

Volume XXVI.

Number 5



O.A.C. REVIEW




FEBRUARY
1914



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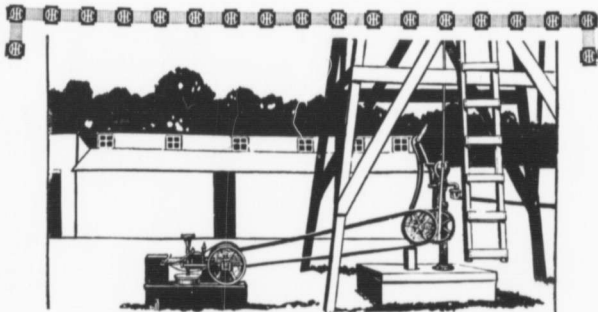
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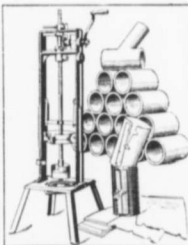
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HON. J. S. DUFF,
Minister of Agriculture, Toronto, Ont.

H. A. MACDONALD,
Director of Colonization, Toronto, Ont.



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The O. A. C. Review is published by the "O. A. College Students' Publishing Association," O. A. College, Guelph, Canada, monthly, during the college year.

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THE EDITOR'S PAGE

It has been said that imitation is the sincerest form of flattery, but that is not the reason why the Review intends to hold a *Referendum*. We are going on the principle that if any other magazine has got hold of a good idea we intend to share it. Referendums are a feature of the day. We are keeping up with the times.

Do not fail to read the article "*What We Have Done*," it will convey news to many of you, and may spur you on to help in the good work of co-operation. The highly optimistic among you will be so fired with enthusiasm that you will probably take your course over and over again in order to live in plenty on the rebates.

You will notice that we are trying to make cartoons a feature, but we cannot do this unless somebody draws the cartoons for us, so oblige us by drawing some. Our beaming countenances shall be your ample recompense. All caricatures of Dr. Creelman strictly barred for three months from date. Things are looking up this month, for besides cartoons, we have received an article, a letter, and a poem from students in spite of the fact that we are only seven weeks' off exams. If matters progress like this, we shall need an extra copy-reader. Do not let this alarm you, however, as I will even skip lectures in a good cause.

THE O. A. C. REVIEW

THE DIGNITY OF A CALLING IS ITS UTILITY

VOL. XXVI.

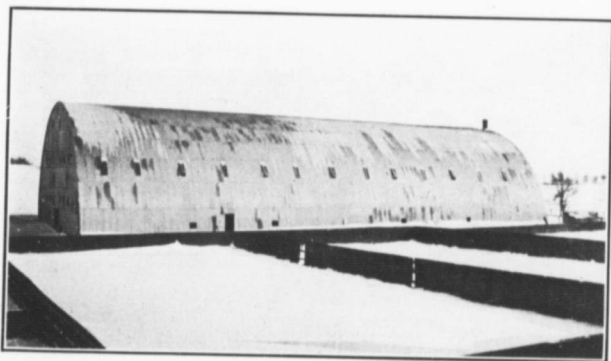
FEBRUARY, 1914.

NO. 5

What We Have Done

History of the O. A. C. Student's Co-operative Association

"Weighed in the balance and not found wanting"



O. A. C. Skating Arena.

Fealed 1914. Champion of America.
Sire: "Energy" out of "Optimism."
Dam: "Co-operation," by "College Spirit."

WITH the lights burning bright,
the arena a' glitter,
To the strains of the band,
and swift forms that
flitter,
To the skir of their skates on the
smoothest of ice,
When the lads they are jolly, the
maids they are nice;
Do you find the scene stir you? Won't
you join in the throng?
Then pay a subscription and help us
along,

Here is O. A. C. enterprise, loud
shout your Rah! Rah!
Let the sound of our doing be trump-
eted far;
For we put into practice what other
men preach,
And with mutual endeavor each one
works with each.
Then let us for ever our credit pre-
serve,
And this be for always our slogan
and word,
"Clasp hand into hand! Let us serve!
Let us serve! —Gyp.

To-day we have a Skating Arena, a Book Club and a College Magazine. To-morrow we will have—well who can say? but we can be sure that it also will be something worth the having. How have we attained so far, how shall we obtain further? In one way only, and that is by the efforts of the united students working with a common purpose, in other words by student co-operation. We have already set an example along these lines, which has probably never been equalled in any American college, and we are not a large university with thousands of students, but a college with a few hundred members. Let us briefly review what we have done and how we have done it.

The Review and the Supply Department.

In 1884 the students decided to run a college paper and the O. A. C. Review came into being. This paper not only paid expenses from the start but also was able to invest its profits for the future benefits of the students. By 1903 its circulation had reached 300, and it was decided to make an effort to increase the number of subscribers by canvassing among the ex-students. The effort was successful, and the magazine promptly began to obtain advertising. By 1909 a substantial surplus was being annually netted, and by 1913 the funds in hand amounted to \$1,800. In the spring of that year it was decided to start a Supply Department. This solution was put into effect on a co-operative basis and 220 members were secured, the fee being \$2. The \$1,800 belonging to the Review was used as a backing or collateral security to simplify purchasing. None of this \$1,800

was however drawn upon, as the \$440 of fees proved amply sufficient. By the fall of 1913 over a \$1,000 worth of business had been transacted, and \$4,500 worth of stock was on hand. Within two week after the fall term had opened every liability had been wiped off; and before the beginning of January, 1914, the turnover had reached \$7,000; outside trade had been developed, and there was every indication that by August every member would have got back his fee of \$2, plus a substantial rebate proportionate to the extent of his purchases.

The Skating Arena.

In 1907 the graduating class gave their notes for \$25 apiece to be used for the building of a covered rink, when the time should be ripe for it, and each succeeding graduating class has followed their example. Thus there was on hand in the fall of 1913 \$2,750 belonging to the Review and \$2,500 of promisory paper payable on demand. A meeting of the student body was called and it was decided to build a covered rink, costing \$10,000, \$4,000 of which should be raised by mortgage. The Ontario Government leased a plot of land for 21 years, and granted an option of renewal for a further similar period. The rink was built.

For financial reasons the O. A. C. Students Co-operative Association then organized themselves under the Companies' Act of Ontario, their lawful incorporation to be ratified in March, 1914. Further the three branches of the association will be run separately, each branch being operated by its own committee, and all three committees being under the financial control of a central commit-

tee. Thus any department that may be pressed for funds can call upon the central committee for aid. It is at the discretion of this committee whether such aid shall be furnished from the main surplus fund. The association has very few working expenses, as the greater part of the work is done gratis by students elected for the purpose.

But to return to the rink, this would be hard to equal in Western Ontario. It has excellent dressing-rooms, seating capacity for 1,700 per-

teams envy us our possession; and we the students take a paternal pride in this healthy offspring of our common purpose and united endeavor.

Excelsior.

As to the future, the possibilities of our co-operative association seem almost limitless. In a few years we may get not only our books, our stationery, our skating and our O. A. C. Review, but nearly every student necessary from boxes of chocolates to spectacles. We can look into the



In Memoriam.

"We do not serve the dead—the past is past."

sons and an ice sheet 180 feet long by 80 feet wide. Compare this with the open-air paddock formerly entitled a rink, its ice rough, open to every wind that blew—and every possible wind did blow, half the time a snowdrift, and never a place to which outside teams could be invited.

To-day we skate under shelter to the strains of a band; and not the students only, but hundreds of the citizens of Guelph use the arena. Our ice is, when Jack Frost allows, in the finest possible condition; visiting

vista of the future and see halls for the various societies, club-rooms, printing presses, a properly arranged theatre with an up-to-date stage, and—Oh, roseate dream! a paid editor. Who can say?

But above and beyond these material advantages we are already reaping the first-fruits of a bountiful harvest of practical co-operative experience. The students have under their very noses not a few pages in a text-book on economics, but a working example of that which those pages

preach. It only needs a success such as ours for an enthusiastic co-operative spirit to spread with the rapidity and tenacity of vermin in a lumber camp; and we shall have returning to the farms and mounting the rostrums an eager band of apostles, every one on the itch to spread the great truths of co-operative buying, manufacturing and marketing. The extension of such doctrines to the farming community by men who have seen their successful practice will be of incalculable benefit to the much exploited farmers of Ontario.

Whom shall we thank for the inception of this scheme? Credit where credit is due and we must thank Prof. Le Drew, an earnest student of co-operation in this and other countries, first for the mind which evolved a clear-cut scheme from a nebulous chaos of semi-postulated ideas, and secondly for the business ability which has given us an invaluable financial manager and adviser. To Dr. Creelman too we owe a debt of gratitude for his whole-hearted countenance and support; and to the ex-students also who so generously subscribed for an object from which they could gain no direct benefit. As I have stated elsewhere these men gave us promissory paper for \$2,500, payable on demand, we have already received \$1,500 of this, and the remaining \$1,000 being a debt of honor we

have no doubt whatever that it will be paid in full. If soon, we shall not have to raise that money on mortgage. The Review also should be a participant in our gratitude, for without its financial assistance the benefits we have already received would only faintly loom in the distant perspective of years to come, and some of us would have been six feet under the sod before the foundation of a covered rink had been laid in the earth. We can fortunately show an appreciation of the Review work in the usual practical manner.

But above all be glory and praise to the students of every year and every society, who have sacrificed their time and their money to benefit their fellows, and who had the common sense to choose the right manager, and the optimism to stick to the work through thick and thin. I must not be misunderstood in mentioning two members of the faculty, for it must be clearly recognised that this has been a student business throughout. We neither have a Government nor a faculty backing, and I am sure that no one would be readier to acknowledge this than Dr. Creelman and Prof. Le Drew.

The O. A. C. students can be justly proud of themselves, they are upholding their finest tradition, Agricultural Leadership.

Editor.



Two friends who lived in the country were in the habit of dining frequently with one another. One day Jack received an invitation from James to dine with him at the usual hour in the evening. As it happened it was an extremely dark night, and Jack took a stable lantern to enable him to see the way clearly. In due course he arrived quite safely at James' residence, and there dined exceedingly well, but certainly not wisely. The next morning Jack received a note from James to this effect. "Dear Jack, herewith find your stable lantern. Please return my parrot and cage."

Sites and Situations for Fruit Growing

(Concluded)

J. W. CROW, Professor of Pomology, O. A. C.

BEFORE undertaking a detailed discussion of elevation, aspect and gradient, it might be worth while to mention the general relation of altitude to climate. High altitudes possess shorter seasons, cooler summers and colder winters. They also receive more sunshine because of the greater length of the day and because of the clearer atmosphere.

Another environmental factor of great importance in fruit growing is rainfall. In semi-arid districts it is considered that irrigation is not necessary where rainfall totals twenty inches per year. There are several successful fruit districts which have demonstrated the practicability of conserving winter rainfall throughout an entirely rainless summer. Ecologists state that the season of the year at which rainfall occurs is of no significance to the tree. It is obvious though, that much heavier precipitation would be required to satisfy the needs of trees if it all came in the summer. Twenty inches applied under summer conditions would certainly not be sufficient, as only a small portion of it would remain in the ground, and a large portion would be lost by evaporation.

Elevation.

Elevation is a particularly local matter and refers only to the relation of the selected site to its immediate surroundings. As elevation increases the temperature of the air and of the soil becomes more uniform, partly through the increased

action of air currents and winds. Highest and lowest temperatures occur in valleys and there is consequently likely to be more injury in such situations by splitting due to sudden drops in winter temperature. Low areas are also subject to frost because cold air from high levels settles in such places. Elevation is essential for all fruit plants, as one of the principal means of avoiding frost. Extreme elevation increases exposure to wind and frequently necessitates the planting of windbreaks or in particularly bleak situations may entirely prohibit the growing of fruit trees.

As elevation increases, the increased action of wind results in greater depletion of soil moisture through evaporation. It may be noted too that plant food in the soil also tends to decrease as the higher elevations are reached. As elevation increases, so also do the intensity and the amount of sunlight, because of the longer day and the clearer atmosphere. The high degree of humidity of the air of valleys tends somewhat to reduce the intensity of sunlight and tends also to raise the temperature of the air in such situations. The direct rays of the sun are less retarded by passing through a moisture laden atmosphere than are the heat rays reflected from the surface of the earth. The atmospheric moisture absorbs the heat ray and thereby raises the temperature of the air.

The higher degree of humidity in valleys is sometimes of importance in that certain fungus diseases are more

serious where the humidity is high. With sweet cherries and with many plums, it is particularly important to have the plantation so situated as to receive abundant air circulation. Disease is thereby greatly lessened. The same is also the case with many varieties of grapes.

Aspect.

Aspect is the direction of exposure and is described according to the point of the compass towards which the site may slope. Very few sites are absolutely level. Southwest slopes are hottest as regards both air and soil, and next in order come southerly, easterly and northerly exposures. The intensity of sunlight corresponds with the temperature. Under ordinary conditions the highest temperature for the day is reached shortly after noon, as the air is clearest at that time. Sunscald on the trunks of trees is a result of thawing in daytime and freezing at night, and occurs at that point on the trunk which corresponds to the position of the sun at about two o'clock.

This matter of air temperature and intensity of sunlight are of particular importance in relation to fruit trees, as these trees blossom for the most part comparatively early in the season. Owing to the increased danger of frost where trees blossom early, it is often advised to put fruit trees on northerly or easterly slopes to retard the blossoming period. As a matter of fact, there can be no question that in many cases a choice between north or south slopes means simply the difference between success and failure in fruit growing. This is particularly the case with peaches, as mentioned in the previous article. It is

interesting, however, to note, in passing, that pomologists of the north temperate zone are generally inclined to give this matter particular emphasis, not only with regard to peaches, but with regard to fruit trees in general. We can quite understand that in the Southern States it might be advisable to put trees on north slopes so as to escape the intensity of summer heat, and we can see too that such procedure would in our shorter season be bad practice with regard to late maturing varieties of fruit. With many of the late winter apples it is more to the point to select a location where these varieties will mature than it is to avoid injury by spring frost. At the same time it should be noted that with respect to the early blooming and early maturing tree fruits, authorities nearly all agree on the necessity of placing them away from the intense sunlight and the high temperatures of southerly slopes.

West slopes suffer most from wind and east slopes least. Wind may cause the falling of fruit, especially in late summer and autumn. Hot, dry winds may seriously scorch foliage, and cold winds in winter may be the direct cause of winter injury, through increased evaporation. Any area sheltered from wind by windbreaks or by the lay of the land will register a higher temperature in daytime (unless the day is cloudy) and a lower one at night. It is thus possible for frost to occur in these protected areas where otherwise there would be no danger. In order to avoid such possibility, air drainage should always be carefully planned for. Our winds mostly come from the west, and in consequence, west slopes lose

more soil moisture by evaporation than do east slopes. Soils of western slopes are usually less fertile, as the finer particles of soil and the humus-making materials are often transported by wind from these to more sheltered areas.

In case of frost during the growing season, vegetation on east slopes is likely to suffer most. Actual injury in this case is caused more by rapid thawing than by actual freezing, and east slopes suffer because they receive the early morning sun.

Gradient.

Gradient refers to the degree of slope. In many cases profitable cultivation of fruit crops is prohibited by the steepness of slope. In such situations the damage done in cultivated soil by washing under heavy rains and spring thaws is frequently very serious. This is being obviated in milder cases by throwing up slight ridges across a slope, following the contour lines. In the case of a moderate gradient, this method need not interfere seriously with cultivation, and will at the same time prevent erosion.

Northern and southern aspects frequently exhibit vegetation of very different characteristics, especially if the gradient is pronounced. Plant

geographers give many curious instances of such cases, and state that distinct types of flora are frequently found on opposite sides of an east or west ridge or mountain.

In Ontario one could not conclude a discussion of site without referring particularly to the influence exerted by the large bodies of water known as the Great Lakes. In most cases the direct action of these bodies of water on temperature extends not more than half a mile to a mile inland. If the land rises rapidly from the shore the lake influence is greatly lessened. Bodies of water delay the blossom period in spring and thus indirectly lessen the danger of frost injury. They also operate directly to obviate frost by reason of the effect they exert in keeping up air temperature on cold nights. They tend to equalize temperature throughout the year, reducing extremes both in winter and summer. They prolong growth in summer and fall and delay maturity of fruits grown within their influence. One of the most serious objections to a site bordering upon a body of water is the increased humidity of the atmosphere, which is conducive to some of the most serious fungus diseases, such as apple scab, brown rot, mildew, etc.

THE SOIL.

We need acquaintance with it,

As we do with all things else;
To demonstrate its value,

Man first must know himself.

Ignorance is fatal,

A lazy mental curse;
And such a "John Doe" farmer,
Is sure to make things worse.

Wake up ye sleepy farmers,
And study soil and earth,

The live stock and their droppings,
And triumph over dearth.

It's a curse to fret and worry
On crops we cannot glean,
For the earth contains more riches
Than any yet have seen.

Then study soil and live stock,
Their worth and nature grand,
And be an agriculturist,
The king of all the land.

—John F. Anderson.

Co-operative Egg Circles

Progress of the Movement in Canada

W. A. BROWN, B. S. A.

A CO-OPERATIVE egg circle is an organization formed among farmers to facilitate the more frequent and regular marketing of eggs. The object is to place upon the market a better grade of eggs than those available through ordinary channels, and to obtain for the producer a better price, in return for the extra time and labor expended. In other words, an egg circle affords a means whereby farmers living at a distance from a market, may obtain for themselves practically the same prices for the same grade of eggs as the farmer living at a distance from a market, may obtain for themselves practically the same prices for the same grade of eggs as the farmers living near by, less the necessary transportation charges.

At the time of joining the association each member is supplied with a rubber stamp and pad on the understanding that he will stamp each egg before delivering it to the collector. This is done so that the eggs may be identified when graded and payment made according to quality.

A manager is appointed by the Board of Directors whose business it is to collect, grade, sell the eggs and apportion the returns among the members according to the quantity and quality received. In most circles the eggs from each farm are collected at stated intervals, but in others the members deliver the eggs to some central point such as a creamery, cheese factory, store or house,

from which the manager makes the shipment.

The first egg circle, in Canada, that assumed large proportions was organized a number of years ago, in conjunction with the Cowichan co-operative creamery in Duncans, V. I. This circle has now two sub-collecting stations at Koksihloh and West Holme and serves a wide radius of territory. The success attending its efforts has been largely responsible for the development of what is today undoubtedly the most highly specialized section of poultry farming in Canada.

Previous to the year 1911 the co-operative egg circle movement has received some attention in the Province of Ontario, but it remained for Mr. J. H. Hare and Mr. T. A. Benson, respectively District Representative and Assistant District Representative in Ontario County, to demonstrate the success that can be obtained from co-operative effort in this connection in Ontario. To date nine circles have been organized in Ontario County.

From 1910 to 1912 the Poultry Producers' Association of Canada, while not directly concerned in the organization of many circles was largely responsible for the inauguration of this work in Eastern Ontario and in the Eastern Townships of Quebec. Mr. A. D. Campbell, at that time District Representative in Dundas County, working in conjunction with the Poultry Producers' Association, was instrumental in having the move-

ment started in that county. Shortly after this the Dundas County Co-operative Poultry and Egg Association was organized. There are now twelve associations affiliated with the central association and engaged in shipping regularly.

In the fall of 1912 the Poultry Division of the Stock Branch took up this work. The first circle organized was at Hemmingford, Quebec, and shortly after through the appointment of a Poultry Representative of the Branch in the Province of Prince Edward Island, in the person of Mr. T. A. Benson, another circle was formed.

In all twenty-five circles were organized during the year 1913 by the Poultry Division of the Live Stock Branch working in conjunction with the various Provincial Government and Agricultural Colleges' Authorities. Twelve of these circles were formed in the Province of Prince Edward Island, the remainder in the Provinces of Ontario and Quebec.

In addition two creameries in Nova Scotia have recently taken up the collection and shipment of eggs. In New Brunswick two farmers' co-operative associations handle eggs in conjunction with other farm produce. In Ontario similar arrangements prevail in a number of instances and a few egg circles have been formed in addition to those mentioned above. In Manitoba the Winnipeg Poultry Association was instrumental during the past summer and fall in having a considerable quantity of new-laid farm eggs sold co-operatively in the Central Farmers' Market. In Saskatchewan no circles have as yet been organized, but from the number of inquiries received and the fact that the Provincial Government has re-

cently established a separate department of Co-operation and Marketing, it is evident that the matter will receive early attention. In Alberta the Provincial Government has already taken up the marketing of eggs in the same manner as creamery butter is handled, and with the support of the great number of unions of the United Farmers of Alberta it is evident that the system will be given a thorough trial at an early date.

In British Columbia the twenty-five local poultry associations have given much time and attention to co-operation. Their efforts to date have however, been largely directed to the co-operative purchase of supplies rather than to the co-operative sale of poultry produce.

The Province of Prince Edward Island is however, at the present time, the brightest spot in poultry co-operative work in the Dominion of Canada. To date seventeen co-operative egg circles have been formed. There are applications on file for the organization of fifty-one more and so keen are the farmers in regard to this matter that many of the applications have assumed the form of demands. In many parts there is danger of serious complications arising through the farmers prematurely undertaking the work without sufficient forethought and preparation. Plans have been laid for the organization of a Provincial Association and it is expected that the work will be developed along similar lines to that followed by the Danish Co-operative Egg Export Society.

The following table compiled from the weekly reports received from the various circle managers in Prince Edward Island will give some idea of the extent of the shipments made and

the relative prices, received during the past year. The first circle commenced shipping during the week end-

ing May 10th and the others as organized at intervals throughout the summer and fall.

Date of Shipment Shipment Week Ending—	No. of Circles Shipping	Quantity Shipped	No. of Members Shipping	Gross Price to Circle	Net Price to Members	Local Store Price
May 10th	1	510	36	19½	18½	16
May 17th	1	630	43	19½	18½	17
May 24th	1	720	42	19½	18½	17
May 31st	1	915	48	20	19	18
June 4th	1	870	49	20	19	18
June 14th	1	840	51	20½	19½	18
June 21st	1	960	72	21	20	19
June 28th	2	865	92	22½	21¾	19
July 5th	2	1463	97	22½	21	19
July 12th	2	1646	126	22½	21	19 2-3
July 19th	3	2074	123	22	21	20
July 26th	4	2008	162	22	21	18½
Aug. 2nd	4	2028	172	22	21	19¼
Aug. 9th	4	2060	170	22 1-8	21	19 2-5
Aug. 16th	5	2599	217	23	22	19 3-5
Aug. 23rd	5	2324½	229	23	22	20
Aug. 30th	5	2631 10-12	256	23 2-5	22 1-5	20 3-5
Sept. 6th	5	2625½	260	24	23	20 4-5
Sept. 13th	6	2631	266	24 5-6	23 5-6	21 2-3
Sept. 20th	6	2488 8-12	276	26 1-12	24 5-6	22 2-3
Sept. 27th	7	2670	301	27 1-14	26	23 4-7
Oct. 4th	8	2749 5-12	317	27¾	26¾	24 1-8
Oct. 11th	9	3207 6-12	359	28 6-9	27 6-9	25
Oct. 18th	8	2653	323	30	28¾	25½
Oct. 25th	8	1848½	273	30½	29½	25¾
Nov. 1st	8	1884	313	31 5-8	30¾	26¾
Nov. 8th	4	527½	113	33	31¾	26½
Nov. 15th	5	535 8-12	110	34 3-5	33 2-5	27 2-5
Nov. 22nd	7	618	124	37 3-7	36 3-7	27 5-7
Nov. 29th	9	839 9-12	206	41	39 7-9	28 8-9
Dec. 6th	8	932 8-12	260	44¾	43¼	30 7-8
Dec. 16th	7	544	201	45 6-7	44 2-7	30 2-7
Dec. 20th	8	920 3-12	284	47	45 5-9	31 8-9
Dec. 27th	6	663 7-12	200	45	43 1-6	32 5-6

Little Things

A good-bye kiss is a little thing,
With your hand on the door to go,
But it takes a venom out of the sting
Of a thoughtless word or a cruel fling.
That you made an hour ago.

A kiss of greeting is sweet and rare
After the toil of the day;
And it soothes the furrows ploughed by care,
The lines on the forehead you once called
fair
In the years that have flown away.

'Tis a little thing to say, "You are kind;
I love you, my dear," each night;
But it sends a thrill thro' the heart, I find—
For life is tender, and love is blind
As we climb life's rugged height.

We starve each other for Love's caress;
We take, but we do not give;
It seems to ease some soul to bless,
But we dole the Love grudgingly, less and
less,
Till 'tis bitter and hard to live.

—Andrew Lang.



Seen near
the
Campus.

Review Referendum

THE voice of the people is supreme. The general will of the masses is the ruling will. We all know that it should be and yet is it? Are we not submitting, to some extent at any rate, to the rule of the stirring orator and the ward politician who, coming to us with opinions recently fabricated at headquarters, deluge us with phrases calculated to speedily arouse our emotions.

There are topics of vital importance to the welfare of Canada that will inevitably soon be coming before the public as issues of the day. For instance, the question of government ownerships of express companies or of telegraph and telephone companies; of raising our revenue from land values only; of granting the suffrage to women; of establishing a free trade policy; or whether Canada is really justified in her proposed naval expenditure? What do you think of them?

Yet, how are we to judge the people's real opinions on such a variety of subjects? How are we to become

familiar with these questions and arrive at a cool decision before the heat of a political campaign is upon us?

It is the duty of our journals to assist in enlightening the minds of the people, not by printing partisan orations, but by a clear consideration of the issues at stake, regardless of party politics. This they must do by publishing special articles and to obtain the trend of their subscribers' thought, each one must institute its own referendum.

Hence, next month we are having such a referendum on several public questions. We shall publish a list of them and every subscriber is asked to express his views upon these questions by signing either YES or NO in the space allotted, then forwarding the forms to us at once. The results will be published in a later edition.

We sincerely hope that everyone will take this opportunity of declaring his views upon these vital questions. Discussion is invited on the various topics indicated.

— C. A. Good.

Cost of Spraying the Apple Orchard

R. S. DUNCAN,

District Representative for Durham County, Port Hope.

THE question as to whether it will pay to spray has long since been answered in the affirmative, so it will not be necessary for me to enter upon any argument in regard to this phase of the subject. But the question "what does it cost" to spray an average sized apple tree in its bearing state is one which very few can

answer off-hand with any degree of accuracy.

As to spraying in its relation to hygiene it is sufficient to say that it is absolutely essential to the health and vigor of the tree for protection against insects and fungous diseases and to the production of clean fruit.

I shall venture to state that there

are still a few fruit growers who do not believe in spraying. We hope they are few. On the other hand many growers realize the importance of spraying and general care as to pruning, cultivation and fertilization and yet they fall down in spraying, because they regard the work as disagreeable and expensive, hard to understand and difficult to accomplish. A few general principles are easy to learn. It is not expensive, considering results. Spraying is an insurance, an investment. Spraying pays and pays well.

In order to obtain results it is necessary that the fruit grower spray intelligently. Just as the Marquis of Salisbury has said, "If the farmer would manure his land with brains as the painter mixes his paint with oil, much less would be heard about agricultural depression"; so, too, if the fruit grower knew what to spray for and if he used the proper mixture, applied at the proper time, and did the spraying very thoroughly with the right kind of an outfit—one capable of giving good pressure and not a makeshift appliance made solely to sell—much less would be heard about the inferior quality of our apples dumped on some of our markets.

Apple orchards are attacked by many diseases and insect pests which are steadily on the increase. These cause an immense yearly loss in the

apple crop of Ontario. The farmer must know what he is spraying for; in other words he must know the habits or life histories of these pests in order to know how best to combat them and attack them during the most vulnerable period of their life.

Insects and Diseases to Combat.

The chief insects attacking the apple trees and fruit are: San Jose Scale, oyster shell bark louse, blister mite, aphids, Bud moth, Codling moth, Tent caterpillars, case bearers, canker worms, Plum culicid, and Railroad worm. There are a few others of minor importance. The chief diseases are: apple scab, apple leaf spot, sooty blotch, bitter rot, black rot, canker and blight.

Practically all these insects and diseases can be controlled by sprays with the exception of the railroad worm, blight and canker.

Nature and Habits of Pests.

An insect passes through various stages in its development. It is sufficient to state that the greatest injury in most instances is done in its larval or "worm" stage. Briefly stated insects are of two kinds: (1) Those having biting mouth parts—which actually chew their food. All fruit and leaf-eating species, as Codling Worm, Canker Worm, Case Bearers, Bud Moths, etc., belong to this class. These may be poisoned by

R. S. Duncan, B.S.A., needs no introduction to our readers. His excellent work as District Representative for Northumberland and Durham is well known to all.

Do you know just how much it costs to spray your trees? Look over this article and consider these results of three years' careful and accurate work.

Next month the question of the effects of cultivation and of cover crops upon the maturing of the trees will be dealt with by Harold Jones, a well known orchardist of the St. Lawrence River Valley.

covering the plant upon which they feed with some poisonous material, as Paris Green or Arsenate of Lead. They may be called "food poisons."

(2) Those having sucking mouth parts—which pierce the plant tissues and suck up the juices, such, for instance, as Oyster Shell Bark Louse and San Jose Scale, plant lice, aphids, etc., which must be destroyed by means of some material which will smother their breathing pores—or which will have a caustic action upon their bodies. Kerosene Emulsion and Lime Sulphur Wash are effective for this class. They may be called "contact remedies."

Apple trees are also attacked by fungi. A fungus belongs to a low order of plants (without green coloring matter), produces sores instead of seeds, which germinate and send out a number of thread-like structures called hyphae, which correspond to roots, stems and leaves of ordinary plants and when tangled or matted are known as mycelium. Fungi cannot manufacture their own food, but must derive their food from organic matter in the soil or from living substances. Parasitic Fungi are of two classes:

External—where the mycelium develops wholly on the surface of plants or fruit, as powdery mildew of grape, apple scab, and grain rusts.

Internal—where the fungus enters the skin and produces within the tissues, as some of the grain smuts, dry rot of potato and canker of apples. The spores are carried by wind, water, birds and insects, and enter wounds and develop disease. These diseases are preventable and not curable. The remedy lies in spraying the leaves and fruit with some fungicide, which prevents the spores from gaining a foot-

hold. Either Lime Sulphur or Bordeaux Mixture are the two best known fungicides and will prove effective in controlling these fungous diseases.

Controlling Methods.

To control the scale insects and blister mite, spray with Lime Sulphur (commercial strength, 1 to 10) just before the leaf buds burst. The scale insects can be controlled by spraying any time on the dormant wood with the above mixture; but the only time to catch the blister mite is just before or as the buds begin to burst. Hence we "kill two birds with one stone." The little mites winter underneath the bud scales and as soon as growth takes place in the spring they leave their hiding place and push their way through to the leaves, where they enter the epidermis of the lower surface of the leaf and form blisters, which later turn reddish brown. They do not effect the fruit directly, but impair the function of the leaf in the manufacture of food and hence weaken the vitality of the tree.

Bud moths, canker worms, case-bearers and tent caterpillars may be controlled by spraying with a poison, 2 lbs. of Arsenate of Lead per 40 gallons of water, just before the blossoms burst or as pink is beginning to show in the petals. As this is also the time for the first spraying to ward off the apple scab and other fungous diseases and protect the young stems of the forming fruit, lime sulphur (1 to 35, commercial strength) could be used with the poison for insects just named.

For aphids it is advisable to examine the twigs and leaf buds, and if present spray with Kerosene Emulsion, made by dissolving half lb. of

soap in 1 gallon of soft water and then adding 2 gallons of kerosene and stirring vigorously until the mixture is the consistency of cream. Dilute 1 gallon of mixture with 9 of water for spraying. We used a big iron kettle in which to make the emulsion, usually mixing enough for a 200 gallon tank in one batch. A small hand pump, using the suction hose and one line of hose, was used to emulsify the kerosene and it worked exceedingly well.

The efficiency lies in the fact that every little plant louse should be hit with the emulsion; hence the need for doing thorough work. A preparation known as "Black Leaf 49" (directions given on can for use) has given good results in the control of aphids along with the lime sulphur for the first spraying. The writer cannot vouch for its effectiveness as he has had no occasion to test it.

Spraying with Lime Sulphur, 1 to 40, with 2 lbs. Arsenate of Lead added per 40 gallons of the mixture, if done thoroughly and immediately after the blossoms have fallen, will control Codling Worm and Curculio.

This is also the second spraying for the control of the Apple Scab.

A fourth spraying about two weeks later will be effective in warding off scab, especially so if the season is at all damp.

The only remedy for twig blight is to cut out well below the effected area and burn. Be sure to disinfect the tools after each cut in order to prevent the spread of the bacterial spores. Canker on old trees should be cut out and the cut surface disinfected and given a coat of white lead and oil to prevent the entrance of spores.

The Railroad Worm adult lays its

eggs underneath the skin of the apple about the first week in July—too late to spray for it. The only remedy is to pick up all fruit as it falls to the ground and get rid of it in some way. Pasturing with hogs or sheep serves the same purpose.

Now we have come to realize that the fruit grower must know what to spray for, when to spray, and what to spray with.

How to Spray: Our Methods.

Proper equipment for the spraying operations is necessary. A good pump, with all accessories in the way of strainer, hose, nozzles, fittings and extension rods, together with a tower attachment for tall trees, are essential to economical and efficient work.

I have had the management of four demonstration orchards in the Counties of Northumberland and Durham during the past three years, and it might not be amiss to give our methods. Our spray outfit consisted of a double acting hand pump mounted on a waggon—not on a stone-boat—with a tower equipment for reaching tall trees.

Our tank was a homemade affair, holding 200 gallons. In one instance we used three ordinary lime sulphur barrels. We used two lines of hose with two angle nozzles of the "friend" type on each line of hose. One man was on the tower equipped with 15 feet of hose and a rod 8 feet long; the other man being on the ground with 30 feet of hose and a 10-foot bamboo rod. Two men acted as power on the pump—giving a pressure from 100 to 150 pounds. All solutions were strained into the tank. The Arsenate of Lead was first brought into suspension before being strained into the spray tank. We always endeavored to spray with the wind, and do as

much of the trees as possible. One side of the tree was sprayed as it was approached; we then drove directly opposite and sprayed the central parts thoroughly; then we completed the other side at the third stop. Medium-sized trees were sprayed by stopping twice. We aimed to cover every portion of the tree, though not wasting any material. For the spray after the blossoms fell we tried to do most thorough work. Our object was to fill every calyx cup. Ninety per cent. of the Codling worms enter the apple in the calyx end; hence it is important to have the poison placed where it will do most effective work.

We sprayed each orchard three times, using from 5 to 8 gallons of mixture on each tree for each spraying. We always cleaned our pump, hose and nozzles out by running clean water through them. Never leave liquid in the pump over night, because there is danger of freezing in cold weather and clogging up the nozzles. This point is worth remembering, as it very often is the cause of much delay and annoyance.

Each fruit grower who uses lime-sulphur should have a Hydrometer, in order to test the solution, and know

how many gallons of water should be added to each gallon of lime-sulphur. Instructions are given in the spray calendar, which may be had for the asking at the O. A. C.

Cost of Spraying.

Accurate account has been kept of all expenses pertaining to each orchard in each of the past three years. All calculations are based on the valuation of four men at \$1.50 per day, which is approximately at the rate of \$40 each per month; and a team at \$1.50 per day. Lime Sulphur is valued at 20 cents a gallon and Lead Arsenate at 13 cents a pound in 1911 and 10 cents a pound in 1912 and 1913. These figures, I think you will agree, are quite reasonable.

Below is given a tabulated statement of the cost of spraying the Demonstration Orchards for each spraying in each of the past three years. The number of trees are given in each orchard, and detailed figures are given as to the cost of labor, amount of spray material used, cost of spraying, the number of gallons of material used per tree, and the cost of spraying—including labor and material—per tree.

NORTHUMBERLAND AND DURHAM DEMONSTRATION ORCHARDS.

Cost of Spraying Results 1911-1912-1913.

FIRST SPRAYING.

Orehard.	Year.	Cost of Labor.	Lime Sulphur Galns.	Lead Arsenate Libs.	Cost of Spray.	Applied per tree Galns.	Cost per tree cts.
F. W. McConnell.....	1911	\$10.50	77	..	\$15.40	7	21.5
Colborne	1912	7.50	72	..	14.40	6½	18.7
117 Trees	1913	6.75	69	..	13.80	6½	17.5
W. G. Noble	1911	\$6.75	60	..	\$12.00	4½	13.5
Port Hope	1912	8.25	62	30	15.40	5	17.5
135 Trees	1913	6.75	62	..	12.40	5½	14.1
Nathaniel Nicholls ...	1911	\$4.50	40	..	\$8.00	5	15.6
Welcome	1912	4.50	38	19	9.50	5 4-5	19.4
72 Trees	1913	4.50	39	..	7.80	5¾	17.0

FIRST SPRAYING—Continued

Orchard.	Year.	Cost of Labor.	Lime Sulphur Gal.	Lead Arsenate Lbs.	Cost of Spray.	Applied per tree Gal.	Cost per tree cts.	TU cost per tree cts.
W. H. Gibson.								
Newcastle	1912	\$7.50	61	28	\$15.00	4½	15.4	
145 Trees	1913	7.50	60	..	12.00	4½	13.4	

SECOND SPRAYING.

F. W. McConnell.								
Colborne	1911	\$8.25	17½	31	\$7.50	5	13.1	
117 Trees	1912	6.00	25½	46	9.70	6½	13.4	
	1913	7.13	15	30	6.00	4 1-3	11.2	
W. G. Noble								
Port Hope	1911	\$7.50	18	32½	\$7.83	5	11.5	
135 Trees	1912	6.75	19	48	8.60	4%	11.4	
	1913	6.00	20	40	8.00	5	10.4	
Nathaniel Nicholls								
Welcome	1911	\$7.50	18	32	\$7.76	8	18.0	
72 Trees	1912	3.75	12½	26	5.10	6	12.3	
	1913	5.25	15	30	6.00	7	15.6	
W. H. Gibson.								
Newcastle	1912	\$7.50	20½	54	\$9.50	5	11.6	
145 Trees	1913	5.63	20	40	8.00	4 2-3	9.4	

THIRD SPRAYING.

F. W. McConnell.								
Colborne	1911	\$12.00	24	49	\$11.17	8	19.3	53.9
117 Trees	1912	9.00	33¼	77	14.35	11	19.9	52.0
	1913	7.50	18	45	8.10	6 1-3	13.3	42.0
W. G. Noble								
Port Hope	1911	\$11.25	24½	50	\$11.40	7½	16.7	41.7
135 Trees	1912	6.75	23	57	10.30	6½	12.6	41.5
	1913	9.75	19½	52½	9.15	5¾	14.0	38.5
Nathaniel Nicholls								
Welcome	1911	\$9.00	19	38½	\$8.81	9½	22.2	55.8
72 Trees	1912	4.50	11¾	31	5.40	6½	13.7	45.4
	1913	6.00	11	32½	4.45	6¼	14.5	47.1
W. H. Gibson.								
Newcastle	1912	\$8.25	23	57	\$10.30	6	12.7	39.0
145 Trees	1913	6.00	16	48	8.00	4 2-3	9.7	32.5

From the above figures it will be noticed that from 4½ to 11 gallons of spray material was applied per tree for each spraying. A good many fruit growers think that it is a needless waste to apply so much material. We could not have done such thorough nor such effective work had we not used this amount. Practically none was wasted. Our idea was to get results. And, moreover, I firmly believe we got results. Where in 1908, 1909 and 1910, prior to our taking charge, the percentage of No. 1 apples packed in these orchards ranged from 30-60, in 1911, 1912 and 1913

the percentage of No. 1 apples packed in each orchard varied from 75 to 87.6. And, furthermore, scarcely a wormy or scabby apple could be found in these orchards. I am quite safe in saying that from 95 to 98 per cent. of all apples grown in these orchards in each of the past three years were absolutely free from fungus or insect attack.

The cost of spraying the apple orchard, then, including labor and material, varies according to the above figures from 32.5 to 55.8 cents per tree.

Summary of Spraying Rules.

From our experience along the north shore of Lake Ontario the following sprayings are recommended:

(1) Just before or as the leaf buds are bursting spray with Lime-Sulphur (commercial strength, 1 to 10). This controls San Jose Scale, Oyster Shell Bark Louse and Blister mite.

(2) Just before the blossoms burst or as pink begins to show in the leaves use Lime-Sulphur (1 to 35, commercial strength) and add 2 lbs. of Arsenate of Lead per 40 gallons of the mixture. This is to control bud moth, feeding caterpillars, case bear-

ers, canker worms and apple scab.

(3) Immediately after the blossoms fall and before the calyx cup closes use Lime-Sulphur (commercial strength, 1 to 40) with 2 lbs Arsenate of Lead added per 40 gallons of the mixture. This controls codling worms, plum curculio and apple scab.

In damp seasons it might be advisable to spray a fourth time two weeks later with the same mixture as given for the third spraying.

The extra precaution, of course, would have to be taken in the control of aphids.

A Simple Statement of Co-operation

F. C. HART, B. S. A.

THE people engaged in each industry in the country see its disadvantages. All of us, however, whether we are directly engaged in agriculture or not, are interested in the farmer's business and have more or less knowledge of it, and to all of us the apparent disadvantage here is the marked difference between the farmer's sale price and the consumer's buying price. This basic truth, however, must be acknowledged, that

the remedy of existing evils of marketing farm products must ultimately rest with the farmers.

At the present time, when farm

produce passes through the farm gate, to a large extent it passes beyond the control of the producer. Others control the market, make or

destroy it, are concerned with the questions of transportation, storage, grading, standards, proper distribution, market peculiarities and all the numerous questions involved in placing the products of the farm in the hands of the consumers. The resulting evils are far-reaching and to a large extent beyond the control of the farmers.

When it is stated that the farmer himself must remedy the evils, it is

EDITOR'S NOTE

F. C. Hart, recently appointed director of Co-operation and Market Branch, at Toronto, is well known to all of us as a most successful organizer in his work as County Representative of Waterloo County, and his opinion regarding co-operation should be worth a great deal.

J. N. Allan

not meant that he must personally undertake the sale of his produce. The farmer's natural field of labor is in production. It is here that he is at home and where he is more or less an expert. When he leaves the farm, however, and goes out into the business world he must deal with men who are more or less experts in their field of work and where he himself is necessarily unproficient. The remedy does not lie in the direction of himself becoming an expert in both production and distribution. The actual distribution must be carried on by non-farmers—the middlemen—with this difference, that the produce must remain in the ownership of the farmer and that the middleman must act simply as the farmer's agent or expert in distribution.

It will be evident that the individual farmer cannot hire such an expert to get a little nearer to the ultimate consumer, or if he does so, as in the case of a commission merchant, he has no method of overseeing the work of that agent. This naturally leads the farmer towards his neighbors—towards co-operation.

But here new difficulties arise. Not all neighbors would like to hire the same agent; each member of a co-operative association would like to be free to sell through the association or not, as his business instincts dictate; the member having large dealing through the association naturally thinks he should have larger voting powers; another thinks he is producing a better quality of goods than his neighbor, with the result that the neighbor's goods would lower the standard. These and other considerations point out the necessity of finding common ground upon which to work together, certain fundamental

principle of co-operation. And the first of these is "One man, one vote."

It has been said that farmers are apt to be suspicious of one another. There is less truth in this statement than one is led to believe, but no form of co-operative organization should be such as to allow one man or group of men to gain control. It is upon this rock that so many so-called co-operative associations have been wrecked. Share voting instead of man voting has made the association a joint stock company, and as applied to the farmer's business of production and marketing joint stock company principles are not satisfactory. In the latter case the business must give returns on the capital doing such business, while in a co-operative association the men doing business through the association should receive returns. So that the voting power should rest with the men and not with the money.

The second principle is "Profits divided on the basis of business done through the association." The same considerations apply here as in the case of voting. The capital invested in the undertaking should receive a just but fixed return for its use, and profits should go to the men making the business.

The third principle relates to "Quality of goods." One of the chief benefits resulting from co-operation is the fact that in order to be successful the association must turn out an article that in no way will injure its future trade. The business must be built up on the quality of its goods. This means, of course, that each member must turn in goods up to a certain standard or standards of quality. Getting each member to live up to standards is found to be one of the diffi-

culties of co-operative associations in their initial stages. A consideration of this question establishes the fact, also, that at the present time we lack definite authoritative standards of the grades of many farm products.

A fourth fundamental principle is that members must remain loyal to the association. It must be borne in mind that once an association is formed, each member is an essential part of a business organization, and in anything he does to injure that association he must necessarily injure his own business. A lack of clear business insight often obscures this fact when a member is offered a better price than he is getting through his association. He is apt to forget that volume of business is an essential factor in profits; that when volume of business is small overhead charges are proportionally greater, and that his own defection is one of the causes why his association is not as profitable as he thinks it should be. If the association is not a sound business proposition it should never have been formed, but once formed it should have a "SQUARE DEAL."

These four principles are essential to true co-operation. So-called co-operative associations have been formed in Ontario lacking one or more of these features and under certain circumstances are conducting a successful business. Circumstances might easily arise, however, where a lack of one of the above features would create a serious menace, and sooner or

later result in failure of the association. The co-operative idea is thus unjustly blamed for the failure.

It must be remembered that an association is a business organization, and as such must be conducted on business principles. The business world must be met on its own ground. Nothing can be gained by upsetting the established rules upon which business is done. This is especially true of buying associations.

We have not the space to consider this phase of co-operation in detail, but the fact remains that many associations have failed because of unbusinesslike methods of managers and directors. In some cases the business interests with whom the association has had to do have been unnecessarily antagonized. This does not mean that all the fault of the present antagonism is due to the associations alone, but much of it could be avoided by an honest declaration of purposes on both sides.

The success of farmers so "working together" depends on proper organization and methods of doing business. Arrangements are being made whereby the experience of co-operators is gathered by the co-operation and Markets Branch of the Department of Agriculture; so that this information will be available to communities where organization is contemplated. This experience should help to form a firm foundation upon which to build associations in the future.



EXPERIMENTAL

The Experimental Union

THE annual meeting of the Ontario Experimental Union was held at the College January 12, 13 and 14. The attendance was fully as large as at previous meetings, and the enthusiasm shown goes to prove that the Experimental Union is a live factor in the agricultural work of the province.

The usual reunion of the students at the home of Dr. and Mrs. Creelman on the evening before the regular meetings was dispensed with this year, and instead all visitors and students attended the formal opening of the new Agronomy building. This was the first building finished with money obtained by the province from the federal grant.

The Hon. James S. Duff, who presided, explained how the federal grant had made it possible for the building to be erected, and expressed appreciation of the Ontario Department of Agriculture for the aid they had given.

The Hon. Martin Birrel spoke of the great work the Department of Field Husbandry at the College was doing, and stated that it was very gratifying to him as Minister of Agriculture for the Dominion to see such a splendid and useful building erected with the money which had been granted in an endeavor to aid Ontario agriculture. Speeches were also delivered by Dr. Westbrook, president of British Columbia Uni-

versity; Mr. Roadhouse and Dr. Creelman.

The programme of Tuesday and Wednesday consisted of the regular meetings in the forenoon, afternoon and evening. In addition to speakers from various parts of the province, Prof. Morgan, of Knoxville, Tennessee, gave a very interesting talk on "Crop Rotation," and his illustrated lecture in the evening on his trip to Europe as a member of the commission sent there to investigate co-operation gave those present a splendid idea of the conditions as found in the old country. Mr. C. F. Bailey, also a member of that commission, treated the subject of co-operation at some length. He pointed out the conditions as they exist and how they could best be overcome.

Reports of experiments with crops were given by Prof. C. A. Zavitz; with fertilizers by Prof. Harcourt; on the care of legume inoculating bacteria by Prof. Edwards; on swarm control by Morley Petit; on weed seed control by Prof. Howitt, and the results of work in forestry by E. J. Zavitz. Results of the past summer were given, also in many cases the acreage for a number of years. Prof. G. E. Day reviewed the situation as regards milking Shorthorns, and considerable discussion followed. C. T. Bailey, in discussing the breed, pointed out the demand for this breed in New as well as in Old Ontario. Prof. W. H. Day

gave a splendid address on lightning rods, and pointed out their benefits when buildings were properly rodded.

Mr. Mason, the newly-elected president, and Prof. C. A. Zavitz, the re-

lected secretary, with the other officers expect to have an increased membership this year, making the Union a continued success.

J. N. Allan.

QUERIES

Trenton, Jan. 5, 1914.

Query Editor:

Dear Sir,—Did Bordeaux mixture give better results against scab this year than Lime-Sulphur?—J. Y.

Ans.—From the few cases observed where Bordeaux mixture was used, it seemed to prove itself a superior fungicide this season. In bad years for apple scab, that is, wet, cold springs, after the leaf buds have burst better results would likely be obtained by substituting Bordeaux mixture for Lime-Sulphur for the applications just before the blossoms burst, and using Lime-Sulphur for the other two applications.

Newbury, Jan. 15, 1914.

Query Editor:

Dear Sir,—During last summer my rose bushes lost their green color and became a whitish shade. Some little whitish insect seemed to cause this. How can I destroy them?—B. M.

Ans.—The rose bushes are attacked by the very common and destructive pest known as the rose leaf hoppers. To control these spray the under side of the leaves very thoroughly about the end of May and again in June with any of the following mixtures. (1) One lb. of tobacco refuse steeped (not boiled) in one or two gallons of water for one hour, and add a

little less than a quarter of a pound of soap dissolved in water. (2) Whale oil soap, one pound to six gallons of water. (3) Soluble sulphur, one pound to twenty gallons of water with about two pounds of ordinary soap added in solution.

Vittoria, Ont., Jan. 10, 1914.

Query Editor:

Dear Sir,—During the past season I lost several turkeys by a very peculiar disease. When first attacked they began to mope, lost appetite and would sit apart with drooping wings. The head and comb were of a dark color, and in addition to this the birds were affected by a severe form of diahorrea. I examined one of the dead birds and found the liver to be enlarged and disfigured with whitish or yellowish spots. The caecum was inflamed and clogged with pus and faecal matter. Do you know what the disease is and how to control it?—U. L. J.

Ans.—The symptoms you describe are characteristic of blackhead. Medical treatment of turkeys afflicted with blackhead is of little avail, at least in the present state of our knowledge. Cole and Hadley (Rhode Island Expt Sta. Bul. 141) recommend the following: "Isolate the sick bird from the flock and place it in a dry,

well-lighted location, free from cold and draughts. Feed sparingly on soft, light, easily-assimilated food, using but little grain, especially corn." The chief preventive measures are to keep the birds on clean, fresh ground; to isolate all birds showing the least sign of disease, to destroy all dead birds, and to protect the turkeys from contamination, carried either by new stock or by other poultry or by wild birds, such as sparrows, crows, etc. Dr. Morse (B. A. I. Circ. 128) recommends for turkeys under 3 months old half a grain of copperas in the morning and a 2½ grain pill of salicylate of soda in the evening. Give Epsom salts every three or four days and keep the grounds and floors well sprinkled with lime.—N. D.

The most effective remedy and the safest is to use the axe—(Editor.)

Cooksville, Oct. 10th.

Query Editor:

Dear Sir,—Enclosed you will find a sample of bark taken from a four-year-old cherry tree. The bark will

split open and turn back, exposing the wood. The turned-out portion is rather soft and spongy and of a dark brown color. The wood underneath the bark is quite firm and seems healthy. This trouble extends from the ground upward about 18 inches in most cases. The trees are growing in good, rich, well-drained, sandy loam. Will you please let me know what the trouble is and the remedy for it?

Ans.—This is a form of winter injury and probably occurred last winter, although I am not sure that it did not occur the previous winter. The winter of 1911-1912 was very severe, and unless trees were growing very late in the fall this injury would not be liable to occur in a normal winter. The only treatment which can be given at the present time is to watch carefully those wounds which split and to treat them with paint or other material to prevent decay getting into the tree. In future care should be taken not to force the trees into extra strong or late growth. C.J.

ALUMNI

THE friendly interest that all O. A. C. ex-students take in the advancement of the College was well demonstrated by the number who attended the opening of the new Agronomy Building. Among the following list of those who took part in the opening and in the Experimental Union will be seen prominent ex-students:

Hon. Martin Burrell, Dominion Minister of Agriculture; Hon. Jas. Duff, Provincial Minister of Agriculture;

W. Bert Roadhouse, Deputy Minister of Agriculture; C. F. Bailey, Assistant Deputy Minister of Agriculture; Dr. Westbrook, President B. C. Agricultural College; Hon. Nelson Monteith, B.S.A., ex-Minister of Agriculture; J. Lockie Wilson, Superintendent of Fall Fairs; G. A. Putnam, Superintendent of Farmers' Institutes; Prof. H. A. Morgan, of Knoxville, Tennessee; Prof. E. J. Zavitz, Dept. of Forestry, Toronto; C. F. Nunnick, B.S.A., Publications Branch,

Ottawa: J. B. Spencer, B.S.A., Ottawa; G. S. Henry, M.P.; F. C. Hart, B.S.A., Toronto; S. B. McCalla; R. F. Holteman; J. I. Dennis; Milton Webber; H. Groh; C. Shuh; Geo. Robertson; P. O. VanSickle; W. J. Lennox; G. A. D. Hunt; F. W. Broderick; M. D. McKenzie; T. O. Clark; Lewis Toole; J. E. Rettie; W. Austin; F. Ellis; A. D. Campbell.

Assistant Dominion Field Husbandman Mr. O. C. White, B.S.A., was born September 14th, 1887, at Ashburn, Ontario County, Ont., where his father was a farmer. He received his primary education at Ashburn Public School, and in 1901 took the Junior Leaving examination from Uxbridge High School. After four years on the farm at Ashburn he spent one year on a grain farm in Southern Manitoba, and a few months on a live stock farm in Pennsylvania. He entered the Ontario Agricultural College in 1906, and proved a successful scholar and all-round man. During his attendance he spent two summers with Prof. W. H. Day as drainage surveyor and demonstrator and was also one of the stock judging team of 1909. He graduated in 1910 and immediately became assistant to the Dominion Agriculturist, and he continued to occupy it until last spring, when he became Assistant Dominion Field Husbandman, his work consisting of supervising the work of the various experimental farms and stations.

Dominion Animal Husbandman Mr. E. S. Archibald, B. A., B.S.A., unlike Mr. White, is not an Ontario boy, but comes from Yarmouth, N.S., being born in 1885. He entered Wolfville High School in 1898 and matriculated in 1901. He received his Bachelor's Degree from Acadia University in

1905 and his Diploma from the Nova Scotia Horticultural School, Wolfville in 1904. His practical work up to this time included both horticulture and general agriculture. The years 1905 and 1906 were spent at Truro on the College farm and he received the first graduation diploma issued by that institution. After a visit to Wyoming, where he was sent in charge of a shipment of breeding stock, he entered the third year class at Guelph in the autumn of 1906 and graduated in 1908. After graduating he accepted the position as Instructor of Agriculture and Experimentalist at Truro College, and was appointed Professor of Agriculture and Farm Superintendent at that institution in 1910. He resigned this position to become Dominion Field Husbandman.

Mr. T. O. Clark, B.S.A., who has been engaged since his graduation in 1912 with the Potash Syndicate, has been appointed as assistant to Professor T. R. Arkell at Ottawa.

Alexander Malcolm Shaw.

Shaw came to College from Niagara Falls South, in which place he was born on June 12th, 1885. After spending his youth in the public school and farming for some time he came to College and particularly distinguished himself as an all-round athlete. He played on the College rugby and soccer teams, basketball, and was one of the gym and track team, and as indoor champion won the Pringle Cup. Besides being an athlete he had rare executive ability and was always on the athletic executive, from First Year representative to president. He was also connected with the Literary and Y. M. C. A., being winner of the public speaking contest. He was also a member of

the stock judging team in his final year.

Since graduating he accepted a position with the Great Northern Railway, and but lately resigned to become Assistant Professor of Animal Husbandry in the new college at Saskatoon.

Dr. H. A. Morgan, B. S. A.

All who attended the Experimental Union greatly enjoyed the instructive address given by Dr. Morgan, Director of the Experiment Station, Knoxville, Tennessee. Mr. Morgan came to College in 1886, and graduated in 1889, being one of the second class which wrote for the degree of B.S.A. from the Toronto University. Immediately upon graduating he went as entomologist to the University and Experiment Station of Louisiana. He rose to be Professor of Entomology and Zoology in that university, and under his able management the station work became so wide in range of investigation that he gave up the professorship to devote his whole time as entomologist. Mr. Morgan has been president of the Louisiana Society of Naturalists, Director of the Gulf Biological Station, member of Washington Entomological Society, and the Society for the Promotion of Agricultural Science.

At the present time he is Director of the Experiment Station at Knoxville, and has revolutionized farming in Tennessee.

OLD 1910 CELEBRATES.

Hustlers! Bustlers! Rah! Rah! Rah! Old 1910!

'Twas on the night of December eleventh that these strange sounds distorted the usual peaceful calm of the dining room of Guelph's Royal Hotel. For the boys of Old 1910—twenty of them—had returned to the

scenes of their college days to celebrate the occasion of their first reunion.

To Bill Reek, upon whose shoulders has fallen the mantle of Prof. Wade, had been assigned the task of organizing the reunion. Needless to say, Bill did things up in his usual thorough style. Frank Ellis, now editor of "Farm and Diary," provided the menu cards. Bill added still more to his usefulness by consenting to act as chairman.

After all the good things provided had been properly attended to, chairs were pushed back and all too quickly the time passed with speech, story and song. Of course the benedicts were duly congratulated. Messages from some of those who could not attend were read, that from J. D. Tottill, now at Cornell University, being accompanied by five dollars to aid in the festivities of the evening. It was decided that J. D.'s gift could be utilized in no better way than for the procuring of souvenirs to be sent to the absent members of the class.

Many and varied were the experiences related. "Clinky" Moorhouse is farming at Cario, Ont., and is also one of the best institute speakers in the province. He is never at a loss to keep an audience interested. He can switch from a talk on alfalfa to a song or a clog dance with the greatest of ease. "Sunny Jim" Neville, who is farming at Cottonwood, Man., was almost married, but is still single and happy.

Other graduates who are farming are Hugo Knauss, of Hart, Mich.; "Baldy" Bowman, Georgetown, Ont., and F. Carpenter, Fruitland, Ont. No less than five associate graduates were present, all of whom are farming—Tommy Pritchard, Gorrie, Ont.;

K. Foster, Abernethy, Sask.; J. A. Slater, Galt, Ont.; D. E. Campbell, Port Eglin, Ont., and J. E. Whetham, Kirkwall, Ont.

O. C. White and C. F. Nunnick represented the Department of Agriculture at Ottawa, and S. E. Todd, the Toronto Department. W. E. J. Edwards and James Laughland are engaged in District Representative work at Essex and Collingwood, respectively. W. Kerr and B. Blanchard are completing the four year course.

Roy Fraser, who is doing post graduate work for his degree of Ph. D. at Kansas University, has well upheld the honor of his alma mater. The faculty of that university were not inclined to recognize Fraser's B.S.A. degree, but when he had answered some oral exams and done some laboratory work they were well satisfied

with his standing. Tommy Pritchard broached the subject of the position of the graduate in the community. He believed that many graduates should show a deeper interest than they are now taking in movements designed for the betterment of farming conditions.

The class of 1910 placed itself on record as strongly in favor of the formation of an O. A. C. Alumni Association. S. E. Todd and W. R. Reek were appointed as a committee to confer if necessary with representatives of other years in the endeavor to bring matters to a head.

The "we sma hours" were fast approaching when to the tune of "Auld Lang Syne" the first reunion of 1910 passed into history. The next reunion will be held in 1916 and another in 1920.

College Life

Meeting.

The Y. W. C. A. and the Y. M. C. A. of Macdonald Hall and the O. A. C., respectively held their first union meeting of the college year in Massey Hall, on Tuesday, January 20th. The meeting was a most successful one, the audience being large and the programme excellent. These meetings were only instigated last year, but they were patronized so well that they are being continued this year and are being attended with even better success.

The speaker of the evening was Dr. R. A. Falconer, President of Toronto University. He gave a most inspiring and instructive address on the Bible.

He based his remarks on the New Testament, outlining the genesis of some of the books and showing the benefit that could be derived from their study.

Mr. P. E. Deeth, of the Guelph Y. M. C. A., lead in the devotional exercises. The musical numbers rendered during the evening were two vocal selections by a quartette and an instrumental by Miss A. Smith. Mr. J. W. Charlesworth acted as chairman.

The Sophomore Skating Party.

The O. A. C. Arena was a scene of gaiety on the evening of January 15th when the Sophomores held a skating party for the ladies of Macdonald Hall. Although it was the first skat-

ing party held in the new rink it was one which it will be hard to surpass. The rink was prettily decorated with Chinese lanterns and pennants, the bright colors of which blending with those of the merry crowd below formed a most pleasing sight.

The skaters consisted of members of the faculty and representatives from the Mac. and all the "years." The ice was not in very good condition but the lively tunes of the band made up for its lack of quality. Refreshments were served during the evening and shortly after ten o'clock the gathering broke up.

PUBLIC SPEAKING CONTEST.

A Plum for the Duff.

The thirteenth annual Public Speaking Contest was held in the gymnasium on Friday, January 16th. Considerable interest was taken in the contest. The speeches, as a whole were instructive, interesting and well delivered.

The first prize was carried off by

G. C. Duff of Year '14, who spoke on "Rural School Fairs." Mr. Duff clearly displayed his ability as an eloquent speaker. He held his audience throughout. The other prizes were awarded in the following order: A. Cory, W. Kerr, C. F. Neelands.

The orchestra gave some fine music while Chas. Emery, as a comedian, was a hard-worked success. Prof. W. R. Graham made an efficient chairman.

THE FRESHMEN SKATING PARTY.

The second skating party to be held on the Arena was given by the Freshmen on Thursday, January 22nd. The ladies of Macdonald Hall, members of the faculty and representatives from other years were present. The rink was artistically decorated, and the Freshmen were certainly more fortunate than their friends the Sophomores, getting good ice. Refreshments were daintily served, and all enjoyed the evening immensely.



Let Beauty awake in the morn from beautiful dreams,
 Beauty awake from rest!
 Let Beauty awake,
 For Beauty's sake,
 In the hour when the birds awake in the brake
 And the stars are bright in the west!

Let Beauty awake in the eve from the slumber of day,
 Awake in the crimson eve!
 In the day's dusk end,
 When the shades ascend,
 Let her wake to the kiss of a tender friend
 To render again and receive!

—Robert Louis Stevenson.

ATHLETICS

Boxing

R. L. RAMSAY.

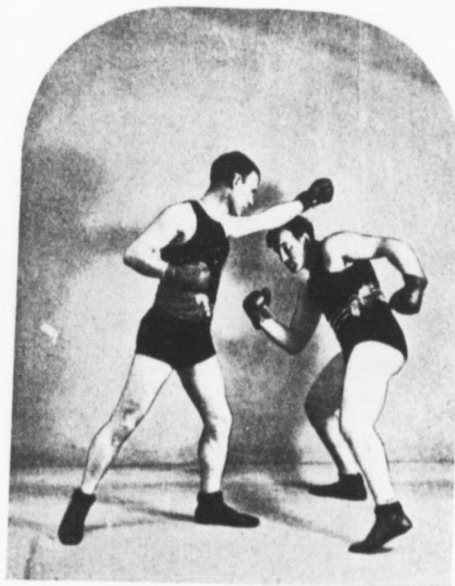
"Beware of entrance to a quarrel; but being in
Bear't that the opposed may beware of thee."

—Hamlet.

THE laws of the British race generally are such that right not might should settle all dispute, and the value of a knowledge

assaults are not unknown, even in law-abiding Canada, and an active man with a good knowledge of when and where to land his blows should be successful against two unskilled assailants. Disputes arise sometimes, particularly among young men, from which the only honorable exit is by a duel of the fists. A knowledge of the art serves not only to help a man bear himself worthily in such cases, but is frequently successful in keeping him out of it.

Boxing teaches many valuable lessons which "stick." A spirit of sportsmanship is instilled by its practice, which enables a man to accept victory without conceit or defeat with a smile and a handshake for the victor. The quick-tempered fellow must learn self-control in the mastery of the art or he will never be a good boxer. A repeated stinging blow in the nose which



Side Stepping—A Left Head Lead and Hooking Left for Body.

of the manly art of self-defence is not superficially apparent. There are many pinches known in which a knowledge of boxing is invaluable. Street

makes both eyes water is good medicine for an ill temper. It renders the recipient more or less defenceless for the time being, and to lose his

temper would be fatal. Quick and clear thinking is developed and an adeptness for sizing up human nature is attained. Physical advantages are obvious. Ease, quickness and grace of motion or agility and suppleness are acquired. Muscular and organic strength with increased vitality are developed. In short, all the attributes which go to make the perfect animal are exercised and enlarged.

Space will not permit of a lengthy description of even the common practices in usage, but mention of some of the salient points may be of service.

Size your opponent up quickly and carefully, his weight, length of reach, speed and skill. Try a few feints at him to get at his tactics, and don't underestimate him or you may come to grief. Expose yourself as little as possible, except for purposes of deception. Know where you are at all times and also where your opponent is. Keep every eye and instinct actively alert. Alter your tactics occasionally that he may not size you up and never repeat the same blow consecutively. Try different styles of both offensive and defensive tactics. Use all your reach and strike each blow with your weight behind it, but do not use it unless necessary. Hit and get away, or hit and clinch; do not strike and miss or your opponent will catch you if he is a skilled man. If you are easily his superior be merci-

ful and do not butcher him; it is most unsportsmanlike. If you are his inferior, keep smiling, and do not stop trying till the bell rings. If you are outclassed and your opponent shows a brutal desire to help himself to fame by delivering a knockout, you may repeatedly all but take the count on slight pretext, but be up ready to avert the next attack.



Showing how a Man can be "Outreached" merely by Turning Sideways.

Boxing at a college, even in competition, should exhibit the spirit of sportsmanship, and some of the spirit of friendliness which exists among the students. It is true the inter-year spirit is keen and the excitement of the moment tense, but when the ring is entered at this college friendship and sportsmanship are alike often forgotten and an attempt is made

to incapacitate the other man that he may not use his science. When boxing reaches this stage it is no longer boxing but fighting—i.e., boxing abused. Boxing of untrained men usually results in this sort of thing, and until some greater inducement to train is offered, together with a closer supervision of the sport and rules are enforced to distinguish between box-

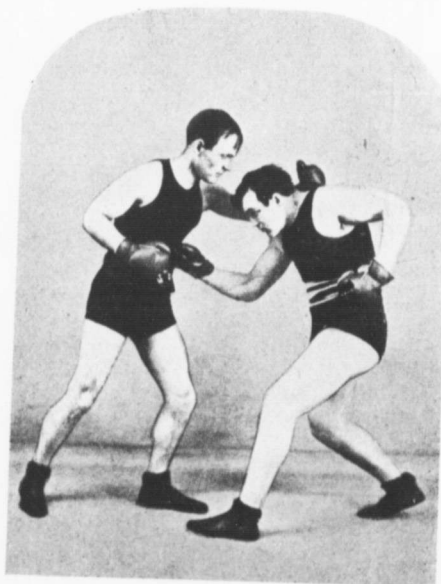
The O. A. C. boys played an excellent game, considering the fact that they had little or no practice before the game. The whole team had never been on the ice together till they went on for this game. On the other hand, the Berlin boys have been playing together ever since ice formed, and they had already played some league matches. Solomon, Boettger and

Hainsworth all played a strong game for Berlin, while Oswald, Agar and Duston of the O. A. C. showed up well, but the excellent work of Duston in goal was the feature of the game.

The ice was soft, which made the play heavy, yet the game started with a rush. O. A. C. bombarded the Berlin defence till, after four minutes of play Agar, of O. A. C., scored the first goal. Berlin then wakened up, and after eleven minutes of play Leroux tied the score. Just before half time Solomon, the Berlin fast left wing man, scored two goals, making the score 3 to 1 in favor of Berlin.

In the second half O. A. C. started in strong again, and within a few minutes Agar scored for the O. A. C. Score, Berlin 3; O. A. C., 2.

At this point the excitement became intense, and the College boys began to take heart again. But lack of condition soon began to tell on the O. A. C. boys, and they faded away as in the latter part of the first half. Just a few minutes before time Berlin made three goals in rapid succession, the first by Solomon, and the second and third by Boettger. Time was called



Ducking a Left Swing, and sending Right to Body.
Ready for a "Clinch."

ing and fighting, present conditions will likely continue.

O. A. C. vs. BERLIN.

On January 4th our O. H. A. Intermediate team went down to defeat before the Berlin team in our new College rink. The final score, 6 to 2, does not indicate the play, except during the last few minutes.

with the score 6 to 2 in favor of Berlin.

Teams.

O. A. C. — Goal, Duston; point, Lackner; cover, Kedey; centre, Grandies; rover, Agar; left, Oswald; right, Herder.

Berlin—Goal, Hainsworth; point, Trushinski; cover, Seibert; centre, Leroux; rover, Boettger; left, Solomon; right, Timm.

BASEBALL.

O. A. C. 18; Army Service Corps 11.

We have entered a team in the City League, as last year. The league this year is made up of four teams: Army Service Corps, Citizens, Royals and O. A. C.

The first league game of the season was played on the evening of January 27th, between the Army Service Corps and the O. A. C. The game was a good one from beginning to end, but at no point in the game was the O. A. C. seriously in danger of losing the game. Both teams played fairly consistent games, though there is yet room for improvement. Springstead and Forsythe for the College played a good game.

Line Up.

College—C., Springstead; p., Forsythe; 1st b., Burrows; 2nd b., Seitz; 3rd b., Duff; r. shortstop, Bryaen; l. shortstop, Pawley; l. f., Rowland; r. f., Ferguson.

O. A. C. AT BERLIN.

O. A. C. lost the return game at Berlin by the one-sided score of 13 to 1 on the evening of January 23rd. The ice was very soft, hence the heavy Berlin team had the advantage. The game was slow from first to last. The only bit of excitement throughout the game was caused by a nasty cut which Fraser, the O. A. C. point, received

over the eye. This stopped the game for some time, but after having several stitches put in, he was able to resume play. Solomon, of Berlin, was responsible for most of the Berlin goals. In the second half he alone scored six. Vair scored the lone goal for the O. A. C.

Line Up.

Berlin — Goal, Hainsworth; right defence, Selbert; left defence, Trushinski; rover, Boettger; centre, Leroux; right, Roschmon; left, Solomon.

O. A. C.—Goal, Irvine; right defence, Fraser; left defence, Lackner; rover, Agar; centre, Oswald; right wing, Herder; left wing, Vair.

Referee—Edmonds, Stratford.

O. A. C. AND GUELPH VICS.

One of the closest games of the season was played on the evening of January 12th, when the O. A. C. and the Guelph Vics clashed in the Royal City rink. The ice was hard and both teams were in good condition. Oswald of the O. A. C., played the best game of his life, and the lightning dashes of Kedey from cover point made the game one worth watching. The first and only goal of the game was made in the first half by Agar, of the O. A. C., and the game ended with this score.

Line Up — Goal, Duston; point, Fraser; cover, Kedey; rover, Agar; L. W., Hedder, R. W., Oswald; centre, Vair.

The Vics defaulted the return game to O. A. C.

PRESTON AT O. A. C.

Score, Preston 7; O. A. C. 3.

One of the best games of hockey that has been played in Guelph for a long time was played in the College rink on the evening of January 21st, when the Preston O. H. A. Interme-

diates played a return game with the O. A. C. seven.

The ice was splendid and the game was fast from start to finish. The teams apparently were evenly matched, but the lack of combination and an inability to shoot on the part of the College team were responsible for the College boys' defeat. The splendid combination of Mulroy, Muir and Etherington effected for the majority of the Preston goals. Short in goal for Preston played an excellent game. For the College Agar, Oswald and Kedey did likewise, but Duston in goal was the man who stopped many almost sure counters for Preston. The game was clean throughout, only a few penalties being handed out. The teams:

Preston—Goal, L. Short; cover, L. VanEnde; point, "Buck" Bowman; rover, J. Etherington; left wing, Mat Mulroy; right wing, Rahn; centre, Muir.

O. A. C.—Goal, Duston; cover, Kedey; point, Fraser; rover, Agar; left, Herder; right, Vair; centre, Oswald.

O. A. C. AT PRESTON.

A few members of the regular team were unable to go to Preston, with the result that the combination work of the forwards was completely demoralized. The Preston team, with their splendid combination, was able to score almost at will, and hence piled up a big score; at the same time shutting out the College team.

FRESHMEN MEET.

The annual Freshmen Indoor Meet was held on the afternoon of January 17th. There were a large number of entries, and all events were keenly contested. No less than four records

were broken. Following are the events and the winners:

15-yard Dash — 1, Anderson; 2, Graham; 3, Mallory. Time, 2 1-5 sec.

60-yard Potato Race—1, Anderson; 2, Burnam; 3, Elder. Time, 15½ sec. (a record).

Standing Broad Jump—1, Evans; 2, Anderson; 3, Cowan. Distance, 9 ft. 6 in. (record).

Fence Vault—1, Anderson; 2, Cowan; 3, Burnam. Height, 5 ft. 8½ ins.

Running High Jump—1, Thomson and Lee tied; 3, Graham. Height, 4 ft. 11 ins.

Hitch and Kick—1, Evans; 2, Cowan; 3, Rawson. Height, 8 ft. 4½ ins.

Standing High Jump—1, Graham; 2, Cowan; 3, Westra. Height, 4 ft. 2½ ins.

Rope Climb—1, Cowan; 2, Fleming; 3, Hanna. Time, 14 sec.

Rope Vault—1, Elder; 2, Cowan; 3, Singleton. Height, 9 ft. 6 ins.

Shot Put—1, Fitzgerald; 2, Westra; 3, Graham. Distance, 35 ft. 4 ins.

Pole Vault—1, Evans; 2, Thomson; 3, Cowan. Height, 7 ft. 11 ins.

Chinning Bar — 1, Anderson; 2, Fleming. Times, 14.

Inter-Division Relay—1 A Division. Time, 1 min. 13 sec.

Aquatic Events.

Long Plunge — 1, Fitzpatrick; 2, Woodgate; 3, Agar. Distance, 43 ft. 11 ins. (record).

52-yard Swim—1, Fitzpatrick; 2, Cowan; 3, Woodgate. Time, 30 2-5 sec. (record).

Springboard Diving—1, Agar; 2, Fitzpatrick; 3, Woodgate.

Grand Champion of Meet—N. S. Anderson, with 23 points.

A Study of Hen Language

DOMESTIC FOWLS are able to make at least twenty-three different notes or cries, all of which convey distinct meanings, besides others observed but not yet classified or explained. This is the conclusion of Edward Carpenter and George Merrill, who contribute an account of their investigations to *The Humanitarian* (London, September). If tame birds have so respectable a vocabulary, they say, wild ones must have a very large one, especially as the ordinary hen is not noted for intelligence. Probably, they think, domestication, in this case at any rate, has actually diminished alertness and resource in the fowls and correspondingly restricted the range of their "speech." Messrs. Carpenter and Merrill preface their paper with a word about language in animals. They say:

"Our words, highly articulate and differentiated, mostly define objective things or actions—the sun, the moon, a tree, a man, to kill, to eat, and so forth. It is chiefly by combinations of them that we express our feelings. But with animals, their language from the beginning consists of cries which express their subjective feelings directly—e. g., the hissing or purring of a cat. It is only in a secondary way that these cries sometimes indicate an objective thing—as when hearing a cat spitting we surmise the presence of a dog. Thus animals have primarily a language of the emotions, and their emotional states they convey to each other with extraordinary rapidity and distinctness—as when a flock of rooks in a field is suddenly warned or alarmed by a sentinel rook; but secondarily their languages do no

doubt in cases convey distinct images, as when the sentinel rook by some inflection of the voice is able to indicate that the particular cause of alarm is a man with a gun. Of course, in many cases a movement combined with a cry will give definition to the meaning—will define, for instance, the direction of danger or of attraction. When a hen utters a quick squeal and immediately crouches in the grass, she says as clearly as words could do: 'There is a hawk just overhead.' We have heard a hen utter this cry, and instantly the chicks—only two or three weeks old—have rushed in all directions and hid themselves motionless in the grass. Or, in cases there may be no voice or cry at all—the hen may just simply crouch down—and with the same result; the chicks hide themselves, knowing well what she means. Or, again, a wasp may bring the smell of strawberry jam to another wasp, and then at once fly away with such a whiz as says unmistakably, 'Come this way and you will find strawberry jam.' In all these cases there is language in a sense; definite acts or sounds having definite meanings."

The cries or notes, which are given in tabular form, with annotations, include such sounds as cackling, grumbling, scolding, clucking, crooning, purring, and crowing, besides many others that have to be defined rather than named. The author's comment upon them runs as follows:

"These twenty-three notes or cries are all very distinct and convey distinct meanings, and must denote a considerable degree of intelligence. As we have said, there is a good deal to show that the sureness and precision of their instincts have, in the case of

domestic fowls, been adversely affected by their long dependence on man. Their reasoning power is also very weak, though whether this has been improved or deteriorated by the influence of man, we do not know. Fowls on the outside of a large pen, when they see the others being fed inside, will almost invariably rush violently against the wire netting in vain endeavor to reach the food—though they have been round hundreds of times by the usual entrance, and must know it perfectly well; and it is only occasionally that some exceptional genius, after a few efforts at the netting, bethinks herself of the better way. In this case one seems to see an instance of the world-old conflict between instinct and reason. The sight of the food wakes the primitive impulse to go straight for it, with such force that a bit of modern experience, like the necessity of using the doorway, counts for nothing; and it is only a very progressive-minded bird that can give due weight to the latter.

"A similar instance is the curious and complex dissimulation a hen will use in concealing the when and where of her laying an egg, and in contrast with this, the loud and brazen cackle she utters as soon as ever she has laid it. It seems probable that the cackle is a very ancient and primitive instinct—a swift reaction of relief at parting with the egg, and of pride and joy at the addition of a new member to the community—a sort of 'For unto us a child is born.' On the other hand, and especially under the brigand domination of man, reason comes in to counsel concealment of the eggs; and hens who are bent on this will show remarkable craft—watching the lords for hours together and pretending to be occupied with the unimportant matters, till they see the coast is

clear, when they will make a dash for their covert. . . . And yet sometimes the place is so ordinary that one wonders what there is to commend it. But in these cases, as in the case of poets and artists, the operation is too sacred to be interfered with. And no doubt there is some hidden association, unseen by outsiders, which alone will set in action the creative faculty.

"Instinct, which is a sort of practical intelligence derived from the experience of thousands of generations, acts as a rule with extraordinary celerity and decisiveness; but the world-old causes and reasons of its action (which may possibly be intelligent and luminous enough in the race-soul) are not intelligent, and indeed often have an unreasonable and blind operation in the individual. Not long ago a hen who had been sitting and had hatched out most of her chicks, became restless over the remaining eggs, which were rather late. So we took the latter away and placed them under another hen who was already broody and anxious to sit. The second hen was pleased, and so was the former, who could now lead her chicks about unhampered. The second hen sat joyfully on the two eggs for two days, and then—the chicks within them moved and faintly piped. . . . Well, here was a situation! The memorial experience of countless centuries told that hen that three weeks and not two days was the proper period for well-regulated chicks to come to their hatching. Yet here they were alive already! It could not be right. There must be some delusion or falsity or fatal wickedness somewhere. The whole evidence of her senses and intelligence was in conflict with the certain experience of thousands of years. Unable to reconcile the two she turned round and destroyed

the eggs and pecked the two chicks to death.

"Here was the grand, the motherly, race-guarding, age-long instinct of the hen tribe working in a little brain too

slightly evolved and too unintelligent to deal with the resulting problem. In the tribe of mankind, sometimes (but not too often), the two intelligences are harmonized."—Literary Digest.

Dynamiting

BETWEEN the available farming soil above and the underlying mineral wealth below there is as definite a boundary wall against the intrusion of root growth as there is against the farmer's cattle in the wire fence which shuts them from the lands of his neighbors.

"How to tap these rich mineral veins has been the problem. If the crust is not too hard certain plants solve it for themselves, though only in part for their weaker neighbors. Some of the clovers, if a thrifty surface growth is given them, attack this crust with their tap roots with surprising energy. In many places, however, even these are repulsed; while the feebler root growths of the smaller grains try to adapt themselves to the conditions which they cannot overcome. Deeper plowing has been suggested—and tried. It takes more power ahead of the plow; in other words, it increases the cost of production, the cost of the world's food; then it introduces certain new evils which require extra plant energy or operating skill to overcome. Subsoiling is even more expensive and is only playfully effective; it scratches a few grooves into the outside varnish of the earth, but does not really open up the mineral mines below.

Perhaps the most famous orchardist in the United States used alternating dynamite and hand-dug holes a few years ago in setting out an orchard of young peach trees. Three years from then the trees set by this new plan bore from three to six bushels of

fruit each, while those that were hand-set, under the influence of a broiling sun, dried up and showed no signs of fruit. This was in Connecticut. In South Carolina land that had been dynamited raised 33 per cent. more corn in a single season than the same ground produced before. A farm in Kansas that was underlaid by a zone of hard subsoil and would have been considered dear at \$10 per acre if valued by the growth it would produce, after being broken up with dynamite at a depth of four or five feet now contains a 100-acre field of as fine alfalfa as grows in the State and annually produces from \$30 to \$35 per acre. Fifteen thousand dollars has been refused for the 160-acre farm. On another Kansas farm was a 40-acre swamp that could not be drained in the usual way. In some of it the water was three feet deep. It was tapped by means of a row of blast-holes, and the next day the owner walked across the tract. A year from then that field produced 1,600 bushels of oats and is now in fine alfalfa. A Georgia orchardist found by experimenting that by planting peach trees in dynamited holes he gained two years in six. . . . These are some of the results; there are thousands similar. Thousands of acres, previously unproductive, that are now teeming with fertility; thousands of practical experimenters who can afford to laugh, who are actually laughing because somebody once said "dynamite" to them and said it with a fervor that convinced.

THE O. A. C. REVIEW

REVIEW STAFF

Andrew Cory, Managing Editor.

P. Stewart, Agriculture.

R. A. Finn, Alumni.

J. N. Allen, Experimental.

D. M. Smith, College Life.

C. A. Good, Horticulture.

D. G. Laird, Athletics.

J. E. Bergy, Poultry

E. Hearle, Artist

J. A. Neilson, Query.

M. Jones, Locals.

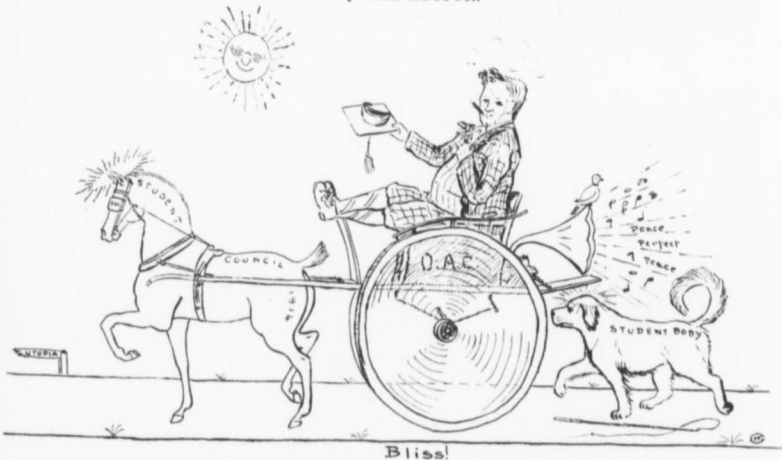
Florence Irwin, Macdonald.

W. Kerr, Circulation Manager

H. S. Fry, Business Manager.

Various Viewpoints

By THE EDITOR.



SOMEWHAT SARCASTIC.

ESPRIT DE CORPUS.

The Common Spirit Formed by Men in Association.

An American writer of note accuses American Colleges of being conservative, and rightly claims that European universities are hotbeds of radicalism. This college is an exception to the American pattern. We are so

highly progressive that we shall soon bear the invidious distinction of having the only student body in which the longer a man remains the less influential he becomes. In China, the land of topsy-turveydom, where they read from right to left and from the bottom of the page upwards, we should fit in with our surroundings.

Landor, an excellent moral diagnostician, has said "Principles do not mainly influence even the principled; **we talk on principle but we act on interest.**" It is certainly not acting on principle for a crew privileged to elect their own officers to smack those gentlemen's faces on their own quarter-deck. It is not acting on principle for students to elect a representative council, to give this council full authority on student matters, and then to insult them grossly for acting as they conscientiously deemed best.

Granting the apportionment of expenses incurred during the 'Varsity sports parade to be an incorrect one, is that a sufficient reason to turn on the best men you could find to represent you,—and I suppose you thought you had voted for the best men? Is that any reason to make a meeting an occasion for a show of "Year" animus? If you did not want a Student Council why elect one? If you did not want to give them reasonable authority why give them a New Constitution?

I am not speaking as a Junior, or as an ex-member of the Student Council, but as a servant of the student body, as editor of the Review, and I wish that I had no pregnant necessity to speak at all. In turning down your own Council on what you chose to call principle, but, which on unprejudiced thought, you can hardly fail to see was petty pretext and a bid for power, you played, especially considering your numbers, a rather trivial game. Be they wrong or be they right you should stand by the men you elect, during their term of office. You do not desert the Christian religion because your minister is a drunkard or a fool. You should not desert your college religion even if your Council were

to be a wilderness of wild asses. Your college religion is "Esprit de Corps," a French word and a British Imperial principle. It was up to you to obey the findings of your Council first and question them afterwards. We can either cease to call this a student body at all and confess ourselves a collection of four frats; we can do away with our college organization, which Friday, January 24th, showed to be a dead letter; or we can really get together, salve the sores, bury class spirit and shake hands all round. There is a refrain running in my head at the present moment, the chorus of the famous "Eton Boat Song," and the keynote of that chorus, which Eton men have never forgotten in the playing fields or on the battleground is "Pull, Pull Together!"

Percentage Voting.

I am well aware that in saying what I intend to do on this matter I risk incurring the odium of many; but if it comes to the point of cutting my hair a la O. A. C., please remember that since earliest infancy a hypodermic syringe filled with leprosy and cholera bacilli has been my constant and ever ready companion. Besides, you would find your barber's operation difficult, not to say irksome. I once had my hair cut by a western barber who filled in his leisure moments by cord-hauling. He had been a broncho-buster in Buffalo Bill's great show, and had subsequently diverted himself and the R-N-W-M-P by running glandered horses across the border line. Altogether he was a pretty tough nut, but he considered my nut adornment considerably tougher. I could hear him groaning and twice he left me to get a drink. At last I asked him

what the matter might be. He said the matter was my hair. I was foolishly facetious and inquired "which hair?" His wrath was terrible to behold, he held up his torn and bleeding fingers, his twisted scissors and a toothless comb and roared at me that "clipping my blankety blank head was a blankety blank sight worse than clipping a goldurned blankety moose." I paid him his modest salary of two dollars and travelling expenses, and went home to burn the rest of my hair off with an electric toaster, and to put cuticura where my scalp did not fit.

But harking back to the subject, do you think it quite fair that any one year should have a stronger vote than any other year? Some reader will no doubt remark "why the idiot just reminded us that we should all consider ourselves in the light of fellow students and not as years at all." So we should, but the seeming paradox is nevertheless sound as to argument. As individuals we should act for the benefit of the year we belong to, but as years we should act for the benefit of all. In organization then we should remain years for purposes of electoral and other convenience, but in spirit we should be every man for the college. But this not being Utopia just at present, it so happens that if there is an undue preponderance of men in any one year, that year and not all four years together will represent student opinion as far as numbers are concerned.

It is merely imbecile on the face of it to think of any student body living in a state of peace and contentment, where junior bossed senior, sophomore bossed junior and the freshman bossed everybody. And I

cannot conceive of any freshman with a wholesome respect for order and equity that would consider it desirable for such a state of affairs to exist. Yet such at present seems actually to be the case. It is a matter that can be remedied easily if the whole student body will only see things in their proper perspective. We could vote according to percentage. If the fourth year had 50 members, the sophomores 150 and the freshmen 200 members, then 4 votes of the freshmen would count as one vote, and three votes of the sophomores would also count as one vote. The percentage could easily be settled at the beginning of each term by taking the fourth year membership as the unit. It would be perfectly fair to all parties, as far as I can see, as each year would have exactly the same standing whatever their numbers. Show me any method that has more justice in it and tell me why it has so.

It really is ludicrous that the vote of the first two years should bear more weight than the vote of the two senior years; more particularly does it seem so when we consider that the majority of these men who are by dint of their numbers capable of dictating how college matters shall be arranged, will only be taking the diploma course, and a few we will reluctantly have to part with even sooner at the dictum of the authorities.

A '17 Viewpoint.

"Should the Freshmen Vote."

In the last number of the Review you expressed an opinion that Freshmen should not vote, and principally on account of their inexperience. Such an opinion should not be published without at least some com-

ment by the same inexperienced freshmen.

Since the beginning of any governments there have been constant strivings of the common people to have a say in that government. The people broke away from their rulers and by constant uprisings have brought themselves to their present position.

"What would the Republic to the south of us have been had they quietly submitted to those who did not understand them? Where would the common people in England be if they had been content with the rule of the King and a few advisers? Where would Canada have been had she given in to the Family Compact?

What have all these risings led to? A people's government.

You will admit we have far better rule to-day than a few centuries ago. The common people may not have had previous experience, but there is no doubt that their government was the best.

Although these are rather broad comparisons, yet we can compare our own college to the country. Here we have a large number of men which are governed by a body of men supposed to represent all the students. Just suppose—for it will be never more than a supposition—that the Freshmen had no say in the vital matters of the College; then the other Years would rule, and by what right?

You say the Freshmen are inexperienced and have the largest numbers; but you also say that they will make the other years of the future, and these Years of the future will equal the present upper Years. If the Freshman will change so much in two years as to jump from youth with no vote to a man so experienced that

he would have more say than a couple of hundred First Year students, he must have something in him even now, and he would not vote with the last speaker or stick with his Year, right or wrong.

In spite of the Freshmen's lack of knowledge they supported—almost unanimously—a Third Year man for a position on the Review staff when they had two of their own men up. Why? Because the last speaker told them to? No! But because he had experience along that work.

In spite of all this some few men in the upper Years have become so narrow-minded that they want to place the Freshmen in the place of the common people five hundred years ago. And why? Simply because some of their pet schemes for persuading the Freshmen to part with a little more money for societies and parades would be justly voted down.

G. L. Smith, '17.

I am glad indeed that Mr. G. L. Smith has sent me the above letter; it shows that one man at least takes an interest in these columns. I asked for the opinion of a Freshman and I have got one. I would far sooner have had someone else take up the cudgels, as I find writing "Viewpoints" is harder work than I anticipated. But as Mr. Smith's letter only reached me on the eve of going to press there was no opportunity to show it to others.

Well, G. L. Smith, before we have a bout of literary fisticuffs, remember that this is an amateur bout and not a prize fight. We are both fighting in amity with well-padded gloves and will shake hands after the encounter.

You have begun with a clever feint

at my head, but you have slightly overreached yourself, and I am just about to give a friendly jolt under the fifth rib to warm things up a little.

I take your own words ". . . although these are rather broad comparisons, yet we can compare our college to the country." Just so; an excellent comparison. The Freshmen come as immigrants to this College County every fall; and they come as foreign immigrants from a land of chores and slavery called Home, where His Royal Highness Dad reigns an absolute monarch. These immigrants come without any personal knowledge of the ways and laws of this College Country, and it takes them some time to settle down to its customs. Like immigrants to other countries they are prone to herd together and to look upon the established citizens with a carking suspicion. Now, foreign immigrants usually have to take out papers of naturalization before they are entitled to a vote, and a probationary period is enforced before they are allowed to do so. And why? Not because they have no experience of life in general or will not eventually make excellent citizens; but because they lack experience in the ways of the country of their adoption.

Continuing the comparison: It may be true—I sincerely hope that I am misinformed—that there are grafters in the Canadian Senate; but I am quite sure that the Senate does not discriminate between their own people and foreign immigrants and pick the pockets of Italian organ-grinders any more than that the Student Council Senate discriminates between your class and the other years. What possible advantage would accrue to them in so doing; they would only

cause that very ill-feeling which they wish to avoid. It would be nice to believe that both these Senates are working for the betterment of the people.

It is fortunate for me that I am so narrow-minded, for one punch of yours just missed my cranium by a fraction of an inch, and was delivered with such vigor that it has pitched you clean over the ropes. I quote again from your own words, "Then the other years would rule and by what right?" That is exactly what I wanted you to say. If you had not said it I should have felt quite disappointed. That remark shows you to be so fair-minded that it will be difficult for you to refute the following argument. If it be granted—and there is no gainsaying it—that the freshman year outnumber any other of the three years, then who will "rule and by what right?" Why, on your own showing, the freshmen of course. That sounds very fair, indeed, does it not?

Again, why should not freshmen part with money for college societies. I part with quite an appreciable sum yearly and so do most of my classmates. As for the graduating class, they have been in the habit of giving their promissory notes for \$25 apiece for the purpose of building a covered rink every year since 1907, and have never expected to get a solitary cent's worth of personal value for the money expended. Do the freshmen really wish to do away with all college institutions and turn the O. A. C. into a species of agricultural polytechnic? Do you not think that they may change their minds as soon as they become sophomores? I am willing to wager that even you, Mr. Smith, will become an ardent college patriot be-

fore three years are out, and will be one of the first to deplore that which is really deplorable, namely, the intensity of class spirit and the lack of college spirit among freshmen.

One thing you have entirely forgotten in the heat of combat, and that is that I never said last month that freshmen should not have a vote. I merely suggested that on certain occasions it might be an act of courtsey on their part to refrain from voting. That article was in the press long before a word was said about the parade, and referred to the granting of a new constitution to the Student Council. It seems that my view was a prophetically correct one, for your year certainly do seem to have made a horrid hash of things lately; so much so that I quite changed my "courteous-refraining" opinion and outlined a scheme, which may be faulty and unintentionally unjust, but which, in my humble opinion, meets the situation. And believe me or not as you wish, I will as cheerfully wade in with a muckrake among the seniors or juniors should the occasion warrant as I have waded in among your class in the present issue—unless, perchance, the freshmen so amend the constitution as to kick me out of the editorial chair and seat in it a member of their own year executive. We never know what will happen these days.

I am quite aware that you all voted for a third year man on the Review staff, and in all earnestness I thank you heartily for so voting and fell quite mean under the circumstances in reminding you that you could not possibly have voted for anybody else except another third year man, as under "the laws of Medes and Persians," which we call the constitution of

the Students' Publishing Association, none of your own classmen were eligible for nomination.

And now, friend, when you have quite recovered from this little bout I am ready to meet you again in this ring at any time. On the next occasion you may give me my quietus, but in the meantime do a few punchball exercises. Shake!

The following has been sent by H. H. Lindsay, '15: "I am enclosing a cutting from Harper's Weekly, taken from an article on "Culture and Agriculture."

"As for the agricultural schools, all they have got to do is to teach that all they are learning about pigs and oats is true of men. They know, too, what the old moral culturist doesn't know: that if you want a good crop, you must select the seed and prepare the soil. That is true of men. Ignorance and disregard of that knowledge are causes of the slums of cities. I need not go into the obvious bearing of husbandry and grain-breeding upon eugenics; nor into other details. All I want to suggest is, that if faculties of our agricultural schools would take the utilitarian interest of their students in the course of agriculture and would show them the human, social significance of all they are learning, they could not only give them a very modern and a **sadly needed culture**, but they could easily incite them to an interest in life which would carry them through any of the subjects known to the old culture of the old schools. What they need, really, is not only this hint, but some of the conceit of our great universities; the proud sense that they indeed have something fine and enlightening and humane—as they have."



OLIVER ASKS FOR MORE.

Pres. Cr-e-m-n—"Well, what are you going to do about it?"
L-n-e-a-y—"Please, sir, I'd like some more."

WANTED! AN AGRICULTURAL DRAMATIST.

Here is a hint for the Dramatic Club. Some interesting plays might be written on farm subjects, and I suggest some titles: "The Romance of a Pedigree Heifer"; "The Boar's Revenge"; "The Butter Print on the Floor"; "The Baron's Pride"; "Hamlet, or the Fate of a Young Pig"; "The Gay Shire," etc. Seriously, though Mr. John Bower's letter ought to make us sit up and think whether we could not carry out to advantage the same idea as Minnesota has done.

Guelph, Feb. 2, 1914.

Dear Sir,—

Enclosed you will find note just received from John Bower, who graduated in Dairying a few years ago. Bower is now in charge of a large ice cream and creamery plant in St. Paul.

I thought possibly it might be in-

teresting to O. A. C. Review readers. Kindly return when convenient.

Yours truly,

H. H. Dean.

Editor O. A. C. Review.

Winthrop, Minn., Jan. 30, 1914.

Prof. H. H. Dean:

Dear Professor,—

Your prophecy in regard to the stage as a factor in teaching is already true in Minnesota.

I enclose a copy of play, which teaches better farm methods through a play, and it makes a hit.

Thought you might be interested. It is used as a "finale" in Week's Short Courses in Dairying.

Sincerely yours,

John Bower.

"BACK TO THE FARM"

By Merline H. Shumway.

Cast of Characters:

Charles Merrill, a farmer of the old school—Spencer B. Cleland.

Merton Merrill, his son—Arthur Munck.

Mrs. Merrill, the farmer's thrifty wife—Agnes I. Webster.

Miss Rose Meade, the school ma'am—Alice M. Hillman.

Gus Anderson, the hired man—Merlin H. Shumway.

Ruben Allen, a neighbor—Earle Lobdell.

Mr. Ashley, lawyer and real estate man—A. K. Anderson.

Robt. Powell, a senior in law—Harlow J. Hanson.

Margerie Langdon, a society girl—Ethel Willis.

Hulda, the maid of all work—Ethel Crocker.

Students in the College of Agriculture.

Act I—Exterior of Merrill Home—Mid autumn 1906.

Act II—At the Fraternity Ball—Five years later.

Act III—Merton's Study at the Merrill farm—Two years later.

Given under the direction of Miss Estelle Cook.

Agricultural Extension Division, University Farm, St. Paul.

LOCALS

SUITABLE SUBJECTS SELECTED FOR THESE.

"The value of a sea-faring experience to the modern agriculturist."—Bird.

"The additional benefits an agricultural student may derive from the course by being well 'red.'"—Jerry Hirst.

"The propagation of the wall-flow-er."—Booker.

"The importance of sweets in the balanced ration."—Leslie Goodman.

This last work should prove exceedingly instructive following his extensive research work in the tea-room and kandy kitchen.

Her Father—Have you a family tree?

Her Lover—No, but I have 10,000 acres of pine timber in Wisconsin.

Her Father—Great! Have a drink, a good cigar and—the girl.

PRaise WHERE PRAISE IS DUE.

Stickle, of the first year, is doing some investigation work worthy of note. The theory he is working on, "Give the dairy cow plenty of water before milking to increase production," is a new one, but if it works out should revolutionize the dairy industry in Canada.

"A thing of beauty is a jaw forever."—Kingsmill.

Homemaker—I wonder how it feels to have whiskers on one's face.

Froggy Scott (under his breath)—Curses! and I just had a shave!

First Father—I believe your son William was a pennant winner at O. A. C. last year.

Second Ditto—Yes, he got about seventeen last year—for cigarette-coupons.

Oldfield—Did you enjoy the Sophomore skating party last night, Cap?

Cap Edey—You bet; the sandwiches and coffee were fine.

IN THE JUDGING PAVILION.

Hamilton (turning to group of freshmen while judging a fat steer)—“Yes, boys, he certainly has great quality.”

Agar (also judging same animal)—“I say, Hamilton, that’s my hand your passing judgment on.”

Hunter (in entomology class viewing Mr. Caesar’s drawing of the larva of an apple worm)—“Why, that looks like a slice of watermelon.”

Mr. Caesar—“All watermelons look alike to coons.”



Mr. Charlesworth to Duff in German lecture—“If ‘Ecker’ means to corner how would you translate ‘Eckhart’?”

Prof. Day (to Pete Melands)—Now think, if you can, without hurting yourself, whether you gave reasons or not last Tuesday.

It has been noised abroad in Guelph society circles that Stanley Knapp spared **one hour** from his studies to call upon a certain maiden. Poor Knapp! Even he has succumbed to a pair of brown eyes.

D. H. Jones (lecturing to Fourth Year on potato diseases)—This, gentleman, is a good sample of a potato showing black leg.

Castro—much wearied by bacteriology)—Oh, what rot!

To say that the girls at Mac. Hall show partiality is putting it mildly, when we consider that Neff was the only collegian extended an invitation to their initiation.

Mr. Wright (to Jones, who has taken the wrong seat in practical botany)—“Now, Jones, you are in your wrong place again. You should be at the table there among the J (ay)’s.”

Ten minutes elapsed before the accipitens class regained their equilibrium.

WHAT IS WRONG WITH THE COLLEGE COURSE?

Home Economics for B. S. A. Degree

Our graduates are palpably lacking in this science of sciences. If this negligence be at once corrected what untold suffering, what thoughtless waste would thus be allayed. For instance, mark the words of D. H. Jones, when lecturing to the Seniors: “I carefully examined my potatoes after I bought them.” Until such a change be effected our advice to all undergraduates is, “Look before you leap.”

OVERHEARD AT THE RINK.

Girl—“What’s the matter with the Fourth Year now?”

Stark—“I don’t know, unless it is a case of extra work.”

Girl—“Well, something is seriously wrong. I haven’t seen Latimer down town for the last week.”

Leppan (during a meeting of the Biological Option)—“Say, George, do you remember whether the type of protopalaeaster narrawayi presents an oral or aboral aspect?”

It took continued bathing for half an hour to bring Spencer to his senses.

SIMPLIFIED SPELLING

The Patrolman’s One Way Out.

“There’s a dead horse on Kosciusko street,” announced a Brooklyn patrolman, coming into the station after his day on duty.

“Well, make out a report,” ordered the sergeant.

“Why, you make out the report, don’t you, sergeant?”

“I don’t. Make out your own reports. You’ve passed your civil service examinations.”

Mike equipped himself with a pen and began scratching laboriously. Presently the scratching stopped. “Sergeant,” he asked, “how d’you spell Kisciusko?”

“G’wan. You’re writing that report.”

An interval of silence. Then: “Sergeant, how do you spell Kosciusko street?”

“Stop bothering me,” the sergeant ordered. “I’m no information bureau.”

Pretty soon the patrolman got up, clapped on his helmet, and started for the door.

“Where you goin’?” demanded the sergeant.

“I’m a-goin’,” said the policeman, “to drag that dead horse around to Myrtle avenue.”—Everybody’s.

A writer in praise of post-impressionism points out its utilitarian value too. He says the bright-colored jersey of the tennis girl is so arresstive that it will stop a ’bus. Strong color, indeed!

Conductor—“Madam, that child looks more than three years.”

Madam—“Yes, conductor, that child has had a lot of trouble.”—Life.

Up-to-date version: What are the wireless waves saying?

We regret to hear that Mr. Puleston, our famous sprinter, is suffering from "Reumatism."

S. H. Hopkins (in the debate, "Wealth causes more unhappiness than poverty")—"Imagine a rich man putting his hand in a naked savage's pocket."

Someone said Cleeves likes skating. Isn't there a Story about it?

Morley Petit—"When a bee stings it will, if left entirely alone, be noticed to rotate or wind about until the sting is dislodged."

Champ—"Which way does it unwind?"

WATERHOUSE Tailors to Men Who Know

Come here for your new Spring Suit or Overcoat because the Clothes we tailor to your individual measure are the product of Brains, Skilled Workmanship and up-to-date Ideas—their style and quality is unexcelled.

We are not high-priced tailors.

WATERHOUSE

Tailors to Men who Know.

36 Quebec St. West, - GUELPH



GOOD TREES BEAR GOOD FRUIT

Illustration shows sample of our Standard 2-year Apple Stock.

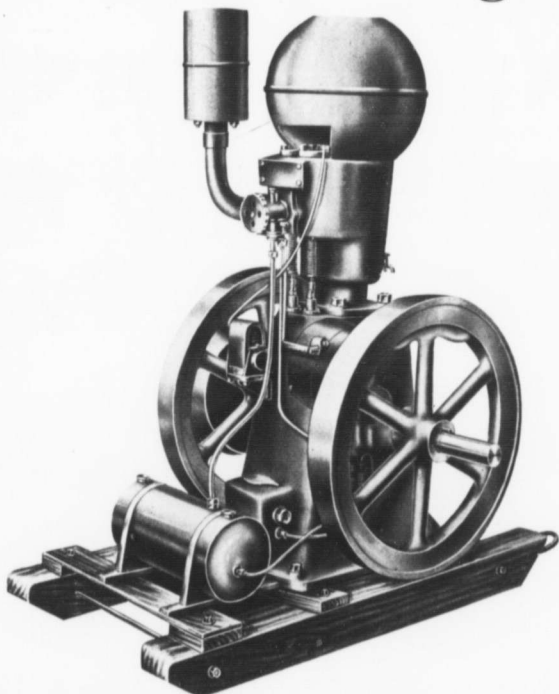
We have thousands of trees like them in all leading commercial varieties.

Send for List and copies of "Orchard Plans." Booklet on "Profit in Fruit Growing."

SALESMEN WANTED.

STONE & WELLINGTON — TORONTO
The Fonthill Nurseries—Established 1837.

The Lister Gasoline Engine



Of the Highest Grade Throughout in Design, Materials and Construction—Fitted with Bosch High Tension Magneto Ignition and Automatic Lubrication—

WRITE FOR PARTICULARS TO SOLE MAKERS

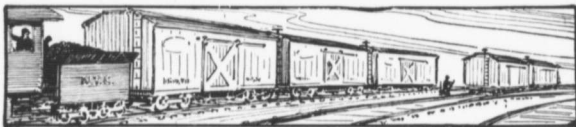
R. A. Lister & Co., Limited

58-60 Stewart St. - - Toronto

Winnipeg, Man.

St. John, N. B.

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Why Not Cut Off the Two Cars of Filler?

It takes 400,000 cars to carry American Fertilizers to our farmers and planters every season. Forty per cent.—2 cars out of 5—of this stuff is Filler, which requires 160,000 cars! Order less filler, higher grade and

Nitrate of Soda

for your active Nitrogen and save freight bills.

The greater productive capacity of high-grade fertilizers without so much filler means a greater outbound tonnage for railroads and greater purchasing power for farmers, so that railroads and everybody would be benefited.

DR. WM. S. MYERS, Chilean Nitrate Propaganda

NO BRANCH OFFICES

25 Madison Ave., New York

The Unseen Nine-tenths

Bright, shiny utensils with a sweet, wholesome smell is but small part of the real proof of the cleaning properties of

Wyandotte
Dairyman's
Cleaner and Cleanser

So thorough are the cleaning properties of this unusual washing agent that it cleans far beyond what the eye can see, removing thousands, yes millions of bacteria, the deadly destroyers of milk and butter quality.

It is because of this extra cleaning, doing what other washing agents cannot do, that has given Wyandotte Dairyman's Cleaner and Cleanser the unanimous support of Dairy Colleges and scientific Dairy experts.



In estimating the value of a dairy cleaner they do not forget the "unseen nine-tenths."

Ask your dealer for "Wyandotte" or write your dairy supply house.

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

This Cleaner has been awarded the highest prize wherever exhibited.

George Keith & Sons

Seed Merchants 124 King St. East

Toronto, Feb. 1, 1914
Canada

Dear Sir:

Your very careful personal attention is earnestly directed to our 1914 Seed Catalogue. The development of our business as Seed Merchants during the last few years makes it clear that the quality of our seeds, our reasonable prices and our methods are keenly appreciated.

Quality, --Our first aim and ideal is to supply only the very best quality that it is possible to procure. No seeds leave our warehouse unless they have successfully passed a rigid germination test. We have taken steps that will reduce the possibility of mistakes to a minimum.

A reputation of 44 years at home and abroad is your guarantee of fair dealing. If you have not been a customer in the past we respectfully request to be favored with at least your enquiries. A study of prices and samples will show you the very reasonable rates at which they are offered. A trial order will convince you of the excellence of our stocks.

If you are already a customer, we look with pleasure to your continued confidence and beg to say that we are better equipped than ever.

Customers will find that our Flower Seeds and Vegetable Seeds are the best that can be got.

Yours truly,
GEO. KEITH & SONS.



Five Roses Flour



**Not
Bleached
Not Blended**

**FEEL THE FEEL OF FIVE ROSES.
THE EVEN GRAINS SO FINE
SIFTED MANY TIMES THROUGH
SILK. DRY. GRANULAR. DUSTLIKE.
QUICK TO FERMENT. EASY TO WORK.
HAPPY BAKEDAYS!**

MADE BY THE WOODS MILLING COMPANY LIMITED MONTREAL





*If it
is 'nt an
Eastman,
it is 'nt
a Kodak.*

The Story of the **Kodak Album**

The friendships of school days, the very atmosphere of the home, every phase of life that makes for companionship—in all of these is an intimate picture story—a story that glows with human interest, grows in value with every passing year.

Let Kodak keep the story for you.

Ask your dealer, or write us, for "At Home with the Kodak," a delightfully illustrated little book that tells about home pictures—flashlights, groups, home portraits and the like—and how to make them. It's mailed without charge.

CANADIAN KODAK CO., Limited
TORONTO.

Advertiser Job Department

Fine Printers

Printing of the Better Kind

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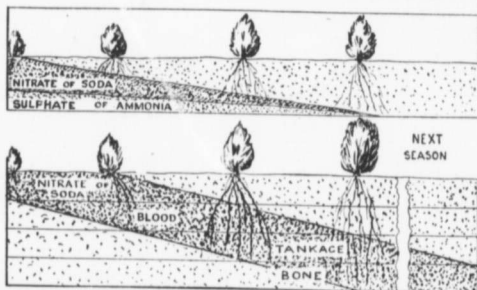
191-195 Dundas St.

London, Ont., Can.

This Magazine is a sample of our publications.

"SAFETY FIRST" IS CROP PRODUCTION

"The Quality and Quantity of a crop is measured by the amount of available plant food the soil contains."



Davies fertilizers ensure rich soils, increased yields, improved quality, enough to pay for the fertilizer, the cost of application and a good profit besides.

Upper cut, "Home mixed"; lower cut, "Davies mixed." We leave it to you

DAVIES SPECIAL MIXED FERTILIZERS

are compounded from the very best materials obtainable, consisting of Dried Ground Blood, Tankage and Bone, supplemented with Nitrate of Soda, high grade Acid Phosphate and German Potash Salts, mixed in proportions to meet the requirements of every kind of crop and soil. The Nitrate of Soda, Blood Tankage and Bone furnish the Nitrogen, and

in such a way that there is a supply present in an available form throughout the entire life of the plant. The Nitrate of Soda acts very quickly, and starts the plant off with a vigorous growth. Blood follows next—the Tankage is slightly slower than the Blood, carrying the crop safely through the critical period of late summer, while the Bone brings it to maturity with a full yield.

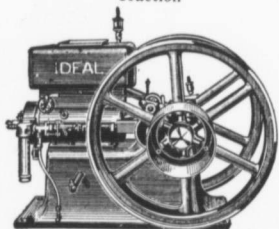
Bear the above in mind when discussing the disadvantages of "home mixing." Literature Free. Users and Dealers Wanted Everywhere. Write Now.

The William Davies Co'y, Limited, R. INNES, B.S.A., West Toronto, Ont.
Manager

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We manufacture the most complete and up-to-date line 1½ to 50 H.P. Stationary, Portable and Traction



We also manufacture complete lines of

WINDMILLS

Grain Grinders
Saw Frames, Pumps
Tanks, Water Boxes
Power Spraying Outfits, etc.
GOOLD, SHAPLEY & MUIR CO.,
Limited
Brantford, - Canada.

ASPINWALL Potato Machinery

Cutters Planters
Sprayers
Diggers Sorters

*Accuracy, Simplicity and
Durability characterize
the Aspinwall Line*

ASPINWALL MFG. CO.

GUELPH . . . ONTARIO

*World's Oldest and Largest
Makers of Potato Machinery*

A HIGH GRADE ESTABLISHMENT
FOR THE

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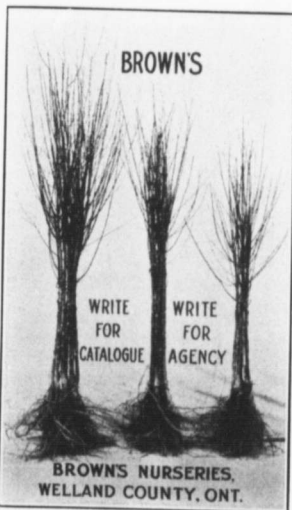
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Work a Specialty

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Are YOU Going Abroad?

If so, you are necessarily interested in knowing how to carry your funds.

There are different ways—but they are not all safe—nor are they all convenient.

You want both safety and convenience.

It will be in your interest therefore to fill in and mail the coupon furnished below, on receipt of which we will be pleased to send you full particulars regarding

Dominion Express Travellers Cheques

the best medium for carrying funds when travelling in any part of the world.

Money Order Department

DOMINION EXPRESS CO.,

32 Front St., West, Toronto.

Please send particulars of your Travellers' Cheques.

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UNDERWOOD

The Underwood is used more extensively in Canada than all other makes of typewriters combined.

550 Underwoods are sold every day. The Underwood is the "aristocrat" of the typewriter world.

United Typewriter Co., Limited

EVERYWHERE IN CANADA.

Head Office, Toronto.



To the O.A.C. Old Boys

When leaving college also leave your subscription for THE GUELPH WEEKLY MERCURY—only \$1.00 a year in advance.

The Mercury will keep you in touch with the friends and institutions you have left behind. This medium is noted for its agricultural news and the large volume of valuable farm advertising carried.

SWORN WEEKLY MERCURY CIRCULATION, 5,700

Come to The Mercury's Job Printing Department for Your Job Work. Visiting Cards a Specialty.

The Evening Mercury has a sworn circulation of 2,700.

J. I. McINTOSH, Publisher and Proprietor.

COLLEGE BOYS ARE AT HOME IN

Kelly's Music Store

because we keep a full line of

Violins, Guitars, Mandolins, Banjos and Strings, Edison and Victor Machines and Records. Popular, Operatic and Standard Sheet Music. Also

The Famous "Bell" Piano

A Piano of Prestige

Not only is the tone rich and full, touch sensitive, case beautiful, but it has many individual features which mark "The Bell" Canada's Leading Piano.

Pianos tuned and rented. - - - All musical instruments repaired.

C. W. KELLY & SON,

133 Upper Wyndham St, - - - - - **GUELPH**

Read This Book While in College

and practice its teachings when you get back on the farm. Write for a copy of our "\$3,000 Stock Book." The most complete, practical and helpful Stock and Poultry

Book ever written. We'll send it free to every student of The Manitoba Agricultural College. It tells all about

INTERNATIONAL STOCK FOOD

the greatest animal tonic in the world—and the one reliable tonic sold on a spot-cash guarantee.

DAN PATCH WHITE LINIMENT

is a sure and quick remedy for sprains, swellings, stiff, sore muscles, strained tendons, sore throat, cuts, wounds, swollen legs, etc.

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Cures and prevents diseases and sickness, promotes good health, invigorates the digestive organs, supplies material for bone, muscles and feathers, good during moulting time.

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is a guaranteed cure for Galls, sore shoulders, sore necks, back, mouth.

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Cures Heaves, Asthma and all diseases of the bronchial tubes, lungs and stomach.

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Heals Barb Wire Cuts and Cures kicks, sprains, old sores, bruises, strains, swellings, etc.

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serves as a preventative for all quarter cracks, corns, fever, dead sole or frog, or any disease of the hoof.

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is a sure cure for cold, cough and distemper. It is absolutely pure and is in highly concentrated form.

Be sure and write for free copy of our Stock Book.

International Stock Food Company, Limited

TORONTO - ONTARIO



A Typical View in Montreal West, P. Q.

"THE TOWN OF ASBESTOSLATE"

Montreal West is the Garden Suburb of Montreal, and, as you can see from the type of houses illustrated above, it is as substantial as it is charming.

The most noticeable feature of the town is the number of ASBESTOSLATE Roofs. In their soft, attractive greys, reds and blue blacks. Asbestoslate conforms to the Building By-laws requiring fireproof construction, is

reasonable in price, and absolutely weather-proof and permanent.

For this reason nearly every house erected in Montreal West during the past two or three years has a roof of Asbestoslate—and it is doubtful if any other town of its size in Canada is so well and handsomely roofed.

We are preparing a worth-while Booklet on "The Town of Asbestoslate." Write for it to Dept. G. R.

Asbestos Manufacturing Company, Limited

Address E. T. Bank Bldg., 243 St. James St., Montreal.
Factory at Lachine, P. Q. (near Montreal).

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



FOR SORE MUSCLES!

Sprains, Wrenches, Painful Swollen Veins and Glands, Bursal Enlargements, Wens, Cysts, or any Inflammatory Condition.

USE AND PRESCRIBE

Absorbine, Jr.

THE ANTISEPTIC LINIMENT

TRADE-MARK REG. U.S. PAT. OFF.

It is a mild and powerful liniment, and in addition is an antiseptic and germicide of proven value. This makes it a different liniment and doubles its efficiency. Absorbine, Jr., is concentrated, requiring only a few drops at an application, and even retaining its germicidal powers diluted one part Absorbine, Jr., to 100 parts water. It is purely herbal, containing no minerals or poisons. Alays pain promptly and makes good wherever an effective germicidal liniment is indicated. **IT KILLS GERMS**

"Evidence," a forty-eight-page booklet, gives positive, clear-cut emphatic evidence of what Absorbine, Jr., has done and will do. This booklet, together with detailed laboratory reports, is free for the asking. Absorbine, Jr., is sold by leading druggists at \$1.90 and \$2.50 a bottle, or sent direct, all charges paid.

Send 10 cents for liberal trial bottle or procure regular size from your druggist today.

W. F. YOUNG, P.D.F.

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Ontario Veterinary College

TORONTO, CANADA,

Under the control of the Department of Agriculture of Ontario.

Affiliated with the University of Toronto.

College Reopens

THURSDAY, 1st OCT., 1914.

N.B.—A short course on the Surgical and Medical Treatment of Wild Animals in confinement will be given as a new subject this year.

Calendar sent on application.

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

Are You Getting the Dollars Out of the Timber On Your Farm?

Are you getting the Dollars Out of the Timber on your Farm? If the trees are there, they represent good lumber. Turn them into dollars by cutting them on a mill that will get that good lumber out of the logs with the least cost and the least trouble.

The Waterous Portable Sawmill

The Waterous Portable Outfit will cut your trees into lumber that is as fine as that turned out by any custom mill. Hundreds of users, who didn't know any more about timber sawing than you do, are proving this every season.

The secret is that the Waterous Portable Mill is built just a little better than is necessary to do portable work—it has special fittings generally found only on higher priced mills that help you cut your logs as they should be.

What is more, the Waterous Portable is dead easy to set up and simple to operate, and it is built so strong that it will keep on cutting first-class lumber year after year without trouble.

The profit in your trees and in your neighbors is worth your investment in this reasonably priced mill. Don't be one of those who are spoiling good logs by cutting them on a poor mill. Quality counts every time—and especially in lumber making with prices as high as they are now.

Send us a card to-day for our Portable Sawmill Bulletin No. 100.

The Waterous Engine Works Co., Ltd.

Brantford - - - Canada

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THIS WASHER MUST PAY FOR ITSELF.

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse, but, I didn't know anything about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right," but say me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right" and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now, this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way. So I thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know that our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in six minutes. I know no other machine ever invented can do that, without wearing the clothes. Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges, nor break buttons, the way all other machines do.

It just drives soapy water clear through the fibres of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 50 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me personally—

W. N. MORRIS, MGR.
"1900" WASHER CO.
357 Yonge Street, Toronto, Ont.



At the Mac.
Senior (to new arrival)—"Are you very fond of gym-nastics?"

New Girl—"Well, I haven't made his acquaintance yet."

Downey (at conclusion of dance)
—"Pardon me, Miss C., for walking on your feet."

Miss C.—"Oh, don't mention it. I walk on them myself, you know."

President (to new student)—
"Well, sir, what practical experience have you had in agriculture?"

New Student "I have spent the past two years in sowing wild oats."

Guelph Radial Railway Co.

TIME TABLE

Cars Leave St. George's Square for Elora Road, Suffolk, Waterloo Avenue and O. A. College as follows

a.m.	a.m.	a.m.	p.m.	p.m.	p.m.
6.15	8.25	10.35	12.25	4.05	7.55
6.35	8.45	10.55	12.45	4.25	8.15
6.55	9.10	11.20	1.05	4.50	8.35
7.20	9.30	11.40	1.30	5.15	9.00
7.40	9.50	12.05	1.50	5.40	9.20
8.00	10.15		2.10	6.05	9.40
			2.35	6.30	10.05
			2.55	6.50	10.25
			3.20	7.10	*10.45
			3.40	7.35	

Returning, cars leave Terminals ten minutes later.

*Saturday night only.

Cars run to Power House only after last trip.

Public Stenographers

52 St. George's Square.

Telephone, 654.

Let us typewrite your thesis. All typewriting work done promptly, properly and accurately.

SHOES REPAIRED

By the latest improved machinery in America, Promptly and Neatly at the

GOODYEAR SHOE REPAIR CO.,

50 Cork St. E., Guelph.

Telephone 957 PERCY T. KING Prop.

LEE LEE & CO.

Best hand laundry in Guelph. Goods called for on Monday and Wednesday and delivered Wednesday and Friday.

Costly.

My love is like the violets,
 Thus did the freshie sing,
 He knew full well each tiny blossom
 Was an expensive thing.

Man, The Kicker.

In winter, when the cold winds blow,
 Man kicks.
 He doesn't like the ice and snow,
 He hates to see the mercury go
 To zero; if it falls below,
 He kicks.
 Oh, how he kicks!

In summer, when the sizzards sizz,
 Man kicks.
 He groans: "Oh, Lord, how hot it is!"
 As if no misery equalley his.
 Then, as he wipes his steaming phiz,
 He kicks.
 Oh, how he kicks!

And so it is, if cold or hot,
 Man kicks.
 He's never pleased with what he's got,
 But growls and fumes, and swears a
 lot,
 And whether it is right or not,
 He kicks.
 Oh, how he kicks!

Freshman, to Inspector Kingsmill
 —"Why do they call bee-keeping
 apiculture?"

Kingsmill—"Because, my son, it
 is a profession we can't monkey
 with."

A FEW GENERAL QUESTIONS

If candy costs one dollar a pound,
 how many pounds will Woltz's roses
 buy?

If Winter hadn't sat on his hat in
 the theatre would the gods have
 laughed?

If James Miller hadn't been in Port
 Hope with Fatty Carroll, would he
 have been surprised to find that au-
 burn hair on Fatty's ear Monday
 morning?—eh, what!

If the girls back home came to
 Guelph just now, what would happen?
 Did you speak, Vining?

If Stark would rather Moon Waltz
 than Bunny Hug, why shouldn't a
 Turkey Trot?

MIMNERMUS IN CHURCH.

You promise heavens free from strife,
 Pure truth and perfect change of will;
 But sweet, sweet is this human life,
 So sweet I fain would breathe it still;
 Your chilly stars I can forego,
 This warm, kind world is all I know.

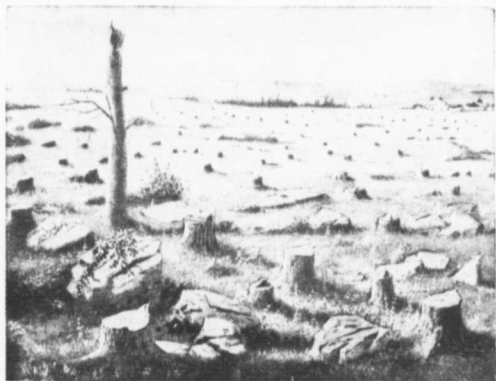
You say there is no substance here,
 One great reality above;
 Back from the void I shrink in fear,
 And child-like hide myself in love:
 Show me what angels feel—till then,
 I cling, a mere weak man, to men.

You bid me life my mean desires
 From faltering lips and fitful veins
 To sexless souls, ideal quires,
 Unwearied voices, wordless strains:
 My mind with fonder welcome owns
 One dear dead friend's remembered
 tones.

Forsooth the present we must give
 To that which cannot pass away;
 All beauteous things for which we
 live

By laws of time and space decay.
 But oh, the very reason why
 I clasp them, is because they die.

—William Cory.



Farm Robbers

An Effective Method For Their Removal

Stumps in the field rob the farmer of land that would otherwise be productive.

No farmer should tolerate waste land on his farm when it is such a simple matter to remove the obstruction whether it be Stumps, Boulders or the breaking up of Hard Pan, Shale or Slate Sub-Soils.

C. X. L. STUMPING EXPLOSIVES

are the only economical and effective way to make waste land productive.

PERFECTLY SAFE

Our C. X. L. Stumping Powder is actually safer to handle than gunpowder and can be handled by responsible persons just as safely as they can handle gasoline, matches or coal oil.

The energy of C. X. L. Stumping Powder has been used for agricultural work by many Canadians with such undreamed of success that no farmer can afford to overlook the possibilities of this force for making his farm more successful.

**WRITE FOR OUR BOOKLET AND LEARN MORE OF THIS ENERGY.
IT PAYS TO INVESTIGATE.**



Canadian Explosives, Limited
MONTREAL, P.Q. :: VICTORIA, B.C.

Sell Your Milk For Profit and Raise Calves on



Caldwell's Cream Substitute Calf - Meal

Keep right on selling your whole milk. Get the full value for it and raise your calves on Caldwell's Cream Substitute Calf Meal.

This Meal will bring your calves along just as well as the milk and costs you much less. Your bank account gets the

difference.

We print the ingredients on every tag as well as the guarantee. Here they are—**Linseed, Wheat, Oats, Corn, Locust, Beans, Peas, Molasses Meal.** Notice we use **Linseed** not Cotton Seed as our competitors. No other preparation approaches our Calf-Meal in nutritive value.

Ask your feedman or write us direct for full particulars to-day.

THE CALDWELL FEED CO., LTD., DUNDAS, ONT.

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The Department is publishing Manuals for Teachers dealing with methodology and containing supplementary material for their use in class. These Manuals are distributed free amongst the school libraries, and teachers may obtain copies at the prices indicated:

For Continuation and High Schools, and Collegiate Institutes:—

A Manual of Suggestions for Teachers of Science, 50 cents.

A Manual of English Composition, 15 cents.

For Public and Separate Schools:—

Primary Reading, 10 cents.

Ontario Readers, Books II, III, IV, 25 cents.

Arithmetic, 15 cents.

Grammar, 15 cents.

History, 10 cents.

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Manual Training, 25 cents.

Geography, 15 cents.

Teaching English to French-speaking pupils, 15 cents.

At a later date the following will be published:—

Art.

Spelling.

Household Science.

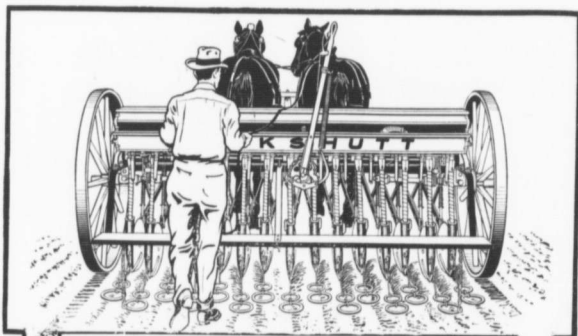
Nature Study and Elementary Science.

SPECIAL NOTICE TO TEACHERS AND SCHOOL BOARDS.

The teacher himself may use any book, pamphlet, or magazine he wishes in preparing the lesson for his class; but he has no authority to use as textbooks in his class-teaching any other publications than those whose use is authorized in this circular or which are listed in the catalogue of the school library with the approval of the Inspector. Nor can Notes on History, Geography, etc., School Helps, School and Home, or similar publications be used by his pupils in their work at school; and neither the teacher nor the board has any authority to require or induce pupils to buy any of such prohibited books, pamphlets, magazines, Notes, School Helps, School and Home, or other similar publications.

Department of Education, June, 1913

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Insure Big Crops by Seeding With a Cockshutt Drill

This season, plant with a COCKSHUTT DRILL. Get the biggest crop your acres can yield. The COCKSHUTT makes every seed count.

Its discs are a full inch closer together than those of most other drills. This means more rows per acre and more bushels yield. Three to five extra bushels per acre is the average increase with a COCKSHUTT DRILL.

The right amount of seed—in the right place—at the right depth—is the way the COCKSHUTT DRILL sows.

PAYS FOR ITSELF

Three to five extra bushels per acre often pays for a COCKSHUTT DRILL the very first season. Why not get this extra crop out of your farm? Hundreds of other farmers are using COCKSHUTT DRILLS and more than saving the cost through increased crops the first year or so.

If you can see this drill at your nearest dealer's—so much the better. If he has none on hand, let us send you our complete illustrated Drill Book. Write and ask us to mail you a copy free.

COCKSHUTT PLOW CO., Limited
BRANTFORD, CANADA

Selling Agents for Eastern Ontario, Quebec and
the Maritime Provinces

THE FROST & WOOD CO., Limited

Smiths Falls, Ont. Montreal, Que.
St. John, N. B.

PERSISTENT SPRAYING WITH A MASSEY-HARRIS SPRAYER PAYS BIG RETURNS

Long experience with Fruit Growers has enabled us to produce a Power Sprayer adapted to the most difficult conditions.

Double Cylinder Vertical Pump with Bronze Plungers.

Tank is made of selected Cypress put together by Experts.

Simple, Direct Connection between Engine and Pump—no Sprocket Chains to get tangled in branches of trees.

Agitator is positive in its action and is operated from the top—no holes through side of Tank to leak.

The Cab protects all working parts.

Front Wheels turn under the Frame.

Engine is Hopper-cooled; runs in any weather and on the steepest side-hill; is efficient and economical in its operation.

MASSEY-HARRIS CO., Limited.

Head Offices—TORONTO, CANADA.

Branches at—Montreal, Moncton, Winnipeg, Regina, Saskatoon, Swift Current,
Calgary, Yorkton, Edmonton.

— Agencies Everywhere —



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STUDENTS' CO-OPERATIVE SUPPLY STORE

The following are some Agricultural Text Books we handle:

Soil, Fertility and Permanent Agriculture—Hopkins	\$2.25
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Vegetable Gardening—Green ...	1.00
Farm Management—Warren ...	1.75
Farm Drainage—Elliott	1.50
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Any one purchasing \$5.00 worth of Books will have express charges prepaid.

Any information regarding Agricultural Text Books, Nature Study Supplies, Agricultural Periodicals, Stationery, etc., Apply

STUDENTS' CO-OPERATIVE SUPPLY STORE

WINDSOR DAIRY SALT

is making
money for
thousands of
Butter Makers

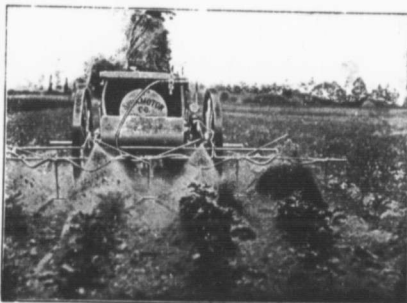
It is always the
same in quality,
dissolves evenly,
gives a delicious
flavor — and
makes the
butter keep.

USED BY ALL
PRIZE WINNERS.

118



"300 Bushels of Potatoes to the Acre"---SPRAMOTOR



Isn't it easy to figure how soon a **Spramotor** pays for itself at that rate? Then, after that it goes on saving you big money every year.

You want the efficient **Spramotor** for spraying potatoes, row crops, vineyards or orchard trees. Still, you get further use out of it than that. Spray cows during fly time and you'll get a better milk yield. Again, you can use your **Spramotor** for weed destruction—it's the best thing made for getting rid of weeds. Then if you think you should get still more from a **Spramotor**, why it will paint your buildings and whitewash your barns at half the cost and

in a tenth of the time.

There's no excuse for any man being without this dollar-maker. We have them in a big range of styles—for the small farm and for the biggest there is. Prices run from \$6 to \$350. Write us, telling what you want a **Spramotor** to do, and we will send you full particulars of a machine that will do your work for the least money, also a copy of our valuable illustrated treatise on Crop Diseases, FREE.

J. H. HEARD SPRAMOTOR, 1711 King St., London, Can.

CANADIAN PACIFIC BEST NEW TRAIN FOR WINNIPEG

and points East thereof

GATE CITY EXPRESS

Commencing October 26th

LEAVE TORONTO - - - 2:30 p.m. DAILY
ARRIVE WINNIPEG, second day, 8:25 a.m.

THROUGH EQUIPMENT: Compartment Observation Car, Standard Sleeping Cars, Tourist Sleeping Car, Dining Car, First-Class Coaches, Colonist Car.

VANCOUVER EXPRESS

LEAVE TORONTO - - - 10:20 p.m. DAILY
ARRIVE VANCOUVER - - - 11:30 p.m.

THROUGH EQUIPMENT: Compartment Observation Car, Standard Sleeping Cars, Tourist Sleeping Car, Dining Car, First-Class Coaches, Colonist Car.

General Change of Time October 26th

Particulars from Canadian Pacific Agents or write M. G. Murphy, D.P.A., C.P.Ry., Toronto; J. Hefferman, C.P. and T.A., 32 Wyndham St., Guelph.

BUY YOUR WINTER SUIT From Catesbys, London, England **SAVE 50%** OF THE MONEY YOU'D HAVE TO PAY IN CANADA

Learn why. Most Canadian tailors buy goods in small lengths. Four profits come out of the cloth before it reaches their hands. You pay these four profits when you buy from them.

You save these profits when you buy from us, because we purchase all suitings direct from the mill, and give you the benefit of our tremendous buying power.

Here's a fair offer: Send us your name and address on the coupon below, and we will mail you, absolutely free, 72 pattern pieces of the finest English suitings you ever saw. With the patterns will come a booklet telling all about the successful Catesby "made-to-measure" tailoring system.

Read it. You'll understand why hundreds of shrewd, well-dressed Canadians buy their clothes direct from us in London, and save half of what they would otherwise have to pay their local tailor.

Don't put this matter off—you'll soon be needing a suit. Send now, while the thought is in your mind.

Remember, your suit or overcoat comes right to your door, all duty and carriage charges paid by us. And that every suit is guaranteed to give absolute satisfaction. Orders are shipped seven days after we receive them in London.

All you need to do now is sign and mail the coupon. Patterns will be sent by return mail. If you don't want to cut this paper, write a postcard or letter for the samples and we will send them just the same. But to get them, you **must mention the Guelph O. A. C. Review.**

MAIL THIS COUPON NOW AND BE CONVINCED

MESSRS. CATESBYS, LTD. (of London).

Dept. "P," 119 W. Wellington St., Toronto, Ont.

Please send me your new season's Style Book and 72 pattern pieces of cloth, I am thinking of buying a suit—overcoat.*

Full name

Full address

*If you only want overcoat patterns, cross out the word 'suit.' If you only want suitings, cross out 'overcoat.' O.A.C. Review Coupon No. 6

The "BURLINGTON."

This shows the most popular style of suit worn by the well-dressed men in Canada. The materials used are specially selected for this shape of suit.

\$12.50

Duty Free and Carriage Paid.



CATESBYS, Limited (Of Tottenham Court Road, London, Eng.) 119 West Wellington Street, TORONTO

"Canadian Dairying"

HAVE YOU SEEN THE NEW EDITION?

The fourth and revised edition of this book, which has for a number of years, as you know, been an authority on the industry, has just been issued and is in your own Book Bureau.

The new edition has had Professor Dean's most careful revision and is illustrated with photographs and drawings of the newest apparatus. It has 299 pages with comprehensive index and is bound in substantial cloth covers.

Will be Helpful to You and to Those at Home.

PRICE, \$1.00 NET.

WILLIAM BRIGGS

Publisher,

29-37 Richmond Street, West, - - - TORONTO.

Rennie's Seeds Grow

the Finest Vegetables
and the Best Flowers
in the Land

Success in planting, whether it be in planting an entire garden, a bed of either simple or intricate design, or an extensive farm tract, depends upon many things, the principal one being the Quality of the Seeds.



Rennie's Seeds

are absolutely dependable — have been since 1870—44 years ago. Their reputation for uniform purity and fertility—a reputation that has always been strictly maintained—is YOUR assurance of success in planting.

Rennie's Catalogs are unusually comprehensive and mighty interesting and instructive. They contain innumerable hints and suggestions of great value on cultivation. And the descriptions are not exaggerated, but can in every case be relied upon.

*Send us your name to-day and we will send you these
instructive Catalogs as issued*

WM. RENNIE CO., Limited

Cor. Adelaide and Jarvis
Streets, **TORONTO**

Also at Montreal, Winnipeg and Vancouver

Students' Wants

Gymnasium Shoes, Football Boots, Slippers and Rubbers.

The most complete and largest stock of Fine Fall and Winter Footwear in the city.

Neill, The Shoe Man

M. J. RUDELL, D.D.S., L.D.S.,
Dentist

(On the Corner)
Over Guelph and Ontario Investment
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PHONE 16

THE PEOPLE'S CIGAR STORE

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Newspapers, Magazines and Picture Post
Cards. Full stock of Pipes and
Tobaccos

HERB. BARBER & SON.

CUT FLOWERS

Choice Cut Flowers always on hand. Roses,
Carnations, Valley, Violets and all
Flowers in season.

GILCHRIST'S

Phone 436. St. Georges Square.

R. H. McPHERSON
Barber

Get your hair cut at 145 Wyndham street,
An extra barber employed at the highest
wages for your sake.

Students' Special In

PHOTOS

\$1.50 Per Dozen
Students Only

THE BURGESS STUDIO

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You could enjoy yourself for a nice meal
and a cup of real American Coffee.
Call at the

DOMINION CAFE

104 WYNDHAM STREET.

Phone No. 688.

HOCKEY BOOTS

We sell the McPherson's Famous Lightn-
ing Hitch in black, tan and white leathers.
Buy your Skates and Boots here and have
skates attached free.

The Big Shoe Store.

J. D. McARTHUR Bring in your repairing

D. M. FOSTER, L.D.S., D.D.S.,
Dentist,

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Telephone 14. Over Dominion Bank.

ERNEST A. HALES, 68 St. George's
Square

Sells the Best Meats
and Poultry

Phone 191 - - Open all Day

JOHN IRVING
"MY TAILOR"

Suits and Overcoats made to order from
\$16.50, \$18.50 and up.

Phone 739L

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THE GUELPH OIL CLOTHING
COMPANY, Limited

Manufacturers Oiled Clothing, Tar-
paulins, Tents, Awnings, Stack and
Binder Covers.

James H. Smith

Upper Wyndham, Next the Apollo
Molasses Taffy, Walnut Cream, and Maple
Cream—Best in the City—Fresh every day.

LUNCHES SERVED.

MIDNIGHT SUPPERS

Bacon, Oysters, Fancy Biscuits,
Olives, Pickles, Chocolates, Etc.

J. A. McCrea & Son

BOYS!!

Get your Laundry done FREE for 1 year by sending your work to

Guelph Steam LAUNDRY

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Ask for Coupons.

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We have the only machine in the city giving the most up-to-date finish to collars. We also sew on buttons on your shirts.

"Sprig, Sweet Sprig, is Here"---

So sings the Spring Poet, even if a little under difficulties.

But he really is right. "Sprig IS here. You'd know it if you should take a look at the new Spring goods now at the Lyons Store.

We Make Made-to-Measure Clothes for Men, at from \$18.00 to \$30.00. And it's REAL Made-to-Measure, with a try-on before completion to insure its being absolutely right.

LYONS TAILORING CO.

47 Wyndham Street

STUDENTS

We can supply you with the BEST

MILK, CREAM,

DEVONSHIRE CREAM, CREAM CHEESE,
BUTTER and ICE CREAM

BARRETT'S DAIRY COMPANY, Limited,
Phone 799

F. L. BARRETT,
President.

P. A. B. CHERRY, B.S.A.,
Secretary-Treasurer

"Costly thy raiment as thy purse can buy,"
and see to it that it is bought at

Thornton & Douglas'

The Students' Outfitters.

T. & D. Suits, \$10.00 to \$30.00
T. & D. Over-Coats \$8.50 to \$35.00

Special attention to **Made-to-Measure**
orders. **Furnishings** always crisp and com-
plete.

THORNTON & DOUGLAS,
Lower Wyndham St.

J. McLEOD, - - Local Manager

H. H. WOODEN

O. A. C. Barber Shop. Three Barbers.
No Waiting.

St. George's Sq. Cars Stop at Door.

Finest Pipes, Cigarettes and Tobacco.
Students are invited to make my store
their meeting place when down town.

JIMMY COCKMAN, Tobacconist,
Successor to Sheridan & O'Connor,
45 Wyndham Street.

KING EDWARD BARBER SHOP

Newly Remodelled

Strictly Sanitary and Up-to-date.

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Quebec St., Opposite Bank of Montreal.

Imported Cigarettes, Abdulla, De Reszke, Osborne,
Vañadis, Imported Cigars, Henry Clay, Boek, Up-
mann, Otero, Partizar, Romeo Julieta always in
stock. B. B. B. pipes a specialty.

E. H. JOHNS, PROPRIETOR, Phone 312.

Regal Shoes Sorosis Shoes
For Men. For Women.

W. J. THURSTON,
Sole Agent

THE NEW SHOE STORE,
39 Wyndham Street

WONG'S O. K. LAUNDRY

The Students' Laundry, Opposite Winter
Fair Building.

College calls made on Monday, Wednesday
and Friday.

BEST WORK IN CITY

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

Look! Look!!

Suits Pressed	-	-	-	50c
Suits Cleaned and Pressed	-	-	-	75c
Pants Pressed	-	-	-	15c
Velvet Collars	-	-	75c to	\$1.25
Dry Cleaning	-	-	-	\$1.25

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Work Done by Practical Tailors.

C. E. HEWER,

49 QUEBEC ST. - PHONE 808

We are agents for the House of Hobberlin.

The Yellow Front MEN'S CLOTHING

We make a specialty of young men's
clothing, furnishings and hats at the right
price.

THE YELLOW FRONT.

GARNET K. CUMMING

SNOWDRIFT, PEOPLES' MAPLE LEAF

Three Well-known Brands of Flour
Ask for them and be sure you get them.

...The...

James Goldie Co.

LIMITED

GUELPH, ONTARIO.

Telephone 99

Phone 719

44 Cork St.

Jas. K. Readwin

Pants Pressed	-	-	15c
Pants Cleaned and Pressed	-	-	25c
Suits Pressed	-	-	50c
Suits Cleaned and Pressed	-	-	75c
Suits Dry-Cleaned	-	-	\$1.25
Velvet Collars	-	75c to	\$1.50

Monthly contract, special rate. Goods
called for and delivered.

Fine Job Printing

We execute the finest grades of printing, plain or in colors, promptly. Put us to the test.

Kelso Printing Company

St. George's Square.

Phone 218

Opp. Post Office

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AND SPORTING GOODS

AT LOWEST PRICES

G. A. RICHARDSON,

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PRINGLE THE JEWELER

O. A. C. and Macdonald Institute

College Pins, Medals and Fobs.

Magnifying Glasses, all qualities

Fountain Pens—Rubber Stamps.

"Eclipsed by None."

Walker's Electric Boiler Compound

It removes the scale or incrustation from boiler without injury to the irons, packings or connections, and prevents foaming.

The only reliable boiler compound on the market today. We also handle cylinder, engine and machine oils. Tri-sodium phosphate, engine supplies, etc. Specialty departments, Crystal Separator Oil, Waxine Floor Oil. Correspondence invited.

The Electric Boiler Compound Co., Limited
Guelph - Ontario

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DRUGS AND SUNDRIES

Fountain Pens, Toilet Articles

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ST. GEORGE'S SQ., COR. QUEBEC

Phone 381

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Clothiers and

Furnishers

35 Wyndham Street

GUELPH

ONTARIO

Guelph & Ontario Invest- ment & Savings Society

(Incorporated A.D., 1876)

Authorized Capital, -	\$1,000,000
Subscribed Capital, -	900,000
Paid-up Capital, -	524,000
Reserve Fund, -	436,000
Total Assets, -	\$3,156,265.08

Debentures issued in sums of \$100. and upwards, for five years, at five per cent. per annum, payable half-yearly; and for one year at four per cent.

Deposits of \$1.00 and upwards received and interest paid or compounded half-yearly at highest current rate.

By Special Order-in-Council (Ontario Government), Executors, Trustees, etc., are authorized to invest Trust Funds in the Society's Debentures, and to deposit Trust Funds in the Society's Savings Department.

Office:—Society's Building, Corner Wyndham and Cork Streets, Guelph, Ontario, Canada.

J. E. McELDERRY,
Managing Director.

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Guelph's
Ladies' Store

Women's and Children's
Garments

Dress Goods and Silks

Exclusive Millinery

Perrin's Kid Gloves

Northway Coats and Suits

Crompton's C-C a la Grace and
Parisienne Corsets

THE WHITE HOUSE

G. B. RYAN & CO.

GUELPH, ONT.

Correct Clothes
For Men

Ready-to-Wear and Special Order.

Smartly tailored by the best
men's clothing establishments
in Canada.

A complete stock of Neckwear, Shirts,
Hats, and all furnishings for men.

Our Advertisement, Our Aim and Our
Accomplishment—A Square Deal.

Our New Line Of
Society Brand
Clothes

For Fall has now arrived and is
quite ready for inspection.

They are the Perfection of
Ready-to-Wear Clothes—Don't
fail to see them before buying
your next suit.

Our new general line of wear-
ing apparel for gentlemen has
also come; Shirts, Ties, Socks,
etc., all in latest styles.

Visit This Quality Store.

D. E. MACDONALD & BROS.,
Guelph.

O. A. C.
STUDENTS

Will be well served with thoroughly
reliable merchandise at

R. E. NELSON'S STORE

Everything in Men's Wear, Hats,
and Caps, Underwear, Ties, Shirts,
Rain Coats, Sweater Coats—Every-
thing the Newest.

We specialize in Fine Ordered
Clothing. Large selection of Suits,
Trousers and Over-Coatings—
Made to Measure in the very latest
down-to-date styles. All goods mark-
ed in plain figures—and one price
only.

R. E. NELSON

93 Wyndham St.

N.B.—Agent for the Semi-Ready,
Made-to-Measure Clothing.

FLOWERS

We have the largest and best equipped plant in Canada for growing flowers under glass. We fill orders for cut flowers anywhere from Montreal to Winnipeg. Give us a trial for your next banquet.

Prompt Service

Moderate Prices.

Miller & Sons FLORISTS

Lauder Avenue

∴

Toronto

Attenburg (to Delaporte at the table, after watching him devour plateful after plateful)—“I hear they are going to raise your board to five dollars.”

Delaporte—“Oh, don't say that. It's as much as I can do now to eat four dollar's worth.”

KODAK



DEVELOPING AND PRINTING

We guarantee the finest results from films entrusted to us for development and printing.

ALEX. STEWART'S DRUG STORE,

“In Front of Post Office.”

LOOK!

Is there something in this list you would like to have?

ROGUEFORD CHEESE

CREAM CHEESE

CLUB HOUSE OLIVES

BOVRIL EXTRACT

OXO CUBES

OYSTERS

BISCUITS

FRUITS

Benson Bros.

25 Wyndham Street

Diamond and Shield

O. A. C. PINS



Leather Fobs

Twenty-five Cents Each

SAVAGE & CO. JEWELLERS

A TREATISE
on the
Horse—
FREE!

We offer you free this book that tells you all about horse diseases and how to cure them. Call for it at your local druggist or write us.

KENDALL'S
SPAVIN CURE

is invaluable. It cures Spavin, Curb, Splint, Ringbone or any other lameness, quickly and safely at small expense. Read what Leo Cadigan, of Embury, Ont., says: "I used your Spavin Cure on a horse that had Ringbone, and it cured him in four weeks time."

Kendall's Spavin Cure is sold at the uniform price of \$1 a bottle, 6 for \$5. If you cannot get it or our free book at your local druggist's, write us.

Dr. B. J. KENDALL COMPANY
Enosburg Falls, Vermont 81



ASTIGMATISM, STRABISM,
DIPLOBIA,

Uncommon words—maybe, but very common causes of

HEADACHE

We have glasses that remove these causes and give

IMMEDIATE RELIEF

If you have any trouble with eyes or glasses consult

A. D. SAVAGE,

Optometrist and Mfg Optician,
"Right at the Postoffice." Phone 627K

FLOWERS

We carry the best selection of Cut Flowers in the city. When you want something choice call on us or phone 866. Prompt delivery and careful attention to all orders.

McPHEE, Florist

Wellington Block.

BOND'S

Guelph's Big
Bright
Hardware Store
Has What
YOU Want



FOOTBALLS TOBOGGANS
SNOW SHOES
SKATES

HOCKEY GOODS
BOB SLEIGHS AND
SUMMER GOODS
IN SEASON

DAILY DELIVERY TO
COLLEGE

Hardware

∴

Sporting Goods

The BOND HARDWARE CO. LTD.

...The... Royal Bank of Canada

With which is amalgamated **THE TRADERS BANK OF CANADA**

Authorized Capital	-	-	\$25,000,000.00
Paid-up Capital	-	-	11,560,000.00
Reserve Funds	-	-	13,000,000.00
Total Assets	-	-	180,000,000.00

Branches throughout all the Canadian Provinces, the West Indies and Cuba, also at London, England, and New York.

Travellers' Letters of Credit and Money Orders or Drafts issued payable in any part of the world. Remittance Drafts cashed at ruling rates. Savings Bank Accounts carried for Students and Staff (interest allowed).

R. L. TORRANCE, Manager, - - - **GUELPH**

The Dominion Bank

GUELPH

CAPITAL PAID UP	-	-	-	-	\$5,400,000.00
RESERVE FUND	-	-	-	-	7,100,000.00

A General Banking Business Transacted

Drafts bought and sold on all parts of the world

Savings Bank Department

Special attention paid to Savings Accounts. Interest allowed on deposits of \$1.00 and upwards.

Every convenience will be afforded students for the transacting of their banking business.



Go to **Petrie's** For

**Drugs, Kodaks and
Confectionery**

2 STORES

Our Kodak Department is at your service. We develop and print, also carry a full line of supplies for Kodaks and Cameras.

Our Confectionery Department—for fresh candies, ice cream and lunches.

A Box of Chocolates may have been fresh when first packed, but how can you tell by looking at a sealed box? Petrie's chocolates are made in Guelph—fresh every day—shown to you in an open box and are sold only at Petrie's two stores. ***Cor. Wyndham and McDonald Sts.***

1914

1914

O. A. C.

Students Should Try Some of Our
DELICIOUS BON BONS
put up in all sorts of fancy packages
---quality unsurpassed.

We Cater to the Best Class of Trade

Hot Drinks Lunches

Cold Drinks

Everything for Refreshment



The Kandy Kitchen

Young Men Stay in Canada

Advise Your Friends to Come to
CANADA

Nowhere in the world are to be found so many and such
good openings for a career in

Agriculture

FRUIT-GROWING, DAIRYING—WHAT YOU WILL!

The cry now-a-days is "BACK TO THE LAND," and
CANADA has got the LAND

The day of CANADA'S PROSPERITY is the day of

Your Opportunity

Do not neglect it. Think this over.
You can never do as well anywhere else.

Tell your friends to apply for further information
To

W. D. SCOTT, Superintendent of Immigration, Ottawa.

Or to

**J. OBED SMITH, 11-12 Charing Cross, London, S. W.,
England.**

DE LAVAL

EQUIPMENT

For Farm, Dairy or Creamery



DE LAVAL equipment is first, last and always high-grade and dependable and includes only such machines and supplies as are known to be absolutely reliable and "standard."

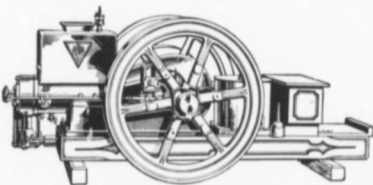
Ideal Green Feed Silos

It isn't too early right now to plan for the erection of a silo next summer.

The more you investigate the advantage of having sufficient silage to feed your cows all winter, the sooner you will decide to erect a silo; and if you thoroughly investigate the silo question you can scarcely escape the conclusion that the Ideal Green Feed Silo is the best silo for you to buy.

"Alpha" Gas Engines

2 to 28 H. P.
Water cooled or Hopper Cooled.
Portable or Semi-Portable.
Uses all fuels.
Easy to start.
Equipped with magneto.
Develops full power.



The Most Convenient, Reliable and Economical Power for the Farm, Dairy, Creamery or Shop

THE "ALPHA" Gas Engine is the highest grade and most reliable engine that you can buy for any purpose whatever; but on account of its simplicity of construction and reliability of operation it is unusually well adapted for farm use.

Dairy and Creamery Supplies

The DE LAVAL line of dairy and creamery supplies for milk dealers, creamerymen, cheese makers, and dairy farmers is by far the largest and most complete in Canada. We handle nothing but high-grade goods, and successful dairymen know that this is the only kind they can afford to buy.

Our Service Department insures proper installation of all machines and supplies and is always ready to cooperate with our customers.

We issue catalogues of each line. Any of these Mailed upon Request.



VICTOR CHURNS

De Laval Dairy Supply Co., Ltd.

Largest Manufacturers of Dairy Supplies in Canada.

Exclusive Canadian distributors of the "World Standard" De Laval Cream Separators.

MONTREAL PETERBORO WINNIPEG VANCOUVER