the Ginger Snaps at the top. Score, 14-10.

It is worthy of mention that "Art" and "Tatters" Baker who had both a "Peg Top" cigar on the game remonstrated very energetically with the umpire on the right of reverting to the even innings score. Whilst we sympathize with Mr. Baker in his troubles we must remind him that heart must bow to baseball rules sometimes.



# Much Ado About Nothing

Little girl named Roly Poly  
Played a game of baseball solely;  
In the pitcher's box so neat,  
With a face mask was complete,  
Catching every ball so fleet,  
Who does?  
Roly Poly.



Miss A—Are you going out walking  
this afternoon?

Miss C—No, it is too "close."



A "darn" may be a species of strong  
language, but its a darn hard thing to  
define.



After seeing her rival go walking  
Miss C was found reading "The Light  
that failed."



Professor R—Why did the Duke  
send Viola to Olivia?

Miss D (brightly)—To press his  
suit.



## Who Says This?

"Why?"

"Oh, my aunt."

"How perfectly killing."  
"Say, won't you play tennis with  
me?"  
"I'm not fussy about it."  
"The subject of my dem. was"—  
"Oh, help!"  
"Time of my life."



Miss J—When you come to my  
house I'll never give you tough meat  
made tender.

Miss S—No, but you might give me  
tender meat made tough.



## Conversation at Table.

D—Did you hear the joke?

Pat—No.

D—E said to N you and Noah must  
have had a great run for that blouse.

N—I think that an insult rather than  
a joke.

Pat—On Noah.



Perhaps you think my jokes are poor,  
And should be on the shelf,  
But if you know some better ones,  
Hand in a few yourself.



## Schools and Teachers Department

Devoted to those interests of the Ontario Agricultural College which pertain particularly to the training of teachers for giving instruction in the schools of the Province along vocational lines—in Home Economics, Industrial Arts, Elementary Agriculture and Horticulture.



CHILDREN'S AND TEACHER'S GARDEN AT O. A. C., GUELPH

Much of the work outlined can be carried out in the School Garden.

### EXPERIMENTS WITH SEEDS AND SEEDLINGS.

The following outlines are a part of the plant studies that have been prepared for the use of teachers-in-training at the Ontario Agricultural College. They are intended to be carried out in the Public Schools as a part of the instruction in Elementary Agriculture, either in connection with the School Gardening or in any other way that the teacher finds most suitable.

Through such simple and practical studies it is hoped the pupils may be aroused to many interests—ordinarily undiscovered—in the growing of plants.

### MACDONALD INSTITUTE—NATURE STUDY DEPARTMENT.— TEACHERS' CLASSES, 1910.

#### Experiments with Plants.

1. **The Structure of Seeds.**—Soak seeds of pumpkin, bean, peas, corn, and the castor oil plant to the point of germination and note (a) the markings on the skin, (b) the nature of the coverings, (c) the enclosed embryo or plantlet with leaves, root and stem represented, and in the case of the corn and castor oil plant, (d) the additional food supplies. Compare and draw.

2. **To Determine the Conditions of Germination of Seeds.**—(a) Plant some seeds in dry sand and others in moist sand, (b) plant two sets of seeds and keep one set in a warm place, put the other on ice in a refrigerator. (c) Put one lot of seeds in a bottle and just cover with water. From time to time shake the bottle, so as to bring the air about the seeds, put another lot of similar seeds and fill up the bottle with cooled water that has had its dissolved air driven from it by boiling.

3. **On the Entrance of Water into the Seed.**—(a) Drop some beans into hot water and notice where the bubbles arise. The heat tends to drive out any air that is enclosed under the seed coat. (b) Soak the beans for a few days, wipe dry and then squeeze them to find where water oozes out. (c) Plant three sets of beans in a flat filled with moist sand. Place one set with the scars down, the second set with the scars up, and the third set with beans lying on their sides. Do not cover the seeds. Allow the upper surfaces to be exposed. Keep the sand well watered. Note the time of germination of each set. (d) To find an explanation for the attraction of water into the seed cut some soaked beans in two and remove the solid contents of the seed coats. Allow the little cups of half seed coats thus made to dry. Put a few grains of sugar into each. Float some on water as little boats, firm some into wet sand, and allow a third lot to remain exposed to the air without contact with moisture. The experiment can be tried with the seed coats of pumpkins, peas, and the shells of nuts. Compare the rates of osmotic flow.

4. **To Estimate the Volume and Weight of Water Absorbed by Seeds.**—Weigh twenty dry beans; measure their volume by immersing them in water in a graduated glass and noting their displacement; shake the glass in order to get rid of any air adhering to the surface of the seeds. Place the seeds next in moist sand or sawdust for a few days, wipe them dry and weigh; measure their volume as before. Calculate increases in percentages.

5. **To Find Whether Seeds Can Be Started Into Germination by Absorbing Water From Moist Air.**—Weigh some dry seeds and set them on a gauze tray set up over water in a glass jar. Weigh them from time to time to find if they are absorbing water. Should they continue dormant for a long time, plant them under favorable conditions to find whether they have lost their vitality. Can seeds be injured by being kept in a moist atmosphere?

6. **To Demonstrate the Expansive Force Exerted by Seeds in Absorption of Water.**—Fill a strong small-necked bottle with dry peas. Wrap the bottle with strong cord or cloth bandages. Immerse the bottle in a dish of water so as to keep the spaces between the peas filled with water.

7. **To Find Whether Seeds Can Resume Germination After an Arrest Through Drying.**—Germinate seed of wheat, radish and sunflower, in plates or germinators. When the sprouting is well marked, expose the seeds to air-drying for a day or so. Again put them under favorable conditions for growing. Estimate the percentage of seeds that have succumbed. Continuing the work find how many dryings any of these seeds can successfully withstand. **Garden or Field Observation**—The effect of drought on the early growing crop.

8. **To Find How Germinating Seeds Cast Their Seed Coats.**—It would appear that in many cases a struggle goes on during germination between the escaping plantlet and the seed coat. Plant rows of seeds of sunflower, pumpkin, onion, pine or spruce and the common garden beans, and note the development from day to day. The seeds of the Indian Turnip, Castor Oil Bean, Horse Chestnut can be studied to advantage too. Some seeds do not cast their coats in germination, although they may be torn badly by the plantlet escaping; try the seeds of the Scarlet Runner Bean.

9. **To Find if Light is Required for Germination.**—Plant seeds in two pots. Keep one in the light and the other covered by a larger pot so as to exclude the light. As far as possible keep the moisture and heat uniform for both pots.

10. **To Show That Carbon Dioxide is Given Off by Germinating Seeds.**—Place a quantity of seed that has been soaked and brought to the point of germination in a glass jar in which an open dish of lime water is exposed. The jar should be covered to exclude the air; a control jar that contains dry seed and also a dish of lime water should be used for a comparison.

- 11. To show That Heat is Produced in the Germination of Seeds.**—Start a quantity of peas sufficient to fill two tumblers into germination. Kill one half the seeds by boiling for a few minutes and let them cool. Now fill two tumblers with the two lots of seeds and set them in a lard pail wrapped about with felt, asbestos packing, cotton batting or other non-conductor of heat. Insert thermometers whose readings have been carefully compared, through a hole in the lid into the peas. Take observations frequently and carefully as only small differences are to be expected. Keep the pails out of the direct sunlight. The thermometers can be compared by inserting them together into warm water.
- 12. To Compare Rates of Germination.**—In garden work or with Zurich germinators compare the time that it takes different kinds of seeds (e. g., radish, wheat, peas) to start into germination.
- 13. Comparing Rate of Germination and Subsequent Growth of Soaked and Unsoaked Corn.**—Soak twenty-five grains of corn in water for one or two days, and plant them in a flat or garden plot. Also plant twenty-five unsoaked seeds alongside the first for comparison. What differences are there in two weeks?
- 14. To Find How Much Soaking Seeds Can Withstand When the Water is Changed Frequently.**—Soak beans (say 25 in each set) one, two, three, four, five and six days, in water that is frequently changed, and test their germinating power after the soaking.
- To Find the Limit of Soaking When the Water is Not Changed.**—Proceed as above without changing the water.
- 15. To Find the Value of Cotyledons to Seedlings.**—Germinate a number of beans in a flat or garden plot. Remove cotyledons or parts of cotyledons from some of them when they appear above ground and compare subsequent growths with the uninjured seeds.
- 16. To Compare the Positions and Character of Growth of Cotyledons**—Germinate seeds of kidney beans, peas, Windsor beans, sunflower, pumpkin and corn in garden plot or flat. Note whether the cotyledons remain underground (hypogeal), or appear raised on the stem (epigeal). Also note whether they expand and remain, or shrivel and fall. Record observations with drawings.
- 17. Root Hairs.**—Grow radish seeds or corn in Zurich germinators and flower pots. Note the time when root hairs appear, their location with respect to the root tip, their color, length, number and attachment to soil particles. In removing seedlings from the soil for this study care should be taken not to strip them off. The soil should be moist.
- 18. Comparison of (1) Large Plump. (2) Small Plump. (3) Shrunken and 4 Broken Seeds.**—From a sample of wheat or other grain which might be used for seeding, select one hundred of the largest, plumpest grains; one hundred small plump grains; one hundred of a smaller or shrunken grain; and one hundred broken or cracked grains. Plant each carefully in a separate flat or germinator and compare (1) the time of germination, (2) the percentage of germination, (3) the vigor of the subsequent growth.
- 19. Official Seed Test.**—Inquire of the Seed Commissioner, Ottawa, for literature regarding the work of the Seed Branch and the methods of testing and reporting on seed. Send in a sample for analysis.
- 20. To Find Whether the Grains of Indian Corn Taken From Different Parts of a Head Are Equally Valuable as Seed.**—Select twenty-five average grains from (1) the upper end of the head, (2) twenty-five from the lower end, (3) twenty-five from the middle. Plant these selections separately in a flat filled with potting soil. Note the porportion of germinable seed, the time required to germinate, and the strength of growth.

21. **Effect of Firming Earth Over Seed.**—Plant two rows of corn in a garden plot. In one row firm the earth over the grains by tramping it quite compactly. Leave the soil in the other row loose. Compare the rates of germination and the lengths of root development.

22. **To Compare Germinations of Seeds Planted at Different Depths.**—Plant an equal number of seeds (corn or peas) at different depths in the garden—one, two, three, four, five inches. Note the first appearances, the number germinating, the best growth.

23. **To Find the Number and Kinds of Seeds That Are Lying Dormant in Surface Soils.**—Take samples of the top soils from gardens and fields in the spring and put them into flats. Keep the soil moist and note the appearance of weed seedlings. The experiment may be modified by taking samples of soil from the same place but at different depths to find how far down in the ground dormant seeds are found.

24. **Longevity of Seeds.**—Make germination tests of old seeds of which the germinability of previous years is known. For subsequent years, keep samples of tested seed stored in sealers with the records of germination tests attached. Make all the tests in duplicate.

25. **Calculation of the Weights of a Bushel.**—Fill a standard pint or quart measure with samples of different grains or seeds, as wheat, oats, barley, peas or beans. After levelling off the top, weigh carefully and calculate the weights of a bushel of each. Test the correctness of the calculations by the use of a standard seed-tester such as used by grain buyers and millers. At your schools, this might be borrowed from the local miller.

26. **Calculations of the Weight of Hulls on Oats.**—Weigh out about an ounce of oats. Strip off the hulls and weigh again, calculating the proportions in percentages. Compare two varieties of oats in this respect, using loose-hulled and tight-hulled samples if possible.

27. **Germination of Seeds of Imported Fruits, etc.**—Plant seeds of oranges, lemons and dates in flower pots or flats, and keep them in a warm place. Also try to sprout rice, cocoanut, coffee beans, cotton, peanuts and other nuts.

28. **Germination Tests of Injured Seeds.**—Test samples of grains that have been touched with frost before ripening, (e. g., frozen western wheat); that have sprouted in the sheaf owing to wet weather; or that have been stored in damp, mouldy conditions (e. g., corn that has been kept in a cellar), and compare their germinability with sound seeds.

29. **Can Seeds Be Poisoned?**—Immerse some seeds of known vitality in solutions of mercuric chloride, copper sulphate or formaldehyde, dry them and then test for germination. The experiment may be varied by immersing the seeds in different strengths of the solutions for the same length of time; (2) by immersing them for different periods of time in solutions of the same strength.

The three last named substances are used in treating seeds for the prevention of diseases, e. g., wheat is treated for smut by immersing in a solution made by mixing one pint of 40% formaldehyde (formalin) in 40 gallons of water.

#### ECOLOGICAL AND MISCELLANEOUS STUDIES.

In the development of plants there have been several factors operative in the changes undergone, such as (1) heredity, (2) variation, (3) the struggle for existence, (4) the survival of the fittest, and (5) the influence of environment.

1. **Heredity.**—Note how closely the offspring resemble the parents; wheat produces wheat; nasturtium, nasturtium; figs do not grow thistles.

2. **Variation.**—Note any variation in the size of head, length of straw, time of maturing amongst the plants in any one of the plots of grain. In **plant selection** the aim is to set apart the best plants from which to grow other plants.

3. **The Struggle for Existence and Survival of the Fittest.**—(a) Note the result of not weeding or cultivating a part of your garden plot. What vegetables can best withstand weeds and neglect? What weeds are the most stubborn? (b) Note the superiority of some plants in your thickly sown rows of beets, carrots, onions, etc. Is there recognition of this in your thinning out of the young plants? (c) Estimate the number of seeds produced by a single plant, i. e., a Shepherd's Purse.

4. **The Influence of Environment on the Character of Plants.**—(a) Note the difference between dandelions growing on lawns and those growing, for example, in an orchard where there is shade and long grass. (b) Compare the growth of a potato that is set in moist sand and kept in the dark with one set on dry sand and kept in the light.

5. **Special Study of the Apple.**—(1) Select an apple tree for special study. Note (a) the commencement of the opening of the buds, (b) the positions of the leaf and flower buds, (c) the manner of the unfolding of the leaves, (d) the opening of the blossoms, (e) the time taken for the leaves to grow to their full size, (f) the setting of the fruit, (g) the visits of insects, (h) the falling of the blossoms, (i) the growth of the fruit, (j) the appearance of the scab or codling moth, (k) estimate the number of leaves, blossoms and fruits on the tree.

6. **Special Study of the Dandelion.**—Select a dandelion that will not be disturbed or injured. Note (a) the number, variability and arrangement of its leaves, (b) the number of buds and their order of blossoming, (c) the number of days a flower is open, (d) the opening and closing of the flower in wet or cold weather and also in the mornings and afternoons, (e) the insects that visit it, (f) the rate of growth of the flower scape, (g) the attitude of the flower while it is ripening its seed, (h) the erection of the head when the seed is ready for distribution, (i) the reason for the scape coiling in "curls" when it is moistened in the mouth, (j) estimate the number of seeds one plant may produce.

7. **Tracing the Evolution of the Leaf in Individual Plants.**—In the early days of a plant's growth through the seedling stage interesting modifications in the successive leaves are often to be seen. There is usually a development from the simple and unspecialized form to the less simple and specialized. This evolution is taken to mark the mode of development of the species to which the plant belongs and relationship with its forbears. With this study in mind, watch the development of the seedlings of clover, common garden bean, pea, scarlet runner, tomato, carrot, cabbage, raddish, cauliflower, sunflower, etc. There is a lack of this specialized modification in the monocotyledons as a rule—e. g., corn, wheat, oats, etc.

8. **Specialized Modifications of Hairs, Leaves and Stems.**—Many plants have in their evolution developed special organs that enable them the better to "get on in the world." With this in mind, observe the following and try to find out what part of the plant they are derived from: (a) spines on hawthorns, wild plums and cactus, (b) barbs or prickles on roses, barberry, briars, raspberry, (c) prickles on wild gooseberries (d) tendrils on grapes, sweet pea, Boston ivy, wild cucumber.

9. **Plants in Societies.**—Plants associate themselves in groups that are determined by the nature of the plants themselves and the nature of the surroundings.



(a) Note the plants that group themselves as (1) water plants, (2) swamp plants, (3) shore plants, (4) forest plants, etc. (b) Note the weeds that occur in (1) lawns, (2) gardens, (3) grainfields, (4) roadsides, (5) railroad tracks, (6) forests.

10. **Seed Dispersal.**—In the struggle amongst plants, the wide scattering of seeds is an important factor in success. Consider the fruits and seeds in this regard, noting (a) devices for stealing rides, (b) provision for floating in water, (c) devices enabling them to float in air, (d) attractiveness to animals for eating, (e) mechanisms for ejection.

11. **Seed Enemies.**—Consider the factors that tend to rob the numerous seeds of plants of their chances of producing other plants.

12. **On the Growth of Bacteria.**—Put some skimmed milk into five small bottles or test tubes. Sterilize the milk by subjecting the bottles one half hour a day for three days to a steaming in a pail, keeping them tightly worked all the time. Inoculate the milk by putting in small amounts of (1) yeast, (2) cheese, (3) dust, (4) dirty water, into four separate bottles and keep the fifth for a control. Note any changes in color, smell, or consistency.

13. **To Test the Efficiency of Cooper Sulphate (Blue Vitrol), or Iron Sulphate (Green Vitrol or Copperas) Treatment for Mustard.**—Make 2 per cent. solutions of each of these substances with water and sprinkle them on blossoming mustard plants. Put some on neighboring plants also to see if they are injured. The copper sulphate has been recommended usually for this work, but iron sulphate is cheaper.

14. **The use and Value of Bordeaux Mixture and Lime Sulphur.**—Note the method of preparing and applying these to fruit trees. Compare orchards that have been treated with others that have been untreated regarding the yield, the quality of the fruit and its freedom from disease. The lime sulphur treatment is largely taking the place of bordeaux treatment nowadays.

15. **Thawing Out Frozen Plants.**—In the freezing of plants water is withdrawn from the cells and forms an ice in the intercellular spaces. When they are thawed out slowly, this ice melting may be reabsorbed into the cell. In this case the plant will not be killed. But if they are thawed out quickly, the water will not be reabsorbed and the plant will die. Test this by thawing out geranium plants slowly and quickly. In the first place keep the plant in a cool place and sprinkle with cold water; in the second case take the plant to a warm place and sprinkle with warm water. Some plants, however, such as pumpkin and dahlia, cannot be recovered.





As the Editor is on a visit to England and is out of touch with College Life, perhaps a few notes from his diary may be acceptable.

May 19.—Left Montreal on board the Tunisian and arrived at Quebec just after noon. Took a ride round the town. Wouldn't like to live here. Too many hills to climb. Too many ups and downs in life.

May 20.—Light wind, smooth water. Everybody trying to walk and talk as though they had been at sea for years, but the ladies looking a bit doubtful about it.

May 21.—Light wind, very foggy, and cold. Vessel stopped this morning until fog lifted. Large iceberg passed about a mile away. Cape Race lighthouse left behind at 11 p.m. Now in the open sea.

May 22 and 23.—Moderate wind and sea. Cold. Only the hardier spirits on deck. All ladies below except two Toronto girls who receive much attention. Whist drive in saloon in evening.

May 24.—This morning I was called the laziest man on the ship, not having succeeded in getting up in time for breakfast at 8, so far. Weather squally with high sea. Sickness and sounds of distress prevalent. Eating like a horse myself at lunch and dinner to make up for breakfast missed. Waiter astonished at my capacity. Held concert in saloon in evening. Great success in spite of absentees and a general feeling of uncertainty about the region of the solar plexus. Recited one of Service's poems with telling effect, having to hang on to a table with one hand and to the anchored piano with the other. Great fun at dinner watching the soup finding its own level.

May 25.—Sea still rough. Got up to breakfast this morning as I accidentally fell out of bunk at 7 a.m. Received an ovation as I entered dining saloon. Smelt Irish whiskey to-day.

May 26.—Sighted north coast of Ireland. Smell stronger than ever. Many casks seen floating about. Sea much smoother and weather beautifully fine.

Another concert in evening. Getting expert at deck quoits and billiards. Several of us visited the Marconi operator's cabin. Four fellows and three girls attended the demonstration in a cabin meant for one. Rather close quarters. Also visited the engine room and stoke-hole. Hot place. Received a message by wireless that the Cunarder Ivernia had gone down.

May 27.—Passed Isle of Man in beautiful weather. In the Irish sea and surrounded by ships of every nation. Took on pilot at mouth of Mersey, and arrived Liverpool landing stage 3:30 p.m. Customs gave no trouble and reached home at 6:30 p.m.

Nautwich, Cheshire.—This is a country town far removed from bustling London, yet here the feeling expressed in the song, "I Don't Want to Think of Anything but Coronation Day" is reflected. The farmers are wondering whether they can stave off hay harvest until after Coronation. The new babies are all being christened either George or Mary. The hedges, trees, gardens and fields are covered with a profusion of bloom and the air is filled with a perfume more beautiful by far than the gorgeous decorations now being erected in London. Rural England is now robed for her coronation. I pass up High street. In the hardware store I see displayed the legend that coronation kettles can be had there for 1s. 11½d. each. But those kettles don't attract me, although the legend implies that it would be positively disloyal to refuse one. But I don't see that King George will be particularly honored by connecting his name with a 1s. 11½d. kettle, especially as it will start to leak as sure as a gun after a month's use. After refusing a coronation shave and a coronation pen-knife and a coronation cork

screw, I go into the grocers. There I buy some tea in a garish tin box on which is painted a caricature of their Majesties. I invest in a dozen boxes of coronation matches, a pound of coronation bacon and a tin of coronation sardines. The only thing that isn't coronation is the cheese. It is still plain Cheshire.

#### Some Geological Gems.

Not long ago the shell of an early Briton was dug up on the banks of the Thames.

Volcanic ash is the lava and ashes which first form in the Creator.

Limestone is a rock, when you breathe on it you can get the smell of your breath.

(Editor's Note.—A hitherto unsuspected economic use of limestone. We must remember this.)

Mr. Jackson—(Addressing B. division of First Year)—Gentleman, I am very sorry that I have not time today to take you over Niagara Falls. (Can it be that the supply of barrels is running short in the Chemistry Department?)

#### Overheard at the Winter Fair, Guelph

Student—(To Agent for X. Y. Z. Stock Food)—Are there any carbohydrates in this feed?

Agent—(With true professional pride)—No, sir. There's nothing like that in any of the feeds we put up.

Farmer (to C. A. G.)—Is this the Inflammation Bureau?

(From the Advertiser, London,  
June 14.)

"Evans and Smyth were set in the second innings, the former making 25 runs, while the latter made 552 by consistent cricket."

The paper goes on to say that owing to the lateness of the hour, the second innings was not completed. No wonder.

~ ~  
(Extract from a Letter)

The campus now presents its usual summery aspect. Glancing out of my window on Sunday afternoon I was much struck with the color scheme presented. Greens in every shade formed a background to the brighter hues of shrubs and flowers. A vivid splash of red geranium in the immediate foreground was balanced, as it were, by an answering spot of color on the other side of the campus, a confused mass of delicate purples, blues, yellows and pinks, beneath the sombre shade of a spruce clump. On nearer inspection this proved to be a group of teachers imbibing the beauties of Nature "themselves the fairest flowers of them all." Ahem But let us return to our muttons.

The class of 1911 has disbanded. Complete metamorphosis has taken place. Those whom we knew in the egg stage as Freshmen have successively and successfully passed through the voracious larval or sophomore stage, have pupated as juniors and seniors and have finally emerged as the adult insects or graduates. No more do we hear the sturdy tread of W—de T—le reverberating over the post office floor. No longer does the sharp crack of baseball on bat betray the energetic presence of P-I F-sh-r. No longer is the night air made melodious with the hunting whoop of J—k

B-k-r. Tempora mutantur! Yes, indeed.

The teachers are great entomologists. When they go out in full force one begins to wonder if there are boys enough to go round. Apropos of this, I picked the following fragment out of the editorial waste paper basket the other day. As a specimen of the form of poetry popular in the early Neolithic or Brickbat Age, it may interest you. Though this is rather doubtful.

**First Spasm.**

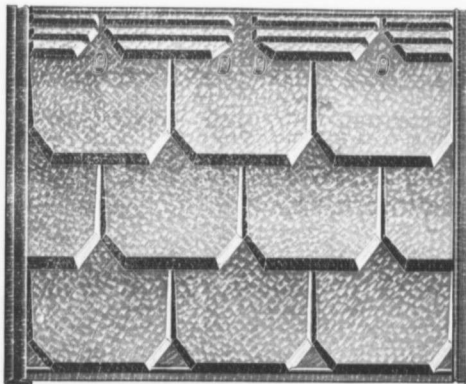
You may talk of the charge of the  
Light Brigade,  
You may sing of the bold Grenadier,  
But you'll vote them all slow when  
acquaintance you've made  
With the army that bivouacs here,  
They never have shed any blood that I  
know,  
Their number is not very large,  
But you just ought to see the poor  
butterflies go  
When over the campus they charge.

**Refrain.**

The army! the army!  
The terrible bug-catching army,  
In Hexapodous panic the insects de-  
part,  
The Dipterous flies get a horrible  
start  
Fear tugs at the poor Coleopterous  
heart  
When it hears the advance of the  
army.

**Second Spasm.**

When in skirmishing order they  
bravely deploy  
All bugdom is buried in gloom,  
Hemipterous anguish they merely  
enjoy,  
For sentiment there is no room.  
They dance in malign Hydrobatical  
glee,



THERE IS SAFETY IN ROOFING WITH  
**“Eastlake” Steel Shingles**

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They are “Weathertight”                      They are Fireproof  
They are Lightningproof. They are practically everlasting  
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actual service, that all these statements are facts. !!!!!

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MANUFACTURERS

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Round the river, the pond and the  
barn,  
They worry the harmless Bombycidal  
bee,  
Till his caput is ready to turn.

**Refrain.**

The Army! The Army!  
The orthoptepheridal army!  
Carpocapsical triumphs are theirs, so  
they say,  
For the 'coddling" Moth is their em-  
blem today,  
And they utter this slogan when fresh  
for the fray,

Our Hexapodotophagal Army!

I have grave suspicions that the  
author of the above is one Browning.  
Or is it Greening? I'm not quite sure.  
However, it does not greatly matter.  
Remeber me to the animals. Yours,  
Pop.

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AND  
PHYSICS  
APPARATUS**

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TORONTO, ONTARIO

**Place the Speakers.**

As a matter of actual fact.  
With a more or less elongated  
j eduncle.

I require at least apparent attention.  
There's just a point there to think  
over.

Which is very objectionable indeed.  
To give you a concrete example.  
Let me illustrate what I mean.

~ ~  
A certain professor was lecturing at  
a farmers' institute meeting and his  
views were objected to by a farmer  
present.

"Sir," remarked the lecturer, "I have  
been at two universities, and at two  
colleges in each university."

"Well sir," the farmer replied, "I  
had a calf once that sucked two cows,  
and the more he sucked the bigger calf  
he grew."

Hart—Give it up, man. Don't you  
know that smoking shortens a man's  
life.

Johnston—Why! I know an old man  
who smokes every day and he is now  
over seventy.

Hart—Well, but if he had never  
smoked he might now have been  
eighty.

~ ~  
That the Second Year find some  
difficulty in choosing subjects for de-  
bate in their public speaking classes  
may be judged from the following sub-  
jects for debate in their public speak-  
ing classes may be judged from the  
following subject chosen, "Resolved,  
that flying machines are more benefi-  
cial to the human race than manure-  
spreaders."

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THREE FEEDS FOR ONE CENT.

Will save you money over the ordinary way of feeding.  
Will keep your stock in better condition.  
Is equally good for horses, colts, cows, calves, hogs, pigs, sheep, lambs; etc.  
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Is sold on a cash guarantee by over 125,000 dealers.

COLORED SPEED PICTURE OF  
DAN PATCH, 1:55. CRESCUS, 2:02 $\frac{1}{4}$ .  
MAILED ABSOLUTELY FREE.

We have just published a large colored lithograph showing Dan Patch and Cresceus in a fast finish down the stretch. It was made from life, and shows both of these magnificent animals in their natural colors. If gotten out in a small edition it would sell for \$2.00. We will be glad to mail it to you free, postage prepaid by us, if you will write us at once, answering the following question:

1st—Name this paper. 2nd—How many head of live stock do you own?

Picture will not be mailed unless you answer these questions.

International Stock Food Co., TORONTO  
CANADA

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**Don't buy roofing from force of habit. Be progressive.**

Make your new barn better than your old one—or make your present one better than ever before—by putting on a roof of "Galt" Steel Shingles. The wood shingles of today can't give you satisfaction and are a constant expense. "Galt" Steel Shingles make a permanent, storm-proof, fire-proof and lightning-proof roof that saves your money for you every year in protecting barn and stock, and in doing away with repairs.

"The Kids from Galt" will stick in your mind until you send for a free copy of our book "Roofing Economy". Better write for it today and get it off your mind. We'll send it by return mail.

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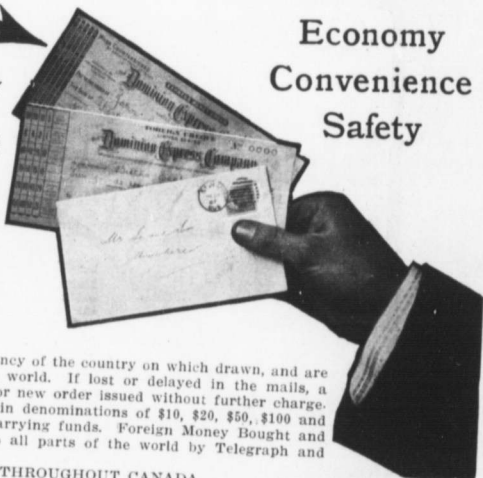
They are issued in the currency of the country on which drawn, and are payable in all parts of the world. If lost or delayed in the mails, a prompt refund is arranged or new order issued without further charge. Travellers' Cheques, issued in denominations of \$10, \$20, \$50, \$100 and \$200, the handiest way of carrying funds. Foreign Money Bought and Sold. Money transferred to all parts of the world by Telegraph and Cable.

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 Safety





President Creelman (to excursionists who are banging on the side door)  
—The other door, if you please.

Farmer (somewhat heated)—Go to H—!

President—No good. That's not the pass word.

Farmer (approaching gymnasium)  
—What's this? Church.

Guardian of the Portal—No, my friend. The food that you get here is of the earth, earthy, and not in the least spiritual.

Farmer—You don't say!

Brown—How did you like your visit to Toronto?

Kay—I liked it verra well, but it's a deuced expensive place to live in. I hadna' been there four and twenty hours before bang went a saxpence.

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**GOMBAULT'S  
Caustic  
Balsam**

A Safe Speedy and Positive Cure  
The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Hemorrhoids from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. Impossible to produce scar or blemish. Every bottle sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.  
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**ABSORBINE, J.C.**, liniment for manking. For synovitis, strains, gouty or rheumatic Deposits, Swollen, Painful Varicose Veins. Allays Pain. Will tell you more if you write. 81 and 12 per bottle at dealers or delivered. Manufactured only by **W.F. YOUNG, P.F.F. 1, 7 Lyman Bldg., Montreal, Ca.**

Edmonton, Alta., Nov. 19, 1907

Dear Sir,

I have used your ABSORBINE on a bog spavin on my two-year-old colt and have cleared it off.

Yours truly,

R. M. McDermott.

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LEAD ARSENATE

is better, in every way, than any other spray for worms, codlin moth, potato bugs, scarabaeus beetle and other leaf-eating insects. **Vanco** sprays easier, sticks to the leaves better, does not burn the foliage, and always kills the insects. Contains guaran seed amount.

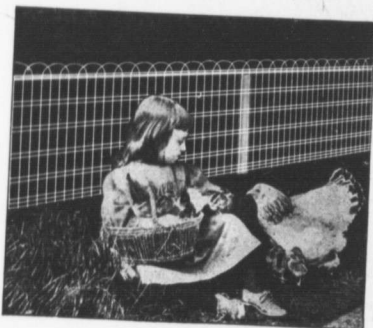
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**VANCO**  
**CHEMICAL LABORATORIES LIMITED**

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Our book on spraying is free. Write for a copy. Fertilizers—We also sell Nitrate of Soda, Nitrate of Potash, Sulphate of Potash and Acid Phosphate.

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120-130 Van Horne Street, TORONTO.

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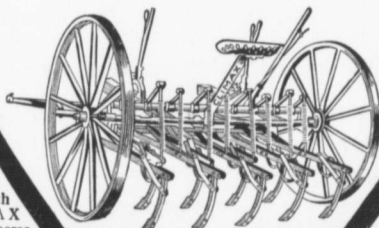
PRINTING OF THE BETTER KIND.

LONG DISTANCE PHONE 175

LONDON, ONT.

It soon  
earns  
its cost

In any soil, on any farm, the CLIMAX  
earns money for you every minute you use it



**Very  
Strong**

You can rip sod land with the CLIMAX and a 3-horse team—so it MUST be built strong! Yet the teeth won't smash if they strike a stone—their joints unlock and fly back to pass over unharmed.

Manitoba College used a CLIMAX on land rank with wild mustard; got rid of that bad weed; and grew oats 71 inches in the straw without a weed in the whole crop! The CLIMAX certainly does destroy weeds!

**Easy  
Handled**

Each pole has a tilting lever; and these, with the pressure lever—all in easy reach of operator—exactly regulate depth of cut. Teeth go right for the roots of the weeds, and rip them out of the soil.

This is the stiff-tooth cultivator that gets the weeds OUT of the soil—not merely cuts off their tops or just tickles the roots a little. On dirty land you surely need the

# Frost & Wood Climax Cultivator

You can have your choice of points—2, 4, 7 or 10 inch. You ought to learn all the merits of this money-making weed-banisher. May we send you Catalogue ?

**The Frost & Wood Co. Ltd.** Smith's Falls  
Canada

**Opportunities  
in**



**Western  
Canada**

Immense new fields of activity have been thrown open for the Manufacturer, Agriculturist and Business Man in Western Canada; and easy access has been given to new unspoiled territories where opportunities are afforded for every kind of enterprise.

#### INDUSTRIES

The best of six provinces is available along the line of the Canadian Northern Railway System. There is coal, and plenty of it in Nova Scotia and Alberta; Ontario is noted for its extensive quantities of Iron, Nickel, Copper and Silver. The greatest Water powers in Canada are adjacent or within transmissible distance of Canadian Northern Towns. FOR THE SPORTSMAN and TRAVELLER—lake, river and mountain scenery from Atlantic Coast to the Rockies; Moose,

Caribou, Elk, Black Bear, and Deer; Salmon, Trout, Ouananiche, Tuna and Black Bass.

#### FARMING

The Canadian Northern traverses the most fertile sections of Western Canada; through the famous Saskatchewan Valley wheat lands, the well-wooded, well-watered Prince Albert and Shellbrook district. The Railway lands—thousands of acres—were selected by experts. The services of the Land Department are free to homesteader and land-buyer alike.

WRITE TO THE INFORMATION BUREAU

**Canadian Northern Railway System, Toronto**

# *Armstrong*

## *Carriages*

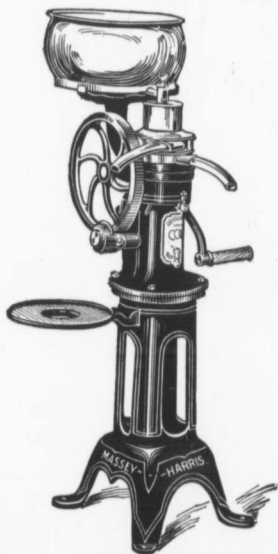
Manufacturers of up-to-date Carriages and Spring Wagons of all descriptions — Automobile Seat Bikes, Automobile Seat Top Buggies, Surries, Road Wagons, Delivery Wagons, Democrats, etc.

Write for catalogue and particulars.

**The J. B. Armstrong Mfg. Co. Ltd.**

**GUELPH, ONTARIO**

*The* **MASSEY-HARRIS**  
**CREAM**  
**SEPARATOR**



Saves more of the cream  
at all temperatures than  
any others

## Because

It has a larger skimming  
area, over which the milk  
is uniformly distributed,  
and because there are no  
conflicting currents of milk  
and cream in the bowl.

## *The* *Self-Balancing* *Bowl*

### SPINS LIKE A TOP

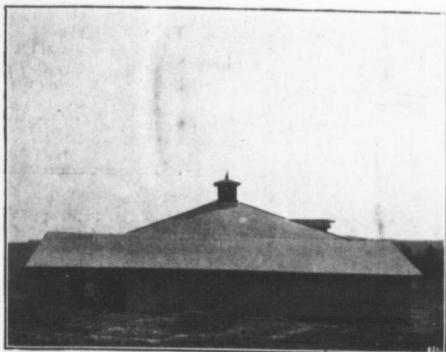
On a Ball Bearing at the upper end of the Spindle and at  
the centre of gravity of the Bowl. It runs easily and  
smoothly, skims clean and is easy to wash.

Full description and some valuable hints on  
dairying are contained in a beautifully illustrated  
booklet

"PROFITABLE DAIRYING"

Get one from the

**MASSEY-HARRIS**  
AGENT.



# Asbestos Cement Shingles



The accompanying illustration shows the application of our No. 8, 12"x12" Asbestos-Cement Shingle, with ridge and hips finished with the Asbestos roll.

The roof is fire and waterproof and is not affected by frosts.

This illustration shows but one of the many shapes in which these Shingles are manufactured.

For information and details, address

## The Asbestos Manufacturing Co. Limited

(Factory at Lachine.) 705 Eastern Townships Bank Building, Montreal, Canada.

## The Royal Military College of Canada



### The Royal Military College of Canada.

There are few national institutions of more value and interest to the country than the Royal Military College of Canada. Notwithstanding this, its object and the work it is accomplishing are not sufficiently understood by the general public.

The College is a Government institution, designed primarily for the purpose of giving instruction in all branches of military science to cadets and officers of the Canadian Militia. In fact it corresponds to Woolwich and Sandhurst.

The Commandant and military instructors are all officers on the active list of the Imperial army, lent for the purpose, and there is in addition a complete staff of professors for the civil subjects which form such an important part of the College course. Medical attendance is also provided.

Whilst the College is organized on a strictly military basis the cadets receive a practical and scientific training in subjects essential to a sound modern education.

The course includes a thorough grounding in Mathematics, Civil Engineering, Surveying, Physics, Chemistry, French and English.

The strict discipline maintained at the College is one of the most valuable features

of the course, and, in addition, the constant practice of gymnastics, drills and outdoor exercise of all kinds, ensures health and excellent physical condition.

Commissions in all branches of the Imperial service and Canadian Permanent Force are offered annually.

The diploma of graduation, is considered by the authorities conducting the examination for Dominion Land Surveyor to be equivalent to a university degree, and by the Regulations of the Law Society of Ontario, it obtains the same examination as a B. A. degree.

The length of the course is three years, in three terms of 9½ months each.

The total cost of the course, including board, uniform, instructional material, and all extras, is about \$800.

The annual competitive examinations for admission to the College, take place in May of each year, at the headquarters of the several military districts.

For full particulars regarding this examination and for any other information, application should be made to the Secretary of the Militia Council, Ottawa, Ont.; or to the Commandant, Royal Military College, Kingston, Ont.

H.Q. 94-5 9-09

# LOW BUTTER PRICES

## Make the Best Separator of Still Greater Importance

There could be no greater **mistake** on the part of the intelligent dairy farmer than to put off the purchase of a cream separator this year because cream and butter prices are unfortunately lower than they have been for several years past.

Nor could there be any greater **mistake** than to be tempted to buy an inferior separator at a trifle less first cost on this account.

There may be money in **dairying** when prices are high with a second or third grade separator or even without any at all.

But when prices are low the use of a DE LAVAL separator, with its greater saving and more economical operation than any other, usually marks the dividing line between profit and loss in dairy farming.

There is still money in **dairying** with a DE LAVAL separator, but the chances are that there is very little without one.

Moreover, you don't have to **pay cash** down for a DE LAVAL separator, if it may be inconvenient to do so. You can buy one on such liberal terms that it will actually pay for itself from its savings, even at present dairy prices.

With butter prices as they are there never was greater need to buy a DE LAVAL separator, nor stronger reason not to buy an inferior separator or to get along without any.

You need not be in doubt about it. Just arrange with the nearest DE LAVAL agent to see and try a DE LAVAL machine for yourself. Do this if you already have another kind, and try any other kind at the same time if the maker or agent will let you do so.

If there is no De Laval agent near you write us direct for any information you desire, and with the height of the dairy season at hand by all means don't delay prompt action.

## The De Laval Separator Company

14 and 16 Princess Street,  
WINNIPEG.

173-177 William Street,  
MONTREAL.