

Vol. XVIII.

No. 4.

The
D. N. G.
Review

JANUARY,

1906

QUALITY
TELLS

QUALITY
TELLS

Cream Separator Facts

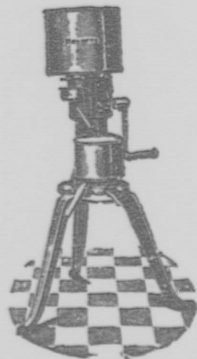
Talk No. 4

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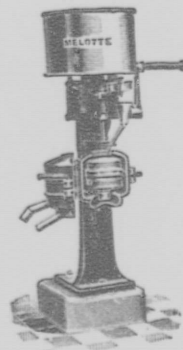


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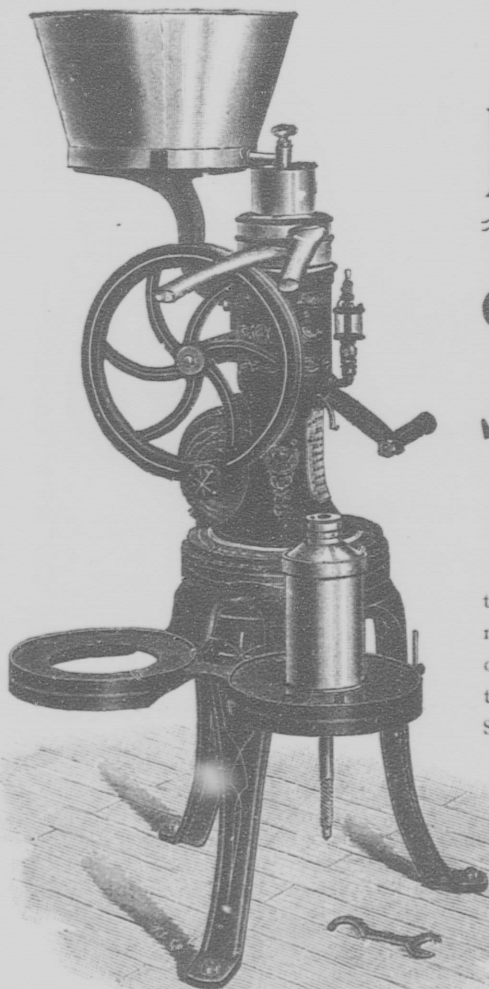
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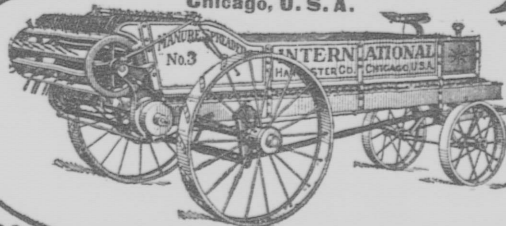
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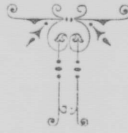
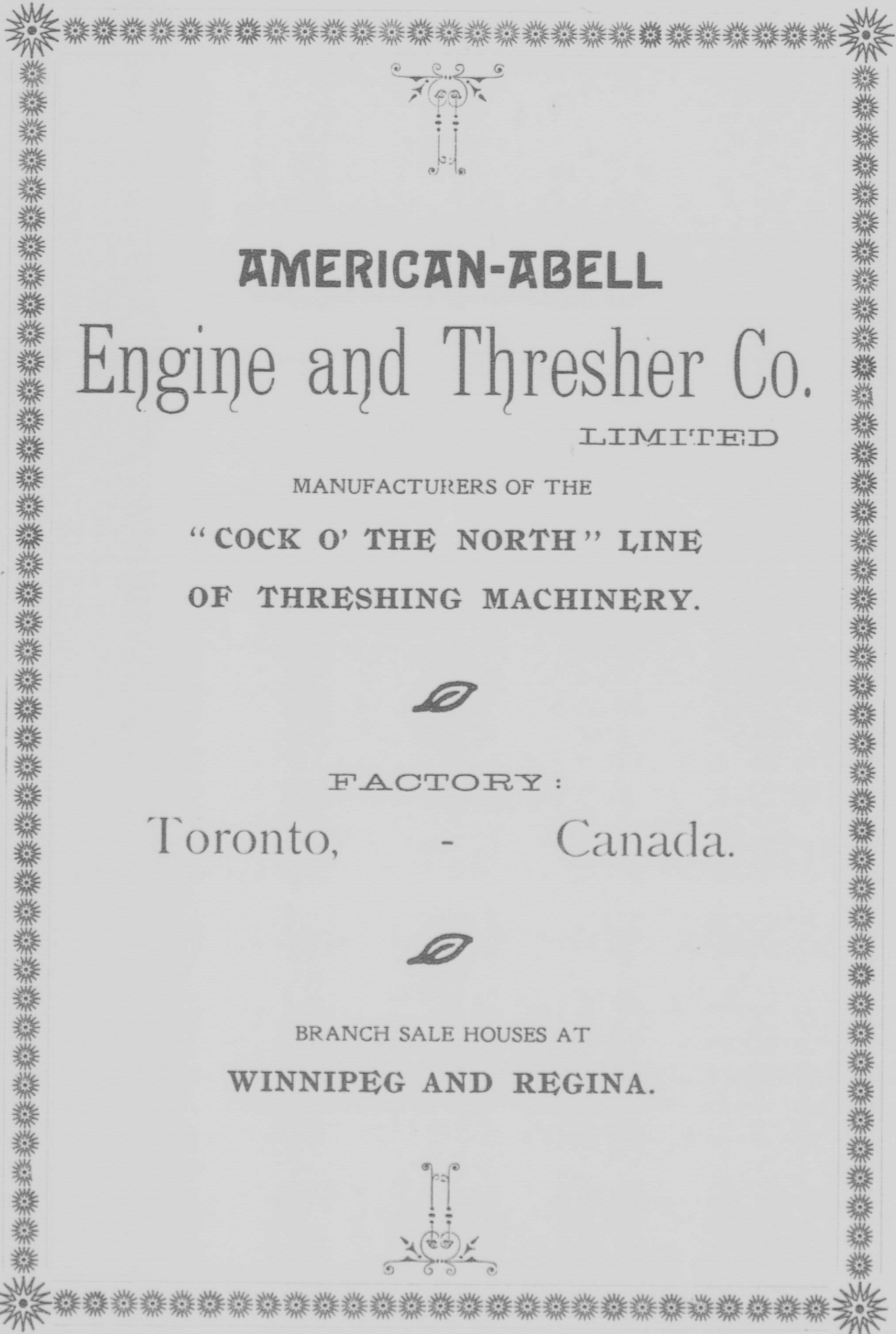
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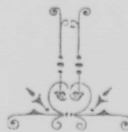
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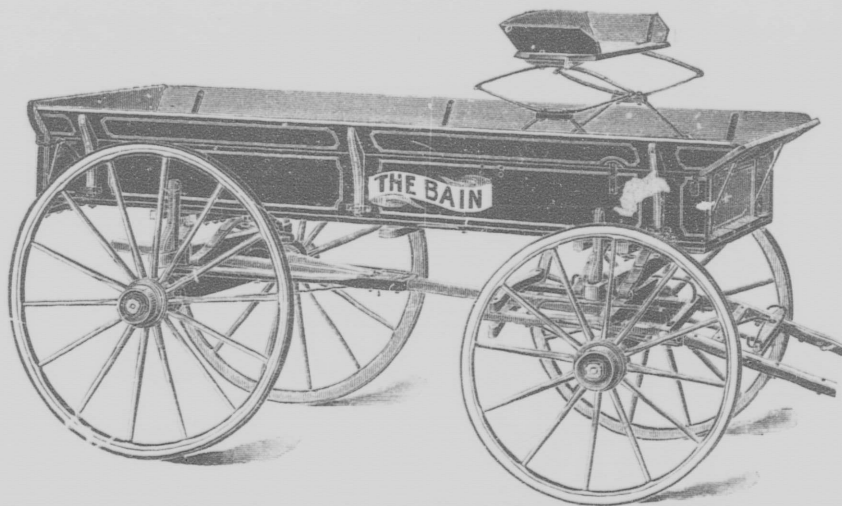
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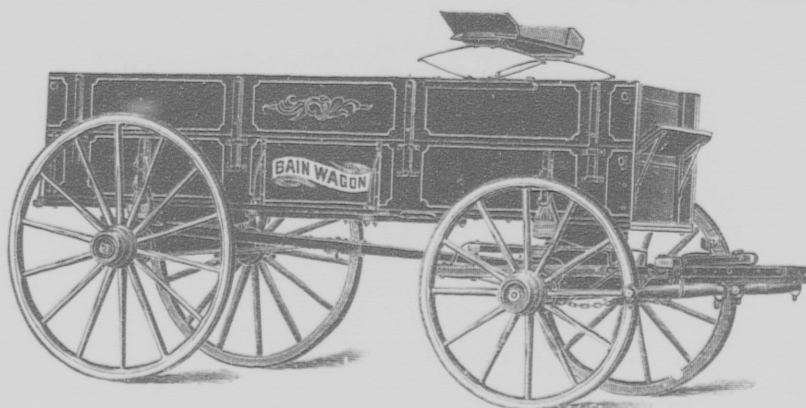


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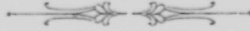
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by the Students of the Ontario Agricultural College, Guelph, Canada.

THE DIGNITY OF A CALLING IS ITS UTILITY.

VOL. XVIII.

ONTARIO AGRICULTURAL COLLEGE,
JANUARY, 1906.

No. 4

Power Spraying.

By P. W. HODGETTS.



THE use of spray pumps of any description for orchard work, is of comparatively recent date. Professor L. O. Howard, of the U. S. Department of Agriculture, states in the Year Book for 1896, that, at the time when the investigation of the cotton caterpillar of the South was begun, just before 1880, practically no spraying machines were on the market. The discovery at a somewhat later date of the value of liquid applications as fumigicides for vineyard work brought about the invention and manufacture of a serviceable series of knapsack pumps, and the almost simultaneous discovery of the applicability of liquid poison, as a remedy against the codling moth and plum curculio. In apple and peach

orchards, it started the construction of hand spraying apparatuses on a larger scale and mounted upon wheels for orchard work. A still later outgrowth in this line of work is the adoption, although to a slight extent, of horse power at-

tachments, bringing about a spray through the slow progress of the horse through the orchard.

Speaking to the members of the Fruit Growers' Association of Ontario at their annual meeting held in Orillia, December 4, 1894, Mr. John Craig, the Horticulturist at Ottawa, stated that, "where the area to be sprayed exceeds 15 acres it will probably pay to buy a horse-power pump. These are now made by several firms dealing in force pumps. One which I have used at Ottawa during the past season, was



P. W. HODGETTS
Fruit Division, Toronto.

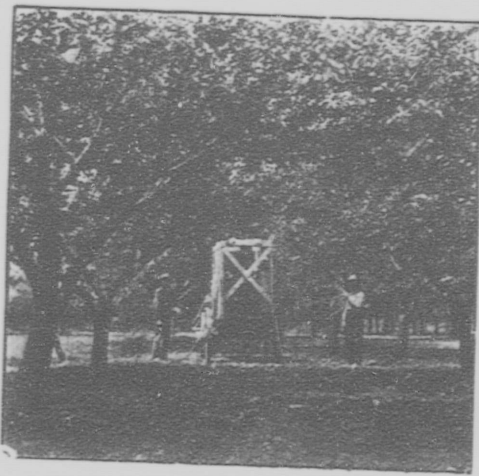
purchased from the Field Force Pump Co., of Lockport, N.Y." From this statement one would gather that as yet in Ontario, nothing more powerful than the wheel-gearred cart machines were known.

In a later report (1897) during the discussion on spraying, a question was asked by a prominent fruit grower, if any member had any experience in working the spraying pump by gas engine or small steam engine. One of those present, who is now a strong advocate of power sprayers, replied, "that the pumps nowadays work so easily that there is no need for any more application of machinery to drive them." However, at the meeting of the Fruit Growers' Association in Walkerton, in 1902, Professor John Craig, of Cornell, advocated the use of gasoline as a motive power for spraying machines. In the spring of the same year, Mr. McKinnon, Chief, Fruit Division, Ottawa, was authorized by the Minister of Agriculture to conduct a demonstration in power spraying in order to see if, by that method, they could spray more efficiently and economically than by the old method, especially when labor is dear. In order to test the method, a gasoline power outfit was sent to Woodstock, where some twenty small orchards were accepted for the work. The conditions were not of the best, as the orchards were of all sizes and descriptions. Despite these and other drawbacks, the results of the work that year, and again the following year, were phenomenal. The cost per mature apple tree per spraying was slightly less than five cents, or a total of 25 cents for the five sprayings applied in this test. This may seem high, but as Mr. McKinnon expressed it, "Suppose the crop were only one barrel per tree, can you make 25 cents by having that crop clean?

What is the difference between XXX fruit and inferior fruit in the market? Fifty cents, seventy-five cents, or one dollar."

A party of prominent fruit growers, and newspaper representatives, visited these orchards the second year of the test, under the guidance of Mr. McNeill, who had succeeded Mr. McKinnon as Chief of the Fruit Division. As orchard after orchard was carefully looked over, the efficiency of the work became more pronounced. In a year showing plenty of fungous development, the condition of the fruit in these sprayed orchards was such as to bring joy to the hearts of the owners. In fact, practically the only apples bought by the dealers for export around Ingersoll that fall, were those sprayed by the Government outfit. The result to-day is that two gasoline power machines and one cart sprayer are operating in that district as a result of missionary work done by the Dominion Department of Agriculture, during the years 1902 and 1903, and thousands of barrels of first-class fruit are now being exported where formerly these apples rotted on the ground or were hauled to the evaporator.

These results were published far and wide over the Province, and did much to awaken the apple growers to the advantages of the system. The Department of Agriculture was not the first by any means to adopt the use of these machines, as in the Niagara District Mr. Jos. Tweedle, of Fruitland, was using compressed air as the motive power, Mr. Vance Cline, of Grimsby, gasoline, and Mr. D. J. McKinnon, steam, and all with signal success. The Department, however, deserves all the credit for undertaking this educational work, in the face of so many difficulties, and carrying it to such a successful conclusion. This



Power Outfit at work in an Orchard at Trenton.

spring, only three years after Mr. McKinnon's first attempt, there were operated in Ontario over 25 of these power machines using gas or gasoline, in addition to a large number of powerful wheel-gear pumps.

The Honorable Nelson Monteith, at the request of the Fruit Growers' Association of Ontario, early in the spring of 1905, consented to place a number of power machines in operation in Ontario. After considerable inquiry, two machines were chosen representing entirely different types, and were sent to Meaford and Trenton respectively. An account of one of these machines and the conditions the operators met with is given here.

MEAFORD.

The machine used here is perhaps the most simple of the pumps in use. An enamel-lined, iron tank of over 80 gallons capacity, was mounted on a two-inch plank platform. Above and around this tank stood a light steel tower which was bolted firmly to the platform, from the top of which one of the operators worked. Two lines of $\frac{1}{4}$ inch

hose led from the bottom of the tank, one to the tower, and the other to the men working on the ground. Each operator was supplied with a brass lined bamboo pole, from 8 to 12 feet in length with a 4-nozzle spray cluster at the end.

When the contents of the tank are about half gone, as shown by the water gauge, the pressure is run up to 100 lbs. and then shut off entirely. This amount of gas then suffices to force out the balance of the mixture, and leaves about 40 lbs. pressure at the end of the run, which must be allowed to escape before the spray tank can be refilled. At present the price of the gas, 7c. per lb., is rather against the use of these machines, about 300 gallons of the mixture costing \$1.75 to apply. The simplicity of the machine, however, goes a long way toward overcoming the additional cost of running it.

TRENTON.

At this point a small number of large orchards were experimented with. Six orchards ranging from 5 to 35 acres in area were selected within a distance of seven miles, and three sprayings were applied, beginning about May 13th, and finishing on July 10th. Mr. T. B. Rivett, B.S.A., was in charge of the work at Trenton after the first week. Rain interfered materially during the spring, but hardly to the same extent as at Meaford.

Gasoline supplied the power here, a 2 $\frac{1}{2}$ h. p. engine being geared by sprocket chain to a duplex pump of the well-known Spramotor manufacture. The entire outfit, including wagon, was supplied by this firm. The half cylinder tank of cypress had a capacity of 200 gallons, and was supplied with a dashing agitator extending from end to end of the tank, and operated by a rocker arm from the pump. The tower was of wood and the platform on top was built large enough to hold two men. The wagon was supplied with heavy bolster

springs, and the outfit with empty tank weighed 2550 lbs.

Much has been said against the gasoline engine as a source of power, and doubtless many difficulties have been experienced with them in the past. Rapid improvement has, however, been shown in their manufacture and we may expect soon to have a strong light engine that will run continuously under the trying conditions necessitated by a spray outfit, without any annoying break downs. The weather at spraying time is of such an uncertain quality that delays are serious. To the credit of the manufacturers of the engine used at Trenton, I may state, that after the first few days acquaintance, only one break down of any consequence occurred. Trouble was experienced at the start with the cooler tank, which holds the water for cooling the cylinder of the engine, and some better system should be devised. The engine itself weighed over 400 lbs., rather too great an amount for orchard work, especially where the soil is in such condition as it was in most cases this year.

The same equipment of rods and nozzles was used here as at Meaford, and gave good satisfaction. The angle of spread of the nozzles, in the new ring clusters, is hardly wide enough for work after the foliage is fully open. With continuous pressure of from 60 to 120 lbs., an enormous area of leaf surface can be very quickly and efficiently covered with the fine mist that results, and the wider the spread, up to a given angle, the easier and more efficiently can the work be done.

The results at Trenton, with one exception, were excellent. Crops were good, and splendid prices for the fruit were realized. The ten-year-old Ben Davis orchard, on the farm of Mr. W. Farley, an ex-student of the College, was a revelation to the writer. Nowhere have I seen such a crop of apples, either as to quality or quantity, and the owner richly deserves the reward he reaped this year, for the care he has taken of this orchard. On the farm of Messrs L. and A. Little, the 600 or 700 Spies were just sufficiently loaded, to produce a crop of beautiful specimen apples. Another Spy orchard,

belonging to Mr. Funnell of Trenton, was heavily loaded with perfectly clean fruit, and should bring magnificent returns this year, when apples, especially those of the higher grade, are at such a premium. Mr. Bellew reports that in his orchard, the bitter rot, quite noticeable in former years, is very much reduced by the spraying this year. In many of these Trenton orchards, the trees are altogether too close, and severe treatment even to removing every other tree, would be a decided advantage in the end.

Now as to exceptions, for 'tis said that for every rule, there is an exception. On the farm of Mr. W. Arnott, where some thirty five acres or more were sprayed, there were three young orchards, about twenty acres in extent, containing 600 or 700 Ben Davis trees, with 300 of Fameuse, Wealthy, Stark, Baldwin and Greening. The trees have been set out from nine to eleven years, and are in light sand. The land was cropped this year with oats and buckwheat. In August, Mr. Arnott wrote saying, that the foliage, fruit and twigs, were badly injured by the spraying. On examination, the fruit of the Ben Davis were was found to be specked and russeted and fairly small as compared with neighboring orchards. Mr. Arnott also claimed that about half the foliage had turned yellow and fallen off. The other varieties were not injured to any extent while the older orchards were in splendid shape. This condition of the fruit continued until the end of the season. No serious injury resulted to the trees.

These orchards were sprayed at the same time as the others, with the same mixture and by the same men. Why the difference? Experts have examined the trees and given various reasons for the injury, among these, winter killing of the roots, Aphids, the weather, and insufficient lime to neutralize the copper sulphate. The latter theory hardly applies, as a record was kept of the actual amounts of chemicals used in every case, and care was exercised in testing each tank of the mixture. From correspondence received from prominent authori-

ties, in both Canada and the United States, the most reasonable explanation is that of injury from spraying, as a result of the weakened condition of the trees, from the effect of the winter killing, during the severe winter of 1903-4. Some such secondary cause must have



Grape vine leaf showing good work done by power vineyard sprayer.

been present, or similar injury would have occurred wherever the spraying took place.

Now what of the future for the power sprayer! Each large grower will undoubtedly operate his own outfit, as many of them now do. Through the Niagara District, where fruit growing is the staple industry and spraying is considered one of the regular operations of the year, the hand pump is being already succeeded by the power machine. But what of the thousands of acres of apple orchard scattered over the Province, from whence came largely our 50,000,000 bushels in 1904! To the ordinary farmer, owning from one to ten acres of orchard, the difficulties incident to spraying by hand are such that the operation is almost certain to be crowded aside by work considered more important at the time. The returns from these small apple orchards have been varied and disappointing in the past, so much so that

in nine cases out of ten they have been woefully neglected.

Here is the opportunity for the power sprayer. The sprayer, like the thrasher, will arrive with his machine and his assistants, make up his mixture, or use what the farmer has already prepared for him, fill up his tank, spray the trees and disappear until the proper time comes again for the operation.

The work will be performed more efficiently, and more cheaply than the farmer can do it himself. No trouble! No worry! The thrasher could take up this work at a season of the year, when he is otherwise idle. Can it be done you ask? It has been done. The past year, a number of machines were operated in this way in Ontario, chiefly in the South and West. The farmers in most cases prepared the mixture, the sprayer applied it, and charged from 1½ cents to 2 cents per gallon for the operation. The results were highly satisfactory.

Co-operation among our fruit growers is tending toward more than merely disposing of the crop. In fact, in some instances, co-operation came about largely through this very question of spraying. To-day, according to the by-laws of one or more Associations, the members are required to spray at least four times and no fruit will be accepted unless such is done. In others, the spraying is done by the Associations who own and operate the machines and the work charged to the individual members at so much per tree. There is no doubt that in the northern and western parts of the Province, spraying must be practised if a marketable crop of fruit is to be produced. To properly dispose of this fruit from these small orchards, the co-operation movement seems the only successful solution, and the same movement will in most cases solve this vexatious problem of spraying. Much has been done for these Associations by the Department of Agriculture, through the Institute system, the Agricultural College, the Fruit Branch and the Fruit Growers Association, but much more still remains to be done. That the movement may prosper, will be the wish of all interested in fruit growing.

Farmers and Politics.

By W. C. GOOD, B. A.

II.

IN my last article I stated that "political devices and machinery are of no use without a corresponding suitability in the human beings that utilize them." It is equally true that the development and education of the individual as a political unit, and also as a social unit, depend for their accomplishment upon suitable political devices and machinery. Institutions and individuals act and react the one upon the other, and it is impossible to isolate either one of them as either cause or consequence in any social movement.

I have already indicated some of the lines along which it seems to me necessary that the average Canadian farmer should be educated in order that Democracy may become a fact among us, and not merely a name. I wish here to describe two political devices whose adoption, I believe, will contribute in no small degree to such education, and will also secure to the progressive elements in society as adequate means of expression as are now secured by the reactionary elements. One of these devices is the method of Direct Legislation as contrasted with the present method of Indirect Legislation; or rather, I should say, the *extension* of the Direct method by the Optional Referendum and the Popular Initiative. The second device has to do with a modification of our electoral methods, so that legislative bodies, whether in Township, County, Province or Dominion, may actually *represent* their constituencies and not, as at present, represent only the majority in those constituencies.

As far as the North American continent is concerned representative assemblies are degenerating, and it cannot be denied that popular disapprobation and distrust of legislative bodies is one of the most conspicuous features of present day political thought. The public either accuses or suspects legislatures of being susceptible to impure and unpatriotic influences. Our neighbors to the South have experienced many "betrayals" by their representatives, and their distrust of legislatures and city councils has shown itself in far reaching

constitutional changes. The powers of governors, mayors, judges and administrative boards have been increased at the expense of those of state and city legislatures. The executive veto is growing in popularity, and administrative boards are superseding legislatures in many departments of the social life. The situation in the United States has been aptly summed up by Professor Commons, of the University of Wisconsin. I quote :—

“ This demoralisation of legislative bodies, these tendencies to restrict legislation, must be viewed as a profoundly alarming feature of American politics. Just as the duties of legislation are increasing as never before, in order to meet the vital wants of a complex civilisation, the essential organs for performing those duties are felt to be in a state of collapse. The legislature controls the purse, the very life-blood of the city, the state, the nation. It can block every other department. It ought to stand nearest to the lives, the wishes, the wisdom of the people. It is their necessary organ for creating, guiding, watching, and supporting all the departments of government. Above them all, then, it ought to be eminently *representative*. But it is the least representative of them all. Surely, then, for the American people beyond all others, and in a high degree, too, for all peoples who are developing self-government, it is pertinent to inquire carefully into the fundamental nature of their representative institutions, the causes of their failures, and the means, if any can be found, to adapt them to the exigencies of modern times.”

The above is also applicable to Canadian Politics, and reminds us that machinery which may have become obsolete should be renovated or abandoned.

The decay of our political institutions has prompted many people to suggest remedies for the social ills that afflict us ; and among all these remedies may be discerned a growing conviction that state interference and control will have to be made use of. Public Ownership is one of the cries of the day. The functions of Government are becoming co-operative as well as coercive. Government under Democracy is more and more viewed as the organ for the expression of the common will, and for the carrying on of those activities which must be jointly engaged in. And with this growing demand for the extension of state activity, we find that the organs for the performing of these duties are corrupt, unrepresentative and inefficient. We are, then, face to face with a most serious political problem, upon whose satisfactory solution the welfare and progress of society will largely depend. Let us see what Direct Legislation will do to solve this problem.

In suggesting the Direct Method as a substitute for the Indirect Method, the reader must not imagine that legislatures are to be dispensed with. The “ Representative System,” while theoretically

defective, is practically necessary, and is here to stay. Its advantages are obvious. But it must be improved and modernised, both by new electoral methods and by safeguarding it with constitutional provisions for popular *Initiative, Adoption, Veto, and Recall*.

Let councilmen and legislators be elected, and let them pass laws exactly as they do now, with the provision that no acts save urgency measures shall go into effect for a certain period after their passage. If, within this period, a certain percentage or number of the voters in the community sign a petition demanding the submission of such and such a measure to the people, let it be submitted, either at a special election or at the next regular election, according to its urgency; and until such time let it be inoperative. This, in brief, is the *Optional Referendum*.

Let it be provided also that if Council or Legislature refuse to take action on a matter of public importance, a certain number or percentage of the voters may, by proper petition, initiate such legislation as they deem suitable, and have the same submitted to a popular vote, the decision of which shall be final. Let the legislature also have the right of amending such proposed act and presenting its amendment to be voted on at the same time as that proposed by *Direct Initiative*.

These two modes of Direct Legislation secure immediate and effective popular control of legislatures. They give the people the right to prevent the passage of hasty, unexpected or ill-advised legislation, and the right to initiate such measures as they deem proper. The *Optional Referendum* will put a stop to these "betrayals" of the people by their so-called representatives, and the *Initiative* will remove many great questions from the arena of party strife, where, for so long, they have been trifled with. Both methods will have a reflex action on the community in inducing a sense of individual responsibility for collective action; for the final political power and responsibility now delegated to legislators, will then be formally placed where they really belong.

Space forbids my showing how the extension of Direct Legislation in the above mentioned ways does not involve any new departures, how it is in complete accord with British institutions, and how rapidly it has grown in favor in the Republic to the South. Nor can I here trace the development of Direct Legislation in Switzerland, its peculiar home, and what it has accomplished there. Nor can I quote opinions of prominent statesmen and scholars concerning this method. I shall limit myself to an enumeration of (1) certain generalisations which have been pretty well established regarding Direct Legislation, (2) Arguments for, and (3) Objections to this system.

1. (a) Greater discrimination is generally used in voting on measures than in voting on men.

(b) Referendal voting is largely independent of party ties.

(c) Laws passed by legislatures and councils are often rejected.

(d) The action of the referendum is conservative.

(e) Complex and difficultly understood measures are usually rejected; so also are those suspected of concealing any trick or corruption.

(f) The referendum tends to automatically disfranchise the unfit.

2. Reasons for :—

(a) *It is the Key to Progress.* It is the realisation of self-government, necessary for either national or individual character building. It contains within itself the seeds of self development. It is a stimulus to popular education. It has proven to be steadily progressive where it has been in operation.

(b) *It will tend to purify politics.* Bribery of the whole electorate is practically impossible. As Dr. James Bryce says: "The legislature can be 'got at'; the people cannot." The power of bribery would be infinitely diluted.

(c) *Direct Legislation will help to undermine partisanship.* Because when specific measures are before the people for consideration the party hue and cry become absurd.

(d) *It will have a profound educational effect.*

(e) *It will give a safety-valve for popular discontent.*

(f) *It will disentangle issues.* One of the most vexatious and objectionable features of our present system is that the people have no opportunity of passing judgment upon a Government's individual acts. When election time comes around one must lump the good and the bad, and swallow or reject the whole dose. One is not privileged to say: "Such legislation I approve; such other I disapprove." Under cover of a generally good administrative record bad legislation obtains sanction; while, on the other hand, good legislation may make amends for bad administration. So, too, one act is pitted against another, in judging a Government's record. This blending of issues, with the consequent confusion of thought, is an unmixed calamity, and should be made as difficult as possible, whereas now it is almost forced upon us.

(g) *Experience favors Direct Legislation.* Let me quote from Professor Waurin of the University of Geneva, writing in 1897: "In the middle of this century the aristocratic regime in Switzerland was succeeded by that of representative democracy. The pure representative system, however, was not destined to last long. The people soon became aware that in the latter regime the country was over-ridden by political 'coteries,' prone to sacrifice the general good to party or personal interests; and thus was brought about the development of direct democracy. Then appeared two institutions: the Referendum and the right of Popular Initiative, to which has of late been added, as a necessary complement, Proportional Representation."

3. Objections :—

(a) "It will be too expensive; will keep the people voting all the time," say some. The facts do not bear out this contention.

Statistics from Switzerland, where the Referendum has been in use (in Federal affairs) since 1874, prove the contrary. So also does the experience of those States in the American Union which have adopted Direct Legislation. Space prevents my giving this statistical evidence here, but I shall quote the testimony of the Governor of South Dakota. He said: "Since this referendum law has been part of our constitution we have had no charter mongers or railway speculators, no wild cat schemes submitted to our legislature."

(b) One might ask: "Why have a legislature at all with Direct Legislation?" Because skilled men are necessary in legislation and government as well as in every other department of life. The legislature becomes the emergency ruler and universal advisor.

Democracy is necessary for education, for progress, for manhood: and Direct Legislation is the next step in the evolution of the Democracy.

Reference has been made already to our Electoral methods, and it has been intimated that these prevent proper representation. Before examining how this is the case let me warn my readers to beware of confusing *majority representation* with *majority rule*. The latter is necessary and practically right; the former quite unnecessary and vicious. With this preliminary cautioning let us see how our present methods work out in a constituency which elects a single "representative,"—in what is known as the "single member district."

If you and I are voting on opposite sides in a single member district, my being represented is conditioned upon your being unrepresented, and vice versa. Our opinions and beliefs, by methods now current, cannot *both* be represented, as they ought to be, in the legislature. The minority is always unrepresented. Consequently a body of delegates chosen in this way does not fairly represent the country, and their deliberations cannot be in harmony with the average thought of the community.

Take some samples from recent elections. During the last Ontario election the popular vote in Toronto would have entitled that city to *three* Conservative members and *two* Liberal members. So represented the city would have been fairly represented. But as a matter of fact the city was represented, or rather *misrepresented*, by *five* Conservative members. So in Nova Scotia in the last Dominion election. The popular vote would have justified the election of about ten Liberals and eight Conservatives. As a matter of fact the Province was *misrepresented* in the House of Commons by eighteen Liberal members.

The glaring character of the misrepresentation possible under the single member district system is nowhere more conspicuous than in the United States. From a mass of statistics I select the following typical particulars:—

In Massachusetts, in 1892, 116,708 Republican voters elected 25 senators, while 119,045 Democratic voters failed to elect any. Michigan, in 1894, with a popular vote for Governor of

237,215 Republicans	30,002 Populists
130,823 Democrats	18,788 Prohibitionists

elected to the lower house of the state legislature 99 Republicans and one Democrat.

Under such conditions the "Gerrymander" flourishes, and forms an interesting subject for investigation. But were a system of proportional representation adopted the gerrymander would be instantly killed. Wherever the single member district system is in vogue, there we find the most anomalous conditions, and the most iniquitous election trickery.

One is almost tempted to suspect our general sanity when one sees this absurd and quite unnecessary method of election still existing among us. It is, however, a case of the survival of a custom long since ready for the grave. It would be interesting to trace the genesis and growth of the district system in England—whence it comes to us—but this cannot be dealt with here. It is sufficient to say that "it is time for a change."

I do not propose to even name the various voting methods that have been suggested to secure a fairer and more proportionate representation. They are numerous and some of them rather complicated. They are severally suited to differently situated communities. But it is quite easy to select from those suggested a method infinitely better than the one now in vogue.

Were our electoral machinery so modified that the independent and progressive elements in the country could get a representation in our legislatures, then a good deal of rigidity and corruption would give place to wholesome political growth. Sometimes it is not indifference which leads a man to abstain from voting. It is often a sense of helplessness, a realisation that for him there is possible no representation. He knows that numerically he and his companions are weak, and he is unjustly debarred from having any voice in his country's affairs. The practical disfranchisement of the minority, together with the disproportionate prominence of the majority, breeds arrogance on the part of the latter and bitter discontent on the part of the former; and, as a result, legislation is often either too radical or too conservative. Legislatures under our present electoral methods are bound to misrepresent the country, and, in all likelihood, fly from one extreme to the other. Were it impossible to escape from such unfortunate conditions, it would be but right to bear with them and seek in other ways to minimize the evils flowing therefrom. But when it is easy, were we so disposed, to change these methods, then I consider that inadequate and antiquated methods should no longer be tolerated.

With constitutional provisions for popular control of legislatures, and with any suitable method whereby those legislatures may actually and proportionally represent the communities whose affairs they regulate, with both or either of these modifications of our political machinery, we should have taken no small step in advance, and should have prepared the way for a better time to come, in so far as social and individual betterment arises from improved Institutions.

The Study of Insects.

By PROFESSOR FRANKLIN SHERMAN, M.S.

ENTOMOLOGY in its relations to agriculture has little to show in the creation of values. Aside from the honey-bee, silk-worm, and a few other insects native to tropical countries, there are practically none which yield any direct benefits to mankind. The principal benefits derived from the practical application of this study are in preventing losses which otherwise would occur. The spraying of an apple tree does not cause the tree to produce a greater number of blossoms, but it may greatly enhance the value of the tree by protecting its fruit from the depredations of codling moth.

Probably it is because of this lack of creative results, that it has taken us so long to appreciate the importance of a close and critical study of insects. The very fact that many insects are annoying has engendered a feeling of repulsion toward them, so that with many persons the sight of a beetle in the path suggests nothing more than crushing it under foot. A century ago, the man who collected and seriously studied these little creatures was regarded as an anomaly, a man of perverted tastes, a harmless mild sort of crank riding a useless "hobby." Even to-day in some sections, the sight of a man with a butterfly net, carefully, patiently and industriously collecting insects, arouses not a little curiosity, and if he, catching sight of some rare prize, makes a wild dash through the meadow, leaping obstacles, the net waving in air, grave fears may be entertained as to his

sanity. Perhaps this is not surprising.

"But all life is linked together in such a way that no part of the chain is unimportant. Frequently upon the action of some of these minute beings depends the material success or failure of a great commonwealth. . . . It is not a small matter to be able to view intelligently the facts presented by the insect world, to know something of what is going on around us. And so rich is this field that no one gains more than a mere smattering concerning it." (Comstock, "Manual for study of Insects," p. 48.)

Charles Wagner in "The Simple Life" says that the monocled critic in the box at the edge of the stage may grow weary of a play which the common people in the galleries may enjoy immensely, and as he points out, it is they who really derive the intended benefit from the play—they are living it, thinking it, and entering keenly into every new situation,—while the critic thinks them stupid to be so appeased by what is to him a poor presentation. So the man with no taste for natural history may pity the man who devotes his life to the study of tiny creatures, yet it is the latter who is really getting the good things out of life, by learning more and more of the secrets with which nature surrounds us on every side.

We know of no one who has ever accumulated a fortune as a result of his labors in this field, but several having a competence at first have devoted their resources to this study,—or poor from the start, have been content to remain

so, feeding the mind on the rich facts gleaned from observations. No far-sighted person enters into the study of the Biological sciences in the hope of accumulating money, for it is not here that fortunes are made, yet the constantly increasing number who are taking an intelligent interest in these matters, aside from practical dollars-and-cents aspects, shows that many are coming to appreciate a sympathetic love for nature, more highly than the accumulation of gold.

It is not necessary that one should become a professional entomologist in order to learn something of insects. Indeed, some of the most learned men of which the science can boast, are among those who have taken it up as a past-time, a recreation, a source of entertainment and pleasure for their otherwise leisure moments.

But despite the attractiveness of the study of insects as a means of culture and entertainment, the agricultural population demands some show of real results, before it is willing to regularly and liberally support such study as a part of its necessary facilities. Such evidence is not difficult to find. Competent entomologists have estimated that in the United States approximately one-tenth of the normal yearly agricultural output is destroyed by insects. Ontario has a yearly value of farm products estimated at \$500,000,000. If we lose one-tenth, it means \$50,000,000 which we pay in taxes to satisfy the demands of our insect pests. But we know that Ontario is large interested in live stock and dairying, and it may easily be that we do not suffer so much in proportion. Very well, just for the sake of being on the safe side, we will suppose that we only suffer a loss of one-hundredth, or

\$5,000,000 yearly, though that estimate must surely be too low. Of that amount \$4,000,000 is inflicted by not over thirty species, well known to entomologists. For these, certain preventative or remedial, or at least palliative measures, are well known, and easy to apply if one but has the foresight and energy to follow simple directions. Of course additional labor may be required, but that is a separate point which we cannot discuss here, further than to say that all remedies recommended for insects are reduced to their simplest known terms in this regard. These remedies will save more than one-half of that loss. We have here taken the extreme view to be sure that we do not exaggerate the benefits. Every cent of two millions can be saved from insect pests in Ontario each year by use of certain well-known measures. Of course the cost is to be considered, and it is a liberal statement to say that in the application of these remedies, one dollar will save a loss of five. We reduce the matter then to this basis: Will it pay to spend \$400,000 annually on our farms, if thereby we may save a loss of \$2,000,000? We sincerely believe that the benefits are greater in proportion to the expense, where the fight against insects is made with care and intelligence.

It is well known that in many seasons the potato crop would be entirely destroyed by ravages of the potato beetle if Paris green were not used to check the destruction. Yet how much more effective our fight might be, and how much more economical we might be of materials, if every farmer knew the entire history of the insect, observed the time of its appearance and disappearance, knew all the different stages of its growth (how many know this common pest in the *pupa* stage, the period which it

passes in a helpless condition underground?), where it goes to pass the winter, the best methods of mixing the poisons to be used against it, the exact quantity that is necessary so as to avoid waste, how to so time the applications as to make the least quantity do the greatest good? This is but one example from an insect which is known to every Ontario man who grows a patch of potatoes. Not one farmer in ten on an average knows that a grayish-brown moth is the parent of the destructive cut-worm,—still less do they know that there is a wide variety of species of cut-worms. Nor do they know that the brown May-bug or June-bug which buzzes about the lamp in early spring was a hungry white grub a month before, destroying his pasture turf or garden crops, and will soon (if it has not already) lay eggs in a sod field to produce another destructive brood. Nor do they know that the destructive wire-worm is but the young of the "click-beetle," "jumping-beetle," "snap-jack," or "hominy-beater," as these insects are called in various sections.

In order to derive the greatest good from the science of entomology there-

fore, the farmer should himself strive to become acquainted with every stage in the life of all his common pests, so that he may know how to time his operations so as to make them most effective. He should know how to kill the insect in one stage of its existence, in order to suffer less loss from it in another. The seasons may be utilized in fighting insect pests. If the farmer knows that the wire-worm is in the soil in a helpless stage in winter, he can recognize the benefits to be derived from plowing at that season. If he has carefully observed the time at which the Hessian Fly is active in his vicinity each autumn, he better knows how to sow his wheat, so as to be safe from fly and yet suffer a minimum from the early hard frosts.

To give exactly this needed information, to teach the farmer the appearance, habit, life history of his worst pests, to discover the best means of combatting them, this is the work of the economic entomologist. Yet withal not the least important point is to stimulate a love and admiration for these wonderful little creatures which swarm in every field and forest the world over.



Live Stock in Ontario

By F. W. HOBSON, Ottawa.

THE following table compiled in part from information obtained from the report of Ontario Bureau of Industries, will give a better idea of the conditions and growth of the live stock industry in Ontario, than pages of written matter:

ONTARIO LIVE STOCK.

	On hand July 1st.		Sold in year		Value per Head
	No.	Value	No.	Value	
HORSES					
1905	672,781	65,259,757	62,588	6,258,800	100.00
1900	617,309	46,916,999	47,926	3,774,480	79.00
1895	647,696	40,283,754	40,346	2,616,391	65.00
CATTLE					
1905	2,889,503	78,016,581	714,007	25,704,252	36.00
1900	2,429,330	56,320,810	560,893	18,017,989	32.12
1895	2,150,103	46,708,017	414,131	13,272,127	31.74
SHEEP					
1905	1,324,153	6,461,866	603,736	2,867,746	4.75
1900	1,797,213	7,711,496	690,058	2,872,609	4.16
1895	2,022,735	7,708,422	632,315	2,484,612	3.64
SWINE					
1905	1,896,460	15,399,255	2,267,583	23,582,863	10.40
1900	1,771,641	9,598,153	2,056,049	15,800,799	7.69
1895	1,299,072	7,101,211	1,159,992	10,067,667	8.68
WOOL					
1905	4,634,922 lbs.				
1900	5,805,921 "				
1895	6,214,811 "				
All Live Stock					
1905	165,137,459		54,413,661		
1900	120,547,458		40,465,877		
1895	101,801,424		28,440,797		

The number and growth of each class is given above. We will now consider quality.

HORSES.

There are now more good draft horses in Ontario than there were twenty years ago. Draft horse breeding has been more carefully conducted. Better stallions have been used and more knowledge and care displayed in mating. There is yet great room for improvement in this respect. The increase in the average price

during the past decade is not entirely due to improved quality, but to the condition of supply and demand. The total average increase in price may be accepted as \$35, as shown in the right hand column of the above table. Of this sum, improvement in quality will not account for more than \$10 per head.

CATTLE

In beef cattle, the quality is not as good as it was twenty five years ago, and a less number of good specimens are available, although the Exports from Canada show an increase. This is due to the opening up of the Western Provinces. The cattle therefrom are generally speaking better bred and often in better condition than many of those seen in the Toronto market. Nevertheless, here and there in Ontario, we find men producing and annually selling a number of as good beasts as can be found elsewhere, either in Britain or America. Generally speaking, Ontario bred fat cattle are worth one cent per pound less than many of the American beasts exported through the port of Montreal. Yet in the above table, we find that the price of animals sold has slightly increased during the past ten years. This is due to the improvement in our dairy herds. Dairying has expanded in Ontario and is likely to do so unless retarded by the scarcity of labor. The average value of the dairy cow in this province has, in many sections, greatly increased during the past twenty years; the improvement will be more marked during the next ten years. The advance is due to the use of more suitable sires, more careful selection and better care, and more liberal feeding. The teachings obtained at Farmers Institute meetings, the Dairy Associations and the Dairy Schools have been of incalculable value to Ontario. Dairying has had something to do with the increased value per head of the butchers and export cattle. Farmers in some cases have used bulls of the dairy breeds and have tried to make export cattle of the produce. A calf bred in this way, should not be used for this purpose. Such a course is never profitable to the producer nor to the country. When a dairy bred calf is fed on whey and tortured by flies for the first six months of its life, and badly fed and cared for until say, the last six months of its existence, what can be expected but a raw boned beast, unprofitable to each person who has anything to do with it. Generally speaking the dairy farmer will not find it profitable to produce beef beasts from dairy bred stock and should not attempt it.

SHEEP

In Ontario there are fewer sheep and generally speaking these are of poorer quality than formerly. The increase in price is due to supply and demand.

SWINE

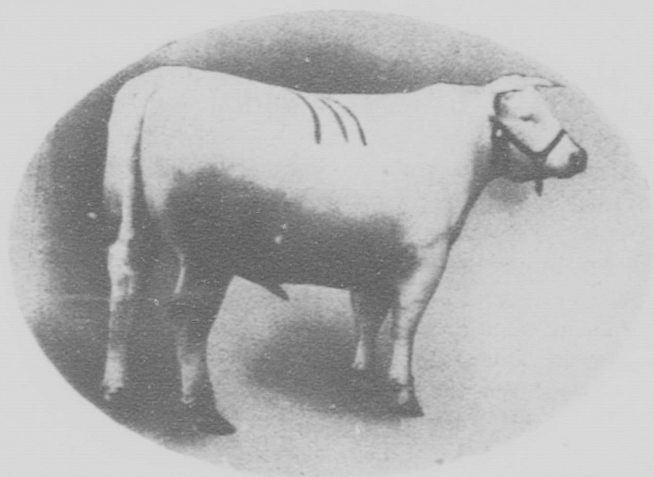
During the past twenty years swine have increased in number and greatly improved in quality. This improvement is entirely due to the educational propaganda first started by the Wm. Davies Co., Toronto and the Ingersoll Paching Co., afterwards systematically taken up by the Ontario Department of Agriculture, through the Farmers Institutes and the Guelph Fat Stock Show, and by Professor Day at the Ontario Agricultural College. This educational work has been worth millions of Dollars to the Ontario farmers. In fact it has recently been worth annually the entire cost of administering the Government of Ontario. Similar systematic efforts and teaching should be developed and carried on in regard to the breeding, feeding and marketing of Horses, Cattle, Sheep and Poultry.

The pure bred flocks and herds of Ontario are quite apart from general conditions and may be treated in a future article.

The Provincial Winter Fair.

MUCH has been said about the Winter Fair, both in the general and in the agricultural press: but the particular relation which the Fair bears to the agricultural student at college has hardly been touched upon. It must be remembered that much difficulty was experienced in getting the Fair located at Guelph in the first place, for Toronto, so noteworthy for taking all good things to herself, tried hard to

cattle there were 48, in dairy cattle 31, in sheep 16, and in swine 42. A competition such as this, besides possessing the psychological value of any contest, especially trains in the ability to seize upon essential points and to make comparison at once. This requires, we consider, next to the mathematical, the exercise of the highest purely mental faculty, and, therefore, if there were no more at the Fair to be obtained by the agricul-



The Type that Wins.
Grand Champion at Provincial Winter Fair.

get this also. One of the principal reasons for holding it at Guelph was the educative value it would carry for the agricultural student.

To intensify this feature, an annual judging competition was inaugurated last year, and ten prizes are now given in each of the following classes:—Dairy cattle, beef cattle, sheep, and swine. To know whether this has been appreciated, we have but to look at the entries in the recent competition. In beef

tural student than the privilege of entering the judging competition, there would be in it alone sufficient justification for the present location of the Fair.

But it has other values for the student. During the week, all regular lectures are suspended, and he is privileged to use the time in the examination of the best marketable stock in the country. The block tests illustrate why certain points are desirable in animals, and impress upon him what has been given in

the lectures on animal husbandry during the term.

Nor is this all. The kindness and readiness with which the exhibitors attempted to answer any questions of the students was the subject of frequent complimentary remarks. Now since "in the multitude of council there is wisdom," the students find, that by coming in touch with men who have met the various difficulties of agriculture face to face and have emerged successfully, they obtain much matter that may be turned to good results in after years.

The Winter Fair is growing more and more in public favor. We are sorry that it has no place for horses but if succeeding years show such marked developments as the past few years have done, we may soon hope to see the horse interests take a place beside those of other classes of live stock.

Those standing first in the judging competition were as follows: Beef cattle, J. Bracken; Dairy cattle, W. J. Hartman; sheep, J. A. Clark; swine, J. D. Gilmour.

The International.

AT this late date it seems rather out of place to make observations upon the International Live Stock Exposition and yet, considering that it may be looked upon with the perspective effect of a short distance of time, a few remarks will not be out of place.

This was without question one of the greatest exhibitions of live stock ever held, whether considered from the standpoint of number of exhibits, quality of exhibits or number of visitors. The thousands of spectators comfortably seated around one arena, the array of horses of every breed from the tiny ponies to the massive drafters, the row upon row of cattle, the flocks of sheep of every breed and the herds of swine all contributed towards filling the amateur with awe and wonder, the student with enthusiasm and the artistic breeder with admiration and inspiration. The canny Scot was roused beyond his wont when the long line of Clydesdales, followed by as many Galloways, and headed by the pipers appeared on parade.

Proud too was the Canadian to see his

country so well represented in an alien land, for, considering the relative populations of the two countries and the relative areas of land under cultivation, there came to Canada and particularly to Ontario a high percentage of the prize money. Nor is this the best. Look a little higher and consider whence the best American thought in Agriculture came from. Four out of the seven competing teams in the judging competition had been trained by O. A. C. men and most of the judges and officials where agricultural skill was required had received their training at the same institution.

One item too of which we do not see much mention in the American press, but which we consider of no small significance is the winning of the trophy in the students' judging competition in cattle, sheep and swine. Although this trophy has been contested for annually for a number of years, this is the first time it has come to Canada, and consequently this year's success speaks well for the staff and students we now have

at the O. A. C. The banquet given by the American Federation of Agricultural Students was a new feature and one which bodes for good in the future interests of agricultural colleges. Its immediate effect is to bring the students of the various institutions into a more friendly relationship and to give to all a broader conception of Agricultural interests throughout the world. The topics dealt with were as varied as were

the conditions of life with which the different speakers had been surrounded. And here again we were glad to see the impression of Canadian thought, for all but one of the professors who spoke had been O. A. C. students, and no speech of the evening evidenced such sound judgment as that of our own representative, who took as his subject "The Guelph Graduate."



The Short Course.

THE winter is the time for the farmer's vacations. It is then that the shiftless farmer is found near the stove oftener than hard work would warrant, and the up-to-date farmer is found preparing himself for Spring by putting his machinery in order and selecting his seed grain. Those in the foremost of the profession spend the long evenings in adding to their store of knowledge, both for the sake of culture and with the purpose of gaining more from Mother Earth with next season's toil than has ever been obtained in any previous year. Now, it was with a view to giving men of the latter class particularly, better opportunities in this respect that the two weeks course in stock and grain judging was instituted, and the fact that it is annually so well attended is an indication that the idea is a good one and that the efforts of the instructors are appreciated.

The purpose and importance of the Short Course from the very fact of its brevity must necessarily be limited. The purpose is to give the farmers, who are willing to spend two weeks from their home some better ideas on the selection and handling of live stock and seed grain. Incidentally, along other lines, they are given information, which has been obtained in the several departments of the college, as the result of careful systematic

experiments. The importance of this does not remain with the farmers alone who have been in attendance, but it spreads to their neighbors and thus it is that we see men all over the country modifying their systems of farming from year to year in accordance with some hints thrown out at the Short Course.

The burden of the work falls upon Prof. Day, Mr. Arkell and Dr. Reed for live stock and Mr. Buchanan for grains. But they are not alone. Prof. Day has been very fortunate in obtaining such men as Dr. Smale of The Wm. Davies Co., and Mr. Gosling of Kansas City, who are authorities on the requisites in meat producing animals. Prominent breeders are invited to enter into the discussion of the respective merits of different animals brought before the class for inspection and in the arguments which sometimes follow much information is to be obtained. When one hears Mr. John Dryden, who has been a successful breeder of Shorthorn cattle for nearly half a century, discoursing upon his favorite breed, he feels that he is listening to one who can speak with authority on his subject.

What the Short Course may develop into is hard to say, but if it continues to grow in favor as it has been doing in the past it will soon have to be divided, and it is an open secret that those in authority are looking forward to winter courses in Agriculture at the High Schools.

The Senior Agricultural Class Excursions.

FOR a number of years it has been customary for the Senior Class in Agriculture to visit the most prominent stockmen living within reasonable reach of the College, and this year proved no exception. The reason for these excursions is two fold: first, the inadequacy of the equipment of the live stock department at the College, particularly in horses, and second, the practical knowledge gained by the students in meeting and conversing with prominent breeders and in examining the best stock of the country in its natural and unfitted condition.

The first visit was to the sale of W. D. Flatt, Esq., of Hamilton. At the dispersal sale of so noted a herd, many of the best representatives of leading Shorthorn families are offered and good prices rule. While to the uninitiated \$2,100, the selling price of Gold Cup, may seem to be a long price, to the College student it is but a concrete example of what is possible when theory in breeding is intelligently applied. The full meaning of scientific agriculture is more readily impressed upon him amid such surroundings than it is in the lecture room and when he again returns to his text books, it is with quickened enthusiasm for his chosen profession.

In the vicinity of Guelph were visited the Shorthorn breeders and feeders, Major Hood, Ed. E. Myers, Esq., and R. W. Elliott & Son, all of whom brought out remarkably good animals for inspection.

Mr. Jas. Bowman, whose name has appeared not a few times on the lists of prize winners at exhibitions of International importance, presented some fine types of Aberdeen Angus.

Mr. Sorby was visited for Clydesdales and Hackneys, but at a rather inopportune time, he being absent in England, making purchases for a big importation which has since arrived.

For sheep, Whitelaw Bros. gave illu-

strations of Leicester type, Mr. J. Hume of Lincoln, and Mr. Henry Arkell of Oxford. These men are too well known among sheepmen to require any comment here.

But the best trip of all resolved itself into a three day excursion to the country north of Whitby. Here the boys had the opportunity of seeing what is perhaps the centre of live stock interests in Ontario. The hospitality received was also well worthy of praise.

At the farm of John Dryden and son, "Bill," was in particular evidence and spared no effort to give the boys what they were after. Several classes of Shorthorns were brought out, among which was the bull that afterwards proved to be the winner in the Senior Yearling Class at Chicago. Several classes of Shropshire sheep were also presented for examination.

Smith and Richardson showed a stable of Clydesdales of high merit, and gave some valuable information on the type desired in this breed.

Mr. Arthur Johnson took particular pains to give the most even, and on that account the most difficult classes to judge, for he had a large number of prize winning Shorthorns to select from.

At Graham Bros., was the largest number of Clydesdales and Hackneys the boys had seen and the quality may be inferred from the fact that among them were the Champion Clydesdale stallion, the first prize Clydesdale filly and the second prize Hackney stallion, besides a number of other winners at the International.

At Toronto, Mr. Wm. Flavelle showed the boys through the Wm. Davis Co. packing house and Mr. Murray of Crowe & Murray spent a good part of the afternoon in illustrating from prize winners the desirable characteristics in Hunters, Roadsters and Saddle Horses.

The class, together with Professors Day and Arkell, desire to thank these gentlemen who so kindly offered assistance and who contributed so largely towards the success which our judging team afterwards met with in Chicago.

The Importance of Seed Selection.



G. A. ROBERTSON,
President Experimental Union.

SEED selection is not a new art, although it seems to have been suffering for some years from neglect. That it should be revived is not at all surprising, since we have now an ever increasing number of new varieties of every kind of grain, vegetable and fruit, most of which however are comparatively worthless when classed with the standard varieties.

Our various kinds of fruit to-day are descendants of specimens of very inferior size, the edible portion or pulp being only a very small percentage of the whole. The improved varieties are produced from selected seedlings and also by cross fertilization and selection.

We often hear the words "running out" applied to varieties. This, in tree fruit, comes from the pernicious system adopted in growing nursery stock. Trees are graded according to size, and are classed as firsts, seconds, and culls, accordingly. Too often buds and scions are taken from these trees in preference to the less vigorous growers, although the latter may be known to produce annual crops of good fruit of typical size, shape, and color.

In vegetables also, we have been accustomed to have our wants supplied by seedsmen, who usually seem to prefer to give liberal commissions to their agents, rather than to insure future expansion of business by supplying seeds true to name. Not many years ago, the writer purchased, through one of these agents, a few packages of seeds. One labelled "Mammoth Saw Log Mangels," produced a mixture of garden or turnip shaped beets, sugar beets, yellow globe mangels and the long red mangels. A package of carrot seed, "Intermediate White Belgian," was mostly small red table carrots. In early Tomatoes which I grew on a small scale for early market, I got a packet of "RUBY" which until the advent of "Earliana" was one of the standard early varieties. This Tomato seed was planted with some seeds of different varieties of my own selection, was cared for and planted on the same well-prepared land and had a good chance to show its distinguishing characteristics. In this case there proved to be a rather scant growth of vine, a poor setting of fruit, which was flat (no depth from stem to blossom), a tendency to be green and hard on the stem end while red and soft on the underside, and to be ribbed and uneven on the outside surface. In fact, there was practically no marketable fruit.

This fortunately was an object lesson which showed at once the seriousness of the situation. I had taken a piece of my very best land, well manured, and cleaned up by a previous year's treatment, had prepared and sifted the earth for my seed bed, had mixed up the potting earth in the proper proportions, and started a fire to warm up the seed bed while the outside air was perhaps no warmer than the coldest day in winter. I had transplanted these seedlings several times, had put them in



J. M. McCALLUM,
Vice-President Experimental Union.

suitable sized pots and had these pots all filled with fibrous roots and the plants hardened off ready for the final shift to the outside ground, when danger from frost was about over. Imagine my disappointment when I found that the plants from this seed produced the qualities, or rather the lack of qualities, I have just described.

The following year I purchased some selected "Earliana" seed; this was a decided improvement. I had a good crop of very smooth tomatoes, but I did not like the type. The next year I again imported a few seeds from a man who made a specialty of this variety, and I had a better crop of tomatoes of an improved type, which matured earlier. From observation, I found that some vines had a larger crop than others; some had a crop of more uniform size, some had a deeper fruited or rounder tomato with a tendency to color more evenly all over when ripening. So, rather than run any future risk, I carefully

inspected the patch, and found a few vines which had a good crop of tomatoes of moderate size, with plenty of clusters of fruit, and several well developed tomatoes in each cluster. Stakes were securely driven into the ground to mark each of these vines. The earliest, most evenly colored, and smoothest fruits were allowed to ripen fully on the vine and were then put away in a basket for a few weeks until the pulp softened. Then the seeds were washed out in water, strained through a sieve and rewashed until finally the cleaned seeds settled to the bottom of the water. They were spread out thinly on a fine wire mesh, dried in the sun or near the stove and afterwards were put up in a sealed package and stored in a dry place. Each year since, the same operations have been repeated until now the patch has assumed a more uniform appearance and the percentage of unmarketable tomatoes is less, while the crop is steadily increasing.

One may say that to conduct an experiment entails a great amount of work. It certainly does, and it is only by attending to and keeping a record of the minutest details, that we can have the full measure of success. Success comes by effort, and at the present time competition is so keen that we can not expect an abnormal increase in the selling price of farm products, therefore it should be our one aim to produce an article of superior quality and get the maximum crop from a given amount of land with the least possible labor. These conditions come when we get good seed, good land, and good cultivation. We must also plant at the most suitable time and be ready to attack all injurious insects and fungous diseases at the proper time.

And now for the sake of our Experimental Union, for the betterment of our chosen vocation, and for our own welfare, it is the duty of each ex-Student to turn in and help the good work along. Let this be the "post graduate course" of the Ontario Agricultural College. You may not, at present, be able to take up more than one branch of the work, but try one and let us meet annually and report results.

The O. A. C. Review

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C. R. KLINCK, '06, Experimental		W. S. JACOBS, '07, Alumni
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Editorial.

To refer to the Experimental banquet at this time of the year may seem rather unseasonable, but before the last banquet becomes entirely a matter of history,

The Experimental Banquet.

we should like to call attention to one feature which seems to be becoming not only unnecessary but also objectionable. We refer to the year speeches in reply to the toast to the students.

Originally, the present system was doubtless a good one, affording as it does a splendid opportunity for repartee and good natural inter-year chaff. But what are the conditions at present? Instead of preparing a breezy five minute speech, the student who has been accorded the rather doubtful honor of representing his year in this event, is now compelled to spend his time and weary his brain in

the attempt to prepare an address which will set forth all the virtues and victories of his year, which will disclose all the faults and failures of the other years and which will incidentally enhance his own reputation as an orator. To do this, he has to magnify even the minor achievements of his classmates into events of monumental importance and at the same time he feels he must be prepared to belittle the intelligence, the energy and the accomplishments of each of the other years. In order to do this, he finds it necessary to speak at some length, often twenty minutes or half an hour.

The effect upon the majority of those present is only too apparent. Having already been seated around the banquet tables for some two or three hours and having already listened to some eight or ten speeches in connection with the toasts

which precede this, they are not in the best possible condition to listen to a solid hour of inter-year rallying. It is true, this tediousness is often overcome by the brilliancy of some of the speeches and in this respect the last banquet was no exception, for some of the replies were splendid efforts and none were without many redeeming features. Still it cannot be denied that all were too long and, when we consider the tendency which these speeches have to foster the year spirit and when we note the danger of the introduction of personalities and of topics better left undiscussed, we are forced to advocate very strongly the omission of this feature from the banquet programme. Instead of four speeches let there be but one in reply to this toast. Let the representative be chosen by the student body, preferably from the senior year, and let it be understood that he is to reach a somewhat higher level than boastful retrospect and over-reaching complacency. In this way the disinterested portion of the audience will be spared a trying ordeal, the programme will be materially shortened and old scores will not be ruthlessly hauled out and injudiciously discussed in public. In addition, the fact that the honor, which is now divided among four students, would then be centred on one, could not fail to make the appointment eagerly sought after, and the one fortunate enough to be chosen would of necessity have to put forth his best efforts to justify his appointment. The College speech would then in time come to be looked upon as the event of the evening and our ex-students and other visitors would carry away a much better impression of the College spirit which prevails at this Institution.



The passing of the old year always marks a change in the editorship of the REVIEW. This year our loss is MacMillan, one of the most enthusiastic supporters the REVIEW has ever had. To be editor of any publication does not insure a continuous round of undiluted pleasure and in college journalism the appreciation merited usually considerably exceeds that received, but nevertheless MacMillan has at least the satisfaction of knowing that his two years on the paper were the most successful ones in its history. During the first year, in his capacity of Associate Editor, he was no small factor in the evolution of the REVIEW from the college sheet to the magazine as it stands to-day. Later, when he fell heir to the editorship, the problems which confronted him were many, varied, and vexatious and unquestionably the most difficult ever faced by any of our editors. With characteristic unselfishness and energy, however, he sacrificed himself as well as his course to a large extent in the endeavor to maintain a somewhat top-heavy enterprise, at a time too when our financial outlook was anything but promising and when the loss of the whole business staff at the end of the spring term seems imminent. Only those who have been intimately connected with the paper can properly appreciate the success which has attended MacMillan's efforts, but to our readers in general the steady improvement in size, quality and appearance of the magazine and the comparatively substantial basis on which it now stands, must have proclaimed the fact that the Editor-in-chief for the last year has been a man of originality, of resource and of foresight. Otherwise, the REVIEW by the mere force of its own weight, must have been submerged some six months ago. It is true, the

work of organization is far from complete as yet, but in the time at his disposal, MacMillan has done all that one man could do and has amply demonstrated the executive and constructive ability which is certain to carry him high in whatever field of activity he may choose to enter.



One of the most pleasing features in connection with THE REVIEW this year is the way the first and second year men have volunteered assistance on the business end. The departments on our staff are of course limited, and there are many whose services receive no recognition in the staff list. We therefore take this opportunity of publicly recognizing the work done by Hodson, Sirett, Treichler, Row, McLaren, Cooley and Angle in circulation and in advertising. It is perhaps unfair to particularize, but when we find a man who is not satisfied with one day's work, but who continues to bring in new subscriptions every day as Cooley has done, we feel that he has the journalistic germ somewhere in his anatomy. Also when a first year man brings in over two hundred and fifty dollars worth of advertising in less than three days and at a minimum cost as Angle has

**Come in
and
Help Us.**

done, we may perhaps be pardoned if we look upon him as a "comer." Even before this number comes out, there may be others who should be included in this special mention, for at the time of going to press others are out on the road, who will doubtless bring in just as good results. In this connection, however, we wish particularly to emphasize our desire to get in close touch with as many junior men as possible. Some day, not far distant, the REVIEW will be in their hands and it will then be to the advantage of all concerned to have the best men available on the staff. To make this possible, it is necessary for us to know the men and to compare their relative fitness. We have innumerable details to work out along certain lines and are only too glad to welcome those who are willing to earn a staff appointment by volunteer work in the office. All who are alive to the situation, realize that the REVIEW training is a most valuable supplement to their degree, for it is a well known fact that most of our staff obtain positions even before graduates. This being the case, a slight amount of drudgery at the first is surely not enough to deter any enterprising junior from attempting to merit an appointment, which may mean so much to him in the end.

Our Ex-Students.

The O. A. C. Old Boys' Re-Union.

AT Christmas time a great yearning comes into the heart of every man to visit the home of his boyhood and eat his Christmas dinner in the old home. About the middle of December a similar yearning comes to the heart of every O. A. C. graduate to return to the old College and be present at the great annual banquet of students and ex-students. The alumni association of most Colleges is at this College replaced by the Experimental Union of students and ex-students with the annual meeting of the Union held at the College.

The public meeting held on Monday evening and the banquet on Tuesday evening have for years been the two chief features of the Union meeting. This year however a new feature was introduced. President and Mrs. Creelman invited all ex-students of the College to spend an evening at their home, and on Monday evening, Dec. 11th, about two hundred ex-students gathered in the rooms, where they had as boys of the College, often spent pleasant evenings.

Each man wore on his coat his name and the year to which he belonged, and soon the company were gathered into little groups of old classmates, joyously recalling the adventures of previous years. Every year was represented, from '74, represented by C. D. Lawrence of Parry Sound, who was present when in 1874 the College opened its doors as the Ontario School of Agriculture, down to '05, represented by the latest fledgelings of the parental nest. It was indeed a happy hour for many of the older grad-

uates, as they shook hands with dear old chums whom they had not seen since leaving college, and as they talked of old times they forgot the intervening years and were again boys. The older members of the faculty knew most of the students, and gradually they introduced the men of the different years until the chain was complete from '74 to '05.

That the ex-students might know that the present students are still gathered from many lands and possess the talents of many climes they repaired to the gymnasium. Here for an hour they were entertained by an excellent and varied programme, rendered by the International Band of the College, under the leadership of the famous conductor, Professor Peanutsky. Refreshments were then served in the College reading-room, and again the "old boys," drawn perhaps unconsciously by the old feelings of comradeship, gathered into small groups. The presence of Dr. Mills with his genial smile, hearty hand-clasp and whole-hearted welcome brought a warm glow to many a heart. All are grateful to President and Mrs. Creelman for the pleasure of the evening and for the thoughtfulness and love for the College and its students, which suggested this true O. A. C. re-union.

Maritime O. A. C. Association.

The second annual dinner of the "Maritime O. A. C. Boys' Association" was held on December 6th, when 25 ex-students, presided over by Principal Cumming, met to renew old acquaint-

tances, to make new ones, and to talk of the "good old days" at the O. A. C. After the repast a round of short but happy speeches followed, and the gathering broke up with the strains of "Auld Lang Syne." Principal Cumming was re-elected President for the ensuing year, and Mr. C. W. Esmond was appointed Sec'y-Treas. of the Association.

Of the Old Boys present, the majority are found to be active agriculturists:—Oscar Chase, '80, is breeding Shorthorn cattle and raising fruit near Wolfville, Kings Co., N. S. Chas. H. Black, '82, is still an O. A. C. Boy at heart, and is now the owner of a successful dairy business near Amherst. Paul C. Block, '82, is one of the leading farmers in the vicinity of Falmouth, N. S. W. W. Hubbard, of the same class, has still fond memories of student days, though not now directly connected with Agriculture. C. C. Black, '84, has also left the Agricultural world, but still remains loyal to the traditions of the O. A. C. C. R. Peters, '97, is farming near Elmhurst, N. B. Harry Irving, '99, is engaged in the horse business in his Island home. A. A. Dysart, '00, is farming at Ca-coigne, N. B. As might be expected he is doing it well. Jesse Elderkin, '02, is absorbed in farm problems at Marconi, N. S. P. S. and T. B. Marsh are making farming their occupation, P. S. being an enthusiastic Dairyman. P. G. Mills, '04, who was mentioned in our issue, was also present at the gathering. W. F. Stewart, '02-'04, is working away making a success of his farm in the Garden of the Gulf.

The Association is young but it is growing, and it is destined to have great influence upon Agriculture in the Eastern Provinces. Ex-students of the O. A. C. now living in the Maritime Provinces, not yet members of the Association, will

do well to put themselves into communication with the Sec.-Treas., Mr. C. W. Esmond, Maritime Farmer, Sussex, N. B., to whom they may also send their subscriptions to the O. A. C. REVIEW.



W. H. GUNN,

Manager of Farming
World.

Mail only reaches the post once in every 3 or 4 weeks, and Purvis tells us the REVIEW is always a welcome visitor.

Chester Nicholson, '01-'03, is farming near Mount Forest, Ont., and is making a success of his business.

Clark Hamilton, '02-'04, will be remembered as an enthusiastic poultryman, a pushing bee-expert, and a hard-working supporter of the Literary Society. Since leaving the College he has been farming at Dundela, Ont., making a speciality of Holstein cattle. Recently he has been appointed a Farmers' Institute lecturer, and during the past season acted as Judge in cattle classes at all the Fall Fairs held in his County.

"Tiny" Robertson, '94-'96, now the proprietor and manager of a prosperous lumber business in Forget, Saskatchewan, is this winter holiday making in

V. R. Purvis, '99-'01, is engaged upon the survey for the Transcontinental Railway, in the capacity of Cash Keeper. His party is at present two hundred miles north of Lake Nipigon. Supplies reach this far off post by canoe in summer and by dog team in winter, when the teamsters go the whole distance on snowshoes.

the East. According to his experience the small Western towns, with a bright future offer wonderful inducements to the would be lumber king.

Archibald N. Mackray, '02-'03, and Charlie Bowden, are located in the Okanagan Valley, six miles from the town of Kelowna, B. C. They are the owners of some 78 acres of good fruit land and it is their intention to pursue market gardening, fruit culture and poultry raising. They are much impressed by the beauty of the country and with its salubrious climate. Their address is Box 130, Kelowna, B. C.

We will send to any ex-student forwarding us \$1.40 a bound volume of the O. A. C. REVIEW for the College year, 1904-1905. The book is handsomely bound in half leather sides. It is in regular library style, and in addition to forming a valuable acquisition to the shelves of ex-students, it is a complete history of O. A. C. life and aims for 1904-1905.

M. E. Snyder, '00-'02, is in that land of sunshine and openness—Alberta. He has purchased a quarter section of land near Wetaskewin and intends to make a success of operations. Letters addressed to Angus Ridge, Alta., will reach him safely.

C. L. Strachan, '00-'02, is located at McKenzie, Manitoba, and is engaged in wheat farming. For the past two years he has been a director of the local Agricultural Society, and last year he took part in Institute work. Strachan is not, however, wholly absorbed in Agriculture, but is proving himself to be a true citizen. Recently he was returned for the second time to the Municipal Council. We are

glad to hear that O. A. C. boys are proving themselves to be good citizens as well as good agriculturists.

R. B. Birley, '00, is living at Paris, Ont., and we hear is doing well.

John Mooney, '95-'96, is living at Dauphin, Manitoba, in a well wooded and well watered district. He is making



THE FREE WEST.

Geo. Harcourt.

M. D. Geddes.

a speciality of the improvement of seed by selection, and although he has only been engaged in this for a short time he can already sell more seed than he can raise. Mooney was at the college recently taking the short course.

Metcalf, '00, of Burford, and G. E. Morgan also took the recent short course.

A. M. High, '99, recently paid a visit to the college. He is engaged in the lumbering business at Killarney, Man.

Blair Ketchen, '00, after having had charge of Dentonia Park Farm for two years, is now managing a large farm near Philadelphia. Harvey Reynolds, a Dairy student of '99, is with Ketchen as assistant manager.

H. E. Reynolds, who also took the Dairy course in '99, now owns several creameries near Quebec, and is making a good success of his business.

"HOSMER-CLARK.—Miss Hattie A. Clark of Daws, was recently united in marriage with Simeon A. Hosmer." Hosmer has created a record for himself in that he is the first of the boys of '07 to take the plunge into the waters of married life. His classmates and THE REVIEW extend their congratulations and hope that he may ever be supported on the sea of married life by the buoys of happiness and prosperity.

A. C. Johnson '95-'96, recently paid a visit to the O. A. C. in the course of his honeymoon trip. Among his New Year resolutions, Johnson decided to give up his old way and henceforth to walk through life in double harness. May his road be always smooth and his load be ever light. He goes to make his new home at Lacombe, Alberta, where he recently took up some land, and he carries with him the best wishes of the REVIEW.

Tom Wagg '00-'02, believes that life is made more easy and more pleasant if two lives are made one. Strong in this belief, shortly after the New Year he wedded Miss Hodgson of Mindemoa, Manitoulin Island. We trust that his faith will now become realized in fact.

On Friday, 19th January, R. D. Prittie '02-'03, led to the altar Miss Jennie Galbraith of Guelph. It was apparently not for nothing that Prittie in the days (or rather the nights) gone by, tramped the long ascent to College Heights. Now, that his prize is won, we wish both him and Mrs. Prittie health, happiness and prosperity.

Geo. L. Atkinson, '01, writes from 17 Parliament Hill, Hampstead, London, England, asking for a complete list of ex-student of the O. A. C. We are glad that Atkinson's interest in the O. A. C. bridges the distance between Guelph and London, Eng.

C. A. Westover '01-'03, is upon his father's farm at Frelighsburg, Quebec, where he is making a speciality of Dairy farming.

D. Johnson, a beginner with the class of '06 and a member of the first team to win the Tug of War trophy, is situated upon a comfortable farm at Vars, Ont. Johnson is attending very assiduously to business, but through a recent letter from him runs a plaintive note, suggesting that he wishes the Macdonald Inssitute would become more popular in his district.

Joe Cote, the big popular member of the class of '01, is now a working member of the Seed Division at Ottawa with control over the seed growers of Quebec. He is thinking of further fitting himself by a two year's post graduate course at an agricultural engineering institute at Paris.

Tommy Gamble '02-'04, always an enthusiastic Dairyman, now strengthened by two year's experience in Toronto, Ottawa and Buffalo, holds a responsible position with the Ottawa City Dairy.

Jas. Atkinson, '91, is the editor of "The Iowa Homestead." In addition to editorial work however, he is interested in practical agriculture, and his chief relish in life comes from close contact with the farm, and with farm problems.

Ernest E. Clark, '01-'03, of Meaford, Ont., has recently returned home after a trip to the North West. At Regina he met Fergie and McIntyre, who both have good farms there. This year Fergie had 3,000 bushels of wheat and is now getting ready to handle three times that amount next year.

It is with regret that we record the sudden death of Robert H. Henderson, '92-'94, a brother of T. Henderson of last year's graduating class. Henderson was a popular young man and was much respected around his home at Rockton. The REVIEW extends its sympathy to his bereaved relatives.

Athletic Notes.



THE Freshmen's indoor meet was one of the departures from the beaten track made by the progressive Athletic Association of the current college year. This interesting event was held on Saturday, December 2nd, 1905. Coming at a most opportune time, when interest in athletics is at a minimum, it served as an inducement to the Freshmen to partake of the benefits offered by our gymnasium; and judging from the present popularity of the building, we are forced to believe that this novel innovation has proved an unqualified success.

Our first year contemporaries entered into the contest with their characteristic enthusiasm, thus enlivening the proceedings for the spectators, and causing the programme to pass off to the complete satisfaction of the committee in charge.

The winners were as follows: Standing high jump, 1st Moore, 2nd Campbell, M. A., 3rd Angle; standing broad jump, 1st Moore, 2nd Duff, 3rd Yeo; running high jump, 1st Campbell, M. A., 2nd Timpany, 3rd James; bar vault, 1st Duff, 2nd Yeo, 3rd Foyston; chinning contest, 1st Yeo, 2nd Bray, 3rd Cooley; goal throwing, 1st Alexander, 2nd Hoy; diving for form, 1st Alexander, 2nd Boddy, 3rd Treherne; swimming contest, 1st Treherne, 2nd Tcherniac, 3rd Holterman; life saving, 1st Morewood, Jno., 2nd Tcherniac, 3rd Treherne.

As has been previously stated, the services of an experienced rink attendant were secured, in order to ensure a minimum waste of time, and to provide for the various incidentals necessary in the up keep of a good rink, without an undue expenditure of energy by the students.

However, owing to the tardiness of suitable weather, this man's position, at the outset, became somewhat similar to that of certain noble lords, who lend their names to committees and boards for fixed salaries. Being unused to work by this untimely delay, when the moment for a display of energy arrived, he was not quite prepared, and the brunt of the work fell on the broad shoulders of Dan. Johnson.

For over a week Dan. sacrificed himself on the altar of Hockey, while our lordly attendant took his well-earned rest. On the return of the students, the ranks of the employed were reinforced by Hodson, another enthusiast; and it is largely to the untiring efforts of these two that the college team owes its practice. Doubtless these gentlemen will consider themselves amply rewarded by the knowledge that their labor has been crowned with the two overwhelming victories gained by the O. A. C. over Raymond's and the G. C. I. hockey teams.

The first of these games was played on Saturday, January 13th, and resulted

in a victory for the college by 8 goals to 1. To quote an oft recurring sentence in the sporting columns of the newspapers, "the score does not indicate the nature of the game," except that in this instance it means that the score should have been about 20-1; and the Raymonds must thank their goal keeper that this was not the case.

From the beginning of the game the issue was undoubted, the college team simply playing rings around their opponents. With a very natural bias of the mind towards the weaker side the referee attempted to even up matters by penalizing the college men at every opportunity, whilst their opponents were allowed several immunities; despite this fact the latter only succeeded in scoring one goal, a very good scoring average, as they put in 50 per cent. of their shots.

The college team did their best to a man. Hodson only appeared on the ice at the last moment, owing to Savage's sprained ankle; notwithstanding his unpreparedness, he performed his duty nobly and shot three goals. With the exception of Foster, Foyston was the best man on the team; he only shot two goals, but some of his rushes were sensational, and whenever the puck appeared on his side he was there to receive it. Barton played a good steady game, but not being a very good shot—he shot one goal—he did not show up to advantage beside the other forwards.

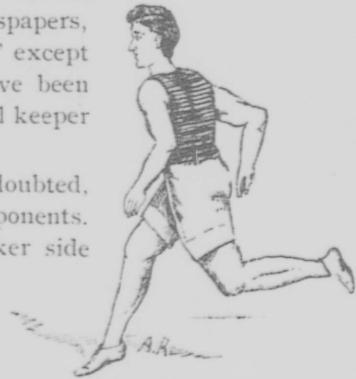
Foster was the mainstay of the team, and to college minds he is the star player in Guelph. He is a splendid stick-handler, and his shooting is phenomenal; he shot only two goals, but that was the fault of Raymond's goal keeper. Dan Johnson played a star game, his lifting was magnificent and his coolness a marvel. He was a trifle slow and rather inclined to leave his position; but his size was his big fault as it enabled the referee to see him, thereby causing him to be made a mural decoration a large part of the game. Jack Monroe stopped several rushes, but altogether was not killed with overwork. Ferguson stood up well, which is more than the other goal-keeper did. This fellow seemed to regard the puck as an angry fetish to be propitiated, as several times he knelt to receive it.

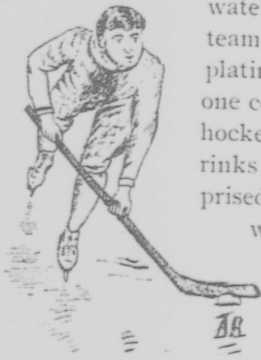


This game was very satisfactory to College sympathizers and seemed to cast consternation into hostile camps; several comments being expressed to the effect that our team would win out. The make-up of the team was:—goal, Ferguson; point, Monroe; cover-point, Dan Johnson; rover, Barton; centre, Foster; right wing, Foyston; left wing, Hodson.

On Thursday afternoon, January 18th, the G. C. I. went down to defeat at the hands of the O. A. C. team, despite the large attendance of the fair and patriotic G. C. I. girls. The same team represented the College, but were slightly out of practice. The score was 9-1.

From present appearances the College will have to play





water polo at the rink. Rumor states that a short while ago the team were sitting on the fence of the hockey rink, ruefully contemplating the scene with pipe-laden countenances. Doubtless, if one could have read their minds, a picture of the Gehenna of hockey players would have been presented, as a place where rinks are built of mud and slush. Indeed, I should not be surprised to hear that one, or more, betrayed his thoughts in the well-known modernized rendering of the word Gehenna.

Stimulated by the complaints of the fair sex across the way and their Freshman brothers, the committee appointed Clowes to hasten the completion of the skating rink. He buckled down to work at once, and with the aid of a few of the male complaintants, would have soon finished his task; but "the best laid scheme o' mice and men aft gang agley" and the work will have to be begun again.

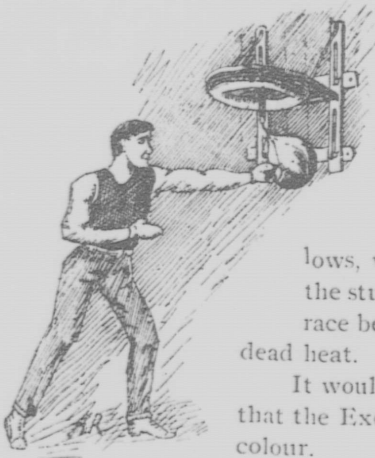
It's an ill wind that blows nobody good, for the weather that has dashed the hopes of hockey men to the ground, has simultaneously raised those of the basketball men. Owing to the practice they have been enabled to have, the College quintette defeated the G. C. I., on the Friday following the hockey game, by 26 points to 5. A large crowd was in attendance, and their yells were very encouraging to the players. Treichler and Hayes played the best game for the college. Hayes scored 8 of the points, Hoy 4 and Clowes 2, the remainder falling to Treichler, who succeeded in scoring off 6 fouls. The personnel of the team was:—right-guard, Hoy; left-guard, Atkin; centre, Clowes; right forward, Treichler; left forward, Hayes.

Indoor baseball apparently has not lost its old popularity. Of course the same opportunity does not present itself for playing outside games, as with basket-ball, and the games that have been played, were of necessity arranged for among ourselves. However there have been one or two interesting games, notably the one between the faculty and students on Christmas Day. The faculty won by 27-26. Monday night, January 22nd, the College defeated the Bankers by score of 24-16.

Through the kindness of the President, we were treated to a very interesting lecture by Mr. Corsan, of Toronto, on swimming and life-saving. After a few introductory remarks regarding the importance of swimming and the defectiveness of our education in that respect, he began his lecture proper by stating that like everything else, there were two ways of learning how to swim, a right and a wrong way. He then demonstrated the correct manner of learning the different strokes, e. g. breast and English overhand.

When the discourse turned on life-saving, it became necessary to have a subject on whom he could operate. For this purpose he chose Scotty Chisholm, and as events turned out, the choice was well made; Chisholm's struggles were so realistic that Mr. Corsan found him as hard to save as a drowning person. This formed the humorous





part of the lecture, although the subject was serious enough, *i. e.* the subject matter.

To conclude he enumerated a few novel Aquatic competitions, which he said always created much amusement at Aquatic Sports.

After the lecture we adjourned to the basement, where Mr. Corsan proceeded to give us a practical demonstration in the water. He coached a few fellows, who took advantage of his very kind offer to help any of the students to improve their swimming. The final act was a race between Treherne and the instructor. The result was a dead heat.

It would appear from the colours worn in the G. C. I. game, that the Executive intend to adopt blue and white as the Hockey colour.

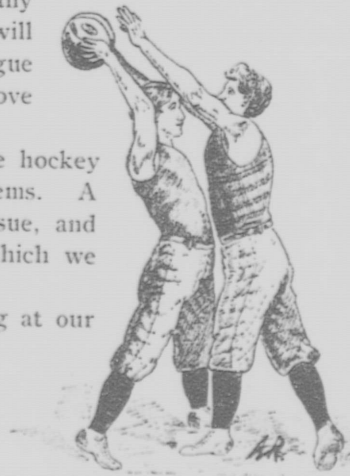
The setting apart of different colours for the different teams is a good move, it being the fashion at most big Colleges. To the mind of the man, who is full of esprit de corps, this is a good sign. It points to progressiveness and to the fact that we intend to take our place among the big Colleges in our Athletic standards.

Also, in other colleges, no student wears the monogram on his sweater, unless he has earned the right. Hitherto, it has been well nigh impossible to separate any special team emblems. A few years ago the Association tried to set apart a hockey sweater for the exclusive use of members of the College team. This sweater had blue shoulders on a red body, what has been the consequence? Nearly half the sweaters in common use among the students have blue shoulders. We protest, that if the students possessed the proper college spirit, they would be ashamed to wear sweaters to which they were not properly entitled. Now that the Executive have once more tried this step, it is to be hoped that they will receive the hearty co-operation of the entire student body, and that if any student attempts to wear the Hockey sweater, he will be dealt with in a manner similar to that in vogue among other College students, *i. e.* forcibly remove the sweaters.

If these colours are allowed to stand as the hockey colours, the other teams will get distinctive emblems. A healthy competition to win those colours will ensue, and the College will be able to send out teams, of which we might well be proud.

Now that we have begun the custom of singing at our games, we hope that Semon can be persuaded to evolve some more songs from his fertile brain.

Some pleasing features of the Hockey season so far, are first, the college team is composed solely of students of the Ontario Agricultural College; secondly, there has been no



"chewing" in either of the games, and thirdly, an absence of dirty playing by the team.

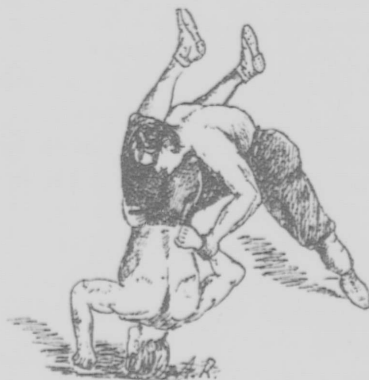
The evils of having outsiders playing on the team have already been discussed in these pages, but in view of the amount of "chewing" done in the inter-year games in football, it might be as well to say a few words on the subject.

"Chewing" never does the team that indulges in it any good, but rather a vast amount of harm. The referee is always harder on the side that "chews," so that from a matter of policy, it should be dropped. From the standpoint of spectators it makes the game tedious and gives them a bad impression of the offenders; because if the team be losing, it shows that they are poor sportsmen and cannot stand defeat. If they be winning, it shows lack of generosity to beaten opponents, and if the issue be doubtful, it shows a lack of moral stamina and self-confidence, which in itself is enough to defeat a team. As regards other teams, it makes the offenders unpopular and they are marked whenever they play away from home. And lastly, the morale of the team itself is affected, it detracts from their ability to win. They always go into a game feeling that they are being unfairly treated and that the referee will see that they lose, and as a consequence they become "easy money" for their opponents, just because of their own laxity. If there is any complaint to be made, there is only one man on the team eligible to make it, and he is the captain. "Chew" less and play harder and you will become more welcome on a playing field from everybody's standpoint, referees, spectators and opponents and will accomplish your object more easily.

Clean play is the mark of a gentleman; by this I don't mean play devoid of roughness, but from which all meanness is eliminated. Many men, when they become absorbed in play cannot help being rough, but every one can help being dirty. A man that plays a dirty game is a hindrance, as he wastes part of the time trying to lay his man out, the other part he spends on the fence cooling his heels.

The College men have played the game like gentlemen, notwithstanding the fact that one or two have decorated the fence frequently. This is ascribable to the overzealousness of the referee and not to any special deservedness on their part.

We regret having to mention, that at the time of writing, our popular instructor, Mr. Hibberd, is at the hospital, suffering from an attack of neuralgia. We trust that by the time we have gone to press, he will be able to resume his duties, as his presence in the gymnasium is badly needed.



Macdonald.

GREAT was the interest shown at Macdonald Hall, when it was learned early in December that His Excellency, the Governor-General of Canada, intended paying a visit to the Ontario Agricultural College. The date fixed for the visit was December 15th.

At 10 o'clock that morning, students of both College and Institute assembled on the Campus, and practised the several class calls preparatory to saluting His Excellency.

After a wait of three-quarters of an hour, the vice-regal party arrived. In the foremost carriage sat the Governor with the Mayor of the City of Guelph.

As they drew up before the door of the College amid the echoing cheers of the College student and the Institute girl, His Excellency lifted his cap and assured the students that the warmth of their welcome atoned for the severity of their climate.

The party alighted and entering the main college hall, were welcomed by President Creelman and the Faculty, the Students of the Institute then withdrawing to the Hall, there to await a visit two hours later. Here the chief feature of entertainment was a luncheon, prepared with much care and success by the girls of the Domestic Science Department.

Three tables were set apart for the Governor's party and guests, the latter being Mrs. Creelman, wife of the President; Miss Watson, director of Macdonald Institute; Mrs. Fuller, Superintendent of Macdonald Hall; the President and staff, and the members of the Council.

The tables were beautifully decorated: white and green, with boutonnières of purple violets, the colors at His Excellency's table; scarlet geraniums being the ornamentation of the second, and pink begonias of the third.

At a quarter before 1 o'clock all the students assembled in the dining-hall, taking their stand at their respective places. Meantime the Governor had arrived, and after all the ladies of the staff had been presented in the drawing-room, His Excellency entered the dining-room with Mrs. Creelman.

The next hour was spent most pleasantly, the students acting as waitresses, showing careful training by the easy and quick succession with which the courses followed one another.

At the close of the luncheon, Honorable Nelson Monteith, Minister of Agriculture, proposed the toast to the King.

His Excellency replied at length, assuring the students that had his Majesty been able to be present, no one could have enjoyed the reception in toto more than he and that the excellence of the dishes prepared was proof of the value to the rising generation of such an institution as Macdonald. Then the party withdrew to the Library, where all the students were presented, after which all assembled at the front of the building and were photographed. His Excellency was so pleased with the visit, that instead of inspecting the several factories of Guelph as planned, he announced his desire to remain at the Hall for the rest of the afternoon. The greater part of the time was spent in the gymnasium, witnessing exercises in calisthenics,

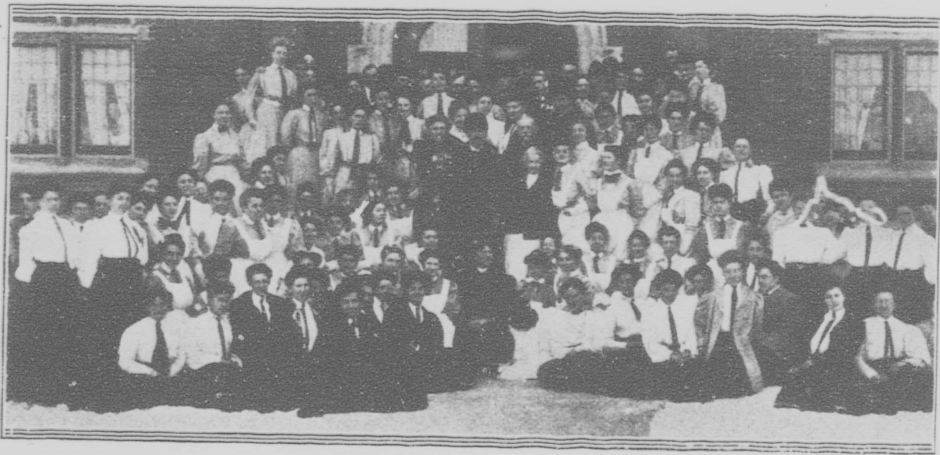
marching and Indian clubs. A vigorously contested game of basket-ball brought the programme to a close, and His Excellency departed, expressing himself highly pleased with his visit to Macdonald Institute.

Domestic Art.

Three hundred years ago the foundation of modern education was laid by Comenius. Through a life of many hardships and trials he labored un-

as geometry is mental training through memory and reason. Not only the mental but also the moral side of education is furthered by it. The best agencies which can be brought to bear on the formation of character are the powers of art and handwork.

Gradually the truthful representation, the accurate execution and the harmonious relation of the parts, which are combined, will ennoble the character and incite a tendency toward morality. To



The Vice-Regal Visit to Macdonald Hall.

Photo by Kennedy, Guelph

weariedly to prepare youth for a greater future through a broader education. As a result of his teaching, the repression of the Middle Ages was replaced by the freedom-giving education of modern times. One of the most effective means toward this end he believed to be the development of the faculties by individual experience with things rather than the mere acquisition of knowledge from books. The latter could be rightly interpreted only in relation to the former. So from that day until this, men have striven to a greater or less degree to solve the problem as to what relation exists between hand and mind and hence the value of handwork in general education.

Domestic Art is an important factor in the solving of this problem. Its chief educational value lies in the fact that like all Manual Training, it is mental training through the hand and eye, just

accomplish this end it is necessary that the student be supplied with opportunities for individual experience. The result of the effort is the compensation each receives for it and it bears unmistakable evidences of the value of the effort made. The student is put to the test by working with materials, which are true, convincing proofs of the qualities of mind, which she possesses or lacks.

The intimate relation between Art and Domestic Art is clearly shown by the fact that they are both an expression of the mind through form and color. There are ideas which cannot be expressed by language. For so long a time were men slaves to mediaeval education that they were led to over-emphasize the value of verbal expression. It has more and more come to be recognized that true Art, in the broadest sense of the word, is an expression of the life and thought of the artist. For undoubtedly, the

student will gain most, if along with the practical knowledge of how a gown, or a hat is constructed, she is receiving training in the principles of Art, which underlie the pleasing combination of color and the proportion and balance of masses. Thus, are opened to the mind new fields of interest and observation, originality is encouraged and the student is not dependent upon the ideas of others as found in fashion magazines. She not only acquires the ability to design an artistic costume, but she also adds to her own mental power by self-expression.

Notwithstanding all that is being said in regard to the importance of this phase of education and the fact that it has been tried and proved successful in many countries, some still contend that the education which served our grandmothers should also serve us. They fail, however, to take account of the great changes that have taken place between the life of their day and ours, the greater complexity of life, the increased difficulty in earning a livelihood, owing to invention of machinery, which has lessened the demand for hand labor. On account of these changes in the condition of living, we no longer find woman at her spinning-wheel and loom. The result is that when released from home duties by inventions for the saving of labor, her time and attention is naturally directed toward a higher mental development. This she finds in the Universities. But it is only of late years that educators have come to realize that this kind of education is not fitting woman for complete living. It is our hope and expectation that the Domestic Arts and Sciences will supply the deficiency. Education of the present day aims to so train the student that she will be capable, not only of high, intellectual attainment, but also of meeting the needs and requirements of her daily home life, and so through seeking to bring out Beauty, Unity and Harmony in all things, will her work be truly a labor of love. M. I. SPELLER.

Miss E. A. Robertson, Perth, a graduate of the Institute in 1903, has been appointed instructor in Household Science at the Ottawa Normal School.

We regret that Miss Helen Holland,

on account of ill health, has been obliged to take a three months' leave of absence, but hope she will be able to join us again after the Easter vacation.

Miss Edna Ferguson, one of our last year's graduates, who has recently been teaching Domestic Science in Kingston, has returned to Macdonald Institute to substitute for Miss Holland, during her enforced absence.

Miss McPhee has a position as Bread Experimentalist with the Ogilvie Milling Company, Montreal.

The Y. W. C. A. of Kingston have decided to continue the Domestic Science work, and Miss Williamson has been engaged to take the place of Miss Ferguson.

The latest in criticisms on "Dems."

Subject—Meats.

- Aim—To do various stunts with meat.
 Personality—(1) Appearance: Not as neat as it might have been, two hairs were out of place, one over the left ear, one over the right eye. (2) Manner: Superior. (3) Voice: All that could be desired.
 Arrangement of table—Excellent for the most part, but at one time the handles of the spoons were not exactly in line with the handles of the forks.
 Manipulation—Good, with one exception; when wiping the meat one drop of water was spilled on the table.
 Information—Excellent; but one unnecessary statement was made. It was stated that chickens should not be allowed to *lav* in cold water.
 Strong Points—The demonstrator evidently knew her subject thoroughly. This was shown by her familiarity with the cuts of beef illustrated on a most realistic model of a cow.
 Weak Points—(1) Some points were not made sufficiently clear; e. g. sections of orange were passed around for the audience to examine, but the demonstrator did not state whether or not she intended these to be eaten. This was "careless." (2) The demonstrator handled the meat a great deal. I would "advocate" wearing gloves, as "ofttimes" there may be germs on the hands.

College Life.

IN this number we have the pleasure of chronicling one of the greatest triumphs ever scored by any of our students. In the accompanying illustration are shown the two members of the staff, and the five students, who by faithful training during the Fall term and by exceptionally good work at the International, succeeded in bringing to Canada and to the O. A. C. the central figure of the group, the coveted bronze trophy, which goes to the team standing first in cattle, sheep and swine at Chicago. In former years, our men have distinguished themselves individually and have usually averaged high, only last year being second. But this year for the first time in the history of our college our team has been successful as a unit, and the names of Bracken, Craig, White, Smith and Munro will indicate, for all time to come, those who were the first to cover themselves with glory in this our most important inter-collegiate contest. To Professors Day and Arkeli, who have contributed so much to this success, our victory is a laurel, well deserved though long deferred, and serves but to justify their continental reputation as leading men in Animal Husbandry.

Not only did our boys prove their superiority over the other teams in this event, but they also came within a small margin of winning over Ohio for first in horses. This would seem to indicate that with better opportunities for systematic observation in the latter even greater achievements would be possible for us. Our national prestige

as an agricultural college of the first water is most easily maintained by such signal triumphs and it is to be hoped that the time is not far distant when our students will be afforded the material for more thorough training at the college itself. They could then use their trips to outlying breeders as a supplement to their course, instead of being compelled to rely upon them for the major portion of their training as at present. A repetition of this year's success is what we all hope for next year, and no effort should be spared, which will enable us not only to retain the trophy, which is now here, but also to add another to it.

Inter-Collegiate Debate.

Once again the literary ability of our college has scored a brilliant success. The debate this time was with Woodstock College, and was one of the most closely contested of any ever held at this institution. The subject for discussion was: Resolved "That railroads in Canada should be owned and operated by the people."

Messrs. H. R. MacMillan and G. G. White for the affirmative rendered two excellent addresses, and scarcely less praiseworthy were those of their opponents, Messrs. N. Shaffer and N. Gansland, of Woodstock, the supporters of the negative.

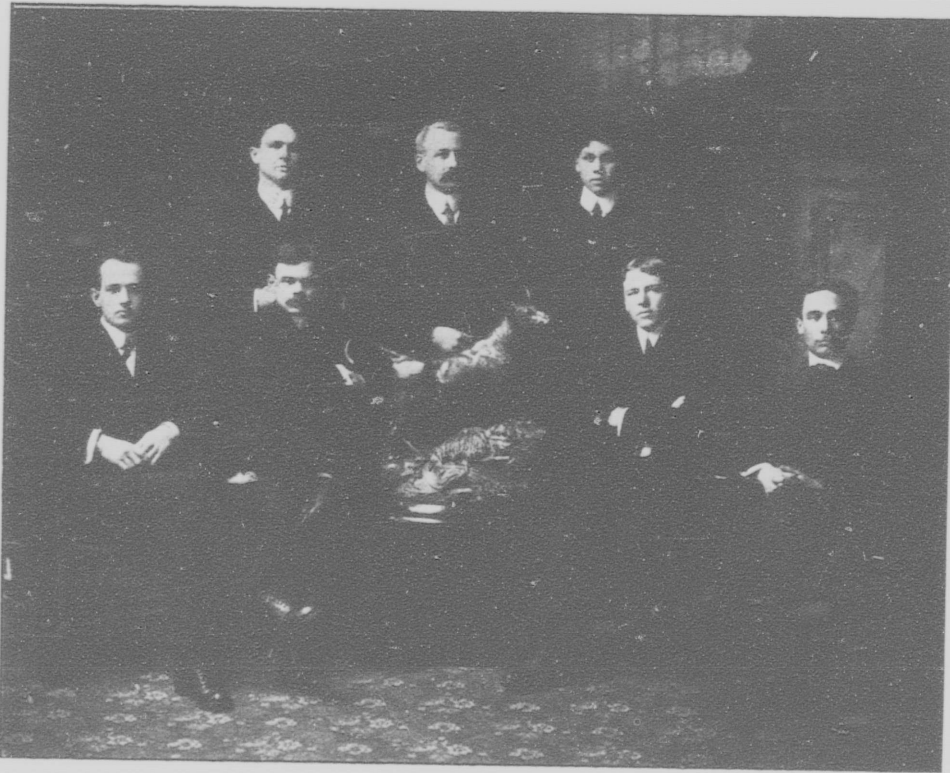
During the delay awaiting the judges' decision, Mr. Owen Smily rendered several excellent selections, a humorous sketch entitled "The First Piano in the Klondyke," being of special interest. The other numbers of the programme

were also much appreciated and to the large audience which filled the spacious gymnasium, the evening was a thoroughly enjoyable one.

In Aid of the Elliott Home.

The O. A. C. Philharmonic Club held a very successful concert in the City

unique and comical and the members of the Club are to be congratulated on the excellence of the programme provided. All the numbers for the evening were rendered by O. A. C. talent, the proceeds, after defraying expenses, being given in aid of the "Elliott Home."



THE MEN WHO BROUGHT THE TROPHY TO CANADA.

	J. A. Bracken	Professor Day	H. B. Smith	
W. A. Munro	H. S. Arkell, M.A., B.S.A.		G. G. White	H. A. Craig

Opera House on the evening of Dec. 1. The programme was a long one and consisted of tableaux, solos, duets and many other selections. The musical numbers by the "International Band" were perhaps the most enjoyable of the evening's entertainment, although the other numbers were all particularly well rendered. The costumes for the event were certainly

Christmas Chapel Service.

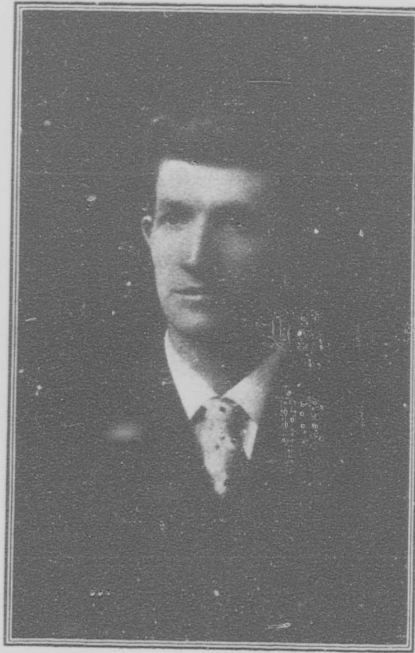
The closing Chapel Service of the term was held in Convocation Hall on Sunday afternoon, Dec. 17th. The Christmas sermon was delivered by the Rev. J. A. MacDonald, of Toronto, and the hall was crowded to its utmost capacity. Special music in the form of anthems and solos, was rendered by the

choir, and the congregation heartily joined in singing the familiar hymns—"Hark! the herald angels sing," and "Joy to the World." The service was as follows:—

1. Doxology.
2. Invocation Prayer.
3. Hymn—"Hark! the Herald Angels Sing."—*Wesley*.
4. Prayer.
5. Solo—The Birthday of a King.—
—*Niedlinger*.
Mr. Reginald Mills.
6. Anthem—As Pants the Hart.—
The Choir. —*Sphor*
Miss Alvena Springer, Solist.
Violin Obligato, Mr. D. Weir.
7. Scripture Reading.
8. See Now the Altar—*Faure*.
The Choir.
Mr. E. G. de Coriolis, Solist.
Violin Obligato, Mr. D. Weir.
9. Sermon—"The Great Life."
10. Duet—O Divine Redeemer.
—*Gounod*.
Miss A. Springer.
Mr. E. G. de Coriolis.
11. Offering—In aid of the Free Hospital for Consumptives at Muskoka.
12. Anthem—"Hark! Hark My Soul!"
—*Shelby*.
The Choir.
Miss A. Springer, } Soloists.
Mr. R. W. Mills, }
Violin Obligato, Mr. D. Weir.
13. Hymn—"Joy to the World."
—*Watts*.
14. Benediction.

Our New Dean of Residence.

In the person of our new Resident-Master, the boys may well feel that they have a supervisor, who is one of themselves. Mr. D. H. Jones is too well



D. H. JONES,
Dean of Residence.

known as one of the boys of Naughty-Six to need any introduction here. It is but five years since Jones came to this country from Warwickshire, England, but in that time he has thoroughly adapted himself to his new surroundings. The sound judgment which he displayed in entering the course at the O. A. C. in the first place has evinced itself on many occasions since that time and has won him a place second to none in the respect of the faculty and of his fellow-students. His wide popularity is also attributable to the evenness of his disposition and the habitual courtesy of his manner, which qualities combined with his habits of wide reading, deep and clear thinking and steady application to duty should go far towards relieving his new position of much of its irksomeness and all of its unpleasantness.

Literary Societies Organize.

The Literary Societies of our college have again organized for the winter term. The following officers are in charge :—

UNION LITERARY SOCIETY.

Honorary President—Professor R. Harcourt.

President—H. B. Smith.

Secretary—J. E. Smith.

Treasurer—H. A. Wolverton.

Auditors—F. H. Reed and J. B. Fairbairn.

ALPHA SOCIETY.

President—J. P. Atkin.

Vice-President—R. S. Duncan.

Secretary—L. Caesar.

Programme Committee—L. C. Nixon, K. G. MacKay and F. Middleton.

DELPHIC SOCIETY.

President—H. Barton.

Vice-President—M. E. Coglan.

Secretary—L. A. Bowes.

Programme Committee—W. H. Young, W. J. Hartman and A. A. Knight.

MAPLE LEAF.

President—G. H. Cutler.

Vice-President—W. A. Boutwell.

Secretary—H. W. McGill.

Programme Committee—W. Strong, H. Sirett and W. E. Palmer.

The success of the Union Literary Society meetings of the past term has been a source of gratification to the student body in general. The retiring Executive under the guidance of H. A. Craig are certainly worthy of the highest praise for their untiring interest in connection with the work of the Society.

Mr. H. B. Smith, the new President and his staff, have thus left to them a record which it will be hard to excel.

The first Union Literary meeting of the term will be held in Massey Hall on the evening of Jan. 27th. An excellent programme, including an inter-society debate between the Alpha and Delphic Literary Societies, has been prepared for the occasion.

The festive season of Christmas-tide was made doubly festive to some members of our Faculty. Prof. S. F. Edwards made a return visit to Michigan and there married Miss Tie Bowerman of Lansing, Mich. Mr. E. J. Zavitz, our Lecturer in Forestry, was wedded to Miss Dryden, daughter of the Hon. John Dryden, the late Minister of Agriculture. THE REVIEW and the student body at large, extend their heartiest congratulations to these now happy members of our staff, and offer a warm welcome to the two ladies they have brought to Guelph.

The collection of insects formerly belonging to Mr. A. H. Kilman of Ridgeway, Welland County, has been purchased for the Department of Entomology and Zoology. The following figures, while only approximate, will give some idea of the nature and extent of the collection :—

	Species.	Specimens.
Bugs, Bees, Flies, etc.....	200	500
Butterflies & Moths (North American).....	500	1,000
Butterflies and Moths (foreign).....	200	500
Beetles (Ontario).....	1,500	15,000
“ (North America, not Ontario).....	1,000	3,000
“ (foreign).....	500	1,000
	<hr/>	<hr/>
	3,900	22,000

Beside those listed above there a large number of duplicate specimens put upon paper tubes for exchanging, etc. All told, the collection contains upwards of

30,000 specimens, representing 4000 distinct species.

The Christmas Examinations.

The reports of the Christmas Examinations have already appeared on the College bulletin board to gladden the hearts or dampen the spirits of those who aspired for honors. The names of the first twenty-five successful ones from each of the various years are arranged below in order of merit. They are as follows:

FIRST YEAR.

1 Sirett, H. ; 2 Thompson, W. R. ;
3 Webster, H. B. ; 4 Turney, A. G. ; 5
Cutler, G. H. ; 6 McLaren, A. ; 7 Mc-
Gill, H. W. ; 8 Strong, W. ; 9 Cooley,
R. B. ; 10 Duff, H. C. ; 11 Waddell, W.
M. ; 12 Allen, R. J. ; 13 Law, I. F. ;
14 Jackson, W. ; 15 Angle, P. E. ; 16
McEwen, C. E. ; 17 Tothill, J. D. ; 18
Jenkinson, R. H. ; 19 Lawrence, C. A. ;
20 Irvine, W. H. ; 21 Lang, J. E. ; 22
Palmer, B. G. ; 23 McKenzie, D. ; 24
Fraser, R. ; 25 Holterman, W. I.

SECOND YEAR.

1 Rose, D. M. ; 2 Arkell, T. R. ; 3
Slater, A. E. ; 4 Curran, G. B. ; 5 Frier,
G. M. ; 6 Knight, A. A. ; 7 Caesar, L. ;
8 Clancy, R. H. ; 9 Smith, J. E. ; 10
Warren, F. B. ; 11 Salkeld, B. G. ; 12
Gilmore, J. D. ; 13 Murray, C. ; 14
Patch, A. M. ; 15 Wheaton, R. R. ; 16
Row, C. A. ; 17 Carpenter, J. F. ; 18
Hayes, J. A. ; 19 Barnet, W. A. ; 20
Graham, R. R. ; 21 Langhley, R. ; 22
McLennan, A. H. ; 23 Wolverton, H.
A. ; 24 Hare, J. M. ; 25 Brown, W. A.

THIRD YEAR.

1 Mills, R. W. ; 2 Barton, H. ; 3 Diaz,
P. ; 4 Wheeler, H. C. ; 5 Bunting, T.
G. ; 6 Twigg, C. B. ; 7 Nixon, C. C. ;
8 Hartman, W. J. ; 9 Hamer, R. S. ; 10
Sanders, T. E. ; 11 McKenney, A. ; 12
Hudson, H. F. ; 13 Binnie, T. H. ; 14
Atkin, J. P. ; 15 Crow, J. W. ; 16 Ball-
antyne, P. M. ; 17 Jacobs, W. S. ; 18
Clowes, F. A. ; 19 Coglán, M. E. ; 20
Clark, C. P. ; 21 Fernandez, H. B.



New Books.

ECONOMIC GEOLOGY OF THE UNITED STATES by Ries (Cornell) 1905 — A book of 500 pp. thoroughly up-to-date and accurate, a feature very necessary in a text of this kind. Prof. Ries is fully acquainted with all the details of his subject, and the book throughout shows evidences of personal inspection of the working and output of the mines. The chapters on coal, petroleum, natural gas, building stones, clays, cement, etc., are especially interesting, and well illustrated by maps and photographs. The book is sold by Morang & Co. for \$2.60 net.

THE COLLECTED POEMS OF WILFRED CAMPBELL. William Briggs, Toronto, 1905. Price \$1.50. This is a well arranged collection of a loyal and artistic spirit. It should appeal to every Canadian who realizes that:—

Eager to clutch the *golden* "Then"
We miss the *gloried* "Now."

The poem on "The Discoverers" is an inspiration of true worth.—V. W. J.

SOIL PHYSICS LABORATORY GUIDE (Orange Judd,) is a little volume by Professors Stevenson and Schaub of the Department of Soils, Iowa State College. It is just what its title suggests, giving explicit directions for conducting each of the forty experiments described. The treatment of each experiment embraces: 1, Object; 2, Directions; 3, Questions; 4, Description of the Apparatus.

THE OUTLOOK TO NATURE, by L. H. Bailey. This book brings humanity back to the real object of life, that of living in closer contact with the things

around us. I can heartily recommend it as supplemental reading for teachers and as a valuable addition to anyone's library.
H. S. PEART.

THE CHRYSANTHEMUM: ITS CULTURE FOR PROFESSIONAL GROWERS AND AMATEURS, by Arthur Herrington. The most complete and comprehensive work on the cultivation of the chrysanthemum that has yet been published in America. The book will be welcomed by both professional and amateur growers of chrysanthemums, for the lucid, comprehensive as well as the practical character of its contents, which, if strictly followed, cannot fail to bring about the desired results, namely, the obtaining of large chrysanthemum flowers in the greenhouse, and a profusion of bloom in the garden. Handsomely illustrated, 168 pages, 5 x 7 inches. Price 50c. Orange Judd Company, 52 Lafayette Place, Marquette Building, Chicago.

AGRICULTURE THROUGH THE LABORATORY AND SCHOOL GARDEN by C. R. Jackson and Mrs. L. S. Daugherty, State Normal School, Kirksville, Mo. 152 Illustrations. 402 pages, Cloth. Publishers Orange Judd Co., New York, and Morang & Co., Toronto. Price \$1.50 net. This book is nicely gotten up. It is well illustrated and printed in large, clear type, on heavy paper and well bound in cloth. It illustrates how the principles of Agriculture may be taught by the aid of the School Garden and the Laboratory. It is an attempt to correlate the practical side of the study of Agriculture with the technical; and is intended to represent the actual work performed by a class. The operations that take place in the garden, where possible, are illustrated by experiment in the laboratory.

Locals.

A SPASM OF LIFE.

Tell me not in idle jingle
 Marriage is a blissful dream,
 For the man is wise that's single
 And girls are not what they seem.
 Girls are shrewd, and dead in earnest,
 And to wed's their only aim ;
 ' Miss ' that is, to ' Mrs ' turnest,
 Anything to change their name.
 Not flirtation, not coquetting,
 Is their studied end or way,
 But to act, that each to-morrow
 Nearer brings the bridal day.
 Smiles are sweet and glances killing,
 And, poor man, bewildered thing ;
 Thus bamboozled, may, unwilling,
 Pony up and buy the ring.
 In the world's broad field of battle
 In the flirting match of life ;
 Be not like dumb, driven cattle,
 Be not humbugged with a wife.
 Trust no woman howe'er pleasant,
 Do not heed her artless trash ;
 Wed, wed in the fatal present
 And your future's minus cash.
 Lives of bachelor's all remind us
 We can live our lives the same,
 And, departing, leave behind us
 No cross kids to bear our name.
 Kids, perhaps, to whom another,
 Hoing out life's solemn row,
 Some forlorn and hen-pecked brother,
 One day may step-father grow.
 Let us then, be not demented
 And lured in thro' Hymen's gate :
 Still, unmarried, still contented
 Learn to let the damsel's wait.

First freshman — " When a second
 year man referees a baseball game, what
 do you expect to see ? "

Second freshman — " C. A. Row. "

Doukey Stewart thinks that a mission-
 ary enterprise, with dairying as a side
 line would be " holy " uncongenial to
 him. We trembled for the poor heathen
 when we heard he had the chance to go
 to India in this capacity and, for their
 sake, as well as his, we hoped his pros-
 pective parishioners were not cannibals.

Craig's goose was cooked all right.

By way of diversion :

The sofa held the twain,
 Miranda and her love sick swain,
 Headshe

But hark : a step upon the stair
 And papa finds them sitting there
 He and she. — *Ex.*

Funny, isn't it ?

Duke — " It does not seem fair, don't
 you know, to insist on all the Macdonald
 girls attending a lecture on ' Diamonds
 and Diamond Mining. ' on a Friday
 evening. Diamonds are not trump that
 night. "

We understand that " Charley's Aunt "
 will shortly visit Guelph, and that Mc-
 Ewen is very anxious to meet her. We
 advise McEwen to keep in view the
 freeze out, (notwithstanding the mild
 weather,) which he got from " Charley's
 Mother " and not to be so anxious the
 next time.

It was a Thursday afternoon,
 Buck Irwin's work was done ;
 When the Guelph Collegiate Institute
 For the College made great fun.
 Nine goals the O. A. C. won, won, won.
 The stalwart G. C. I's but one, one, one.

McLaren saw his brother Mowat,
 Roll something large and round,
 Which he inside the goal net
 In playing there had found.
 He came to ask what he had found
 That was so large and smooth and round.

Buck took it from the cover-point,
 Who stood expectant by ;
 And then he sadly shook his head
 And with a natural sigh :
 "'Tis but another goal," said he,
 "The umpire was too slack you see."

I find them in the rink
 For there's many here about ;
 And often when I go to skate,
 My skate-point turns them out,
 For many goals are missed you see
 In every famous victory.

"Now tell us what we played them for"
 Young Hamilton, he cries ;
 And little Fife looks up
 With wonder-waiting eyes:
 "Now tell us why we played the game
 And if the next will be the same."

"Last year upon the college rink
 We put them quite to rout,
 And how they came to trim us now
 We cannot well make out.
 Now tell us why such things must be
 For we deserve some sympathy."

Buck noted their defiant mood
 And in his brief reply,
 He gave a little sage advice
 To the beaten G. C. I.

Although to do so so they could see
 He had a great antipathy.

"You must forget the game last year,
 Of shinny in a pen,

For hockey is a different thing
 As played by college men.
 And if you hope to win you see
 You'll have to play it differently.

You first must learn to play some
 com.,
 Try not to get off-side ;
 And do not play the boards so much
 And do not shoot so wide,
 For things like this you know must be
 Ere you can hope for victory.

And see that Lawson's skates are on
 Else he is sure to lag ;
 And finally if you cannot win,
 Why do not chew the rag,
 For if the game goes O. A. C.,
 True sports would take it cheerfully.

Stafford has lately become a Christian
 Scientist. He has been taking faith cold
 baths i. e. baths minus the water. He
 reports the cure as a very effective one.

"Anxious" would like to know by
 what system of levers a sufficiently large
 advantage could be obtained in order to
 get Boddy into class in time for lectures.
 It has been suggested that the system of
 leverage used in the hair cutting machine
 might be tried with success.

The Third Year, though few in num-
 bers, are strong in supports. Though a
 "Reed" may be weak, and a "Twigg"
 but little stronger, yet "Jacob's staff"
 will prove a ready and effectual prop.

Crowe is fond of brown sugar, but he
 does not like it C. O. D.

The Freshmen have long known of
 the attraction of gravity. Now, how-
 ever, some of them are discovering the
 gravity of attraction.

In a moment of bliss
 Adam asked Eve for a kiss ;
 She puckered up her lips with a coo,
 And with a look ecstatic,
 Said most emphatic :
 " I don't care Adam if you do. "

When it became necessary for the Fourth Year to elect a new President, it looked almost like a case of six of one—those in the field and half a dozen of the other—those not in the field.

Senior, (meeting Semon on the way to lectures at 9.30)—" You'll be late, won't you ?

Semon, (scornfully) — " Well, it doesn't matter, does it ? "

Thompstone—" We have two kinds of plants here. How would you compare their cells ? "

Atkin, (aside)—" Cell, cellar, sold. "

President of Dairy Literary Society—
 " Is there any undone business ? "

Drowsy Junior—" If they keep on having breakfast so early, ' I'll simply stay in my room and will not go down at all. ' "

What makes the latter part of that statement sound so familiar ?

Those Senior men, who have taken end rooms in the old hospital flat may safely be said to possess a corner in hospitality.

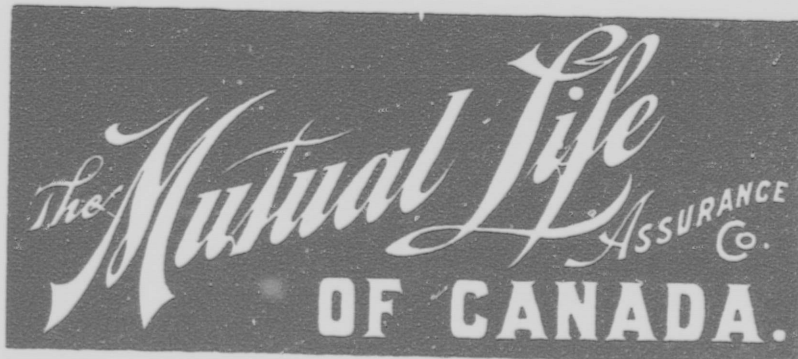
To those in search of polish, we specially recommend the two in one course at the MacDonald Institute.

Is it the irony of fate which makes gravimetric analysis of iron so difficult ?

Continued on page xiv., advertising.

EVERY ONE KNOWS

Or should know that there is no " Extravagance " or " Frenzied Finance " practised by



The Company is managed with the utmost economy consistent with efficiency; its investments yield the largest income consistent with absolute safety; and there are no stockholders to absorb any of its profits. EVERY DOLLAR FOR THE POLICYHOLDERS.

ROBERT MELVIN,
 President.

GEO. WEGENAST,
 Manager.

W. H. RIDDELL,
 Secretary.

GEO. CHAPMAN, - - GENERAL AGENT

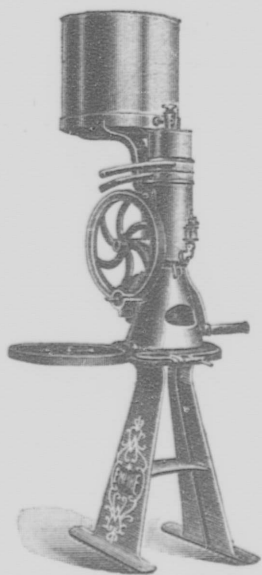
McLaren's Block, Guelph, Ont.

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

SIX COWS AND AN EMPIRE

Will make more money for you than eight or ten cows and any number of cans and pans, and with less work.

EMPIRE SEPARATORS



point the way to success in dairying and their immensely large sale in the last three years, surpassing any other single machine in America, shows that their popularity is founded on merit.

SEND FOR CATALOGUE

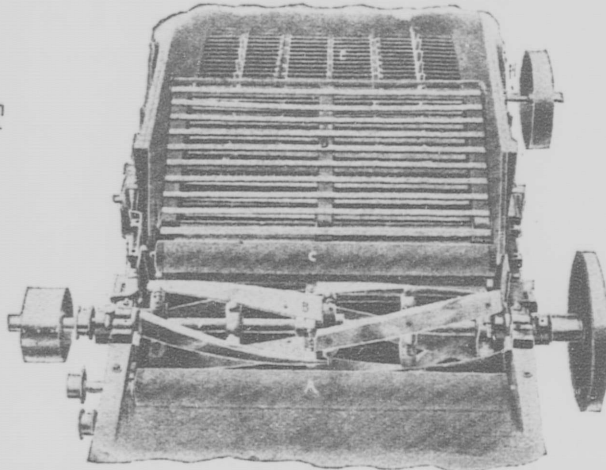
Empire Cream Separator Company of Canada
LIMITED
TORONTO, CANADA

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FARMERS

Why Double Your Labor and Increase Expenses?
Why Not Save Both TIME and LABOR?

THE STEWART
Straw Cutter
Attachment
For Threshing
Machines



Will Save You
Labor, Time
and
Mow Space

This ingenious invention may be attached to any make of separator, and by simple manipulation will cut straw any length with the minimum amount of extra power, so you may have your straw cut at the same time as threshing, ready for feed or bedding and all under cover. Correspondence invited. Write for Illustrated Booklet.

The STEWART STRAW CUTTER CO., 19 Aberdeen Chambers, Toronto

ATTEND
Clark's

The Great Practical Training College OF MODERN TIMES

Colleges with Ability, Experience and Capital, acknowledging no Superior nor fearing any competition.
Colleges Absolutely Thorough, with the Most Expert Twentieth Century Methods.
Colleges with Practical, Up-to-date Courses and with Teachers of the highest Scholastic Attainments
Colleges, in fact, that stand by themselves.—Above and Pre-eminently Superior to All Others.
No Vacations, Day and Night School. Tuition payable monthly. Positions secured for graduates in Hamilton, Buffalo or Toronto.
New Journal just from the press. An elegant publication. Send for a copy. Do it now. Address

C. H. CLARK, Pres., ⁴⁶⁻⁴⁸ James Street, North, **Hamilton** Phone 1,975

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

C. Richardson & Co.

MANUFACTURERS OF

Cheese Factory
Creamery and
Dairy Machinery

AGENTS FOR

Alderney Butter Color

"American" Cream Separators

St. Mary's, - Ontario



A Cosy Fireplace!

MADE FROM

Milton Brick

Is what you should have in
your Sittingroom.

BRICK MANTELS

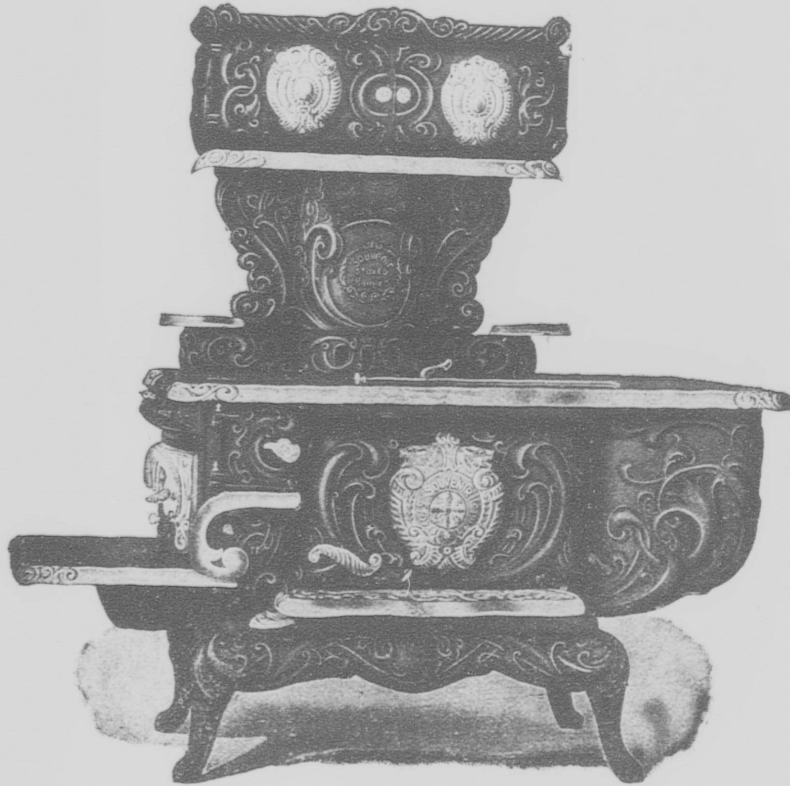
from \$15 up.

Send for Free Catalogue.

**Milton
Pressed Brick Co
Limited.**

Works and Head Office
MILTON - ONTARIO

“Souvenir” Superiority



The superiority of the “**Souvenir**” is so apparent that it takes mighty little talk to convince the most skeptical. The “Aerated” Oven alone puts it on a plane where it is a standard for other makers, to which they are vainly trying to attain.

Handsomely fitted up, perfectly appointed, and for general good service, without a fault.

Manufactured by

The Gurney, Tilden Co., Limited,
HAMILTON.

Western Agents :

Tilden, Gurney & Co., Limited,
WINNIPEG.

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UNDERWOOD
VISIBLE TYPEWRITERS.



Used by the Ontario Agricultural College.

All Makes of Rebuilt Typewriters.
Write for Price List.

UNITED TYPEWRITER CO. LIMITED
TORONTO, ONT.

Every Reader

—OF THE—

REVIEW

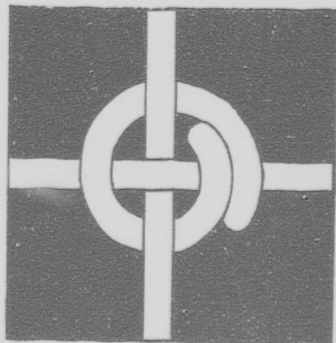
Should take care of his numbers and have them made in a bound volume at the end of the College year.

The Guelph Bookbindery

does the work in a neat and attractive form for \$1.00 per volume.

F. Nunan's
Bookbindery
GUELPH, ONT.

Sign of the Big Book
Telephone 371



The **PEERLESS**

The Woven Wire Fence Without a Rival.

Canada's new and Coming Fence. Here is our Lock. It is strong, neat and durable. It has never been offered for sale in Canada before. When you are looking for improvements, don't forget us. Write us for circulars. Strictest attention paid to all orders in detail.

BANWELL WIRE FENCE CO.
HAMILTON, ONT. LIMITED

GET A FARM IN WESTERN CANADA

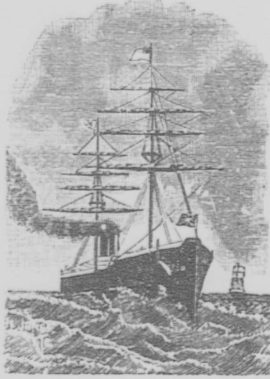
Only One Dollar per acre required in cash. Beautiful lands, well situated, in settled portions of Western Canada. Payments spread over five to ten years. These lands will be without doubt worth three times what they are now selling at within the next eight years. All our lands carefully selected. Address

The Western Canada Settlers' Mutual Land Company

23 Canada Life Building, Winnipeg, Man.

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

Ocean Steamship Tickets



SOLD ON ALL LINES TO ALL
PARTS OF THE WORLD.

JOHN DAVIDSON

Market Square, Guelph, Ont.

Clowes (on digestion experiments) —
“Do you ruminate?”

Hartman—“No, I room in 58.”

Among the REVIEW accounts of the early nineties we note an extract which reads—“A meeting was held in Patterson's room to consider the advisability of getting *pads* for the officers of the O. A. C. Review.” According to present indications a specially constructed iron cage will soon be necessary for the protection of our editors.

Scene—A crowded street car. Macdonald girl enters carrying a pair of skates.

Polite freshman—Young lady, may I offer you my seat?

Macdonald girl—No thanks, I have been sitting down all afternoon.

MacMillan—If I fail this spring this will be an ill-starred year for me, or rather a well-starred one.

Continued on page xx., advertising.

The Traders Bank of Canada

ASSETS TWENTY MILLIONS (\$20,000,000)



It is the
Farmers' Bank



Next door to
the Post Office



WYNDHAM STREET.

SPECIAL ATTENTION Paid to FARMERS' BUSINESS

Loans Made. Deposits Received

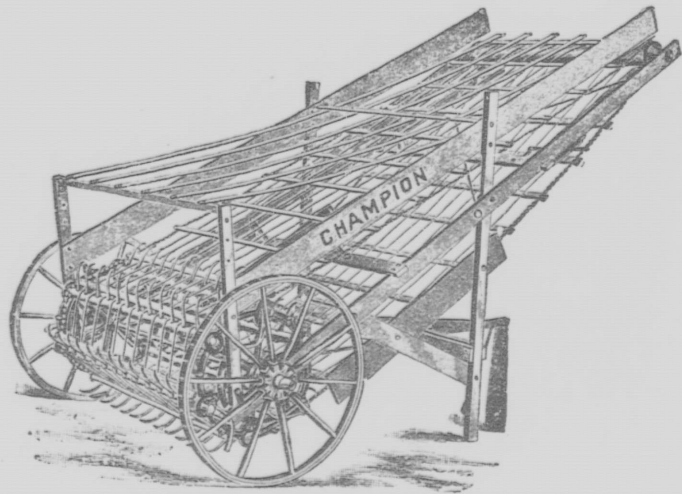
The Most Favorable Rates and Terms Given.

A. F. H. JONES - - - - - MANAGER

Hay Making in 1906

Should not be attempted without the aid of a "Champion" Hay-Loader. It saves the time of one man throughout the entire harvest

Simple
Strong
Durable
Correct
Principles



Head Office and Works :
SMITH'S FALLS, ONT.

THE Frost & Wood Company
LIMITED

Winnipeg, Toronto, Montreal, Quebec, St. John and Truro.

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

ZENOLEUM DISINFECTANT AND DIP

USED AND ENDORSED BY
ONTARIO AGRICULTURAL COLLEGE
IN ITS SEVERAL DEPARTMENTS

THE CANADIAN GOVERNMENT
AT ITS ARMY BARRACKS

CANADIAN PACIFIC RAILWAY CO.
THROUGHOUT ITS SYSTEM

PROMINENT VETERINARY SURGEONS
IN THEIR DAILY PRACTICE

LEADING LIVE STOCK MEN
ALL OVER THE WORLD

ON SALE AT EVERY DRUG STORE
In Tins 25c. - 50c. - 90c. - \$1.50 - \$6.25

WRITE FOR FREE BOOKLETS

Zenner Disinfectant Co.
WINDSOR, Ont. DETROIT, Mich.

The Farming World

A SEMI-MONTHLY,



THE PAPER for the FARMER

whether

a SPECIALIST or General Farmer.

Information gleaned from the most
reliable sources. Carefully edited,
well printed & profusely illustrated.

One Year - 60c. Two Years - \$1.00.

A SAMPLE COPY ON REQUEST.

SPLENDID INDUCEMENTS TO AGENTS



The Farming World

90 Wellington St., W. - TORONTO

CHOCOLATES

G.B. G.B.

ARE MADE FROM THE PUREST
AND CHOICEST MATERIALS.

99 DIFFERENT KINDS AND FLAVORS

The largest and best line
of BON BONNS to choose
from. Ask for and in-
sist on having

G. B. CHOCOLATES

Ganong Bros., St. Stephens, N.B.

Petrie's Drug Store

Sole Agents in Guelph

The Bond Hardware Company Limited

President:

JOHN M. BOND

Vice-President:

W. GEO. BOND

2nd Vice-President:

T. A. KEATING

Secy-Treasurer:

J. S. MILLAR

If
You
Require
Anything
in
Hardware
or
Sporting
Goods
Let
Us
Serve
You.

Our Prices Are Always Right

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



BETHESDA, ONT., JAN. 16th, 1906.

H. H. LEDREW, Esq.,

Manager O. A. C. Review, Guelph, Ont.

DEAR SIR,—

Please continue my advertisement, and send in your account, when due. The ex-students have been among my best customers, and I feel I can not afford to discontinue my advertisement in your valuable paper. Last week I sold three two-year-old fillies at \$1,050, and about a month ago sold three two-year-olds and one yearling at \$1,100, which pays very well. I wish you every success.

Yours truly,

G. A. BRODIE.

Craigieburn Stock Farm

**CLYDESDALES, SHORTHORNS,
and SHROPSHIREs,**

Imported and Canadian Bred.

Young Stock Always For Sale.

For particulars apply to

G. A. BRODIE
BETHSEDA, ONT.

Stations—

Stouffville, G. T. R.; Claremont, C. P. R.
Telephone service from stations to residence.

CLYDESDALES

SMITH & RICHARDSON
COLUMBUS, ONT.

Importers of Clydesdale Horses.

Now on hand a great number
of Stallions and Mares, among
them the Toronto Show winners

R. R. Stations—G. T. R.—Oshawa.

Brooklin.

C. P. R.—Myrtle.

Long Distance Phone at Residence.

Pine Grove Stock Farm

Rockland, Ontario, Canada

BREEDERS OF CHOICE

**SCOTCH SHORTHORNS
and SHROPSHIREs**

W. C. Edwards & Co. Limited

PROPRIETORS

JOSEPH W. BARNET, Manager

Alva Farm Guernseys

Awarded First Prize at Montreal
for Breeder's Young Herd.

Young Animals of Merit For Sale

Pedigrees and particulars to parties
wishing to purchase, address:

SYDNEY FISHER, Knowlton, Que.

J. DRYDEN & SON

Maple Shade Farm, Brooklyn, Ont.

Home of the oldest and largest herd
of Cruickshank Shorthorns in America.
Shropshire flock founded 1871.

Stations—C. P. R., Myrtle, 3 miles.

G. T. R., Brooklyn, 1½ miles.

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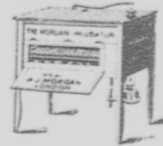
LIVE STOCK—(Continued)**N. DYMENT****Ayrshires.****Hickory Hill Ayrshire Herd****Clappison, Ont****C**HAS. S. AYLWIN, Freeman, Ont. Ayrshires. Stock always on hand**P**. D. EDE, Woodstock Station. Stock for sale from Record Cows.**G**EORGE RICE, Tillsonburg, Ont. Holsteins. Young Stock for Sale.**F**. MARTINDALE & SON, York, Ont. Shorthorns and Berkshires.**W**. M. SMITH, Scotland, Ont. Ayrshires, Poland Chinas, Duroc Jerseys.**J**OHAN MORGAN & SONS, Kerwood, Ont. "Cherry Grove Stock Farm." Shorthorns, Young Bulls and Heifers on hand for sale.**Oak Lodge Yorkshires**

The PROFITABLE Type of Bacon Hog.

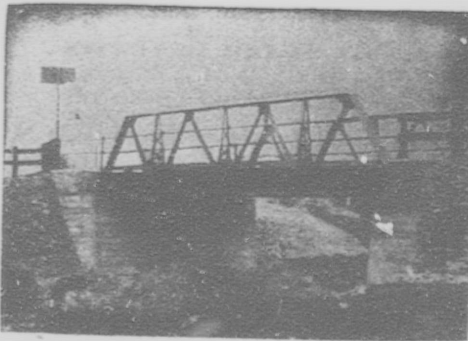
Stock of all Ages for Sale at all times.

Quality Guaranteed.

Long Distance Phone at the Farm.

J. E. Brethour
BURFORD, ONT.**INCUBATORS
and BROODERS****Poultry Supplies**
OF ALL KINDS.LARGE CATALOGUE
FREE**A. J. MORGAN**
LONDON**HIGHWAY BRIDGES**

Pin Spans	Swing Bridges	Deck Spans	Beam Spans	Riveted Spans	Through Spans
--------------	------------------	---------------	---------------	------------------	------------------



We manufacture and erect Structural Steel for Office Buildings, Warehouses, Mill Buildings, Power Plants, Etc., and also furnish miscellaneous Structural Jobs and Orders, fitted or cut to size, as required by Manufacturers, Engineers, Architects, Contractors and Builders.

Prices, Estimates, Plans, and other information cheerfully given on application.

Hamilton Bridge Works Co. Limited
HAMILTON CANADA

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

THE GUELPH
HERALD
Job Department

FOR FINE
PRINTING



The Daily Herald delivered to all parts
of the city for 35 cents per month.

H. GUMMER, - - Proprietor.

SAM LEE HING

The College Boys patronize
him because he does **GOOD
WORK**, and always aims to
please.

He calls on Mondays,
Wednesdays,
and Saturdays.

**WORKSHOP AND OFFICE ON
ST. GEORGE'S SQUARE**



This is the mark of the Dunlop rubber heel. It leaves its imprint all along the sidewalks and at the crossings. It's a heel that's made of "live" rubber.

**FOR SALE BY
ALL SHOE DEALERS**

Some old, familiar maxims in Dairying. (See text books.)

To be successful, dairy farming must be profitable.

Walls of dairies should be strong enough to support the roof.

To keep the stable clean, the broom is a very convenient article.

Formerly, Rubiar, in his midnight raids, gathered apples indiscriminately. Now, a certain variety only seems to appeal to him.

Sharman—(preparing plans for manual training)—How do you draw a wheelbarrow?

Hart—you generally push it.

Interest in swimming has greatly increased since the visit of Mr. Corsan. Our new skating rink certainly facilitates the enjoyment of this form of exercise this winter.

Continued.

**Men's
Goods**

E. R. Bollert & Co.

**Ladies'
Goods**

THE Faculty, Students of the O. A. C. and Macdonald Institute will find this store ready to serve their wants to the best advantage. We are pre-eminently a Ladies' and Gentlemen's Outfitting and Furnishing Store. No matter what your needs this store is ready to supply them with good goods at moderate cost. We have always been favored with a large business from the personnel of the College. We shall pay special attention for its continuance and increase.

Men's Section

- Fine Ordered Clothing at Moderate Prices.
- Fit-the-form Ready-to-wear Clothing, very good and very cheap.
- Best Styles of Hats and Caps at closest prices.
- Up-to-date Shirts, Collars, Ties, Gloves, and Fancy Furnishings, not at fancy prices.
- Underwear, Hosiery, Etc., grand values.

Ladies' Section

- Dressmaking at very reasonable rates.
- Ready-to-wear Coats, Skirts, Blouses, Etc., in great variety of new things.
- MILLINERY**—All the Novelties of a first-class Millinery Business constantly received.
- The Underwear and Furnishing Stocks are crowded with good goods at low prices.
- Belts, Collars, Gloves, Hosiery, Handkerchiefs, Etc., Etc.

**25 and 27
Wyndham St.**

E. R. Bollert & Co.

**25 and 27
Wyndham St.**



— ❁ ❁ —
 Come in and have a
 Dish of Ice Cream.
 — ❁ ❁ —

— ❁ ❁ —
 Our SODAS are
 DELICIOUS. We
 make them in every
 Flavor.
 — ❁ ❁ —



— ❁ ❁ —
 Our stock of Choco-
 lates is Complete.
 — ❁ ❁ —



The Kandy Kitchen

LOWER WYNDHAM STREET,

GUELPH, ONT.

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

MEN'S FURNISHINGS

Just to Remind You

That I carry one of the Largest and Most Select Stocks of
HATS, SHIRTS, TIES, SOX, COLLARS. UNDER-WEAR and **MEN'S FURNISHING GOODS IN THE CITY.**

Ordered Clothing

I have a select stock of **SUITINGS, OVERCOATINGS AND TROUSERINGS** to select from. Styles, Trimmings, Fit and Workmanship the very best, and prices as low as any in the trade. Our motto is: "The best possible value for the least money." All goods marked in *plain* figures and *one* price to all. Be sure you come to **73 WYNDHAM STREET** for your Furnishings and Clothing.

R. E. NELSON

Next Traders' Bank.

Men's Furnisher, Hatter and Fine Tailoring.

MERRY CHRISTMAS—EVERYBODY



Though we can't fill your stockings with the good things we sell, we can fill your hearts with joy all the year round by supplying you when needed with the best thoroughly seasoned

Lumber and Building Materials

The H. A. CLEMENS Co. LIMITED

Manufacturers of

WASHING MACHINES, STAIR BUILDING and INTERIOR FITTINGS A SPECIALTY

Phone 50

GUELPH, CANADA

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

Headquarters in Guelph for Students' Supplies

OF ALL KINDS

LARGE ASSORTMENT OF

Cut Glass Goods

Ebony Goods

Fancy Perfumes

G. B. Chocolates

Purses

Hair Brushes

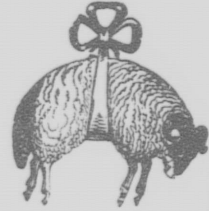
Toilet Cases, Etc.

Remember the place,

Petrie's Drug Store

Lower Wyndham Street.

Advance in Fine Furs..



Is the latest report from the Big Fur Centres. This will make no difference this season with us. We have an IMMENSE STOCK bought and paid for; so it is up to you to get your money's worth this fall.

Our experience and guarantee should be worth something. We take the responsibility if everything should not prove satisfactory.

In FINE TAILORING we are in the First Division in Canada.

Keleher & Hendley

Students

THE PLACE
TO BUY

Drugs,

Toilet Articles,

Fine Perfumes,

College Supplies,

etc., etc.,

IS AT



Stewart's Drug Store

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

A SQUARE DEAL FOR
EVERY MAN.

THE NEW STORE FOR
MEN'S AND BOYS'
CLOTHING
AND FURNISHINGS.

EVERYTHING NEW.
EVERYTHING RIGHT.

Earliest with the Latest Things.
Fairest Price on all Things.

THE STORE FOR STYLE
AND QUALITY.

EVERYTHING THAT
WOMEN, GIRLS AND
CHILDREN WANT
TO WEAR.

Also Carpets, Curtains, Draperies and
Furnishings for the House.

Nothing that is Not Good.
'Most Everything that is Good.

G. B. RYAN & CO.

UPPER WYNDHAM STREET

We Do What We Say

The Canadian Bank
of Commerce

Established 1867. Head Office, Toronto
B. E. WALKER, General Manager

Capital (paid up) \$10,000,000
Rest, - - - 4,500,000

GUELPH BRANCH

A general banking business is transacted.
Bankers for the Dominion Live Stock Association.
Farmers' notes discounted.
Drafts issued payable at all points in Canada and the
principal cities in the United States, Great Britain,
France, Bermuda, etc.

SAVINGS BANK DEPARTMENT

Deposits of \$1.00 and upwards received and current
rate of interest allowed.
Interest added to the principal at the end of May
and November in each year.
Special attention given to Collection of Commercial
Papers and Farmers' sales notes.

J. M. DUFF, - Manager

R. B. Kennedy



PHOTOGRAPHER



The best place to get a good
Group Photograph or a Por-
trait of yourself.

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

The Little Tailor Store

COLLEGE MEN

Are usually particular about their appearance. They demand character in their clothes.

We make the kind of Suits and Overcoats that give a man that "well-dressed" appearance so much desired.

We make the clothes to fit the man; TAILOR individual style and shape into them.

ABOUT OUR PRICES

Being on a side street, our store rent is very small compared with main street rentals.

It is this combination—a big business done in a small store, with very light expenses—that makes it possible for us to turn out such high grade work at prices so much less than other tailors have to charge you.

Tweed and Worsted Suits Blue and Black Serges
 \$15 to \$25 \$18 to \$27
 Overcoats \$16 to \$25 Trousers \$4 to \$7.50

R. J. STEWART

Opposite Knox Church, Quebec Street.



G. B. MORRIS

Hardware and

Sporting Goods



McKee's Drug Store

Macdonald Institute Text Books.

McLellan's Psychology.....	\$1 00
Food and Dietetics.....	3 00
Cook Book—Farmer.....	2 00
Elementary Chemistry	1 00

Nature Study Department.

Sylvan Ontario	\$0 40
H. S. Botany.....	1 00
Science Note Book	35
Plants—Coulter	1 80

1st Year Books.

West's Grammar	\$0 50
Alexander's Anthology.....	50
Carpenter's Rhetoric.....	60
Soil—King.....	75
Elementary Chemistry	1 00
H. S. Botany.....	1 00
Poultry Craft	1 50
Canadian Dairying	1 00
Soils and Crops	1 00
Testing Milk.....	1 00
H. S. Book-keeping	60

A complete stock of 2nd, 3rd and 4th Year Text Books always on hand.

Fountain Pens, Note Books, Scribblers, etc. Try our \$1.00 Fountain Pens.

McKee's Book Store

Central Bookstore

Opposite where the Street Cars stop.

Text Books. Exercise Books.

Foolscap. Writing Pads. Up-

to-date Note Papers and En-

velopes, Papetries, Etc., Etc.

Bibles. Hymn Books. Books

by Standard Authors. Poets.

Prayer Books. :- :- :- :-

In fact, everything that is kept in a well-ordered Bookstore.

G. ANDERSON & CO.

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

ONLY
ARTISTIC
CLOTHING

IN OUR READY-TO-
WEAR CLOTHING
AND FURNISHING
DEPARTMENT

The Dowler Co.

Burr &
Ainsworth

FURNITURE
DEALERS

Guelph, - Ont.

One
for
the
Boys

94 SUIT ENDS
worth \$24 to \$30
WHILE THEY
LAST
\$18.00 to \$22.00

Work:
High Class

J. A. SCOTT
Maker of Men's Clothes

Grant & Armstrong

Furniture Dealers
and Upholsterers

We Make a Specialty of

Repairing
Upholstered
Goods . .

COSY CORNERS AND SKIRT
BOXES MADE TO ORDER.

Try
Us

Quebec Street.

Phone 488.

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

BELL HIGH CLASS

Pianos

Piano-Players, Organs

MANUFACTURED BY

Bell Piano & Organ Co. Limited

CATALOGUE FREE. GUELPH, ONTARIO

MEN'S CLOTHING
PAR EXCELLENCE

There is no reason in the world why you should not wear the best clothing made—we sell it, and at a price no greater than some inferior kinds are sold at. There is style to our clothing—there's wear and there's value—what more can you ask? You cannot get more than we give for the money—anywhere.

Do you realize that we also sell the best lines of furnishings you have access to? This is news to scores of men in this vicinity—good news, and if they will, they can profit by it. Just come and see.

D. E. Macdonald & Bros.

5 and 7 Lower Wyndham. 56 McDonnell St.
3 Entrances.

J. A. McCrea

Invites You

To inspect his beautiful display of China, Fancy Art Ware, and Cut Glass on the second floor. It is one of the sights of Guelph and as such should not be missed. We consider it a pleasure to show our goods and do not ask you to buy. We supply the O. A. C. and Macdonald Hall with groceries and can deliver anything you might require. Fresh Oysters, Oranges and Chocolates are our specialties.

Noted Tea Store

and China Palace

J. A. McCrea

'PHONE 48

Lower Wyndham St. - GUELPH

STALL No. 3, GUELPH MARKET

ALFRED HALES

Wholesale and Retail Dealer in

Fresh Meats, Pickled Beef and Tongues,

Poultry for the Students a Specialty,

Fresh Pork, Hams, Bacon, Lard,

Sausages and Bologna

Shop—Telephone 191

Residence—Telephone 405

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

A catalogue of the Frost & Wood Improved Binder No. 3 has recently been issued. Those who are interested in Binders would do well to peruse this catalogue, as its illustrations and testimonials show that many of the difficulties experienced in the use of other Binders have been successfully overcome in this machine. Wherever the Frost & Wood Improved No. 3 was tried last fall it appears to have given entire satisfaction. The machine is claimed to have the power and ability to cut and tie grain under any condition that can be encountered on the farm. Write Frost & Wood Co. Limited, Smith's Falls, Ont.

Cooley, Thomson and Jenkinson have discovered that a few four-inch spikes driven through the door into the frames will keep out those who wish to instruct them in the natatorial art.

The

**ELECTRIC BOILER
COMPOUND CO., Ltd**

PHONE 396, BOX 409, GUELPH, ONT.

**Walker's Electric
Boiler Compound**

High-Grade Lubricating Oils, Greases, Packings, Belt Lacings, Flue Scrapers, Etc.

Crystal Cream Separator Oil
A Specialty.

WALTER E. BUCKINGHAM, B.A., LL.B.
BARRISTER.

Solicitor, Notary, Conveyancer, Etc.

Douglas Street, Guelph.

Office Phone, 175.

House Phone, 404.

New Oak Hall Store

MR. O. A. C. MAN!

We keep a Practical Tailor to do your Pressing and Repairing. Monthly contracts taken. All goods called for and delivered. A post card to Box 807 will bring our boy for your parcel.

**CUMMING'S
OAK HALL STORE**

Guelph's Leading House

FOR STOVES OF EVERY DESCRIPTION. SHEET METAL WORKERS. KITCHEN AND DAIRY SUPPLIES. EXPERT HEATING CONTRACTORS.

H. OCCOMORE & CO.

86 Upper Wyndham St., Guelph

**PRINGLE — THE —
JEWELER**

Entomological Supplies,
Magnifying Glasses, all qualities,
Fountain Pens,
Rubber Stamps.
O. A. C. and Macdonald Institute
College Pins.

HEADQUARTERS

FOR HARDWARE and
SPORTING GOODS
AT LOWEST PRICES

G. A. RICHARDSON

Upper Wyndham Street

GUELPH

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

FOSTER & FOSTER

DENTISTS

Office and Surgery :
 Corner Wyndham and Macdonnell Sts.
 (over Dominion Bank).
 Residence—"Sunset," Paisley Street.
 Telephone 14

W. J. STEVENSON Phone 143 ANDREW MALCOLM

Stevenson & Malcolm Co.

Late Members of
 THE BENNETT & WRIGHT CO. LIMITED, TORONTO
CONTRACTORS

For Steam and Hot Water Heating,
 Ventilation and Hydraulic Engineering,
 Plumbing and Gas Fitting,
 Specialties in Sanitary Appliances.

Upper Wyndham Street, Guelph, Ont.

THE TYSONS

Wholesale and Retail

Butchers and Cattle Dealers

J. & A. TYSON,
 No. 1 Stall, Guelph Market,
 Phone 78.

TYSON BROS.
 Shop cor. Green and Norfolk Sts.,
 Phone 152.

JACKSON & SON

Grocers

FIRST-CLASS FANCY GROCERIES
 IN ALL LINES.

17 Lower Wyndham Street.

Telephone 112. Established 40 Years.



2 NEW LINES
 College Folder
 and
 "Chic" Folder
BOOTH,
 Photographer

NEILL THE... SHOE MAN



Sole Agent for

**THE
 SLATER
 SHOE**

GUELPH, - ONTARIO

O. A. C. STUDENTS

LIKE SMART SHOE STYLES,
 SO DO THE MACDONALD GIRLS.
 WE LEAD in the NEWEST FOOTWEAR

W. McLaren & Co.

Phone 370

South-west Corner from the Post Office

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

Thornton & Douglas

LIMITED

Makers and Importers of Wearing Apparel
for Men and Boys.

Dairy Suits
a Specialty

Stratford, Chatham,
Guelph.

KIEL GIVES STUDENTS THE
BEST SATISFACTION IN
BOOTS AND SHOES OF

ANY **SHOE STORE** IN TOWN.

W. L. KIEL

Cor. of Wyndham St. and Market Square.

GUELPH AND ONTARIO INVESTMENT AND SAVINGS SOCIETY

Savings Bank Department

Deposits of \$1.00 and upwards taken.
Highest current rates allowed.

J.E. McELDERRY, Secy.-Treas.

EYES TESTED

BY AN EXPERT OPTICIAN
(No Charge)

Savage & Co.
OPTICIANS

JAMES LAW

UPPER WYNDHAM STREET
Manufacturer of all kinds of

UNDERWEAR, JERSEYS, HOSE, ETC.
NEAR GEMMELL'S DYE WORKS.

FOOTBALL and HOCKEY GOODS
Made to Order in College Colors

Bicycle Stockings

STUDENTS

When You Want Material to Smoke
or Chew Call at the

Senate Cigar Store

You find everything you want there.

McHUGH BROS. 26 Lower Wyndham

GEO. HARPER

Picture Frames

QUEBEC STREET
NEAR CHALMERS' CHURCH

T. H. GEMMELL & CO.

Steam Dyers and Cleaners

No. 70 Wyndham St. West Side

Suits Cleaned, Dyed and Pressed.

Pressing Done on Shortest Notice.

Also Agents for Parisian Laundry - Phone 69

— TRY —

BURGESS

FOR
GROUPS

There is as much difference in Barbers
as in any other Tradesmen.

The Royal Opera House Barber Shop

Is the place to get the finest work in Guelph,
and when the best can be had at the same price
as inferior. **Why not have the best?**

DR. COGHLAN

. . Dentist . .

Cor. Cardigan and Woolwich Streets
Telephone 223

A CHOICE STOCK OF

FOOTWEAR

FOR LADIES AND GENTLEMEN

And a RELIABLE

Repair Department

W. C. GOETZ, UPPER WYNDHAM STREET,
Opposite G. B. Ryan & Co's.

W. A. CLARK

WATCHMAKER

JEWELLER AND OPTICIAN

79 Upper Wyndham St., Guelph

Issuer of Marriage Licenses.

WATERS BROS.

Wyndham Street

O. A. C.
SUPPLIES

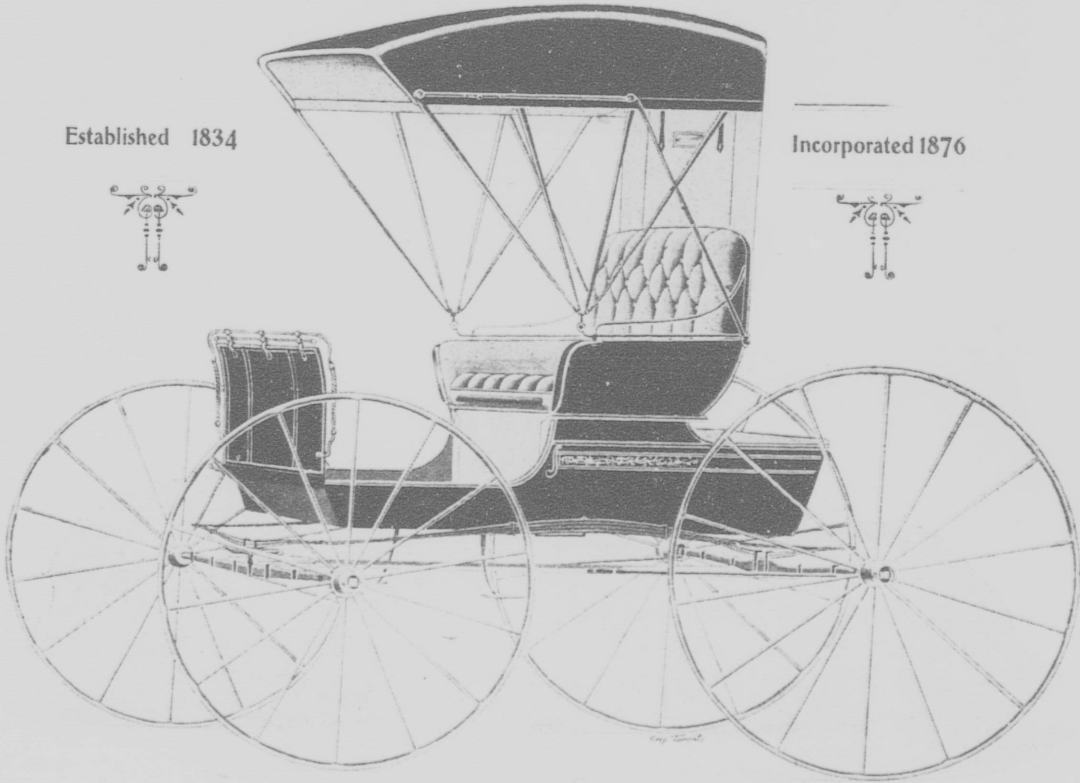
Please mention the O. A. C. REVIEW when answering advertisements.

THE ARMSTRONG FINE FINISHED CARRIAGES

Established 1834



Incorporated 1876



SIDE SPRING SINGLE BUGGY

We are pleased to mail our 1906 Buggy Catalogue, illustrating all our newest designs for the coming season, to applicants. O. A. C. Students and ex-Students are invited to visit our factory while in the city.

MODERN GOODS BUILT ON MODERN METHODS

J. B. Armstrong Mfg. Co. Limited

(The Guelph Carriage Goods Co.)

GUELPH, CANADA.

MONTREAL BRANCH--120 CRAIG ST. WEST.

WAREHOUSES OTTAWA, MONTREAL, THREE RIVERS.

COCKSHUTT PLOW CO, WINNIPEG—Agents Manitoba and West.

WAREHOUSES—Winnipeg, Portage La Prairie, Brandon, Regina, Calgary.

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

Be Particular
 about the little things you eat.
 Impure salt is just as injuri-
 ous as impure milk or butter.
 There is one salt you can
 always depend upon as being
 absolutely pure and whole-
 some—

**Windsor
SALT**

**CANADIAN
OFFICE & SCHOOL
FURNITURE
CO. LIMITED
PRESTON, ONT**



**OFFICE,
SCHOOL,
CHURCH,
& LODGE
FURNITURE**

FINE BANK, OFFICE, COURT HOUSE AND
DRUG STORE FITTINGS
A SPECIALTY

SEND FOR CATALOGUE

Dominion Bank

GUELPH

Capital Paid Up - - \$3,000,000

Reserve Fund and

Undivided Profits - - \$3,565,000

A General Banking Business Transacted.

Savings Bank Department in connection with
all Offices of the Bank.

Deposits of \$1.00 and upwards received.

BANKERS FOR THE O. A. C.

Manager Guelph Branch

H. C. SCHOLFIELD

The Busy Bookstore

26 Lower Wyndham Street

**City Headquarters for
O. A. C. Students Supplies**

College Text Books,
Fine Stationery, Etc.

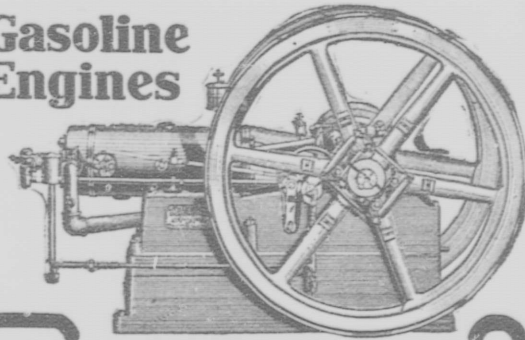
And for those who are planning
for a gift for the folks at home, we
are opening up and showing the
finest range of Xmas goods in the
city.

Scott & Tierney

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

I. H. C. Gasoline Engines

**Increase Your Profits,
Lighten Your Work.**



YOU need one of these handy helpers.

Because with its aid you can do more and better work at less expense of time and energy.

And you will soon find that the "I. H. C." Gasoline Engine **pays for itself** in the actual saving in money and increased profits it brings you.

Steam power is dangerous and expensive. Wind power is treacherous and unreliable.

Call on the International Agent for information or write nearest branch house for catalogue, showing how "I. H. C." Gasoline Engines will save you money.

CANADIAN BRANCHES: Calgary, Montreal, Regina, Toronto, London, Ottawa, St. John, Winnipeg.
INTERNATIONAL HARVESTER COMPANY OF AMERICA, CHICAGO, U. S. A.
(INCORPORATED.)

Horizontal—Stationary or Portable, 6, 8, 10, 12, 15 H. Power. Vertical style, 2, 3, 5, H. Power.

Gasoline, as applied to the "I. H. C." Engine, is **proved** best for all practical purposes.

Feed Cutting, Wood Sawing, Husking and Shredding or Shelling Corn, Grinding Feed, Pumping, Churning, Separating, etc.

Be wise! Save yourself, your help and your horses by investing in an "I. H. C." Engine.

Reid & Ross



MANUFACTURERS OF

Fine Hand-made Carriages,
Bike Wagons, Cutters, Etc.

SPECIALTY

**Low-Down
Bakery and Milk Wagons**

Gordon Street, Guelph



COLLEGE
GROUPS
A SPECIALTY



WE PLEASE
OUR
CUSTOMERS

**JAS. W. ROGERS
PHOTOGRAPHER**

OVER DOMINION BANK

1906

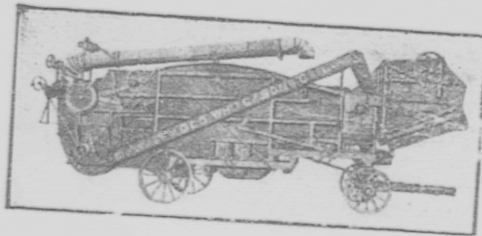
1906

Will be Prosperous to those
Who Work for Prosperity.
Good Workmen Succeed Ac-
cording to the Method Used
and Tools Employed. ♣ ♣ ♣

Farmers, Threshermen!

WHAT ARE YOU USING?

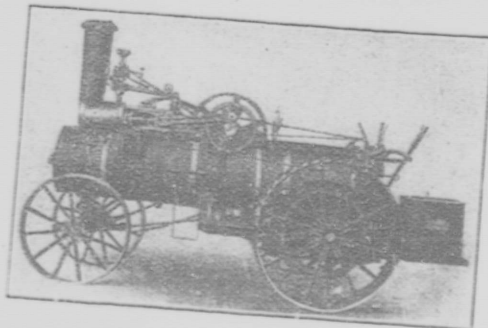
We Offer Our First Quality Line



Our



Three



Winners

Write for Catalogue
and Calendar.

The George White & Sons Co. Limited
LONDON, CANADA

\$201.00 in Prizes and 2 Silver Medals

WON ON BUTTER MADE FROM

GATHERED CREAM

SEPARATED BY

U. S. Cream Separators

"RICHMOND, QUEBEC, Sept. 28th, 1905.

I am pleased to advise you that my butter which was made from **gathered cream** at the Kirgsey Creamery, of which I am proprietor, was awarded **\$201.00 in Prizes** at the different Expositions of this season.

The first of these was the Sherbrooke Exposition, where I received the Eastern Townships Bank **Prize of \$75.00** for the best exhibition of creamery butter, and also the **Medal** for the **highest score** in points.

At the Toronto Exposition I received **Two First Prizes** and **One Second Prize**, and tied with another Quebec Creamery for the **Silver Cup** offered for the highest score in points, with the result that we were both awarded a **Silver Medal**, also a **Diploma**, for the **highest score** instead of the Cup.


At the Ottawa Exhibition I received **One First Prize** and **One Second Prize**.

I also took the **First Prize** at both the Richmond and Drummond County Fairs.

Last year I was **awarded \$112.00** in Prizes and a **Gold Medal**. I believe **this record cannot be equalled** by any other Creamery in this province or in the Dominion of Canada, and think this speaks well for the quality of butter made from gathered cream, **90 per cent. of which was separated by the farm sizes of United States Cream Separators.**

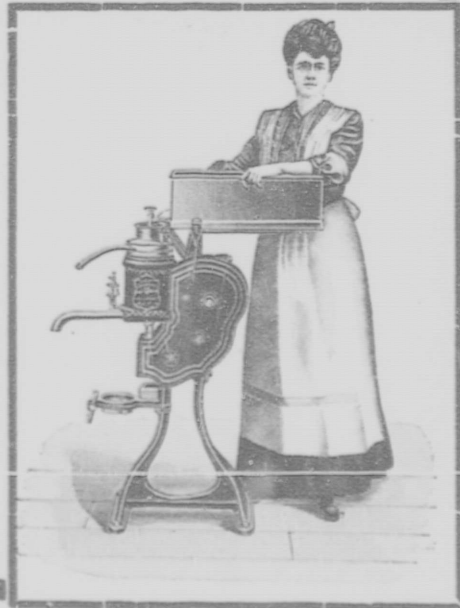
E. W. EVANS."

Our Free Catalogue tells why it will pay every farmer to skim his milk with a U. S. Separator. Write for a copy now.

**Vermont Farm
Machine Co.** 

BELLOWS FALLS, VT.

**Eighteen Centrally Located Distributing Warehouses
Throughout United States and Canada.**



ON THE FENCE

ANY DAIRYMAN WHO IS ON THE
SEPARATOR QUESTION SHOULD BE
SURE TO CLIMB DOWN ON THE
RIGHT SIDE.

Cheapness DeLaval

And Superiority is Boggy
Ground, and you find it out
when you get your foot in
it. Paint and Promises are
Catchy Things, but Don't
Skim Milk.

Superiority Insures Complete
Satisfaction, and the differ-
ence in cost is earned for you
hundreds of times during the
life time of the DeLaval. It
does the Business.

CATALOGUE FREE

IT'S BETTER TO CHUCKLE WITH
SATISFACTION THAN TO CUSS
WITH REMORSE.

DeLAVAL
CREAM SEPARATORS

FOR SATISFACTION

77 York Street

Toronto

Winnipeg

Montreal