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# THE AC REVIEW



FEBRUARY  
1905



# Tubulars Stand Great Test

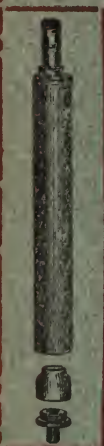
We insist upon truth in Tubular advertisements. We prove Tubulars will do what we claim before we claim it. Tubulars are more durable than all other Separators. We guarantee this. Back of this guarantee is absolute knowledge of Tubular quality. Actual tests of Tubulars surprise the doubters every time. Here is a hard test: On Aug. 2, 1904, we attached a No. 9 Dairy Tubular to a mechanical driving apparatus that turns the machine as a man would. This Tubular was not specially selected, but was taken at random from the many finished Tubulars in our warehouse. This Tubular, at date of writing, has been in constant operation, every working day, for three and one-half months. It has run fifty hours a week for fifteen weeks—and is still running. Below we give facts and figures of the test, up to Nov. 15, showing what wonderful work this Tubular has done, and how easily it has done it.



**Dairy Tubular Separator**



## A HARD TEST



**Dairy Tubular Bowl**

Machine under test	- - - -	No. 9 Tubular.
Capacity	- - - -	900 lbs per hour.
Hours in operation	- - - -	750.
Total time adjusting	- - - -	Not any,
Total time oiling	- - - -	Not over three minutes
Total repairs	- - - -	Not any.
Total oil used	- - - -	Not over two quarts.
Revolutions of crank	- - - -	1,972,575.
Revolutions of bowl	- - - -	720,000,000.
Number pounds separated	- - - -	675,000.

675,000 lbs of milk is about equal to the yield of ten average cows for a period of 11 years, 6 months and 23 days. This test is unequalled. It confirms all we claim for the Tubular—is positive guarantee of quality. It shows that Tubulars are capable of doing work equal to at least eleven years service in a ten cow dairy, with no expense for repairs and with the use of not over two quarts of oil. The test still continues. This Tubular will greatly surpass its performance up to the present. At time of writing (Nov. 15) it shows almost no wear. We will keep you informed about the doings of this machine.

**Send for Catalogue F**

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### CAPACITY

Style No. 1A, 450 to 500 pounds per hour.

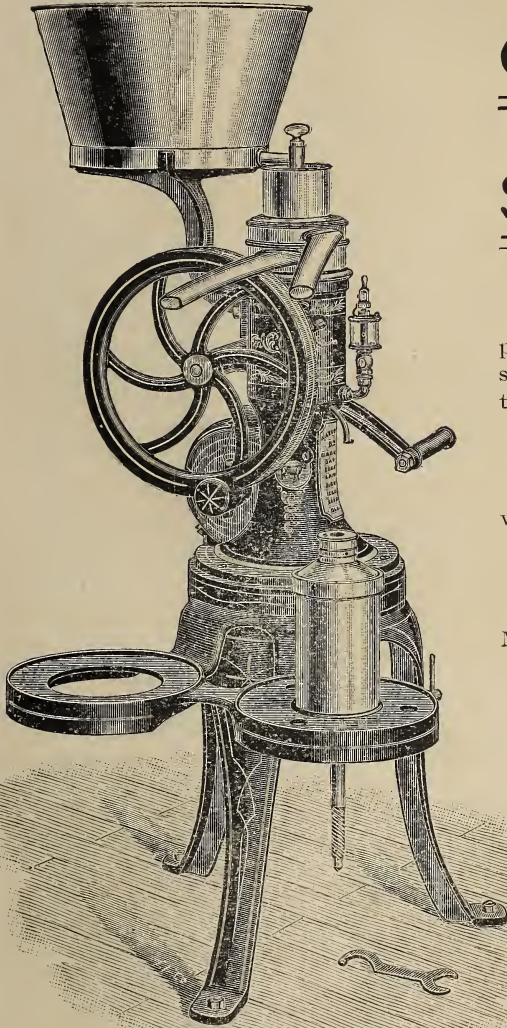
Style No. 1, 330 to 350 pounds per hour.

Style No. B, 250 pounds per hour.

The Raymond Mfg Co. of Guelph, Limited

GUELPH - ONTARIO

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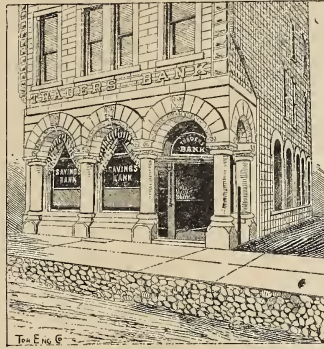


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Written in Newfoundland	- - - - -	30,000
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Death	} For year ending December 31st, 1903	-	\$280,504
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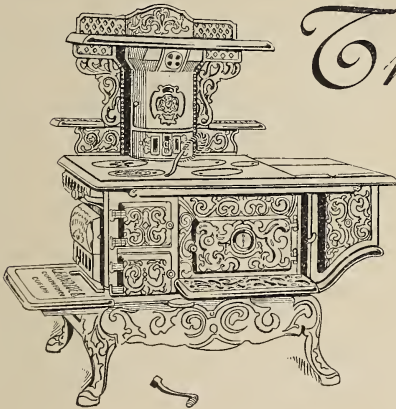
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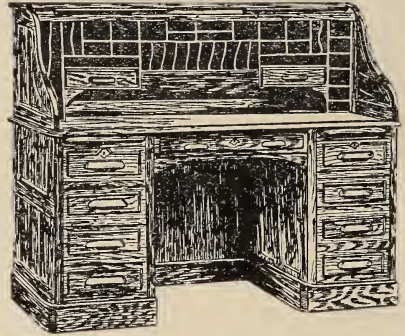


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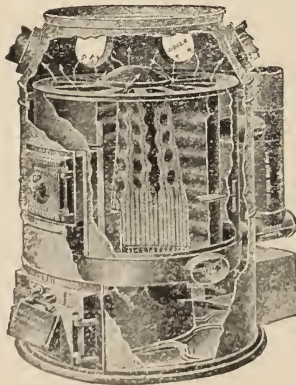


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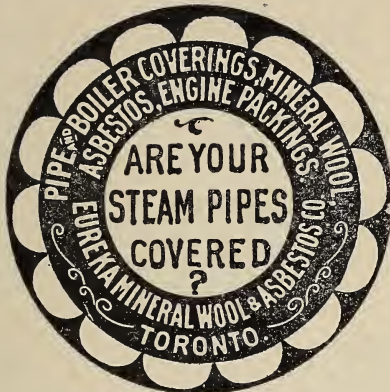
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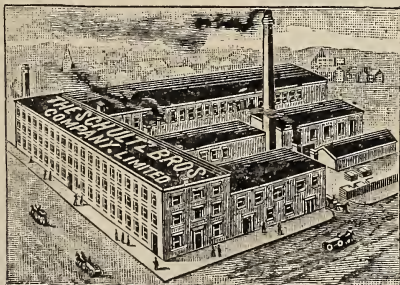
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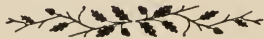


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# The O. A. C. Review

Published Monthly during the College Year  
by the Students of the Ontario Agricultural College, Guelph, Canada.

*THE DIGNITY OF A CALLING IS ITS UTILITY.*

Vol. XVII.

ONTARIO AGRICULTURAL COLLEGE,  
FEBRUARY, 1905.

No. 5

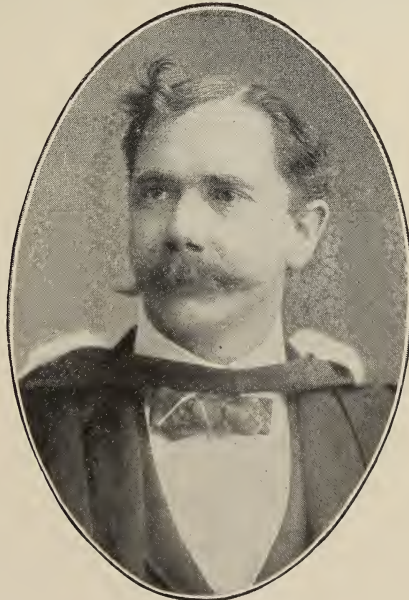
## Rural Education.

By J. W. HOTSON.



THE study of the exhibits in Agriculture, Horticulture, and Education at the Louisiana Purchase Exposition at St. Louis last year, shows that a strong effort is being made to adapt education to the needs of our rural people. One is convinced by such a study that this is a new age for the farm, and for farm life. It is encouraging to note that many of our educators are making honest efforts to improve rural education. It is of the utmost importance that we do not neglect the possibilities for elementary instruction to the children of rural districts, regarding the things that are of vital interest to the farmers

of the future. No progressive farmer is satisfied with the machinery of twenty-five years ago. Neither is the education of that time satisfactory for his children. We are in an age of progress in society, religion, commerce, and education, and unless we can keep pace with this onward movement, not only shall we suffer individually, but also nationally.



J. W. HOTSON, M.A.  
Principal Consolidated School.

Canada is essentially an agricultural country, there being at least seventy per cent of her population living in rural districts, depending directly upon the farm for their maintenance, and their children are being educated in the rural school. About ten per cent. of her population are educated for the so-called "higher professions."

The majority of these ten per cent have also been brought up on the farm and when we reflect for a moment on the amount of money that is expended in preparing them for their life work, we cannot help feeling somewhat disappointed, not that so much money is spent in their education but that so little is expended in the preparation of the seventy per cent., who live in rural districts, to carry on scientifically and

know just what other people do—no more, no less. He needs to know how to read, to write, to compute, etc. As an agriculturalist, his needs are more special. He deals with the natural world. His enjoyment and his livelihood depend largely upon his understanding of the laws that control the world about him. He must therefore know *Nature*. The farmer, above all others, should be a thorough student of nature and how can



THE GUELPH CONSOLIDATED SCHOOL.

well the greatest of all industries—the cultivation of the soil.

It is gratifying to perceive the steady progress that Agricultural Education is making in this Province. Methods are gradually crystalizing and the field at the same time is enlarging. Too long have we considered agricultural education as wholly special or professional and thus suitable only for the college or university. Our rural education, if it is to reach the people and supply them with the kind of knowledge they need, and which I am glad to say they are demanding in many parts of the Province, must be an education adapted to their needs. What are the farmers' educational needs?

As a man and a citizen, he needs to

he be induced to study nature better than through the agency of our public schools?

Elementary agriculture is simply a phase of Nature Study. In order to prove a success in our rural schools, it must be put into a pedagogic form and made the agency whereby the mind can be drawn out and the intellect developed. It can certainly be made as efficient as the methods that have been used thus far. This does not necessarily mean that this new education, Agricultural Education, Nature Study, call it what you will, need be technical. Technical Agriculture or technical science in our public schools would be a mistake. What we need is a method of education that will appeal to the child in connection



with his daily life, that will relate the school training more and more to the life and home of the child. The course of study for rural children should be more practical. The things that the child comes in contact with every day about the farm and in going to and from the school, should be utilized in training him for the life he is to live—life on the farm. There are great possibilities for the rural

The first is the great Farmers' Institute movement. This is very important and has proved to be a very valuable aid to the farmer. Its leaders however do not claim to have solved the problem of reaching the farmer. President Latta of Indiana, in his address before the "American Association of Farmers' Institute Workers" at Toronto in 1903 brought out this idea when he said :



GOING HOME COMFORTABLY.

children of Canada, if we can thus enrich the course of study in country districts.

The rural school should sustain a very intimate relation to elementary agriculture. It should create a new ideal, with reference to the farm and the farm home, as a means of preparation for lives of usefulness.

What steps are being taken to bring about this more rational system of education for rural districts? Are there any efforts being made to create this new ideal with reference to the farm and rural life? Is there any attempt to adapt education to rural needs? There are three patent factors at work bringing about this desirable end.

"How can we get the farmers throughout our great country to discern the close relationship that exists, or should exist, between soil and salvation; brawn and brain; thought and thrift; sense, science, and success; cash, culture, and capacity; work and wisdom; labor and love; ideas and ideals; home and heaven?"

The second factor at work is the educational excursions each year to the Agricultural Colleges and Experiment Stations. Between 35,000 and 40,000 people visit the Ontario Agricultural College every summer during the month of June. The examination of the experimental plots, the live stock, the

laboratories where experiments in plant breeding and soil investigations are carried on, all produce a lasting impression, create an interest in agricultural education, and give the farmer an insight into matters which will be of lasting benefit to him. Each returning excursionist is a great missionary force for agricultural education.

The third factor tending to adapt education to rural needs, and in many respects the most important, is the consolidation of several rural schools into one central graded school. Although this is a new feature in education in Canada, it has for some years been tried in many States of the Union. There are no fewer than twenty States in which consolidation is being carried on to a greater or less extent. Twenty-three townships in Ohio alone have been completely consolidated, and there are more than one hundred others which are partially consolidated.

As to the expense of carrying on this method of education, little as yet can be said so far as Ontario is concerned. In Massachusetts, however, 68 per cent. of these schools report a decrease in cost after consolidation, and only eight per cent. show an increased expenditure. There are 124 centres in New Hampshire, 118 report less cost under consolidation than in the district schools. In Ohio, many schools are carried on at less actual expense, while all those that records could be obtained from show a lower rate per capita, that is, it costs less to educate a child under consolidation than in district schools. The larger and more regular attendance more than makes up for the slight increases in the total expense.

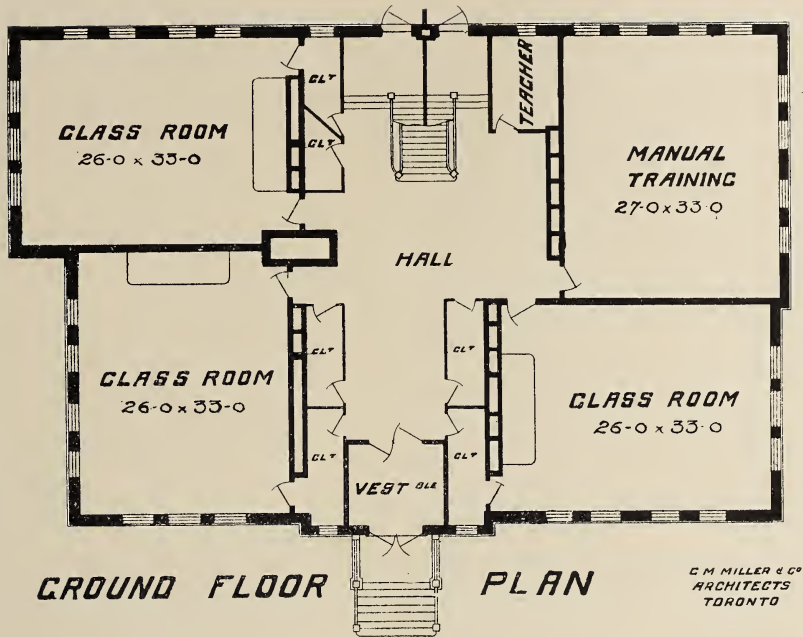
At Tryon, Prince Edward Island, a very successful consolidated school has been established. Here, three school

districts have been united and judging from the latest reports it is proving a financial success. Of this school Mr. George D. Fuller, B. A., Instructor of Nature Study at Knowlton, Quebec, says :

“ At Tryon, the economy of consolidation is plainly shown, by comparing the cost per pupil under the old system and the new. Formerly, the average attendance in the three schools was less than 70 pupils, each costing the taxpayer \$11.84 per year ; now the average is 84, each pupil costing \$9.47 per annum, or a balance in favor of consolidation of \$2.37 per pupil.” If Prince Edward Island can secure such results may we not hope that the Province of Ontario can do equally well.

There are many arguments that might be cited in favor of consolidation, but there are a few that have come under my direct notice in connection with the “ Macdonald Consolidated Rural School” at Guelph. Although this school has not been running sufficiently long to draw any permanent conclusions, yet the following results have been quite marked.

1. There are seldom any late pupils. The vans are always on time.
2. The attendance is more regular. If there is one thing more than another that tends to discourage both teacher and pupils in rural schools, it is irregularity on the part of the pupils. During the months of November and December of 1903, the average daily attendance in the four district schools was 65 per cent. For the same months in 1904, under consolidation, the average daily attendance was over 90 per cent. This result was obtained in spite of the fact that one of the vans was stopped nearly a week on account of a scarlet fever scare which happily proved to be a false alarm.
3. The total attendance has increased.



During the month of November last, the first month of consolidation, there was an increase of 72 per cent. over the district schools, and for December an increase of 82 per cent., while January of this year shows an increased total attendance of 88 per cent. ; that is, there are 88 per cent. more children being educated under this system than under the old system. Many of these are pupils who have been out of school for some time and have returned because they wish to take advantage of this new phase of education.

4. There are no wet feet or wet clothing.

5. Pupils have the advantage of better heated and ventilated class-rooms, and a better supply of apparatus.

6. The pupils have the advantage of the interest, enthusiasm, and a certain amount of wholesome rivalry, which large classes always bring.

7. The pupils have an opportunity for more thorough work in Manual Training,

Domestic Science, Nature Study, Drawing, Music, Water colors, etc.

8. There is a better chance to grade and classify the pupils so that they may be placed where they can work to the best advantage.

9. There is an opportunity for more thorough and complete supervision of the work.

10. An opportunity for High School Education is given to every child in the rural district without extra expense.

While it is not claimed that Consolidation offers a panacea for all the ills of the rural schools, and while there may be many districts where it may not be economically adopted, yet the movement in this direction is a very encouraging element in our present educational situation. There is good reason to believe that, if wisely applied, it will do much to bring about a reasonable equalization of city and country life for which there is great need at the present time. It will be a potent factor in breaking down the



isolation of country life and in placing scientific agriculture on the same basis as the so-called "Higher Professions."

I have great confidence in the rural school; in its power to mould and build up a national character, but new educational methods must be used in order to obtain the best results. If we are to improve our Agriculture and "compete on the best terms with our rivals in the world's market, if we are to make the conditions of country life attractive enough to keep the bright boys and girls on the farm, if we are to equalize the advantages of country and town so as to maintain an intelligent, prosperous, progressive, and contented rural people. We must give immediate and effective attention to the needs of the rural school." My plea then is for more natural teaching in rural schools so that there will be some living connection between the

school life and the real life, so that the child is led into a more sympathetic relation to his daily life, and thus make him a contented, useful citizen.

I teach!  
 The earth and soil  
 To them that toil,  
 The hill and fen  
 To common men  
 That live just here;  
 The plants that grow,  
 The winds that blow,  
 The streams that run  
 In rain and sun  
 Throughout the year;  
 And then I lead  
 Thro' wood and mead,  
 Thro' mould and sod  
 Out unto God  
 With love and cheer,  
 I teach.



"COMMON CONDITIONS."

## What Will the Agricultural College do for the Average Young Farmer ?

BY HON. JOHN DRYDEN.

**T**HERE is the same reason why the young farmer should study what relates to Agriculture as that a lawyer should study what relates to Law, or a physician what relates to Medicine, or a clergyman what relates to Theology. The necessary information in either case is not born with the lad ; he must acquire it somewhere ; and so far as the young farmer is concerned, where else than at a College of Agriculture is it likely to be given ? Where else can he find it present at any other institution of learning ; nor can he secure it in books. These have their place, but they would consume too much time, and besides, the theories presented, if they are to be helpful, should be accompanied by practice. The young farmer will find that mere theories will neither feed nor clothe his family, nor pay his debts. He will discover that *How to do* is quite as important as *What to do*. The working Agricultural College provides for the practice as well as the theory. How can the young man learn properly to judge live stock except by judging in the presence of his teacher ; and similarly with every branch in farming, it is the doers that will succeed rather than the talkers, or even the thinkers who are not able to work out their " talks " or " thoughts " in practice.

There are a few young farmers who have wise fathers—up to date and progressive, with a reason for their action always. These are highly favored and may do well without the College ; but I notice that generally they are among the number most persistently demanding it. Yet the vast majority have no such privilege of learning at home, and for them the College is a necessity.

I am to state some of the things which will result from a course at a good Agricultural College. First : It will fill the young man with a high enthusiasm for his calling. All will agree that without this he will be a failure. When he, working alone on his own acres, finds himself becoming disheartened and discouraged, his failure is near.

The information of the College boy comes to his rescue at such a time. It points another way, and new hopes and increased energy follow. For many years at our College at Guelph, I have never known a young man coming to the College with any notion of clinging to farm life, who did not leave it with high enthusiasm for his chosen calling. This enthusiasm will carry him over many a distressing situation and many trying circumstances where courage is needed. His studies will surely suggest a different course. His present dilemma is common to his class, and the knowledge and experience of others, studied at the College, will point to the relief needed. The enthusiasm of the educated man never fags because it is continually fed by information gathered from the experience of those who have passed through similar trials and conquered.

Second : It will give him accurate information about many things with which he comes into daily contact, and thus will add increasing interest in his work. He will not need to go on blindly, but will know why every step is taken. He will be able fairly to judge whether the results are satisfactory. There is a great deal about him, on his farm, upon which his eyes have gazed that he has not really seen. As an illustration of this, let me refer to the experience of one of my neighbors whom I had induced to send his son to the Ontario Agricultural College. One of my arguments had been that he would be able to get out of his life much more pleasure on account of a college course than those of us who did not have the information thus to be gained. The young man proved a good student and took his degree. Some time after this, as the two were walking over a field, the young man stooped down to pick a flower. He began speaking of the different parts and explaining their functions, and as the conversation went on, the father became intensely interested, so much so that he did not forget it for weeks, and on the first occasion explained to me the conversation as well as he could. He seemed greatly delighted and overjoyed at this exhibition of superior knowledge, and assented to the correctness of my argument on a former occasion as to the increased interest and pleasure, which his son would find in carrying on the business in future years.

Third : His general knowledge of live stock, acquired at any well equipped college of agriculture, will enable him to plan wisely according to his special circumstances,—to select the best breed of sheep, swine, cattle, horses or poultry, to accomplish the highest results under his conditions. He will not need to spend half a lifetime experimenting with breeds entirely unsuitable, thus wasting his time and money with-



out reaching success. The young man educated in Agriculture will have studied all this as a matter of historical fact, and so, when the conditions of soil, climate and market are given, he can at once decide what should be chosen. Again, having decided as to breed, he will know the kind of animal suitable for a foundation, and how it should be mated to tend towards improvement. In fact, he starts at twenty-three years of age with the same knowledge that some of us, who began life before colleges existed, never obtained until we had spent twenty-five years in actual experience, and a considerable percentage did not acquire it even then, but instead, have sworn vengeance against all registered live stock as being a deception and a snare, which may express truly many a personal experience.

Fourth : It will provide a general culture which best equips the young farmer to take his place among other citizens as a public-spirited man. The very best representative men should be found on the farms of our country, but so long as they neglect to secure a broad and liberal education, just so long must they be relegated to a back seat. Their surroundings, their contact with nature, their very loneliness, and separation from the crowds who gather together and jostle one another in towns and cities, are aids to the building of a strong character, stimulate in him pure thoughts, and greatly tend to furnish the equipment needed for successful public work. Those who live in cities do not always realize that the very hum of business industry, the clanging of needed machinery, the jostling crowd, all tend to take so much out of a young man that he is not likely to grow as certainly or rapidly as one who is separated from it and daily enjoys the comparative quiet of country life. College education will give him the equipment necessary to use these opportunities to the very best advantage.

Fifth : It will encourage and develop the gift of public speaking, and the ability to preside at any ordinary gathering with ease and dignity. These gifts must be used by some in every neighborhood, and happy is that man called upon to play this part, who has, during his younger days, prepared himself to do it with ease to himself and satisfaction to his neighbors. The college affords the very best opportunity possible to cultivate these gifts.

Sixth : A course in Agriculture will give definiteness of purpose. A decided mind is a tower of strength in any man's life, and in general stands for success. To know the right course, and to be sure that you know it, gives steadiness and accuracy, which will be unswerved by false cries or new nostrums which have nothing of value in them. There may be temporary failure, but a properly educated man will not change his course. He has already counted on this possibility, and before it occurs is prepared to meet it, or suffer it if need be, but his purpose will not be changed.

Seventh : The College course will be certain to give him correct ideals. A man without an ideal is like a ship without a rudder ; if the

winds are favorable, it may be wafted across the sea, but it is far more likely to be destroyed on the rocks. So a man without a proper ideal may happen to succeed under favorable circumstances, but he is far more likely to fail.

A proper ideal becomes all the more necessary when it is remembered that the circumstances of soil, situation, climate and capital, as well as market, are, in some respects, different to all others, and therefore he is thrown on his own resources and his own personal judgment. An experienced gardener will not always and under every circumstance lay out his grounds in the same way; his worth is shown by the fact that his knowledge gives him originality of thought, and the plot is laid out according to its character, as to shape, size and location. So, the well educated farmer will be possessed of originality of thought according to his special situation; he can see in the beginning what the outcome will be. His ideals may not be reached in a single year, or even five years, but they will be fixed nevertheless.

Eighth: His course at the Agricultural College will furnish him with an all-round equipment, so as to prevent him in later life becoming a man with one idea and only one. He will not find fault with those who follow a different specialty, nor declare their certain downfall. He will have the knowledge to enable him to choose for himself his own course, and knowledge also to see that his neighbor, differently circumstanced, will succeed better by taking a different course.

Ninth: He will be saved from spending years following a mere fad, only to find that, like the fire-fly flashing in the dark, it has escaped his grasp.

Who has not seen an ignorant man, attracted by advertisement or otherwise, becoming suddenly enamored of some new breed of live stock. He disposes of the result of years of labor in some other direction and follows his new notion, spending his money without any proper knowledge of the probable result until failure comes, and then he finds another fad quite as foolish and uncertain. It may be he is attracted by the milking qualities of the Ayrshire, but having no knowledge of what ought to be the characteristics of the breed, he secures a bull, the use of which leads certainly to disappointment. Then he strikes a new idea and tries one or two crosses of the Holstein; next the Jersey is resorted to to give richness to the milk. In past years one could pity such a man, but he does not deserve it now, for all this mixing and adding of foolishness to ignorance and multiplying the result by stupidity, might be avoided by a course at any well organized Agricultural College. Such a man, after years of struggle, and bitter experience, finds he has been grasping at a mere shadow while the reality has entirely escaped him.

Tenth: His College course will, in some cases where it is really necessary, take the surplus conceit quite out of him. He will discover that all knowledge about any subject discussed is not contained in any one head, and that he will receive credit for precisely what he is, and not for what he imagined he was. In some cases this is the first step towards any high achievement. It is manifestly impossible to teach

one who thinks he knows more than his teacher. His fellow students in constant living touch with him often accomplish more for good to such a student than does his instructor.

Eleventh : A College course will bring him in touch with the farming fraternity. It will reveal to him how dependent he is on the co-operation of his fellows, and how helpful he may be to them. A College course fails which does not develop in the student this desire.

His produce is reduced in value because it is mixed on the market with that of his neighbor, which is inferior. For his own sake and in his own interest he must struggle to help his neighbor up to his own level. His kindly relation with his fellow student, and his increasing enthusiasm for his chosen calling will foster an increasing interest in every tiller of the soil. This fraternal feeling should be encouraged by the teaching staff in every reasonable way during the entire period of the student's college life. Other classes fraternise and hold together, and why should not the tillers of the soil follow this course even more than any others? They need each other more; they are more interested in what others in the same calling accomplish, and there is greater need to co-operate for mutual helpfulness. In this connection let me refer to changes in the relationship of students at our College at Guelph. In the early days before this mutual helpfulness had been developed, one manner of receiving freshmen was to hoist them by tackling and pulleys to a considerable height and suddenly drop them into a tank of cold water. Now the old boys with College badges meet every train, take charge of the baggage of the stranger and show him every attention and kindness. From class to class this brotherhood is fostered and developed, until the letters "O. A. C." serve as a Masonic bond wherever they are carried. Who can measure the power and influence for good of such a course as the years go by and the circle is ever widening?

In brief, a College course will develop your manhood, will broaden your view, will strengthen your character, open up new fields of research, enable you to separate the good from the bad, develop in you an enquiring mind, and tend to show you the real privileges of true citizenship.

Lastly : There are some things a College course cannot do—it cannot make of every student a perfect farmer, with no failings, no weakness, no lack of knowledge. It cannot inspire with a love of the calling when the student naturally despises it. It cannot make every man as great and as clever as his neighbor. There will still be first and last as before. It cannot so equip the student as to bring about splendid results on his farm without hard work and close attention to detail. It will not discover for him a scheme by which he can produce the finest specimens of live stock without good food and good care all the time, nor will it enable him to present the finest dairy products without absolute cleanliness in every department. But it ought to help him to become a modest, thoughtful, studious, public spirited man, well fitted to pursue his chosen calling, and, if the circumstances demand it, to grace the halls of any legislature.





AMERICAN ELM SEEDLINGS IN NURSERY ROWS—1 YEAR OLD.  
(Indian Head)  
Being Grown for Distribution.

## Forest Conditions and Progress of Forestry in Manitoba and the North-West Territories.

BY NORMAN M. ROSS, B.S.A., B.F.

THE popular conception of Manitoba and the North-West Territories is that of an immense treeless plain where one can see for miles without obstruction to the view, or any natural protection against the elements. Though this idea is correct, as applied to certain districts, it does not hold good for the whole West.

According to statistics published in 1895, it was then estimated that in the Province of Manitoba at least 40 per cent., and in the Territories, which comprises Assiniboia, Alberta and Saskatch-

ewan, at least 29.38 per cent. of the total area was wooded.

In the southern portion of the West, there are no continuous or very large bodies of timber, with the exception of a belt of several miles in the Turtle Mountains in Southern Manitoba. The bodies of timber are scattered, and are often quite small, in some cases not covering more than an acre and sometimes even less. These small areas, chiefly of white poplar (*Populus tremuloides*), are there known as bluffs. The land between the bluffs is generally level and

good for agriculture. The trees in the southern parts are practically all deciduous, the great majority being poplar, white and black. In Eastern Manitoba we have, too, a fair mixture of scrub oak (*Quercus macrocarpa*), green ash (*Fraxinus viridis*), Manitoba maple (*Acer negundo*), American elm (*Ulmus Americana*), basswood (*Tilia Americana*), and white birch (*Betula papyrifera*). In the northern districts the forests are continuous and denser, the deciduous trees being largely replaced by conifers, as Jack pine, white and black spruce and tamarac.

From Winnipeg west to the summit of the Rocky Mountains is a regular slope, increasing in elevation from east to west.

The elevation at Winnipeg is 757 feet : at Regina 1,885 feet ; at Medicine Hat 2,171 feet ; and at Calgary 3,428 feet. The rainfall also decreases the further west we go, the average annual precipitation at Winnipeg for 22 years being given as 21.39 inches, and at Calgary for 18 years as 14.96.

We find then two factors, namely, elevation and rainfall, which together make conditions for forest growth more unfavorable as we travel west from Winnipeg. The general character of the country, too, is more or less level and unbroken, providing no great obstruction to prairie fires which I think we may consider as almost the chief factor in keeping the open plains in their present condition. Wherever districts have been fairly well protected for a number of years, owing to fires having been stopped by cultivated lands, roads or fire guards, we find numerous small bluffs of native poplars springing up wherever the conditions of moisture have been favorable to the germination of the seed. The poplar is of course the first tree to come in, as the seed, being so light, is carried for

miles and miles in the strong winds so prevalent in the west. Later on, no doubt other trees, as elm, maple and ash, may come in more slowly.

The absolutely bare prairies commence about 400 miles west of Winnipeg, a little east of Regina, on the main line of the Canadian Pacific Railway. The line of demarcation does not run straight north and south, as the country to the southeast of Regina right down into North Dakota, is also quite open. The treeless districts run roughly as far west as the foothills of the Rockies, and as far north as the Saskatchewan River. Some trees of cottonwoods and other poplars and willows are to be found fringing most of the rivers and perennial creeks, but with these exceptions, there is no sign of tree life.

With conditions such as these, the forestry problem in the West is divided into two main branches, namely, the preservation of existing timber and the encouragement of tree planting in the more open farming districts.

In regard to the protection of timber, this will of course wholly devolve upon the Government, as all timber lands are owned by the Crown, the policy having been never to sell land in any timbered district. Certain areas in Manitoba and the Territories have already been set aside by the Dominion Government as Forest Reserves. These are mostly in elevated districts and on land generally unsuited for agriculture. These forest areas are to act not only as a source of timber supply to the neighboring district, but are also intended to protect the watershed and prevent the too rapid run off of the rainfall into creeks and rivers.

Up to the present, no systematic forestry management has been applied to any of the reserves, the most immediate necessity being to protect the timber from





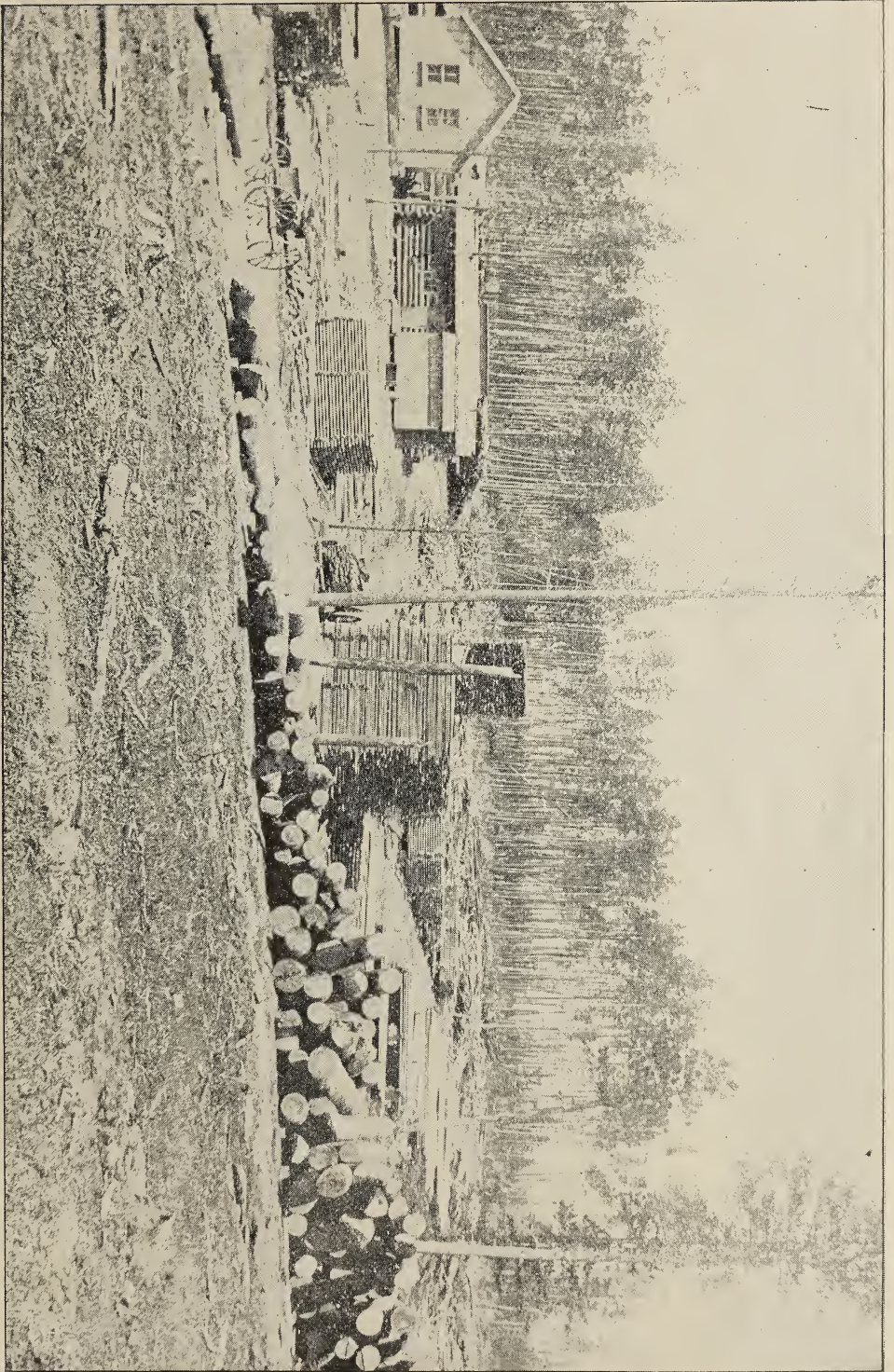
PLANTATION OF AMERICAN ELM, 15 YEARS OLD,  
IN MANITOBA.

fire. For the last five years, the Forestry Branch has been carrying on a system of Fire Ranger Patrol in most of the timbered districts of the West, with very successful results. No doubt in a few years, as the Forestry Branch becomes better organized and is able to secure properly trained men, the reserves in the West will be brought under a profitable system of management. With the exception of the Riding Mountain Reserve in the north of Manitoba, very little lumbering, as it is understood in the east, will ever be done. Most of the reserves will be used for fuel and fencing

to supply settlers in the immediate neighborhood.

In the West, the tree planting side of forestry has received by far the most attention, simply because every settler is individually interested in this work. Windbreaks and tree plantations are of such inestimable benefit to those living on the exposed prairies and out of reach of growing timber, that every one is more or less anxious to do something along this line, not only by obtaining increased comfort but at the same time greatly adding to the money value of the farm upon which the trees are planted.





JACK PINE (*Pinus Murrayana*) IN CYPRESS HILLS, ASSA.

Ever since the West was first opened to settlement, tree planting, generally in a very small way, has been carried on. However, owing the adverse conditions, high elevation, low precipitation and great severity of climate during Winter, the number of failures has always been very high ; so much so indeed that, until a few years ago, it was generally thought that tree growing on the prairies could not be undertaken successfully. Since the earliest times, the Government has realized the advisability of assisting, where possible, the work of tree planting. The first scheme was to give a settler 160 acres of land, free of charge, on condition that a few acres of this was to be planted out in trees. If these trees or a certain percentage of them, were living after three years a patent was granted. Many settlers took advantage of this scheme to obtain free land, and having once secured the patent, paid no further attention to the plantation. The result of this Tree Claim Law was not what had been expected, and as it was found that the desired end was not gained, the act was repealed some years ago.

When the Experimental Farms were started some sixteen or seventeen years ago, a great deal of attention was devoted to tree planting ; and from the results of the work done at these farms, it is now possible to state definitely the best methods of procedure in order to obtain successful plantations. The Experimental Farms have also been of great assistance in furnishing seedlings and tree seeds to settlers throughout the West.

Soon after the establishment of the Dominion Forestry Branch of the Interior Department, a co-operative system of tree planting was put into force. It is not necessary to give the details of this system here ; all that need be said is,

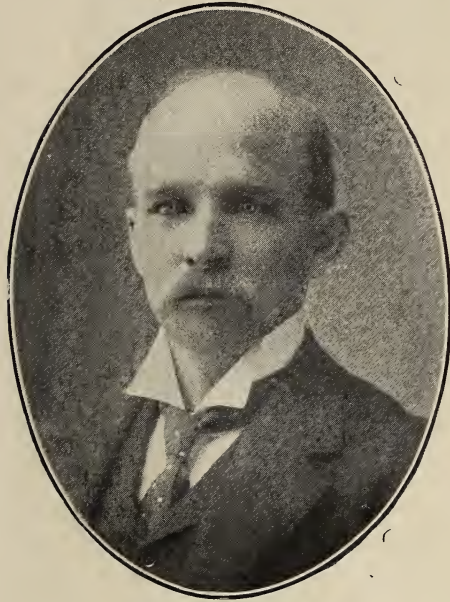
that under certain conditions, any settler is provided free of charge with a sufficient number of seedlings to make a very fair sized wind break or plantation. A distribution of these seedlings is made each spring, the total number of trees sent out in five years, including those to be sent out next spring, amounting to about 5,000,000.

In order to grow the number of seedlings which will be annually required for this distribution, a nursery station of 160 acres has been established at Indian Head in Assiniboia, from which the distribution in the future will probably be in the neighborhood of three or four millions annually. Even when a distribution is made on as large a scale as this, the country is so immense that but small results can be hoped for, unless the settlers take up this work independent of Government assistance. Once it has been demonstrated, by successful plantations scattered all over the country, that tree culture can be made successful, there is no doubt but that the average settler will consider tree planting as a matter of course, as he now does the planting of his wheat or vegetable seeds each spring.

The main drawback at present to individual work is the difficulty of obtaining suitable seedlings at reasonable prices and in a sufficiently large number. The very few commercial nurseries at present in the West are all doing business on a very small scale, and consequently cannot afford to sell stock at very cheap rates. There is no question, however, that in the future, as soon as a sufficient demand is created for forest tree seedlings, some firm will commence nursery operations on a sufficiently large scale to permit the sale of stock at a figure which the farmer can afford to pay.

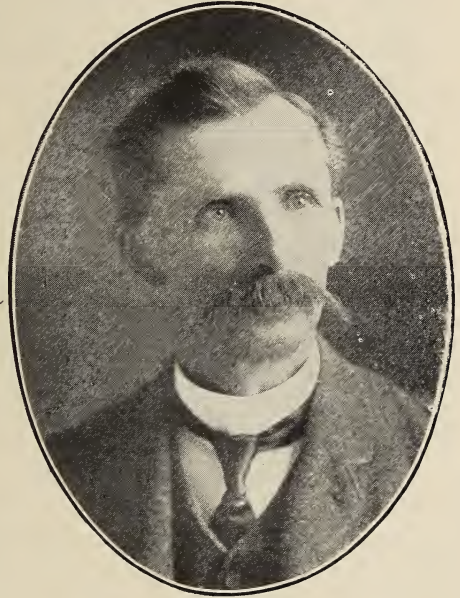


## Active Agriculturists.



W. D. CARGILL.

Owing to the lamented death of H. Cargill, M.P., Mr. W. D. Cargill is now the sole proprietor of the famous herd of Shorthorns at Cargill, in Bruce County. The farm is run in conjunction with a large lumber business, but there is probably no better managed, nor no more important herd in Canada. No expense has been spared in bringing together a herd of cattle of choicest breeding, and high individual merit. The present proprietor has always been the stock enthusiast of the firm, and under his efficient management we may look for great things from this northern herd. Though Shorthorns are the most important feature of the farm, Clydesdale horses and Oxford sheep have also received considerable attention.



JOHN GARDHOUSE.

To every stockman the name of Mr. Gardhouse, of Highfield, is known as that of a veteran among the breeders of Shire and Clydesdale horses, Shorthorn cattle and Border Leicester sheep. Always an enthusiast and a keen judge of stock, he has, by painstaking, intelligent effort, gathered about him a collection of animals which not only enrich the community and country which is proud to honor him, but have also achieved an international reputation. It is such men as Mr. Gardhouse who are building up Canada's reputation for high-class stock, and it is to their originality and penetration that she will owe her future position as queen of agriculture.



# Agriculture.

## Canada and Her Markets.



**G**ACH year sees a steadily increasing volume of materials leaving Canada's shores to supply the demands of various countries, and every succeeding export establishes more firmly our reputation as an agricultural country. The wealth of the forest and the wealth of the mine mightily swell the national income, but man's first occupation on the earth is still of first importance in adding to Canadian wealth. The drain upon the country's resources has only begun, and we are merely touching upon the fringes of our agricultural possibilities. The land now under cultivation is but a fraction of the total area, making all due allowance for the broad North-land which lies beyond the zone of profitable husbandry, and stretches far away to the Polar seas. This province at present tills some 21,000,000 acres of land, but in the newer and larger Ontario which but yesterday has become known, there are 17,500,000 acres of arable soil as yet covered by forests and inhabited only by wild animals. Quebec has its Lake St. John district with over 19,000,000 acres of farming land, and its Ottawa River and Lake Temiscamingue district with an area of 45,000 square miles, which comprises much fertile soil. The 14,000,000 acres now cultivated in that province looks small beside these areas, vaster than have been.

But it is not strange that men are

looking more and more to the great prairie country as possessing the brightest agricultural future of any section of Canada. Within the last five years it has made a name for itself, and it would be presumptuous to set the boundaries of the West either as to area cultivated or as to total production of crops. There are over 200,000,000 acres of land known to be well suited to husbandry, and there is none yet so bold as to tell the hardy pioneer trekking northward. "Thus far may you profitably go and no farther." The only limitations, so far, have been the comparative dearth of settlers, and the necessity for better transportation facilities. Of all the vast area which is known to respond readily to cultivation, only about one-fifteenth is tilled, and even this fraction may be much too large when taken of the vast expanse whose value is not yet appreciated. Ponder for a moment upon these mighty agricultural assets of the West, and of the East as well. Think not only of the virgin soil yet to be broken, but also of the potential resources of the soil already cultivated, which will manifest themselves in larger yields at the touch of closer application of scientific methods in agriculture. We must not, in our eagerness, overlook the importance of producing more from the land now cultivated and yet storing within the soil a reservoir of plant food sufficient to produce yet larger yields in the years to



Curing Cheese at Cowansville.

come. The assets, the power of the soil now tilled to produce well in the future, depend almost entirely upon the intelligence of the great agricultural fraternity. And hence the vast importance which cannot be too strongly emphasized or too often repeated, of giving to the country by means of agricultural colleges, experiment stations, and not least important of all, by an intelligent agricultural press, the most accurate and practical knowledge of all that pertains to practical agriculture.

In the census year of 1901, the total amount of capital invested in agriculture amounted to \$1,787,102,630. The returns for that year were \$363,888,866, or 20.3 per cent. upon the capital invested. In 1903, out of a total export of all products from Canada of \$225,849,724, the agricultural exports amounted to \$112,043,365, or practically half of all

the exports. It is unnecessary to dilate further upon the supreme importance of the Canadian soil as a wealth producer, except to add that the production of farm crops has increased very greatly since 1901, and a census at the present time would give much higher figures, both for the capital invested and for the returns upon the investment.

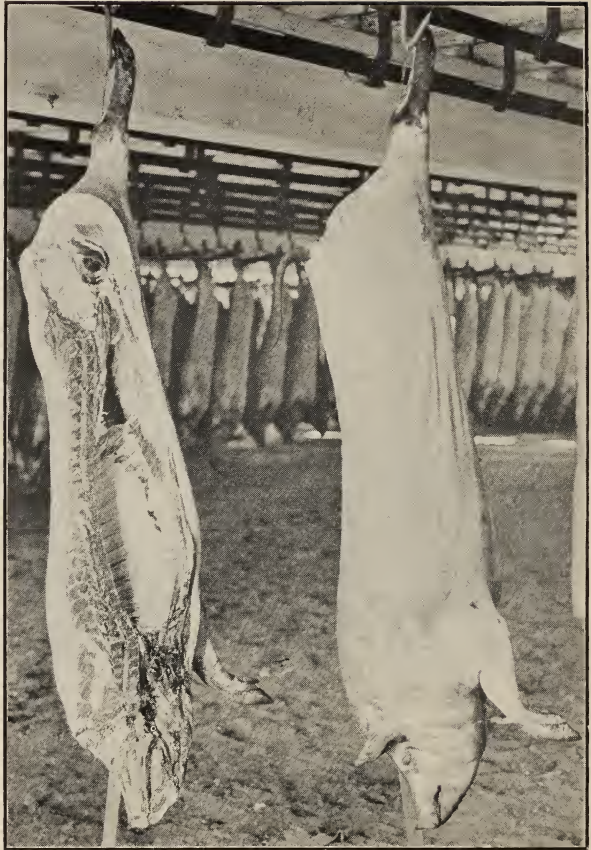
Wheat is at present the most important product of the West, and this importance is likely to increase very largely in the next few years. That the cereal is well adapted to the soil and climate, is evinced by heavy yields and superior quality of the grain. Probably the best criterion of its value for flour is the insistent demand of the United States millers for a reduction of the tariff, that they may import Canadian wheat to improve the quality of their output. The yields are of the highest, the average being 25



bushels per acre, though individual yields are reported ranging from 40 to 60 bushels per acre. The large areas cultivated, and the general use of machinery, make the growing of wheat on such fertile soil very profitable, and it is unlikely that the rank and file of the farmers will turn to other lines of production, until the depletion of their soil forces them to do so. About three-quarters of our wheat is produced on the prairie. If the 60,000,000 bushels now grown there annually, increase in the same ratio as the land now cultivated bears to the cultivable area, we shall see a production of at least 500,000,000 or 600,000,000 bushels annually in the west alone.

Beef production on the prairies is confined almost entirely to the ranges of Western Assiniboia and Southern Alberta, where the climate is mild enough to permit stock to graze during most of the winter. As mixed farming follows in the wake of wheat-growing, cattle will be fed more generally throughout the whole of the prairie country. At present, Ontario produces more beef and exports more than any other of the provinces, and her present pre-eminence will continue until the West turns its attention to this line of production.

Mutton and wool are not produced nearly so extensively in any part of the Dominion as they should be. Our export of wool is practically nil, and the export of mutton is very small when we consider the vast areas of rough land which might profitably be devoted to sheep-raising. The newly awakened in-



Some Canadian "Sides" in Storage.

terest in sheep, it is to be hoped, will continue until we see our land, especially the broken areas, dotted with flocks of these active, economical animals. We have every natural advantage for producing large numbers of sheep, and mutton could be made one of our most profitable exports. The wool, however, can well be retained and manufactured at home.

Though the dairy products are fast to occupy our attention, it is not by any means because they are of least importance. The exports of cheese and butter for a single year are greater than the exports of all the other animal products, and if we include bacon, which is really



dependent on the dairy industry, these look almost insignificant in comparison. Dairying is practically confined to the Eastern provinces, though indications now point to its rapid development in British Columbia. It appears to be most successful in a humid climate, as we observe from our general conditions in Canada, and for this reason it is improbable that the commercial production of cheese and butter will become important on the Western Plains. There is room, however, for almost unlimited expansion in the Eastern provinces, and also in British Columbia, both from the cultivating of hitherto unbroken land, and also more especially from the application of better scientific and more business-like methods to the industry. The quality of the products is very important, and it is gratifying to note that our cheese holds the highest place in the estimation of the British consumer. Unfortunately, the same cannot be said of the butter, and every practicable method for making a more popular article is to be utilized by Canadian dairymen.

The same injunction applies to our bacon. It is true that we have built a large trade in a short time, one which is likely to continue growth quite as rapidly in the future, until it establishes an equilibrium with the dairy industry. But the daily injunctions of packers and commission men are to be carefully remembered by the producers, and faithfully practiced in their feeding operations. As was suggested, increased bacon production is largely dependent on the expansion of dairying, though the present status of the industry would admit of the profitable rearing of a much larger number of swine, the only difficulty being to get the quality which suits the market.

This article is a review of what is already familiar to Canadian agriculturists, and serves only to remind us of the vast soil resources of our country, and of the most important products of the farm. This will be continued in the next issue by a discussion of our markets and their demands, with a brief mention of our important competitors.



## The Fence Question.

**T**HE labor problem and the fence question are closely related. We hear much at present as to managing with a small amount of labor, but little of how to obtain the greatest return for energy expended. The latter should be the paramount motive rather than the former, and a careful consideration of farm fencing will enable one to solve some of these difficulties.

The fence most commonly found

throughout the country and the one we shall first consider, is known as the "snake-fence." It is so familiar that it needs no description, and it has served and is still, in some cases, serving a useful purpose. There are a number of objections to it, however, the first being the space which it occupies. It requires merely a glance at many a farm to see how wasteful of valuable land is this system of fencing. On a farm of one

hundred acres, which is surrounded, has a lane enclosed, and is divided into six to eight acre fields, all by these rail fences, there is likely to be three to five acres rendered useless for cultivation.

The land thus lying idle produces nothing of value to the farmer, and actually becomes a menace to his prosperity. Stones are dumped in the fence corners; hawthorn and choke cherry grow in rich profusion; and thistles, mustard, couch-grass and all the rest of them, find a veritable citadel from which to extend their raids on the unfortunate fields. It is true that these evils may be obviated along line fences and along the lane, by planting rows of trees, but such is not practicable for the cross-fences where the evil is at its height. It is to the cross-fences I would refer particularly, not only in connection with the spread of weeds, but also in considering the labor problem. These fences, by harboring weeds, increase labor unnecessarily, while they diminish its effectiveness as applied to the field. It is in the cultivation of land as it is in the manufacturing industries of the present day, consolidation cheapens and individualism increases the cost of production. Land can be cultivated on a large scale much more cheaply and effectively than it can be on a small scale, and to do this on the ordinary farm means that cross-fences must be removed. With larger areas for cultivation, larger implements may be used, and time and labor economized. One man with a large gang and three or four horses, will do as much or more plowing than two men with two single plows and four horses. It also effects an economy of land, for, whereas in the large area there would be but two head-lands, in the small areas there would be from eight to twelve strips of varying width, so tramped as to yield little more than half a crop. And the principle which holds in plowing, holds in all the operations of tillage. In the economy of both land and labor, the fence question is exceedingly important.

It is essential that there be a considerable amount of permanent fencing upon a farm. There must be line fences, lane fences, and fences about buildings, gar-

den, and orchard. What material these are made of depends upon circumstances. Where a good, permanent rail-fence already exists along the lane or on the lines, the situation can be improved by the planting of windbreaks which protect the crops and prevent weeds from growing so luxuriantly in the fence corners. Where these fences are not so good, but where there are plenty of sound rails on the farm, it is economical to build stake-fences of a substantial and permanent character, if not along the lane, on the lines at least. However, wire fences about the building and along the lane are most desirable, as they do not hold the snow nor harbor weeds to nearly the extent that rail fences do. A good wire fence is a long-lived structure, it is slightly in appearance, and covers a comparatively small space.

Other permanent fences are usually unnecessary, and often very undesirable. In the rotations which are being more generally practiced, fences other than those already mentioned, will be necessary, however, as the land is pastured during the rotation. This need is supplied by various portable fences which are easily and quickly placed, and can be as quickly removed when their work is done. This style of fence exactly meets the needs of our modern agriculture, and both it and the wire fence are experiencing great and deserved popularity at present. The claims of neatness, usefulness and permanency which are made for these fences are well substantiated, and no farmer who has to purchase fencing should think of getting any but the best and most modern materials.

Fencing is only one of the details of farm management, but it is a very important one. We know that a poor system wastes land, increases labor, and raises the cost of production, while the reverse is true of a good system. Labor is expensive and hard to secure, while produce is not correspondingly valuable. These considerations should lead to a careful study of economic questions of the farm, among which that of fences is most important.

# Experimental.

## Dairy Experiments in 1904.



THE experiments conducted during the past year in the Dairy Department of the College related chiefly to cheese and butter making and covered the following points in cheesemaking: Rennet and pepsin as milk coagulating agents in the manufacture of Canadian Cheddar Cheese; extra moisture in cheese to be ripened in cold storage; ice and mechanical cold storage for ripening cheese; temperatures of 31 degrees to 51 degrees F. for ripening cheese; and boxing cheese directly from the press compared with boxing them one week after placing them on a shelf in cold storage.

In Buttermaking the chief points were: Pasteurization of milk vs. pasteurization of cream; churning of sweet cream with and without culture compared with ripening cream; ice and mechanical cold storage for butter; preservatives, other than salt, for butter.

We shall give only a summary of the results in this short article, and refer readers to the forthcoming Annual Report of the College for details.

### RENNET VS. PEPSIN.

The quality of the cheese was slightly better made with the pepsin, but the yield of cheese was about one-half pound less per 1,000 pounds milk, due in all probability to more or less imperfect coagulation with the pepsin. Up to the

present we can see no particular advantage in the use of pepsin instead of rennet for coagulating milk for cheesemaking.

### EXTRA MOISTURE IN CHEESE RIPENED IN COLD STORAGE.

Our experiments indicate, that it is possible to increase the yield of cheese by about one-half pound per 1,000 pounds milk by not stirring the curds as much as usual after dipping, without affecting, to any extent, the quality of the cheese ripened in cold storage. However, as there is always danger in leaving too much moisture in curds, especially when ripening in the ordinary room, makers need to exercise a great deal of care on this point. What is very much needed is some simple and rapid method of ascertaining the proper degree of moisture in curds and cheese. At present it is largely guesswork on the part of the cheesemaker.

### ICE VS. MECHANICAL COLD STORAGE FOR CHEESE.

The results of these experiments may be summarized as follows:

1. The loss in shrinkage of cheese ripened in mechanical storage was about one per cent. greater during one month than on similar cheese ripened in an ice storage at a similar temperature of 40 degrees F., but where the moisture in the air averaged about 10 per cent. higher.
2. The quality of the cheese was also



slightly better in the mechanical storage and the cheese were much more free from mould as compared with those in ice storage.

3. Cheese may be safely left in an ordinary ripening room for one week, and then be moved to either mechanical or ice storage with satisfactory results. It is not necessary to move the cheese daily, thus adding to the expense of the method of ripening cheese in central cold storage or ripening room.

#### WHAT TEMPERATURE WILL GIVE THE BEST RESULTS FOR RIPENING OR CURING CHEESE?

For several years we have been working on this question. At first we divided our ordinary ripening or curing room into three sections, allowing one part to vary according to the outside temperature, one section was cooled with a sub-earth duct, and one section was cooled by means of blocks of ice in a pan. We discovered that the two rooms cooled to about 60 and 65 degrees F., and gave much better results than did the one where the temperature was not controlled.

Previous to this time, in the early nineties, we made arrangements with a cold storage firm in Toronto to carry some cheese for us in cold store, but owing to the failure of the firm the experiments were not made, and we were obliged to wait for the erection of the present cold storage plants at the College before this work could be undertaken. If we may be allowed a suggestion it is that the College should *make* precedents not *follow* them altogether, in lines of experimental work.

The temperature which has given the best results in ripening, is 40 degrees F. However, the difference in the quality of cheese produced from ripening at 50 to 55 degree is not very much as compared

with ripening at 40 degrees F., consequently, as this temperature can be more easily maintained than the lower one, it is the one to be recommended for ordinary factory use. Where cheese are held for several months, then the lower temperature is to be recommended.

#### BOXING CHEESE DIRECTLY FROM THE PRESS.

Our results indicate that cheese may be taken from the hoops and be put directly into a clean dry box with satisfactory results, if placed in either mechanical or ice cold storage soon after this is done. The only drawback is the mould which is likely to develop on the cheese.

#### BUTTER EXPERIMENTS.

##### PASTEURIZATION OF MILK VS. CREAM.

Owing to the difficulty of cleaning the milk pasteurizer and separator bowl, where the milk is pasteurized before separating, experiments were made during the season of 1904 comparing the two methods. When first made there was little or no difference in the quality of the butter, but the butter held its flavor better by being made from the pasteurized *milk*. By using exhaust steam from the engine we were able to return a good quality of skim-milk to the patrons at small cost.

##### SWEET CREAM WITH CULTURE VS. RIPENED CREAM.

Four trials were made during July and August comparing the churning of cream immediately after separating, pasteurizing and cooling, with the churning of cream from the same vat after ripening in the usual way. The cream was first thoroughly mixed in the cream vat, then one-half, averaging 351½ lbs. cream for each churning, was put in a combined churn and worker, an average of 27½ per cent. of butter culture was added and

the cream was churned immediately at an average temperature of 54.2 degrees F. The average time required to churn was 17 minutes. The loss of fat in the buttermilk averaged .6 per cent. The yield of butter was 126.6 pounds per churning. The butter scored an average of 39.5 points (max. 45) for flavor and a total of 94.3 points. The samples in all cases were scored about once a month until the end of November.

been scored by Mr. Woodard soon after making, were also sent. Mr. Woodard scored the sweet cream butter, when fresh, 42 out of 45 for flavor and a total of 94 points. The butter made from ripened cream scored when fresh 41.5 for flavor and 93.5 for total. On November 2nd these two lots were again scored by Mr. Woodard when they received 35 and 20 points respectively for flavor in the sweet and ripened cream boxes.



The College in Direct Contact with the Farmers.

The ripened cream (351½ pounds) had .56 per cent of acid when churned at a average temperature of 50.5 degrees. The time required to churn was 23½ minutes and the percentage of fat in the buttermilk averaged .28. The yield of butter averaged 127.6 lbs. The average scores for flavor and total were 36.8 and 91.8.

The total yield of butter from the sweet cream for the four churnings was 505.7 pounds and from the ripened cream it was 510.6 or 4 lbs. more.

Three lots of this butter made July 21, August 23 and 24, were sent to Montreal in November for scoring by experts in the trade and by Mr. Woodard, Official Referee. In addition, two boxes made in April, which had been kept in cold-storage at 40 degrees, and which had

The average of five scores of the July and August butter made on November 2nd by Messrs. Woodard, Vaillencourt, Olive, Ayer and LeClair was 40.6 for the sweet cream and 34.9 out of 45 for the ripened cream. All three lots made from the ripened cream were pronounced "fishy."

#### CONCLUSIONS.

1. The yield of butter was slightly less by churning the cream sweet.
2. The loss of fat in the buttermilk was greater from the sweet cream.
3. The time required for churning the sweet cream averaged six minutes less than for the ripened cream, though this may be accounted for by the fact that the churning temperature averaged four degrees higher.

4. The quality of the butter was superior from the sweet cream with the culture; not only when first made, but it also held its flavor better. The average of the first scores for flavor was 42 for sweet cream and 40.7 for the ripened cream. At the final scoring at the Dairy in November the sweet cream lots averaged 36.7 points and the ripened cream 32 points. The sweet cream lots lost an average of 5.3 points while the ripened cream lost 8.7 points in flavor. There was a similar difference made by the experts in Montreal in favor of the sweet cream.

#### CHURNING SWEET CREAM VS SWEET CREAM WITH CULTURE ADDED.

The object of this experiment was to compare churning sweet cream directly after separating, pasteurizing and cooling with similar cream to which from 20 to 30 per cent of culture was added before churning.

The tests were made in August and the last scoring of the butter was made November 26th. The sweet cream with culture was churned at an average temperature of 53 degrees F. and took 17½ minutes to churn. The buttermilk averaged .35 per cent fat. The sweet cream without culture was churned at an average temperature of 47½ degrees F. in 14 minutes, with an average of .55 per cent fat in the buttermilk.

The average score of the butter made from sweet cream was 40.5 out of 45 for flavor and 94.8 total out of 100. The butter from sweet cream without culture scored 39.5 and 93.8 respectively for flavor and total.

#### CONCLUSIONS.

1. The sweet cream without culture churned at a lower temperature, in less time and with a greater loss of fat in the

buttermilk than did the sweet cream with culture.

2. The flavor of the butter was slightly better as a result of adding the culture.

#### PRESERVATIVES OTHER THAN SALT IN BUTTER.

Owing to the fact that our market is about 3000 miles distant and to the fact that butter frequently deteriorates in quality during transit or while held in cold-storage, there is a demand in Great Britain for better keeping butter than that usually got from Canada. Pasteurization to some extent overcomes the difficulty but few of our creameries adopt this method.

In conjunction with the Chemical Department of the College and through the co-operation of the students and matron we were able to make some very interesting experiments. Briefly summarized our chief results were:

1. Boron preservatives added to butter at the rate of ¼ and ½ per cent. at the time of working the butter improved its keeping quality very materially.

2. Boracic acid was not so effective as borax, nor quite so good as the commercial preservatives. There was not much difference in the results obtained by some 5 or 6 different preparations found on the market.

3. So far as observed the preservative butter did not affect the health or the appetites of the students using it.

4. For the Canadian trade we are not prepared to recommend the use of preservatives in butter at the present time. As one-half of one per cent borax is allowed in British export butter this amount may be used, but it is probable that ¼ of one per cent will be effective, and there is less danger of imparting a "preservative flavor" to the butter.

H. H. DEAN.



## A Start in the Poultry Business.

DEAR SIR :

Will you send me the latest bulletins on poultry, and any information you may have, as I intend going into the business on a large scale in the spring. I might say that I have never raised poultry, but I think there is money in it.

Yours truly, ———

P. S.—What is the best breed ?

**L**ETTERS such as the above are continually being received at the Poultry Division of the Department of Agriculture, Ottawa, and I doubt not at other poultry departments throughout America. The impression seems to be that the keeping of poultry offers a good easy living, in return for which very little work is required.

First and foremost, I want to dissipate this notion. It is a business that requires work. The poultryman must be industrious. The man who thinks he can subscribe for several poultry papers, invest a few dollars and reap a handsome profit is doomed to disappointment. Of course in the poultry business, as well as every other, a man must start somewhere, but let him get rid of the idea that anyone can succeed with poultry. He must employ industry, intelligence and a close application to detail.

The style of man who would write a letter such as the above, nine times out of ten had better stay out of the poultry business. If he has plenty of money he may succeed in time, but the chances are that he will quit before, or pay very dearly for his experience. Rather let him gain his experience as he goes, at the least possible expense. In choosing poultry as an occupation, or even as a

side line, he should be sure he has a liking for fowl. If he has not, he will find, when he gets down to the detail the everyday work entails, that his interest wanes, and sooner or later he will follow so many of his predecessors and throw it all up as unprofitable.

Still, for the young man who is reasonably sure that he has the right qualifications, I must say the prospects are encouraging. If he wishes, as most do, to handle it as an adjunct to the farm, and he already has a building used for poultry, let him put it in good condition by thorough cleansing; make it comfortable, have the windows arranged to admit plenty of light, the internal fixtures moveable and arranged according to the latest ideas; make it convenient, and, above all, be sure it is dry. Hens will not thrive with wet feet.

In getting your stock, the sooner you know there is no "best breed" the better. Certainly there are breeds that might be preferable, but, after summing up local conditions, markets, etc., choose the breed you think will fill the bill, and then get as a foundation stock the very best strain you can secure.

A pure-bred fowl is not necessarily a good individual. We have good and bad in all breeds. Take an illustration from the Maine Experimental Station, where considerable attention has been given this. In one pen of Barred Rocks the average egg production was 132 per year. One hen, however, laid 251 eggs, while another one went as low as 32. In a pen of 20 Brahmas, where the average was 101, one laid nearly 200, while two, for the whole year, produced not a single

egg. Each of these pens contained pure bred birds, but the individuality showed itself in the records.

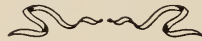
Do not keep your hens until they are too old. As a rule, pullets lay better than hens. As an example, take another instance from the same station, where it was found that ten pullets, in egg production, were worth 17 one-year-olds, and 23 two-year-olds.

For the average farm, one breed is

sufficient, but it is a good plan to breed only from the best.

Poultry dovetails well with fruit culture, and many are adding bees to the combination. It is as an adjunct I think that poultry will pay best. Some, however, are confining all their attention to poultry and prospering as they deserve. But, in closing, I would again like to say to the beginner, "Go slow."

F. C. ELFORD.



## ARE YOU ?

You've never seen the sage bush on the plains,  
 Nor smelt the flowers that make the prairie fair,  
 Your being never thrills with the pine breath from the hills,  
 So you're happy in your foul and sooty air.

You've never known the zest it adds to life,  
 To bestride a bronch who didn't want you there,  
 And in spite of plunge and kick, make him know you're boss and stick,  
 So you're happy in your office padded chair.

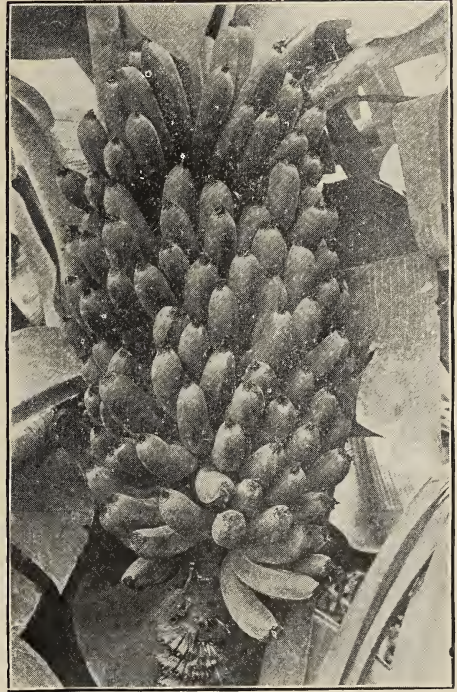
You've never seen a pan of bacon fry,  
 While your pard was tossing flap-jacks in the air,  
 Any exercise you get has never made you want 'em yet,  
 So you're happy with your fancy bill of fare.

You've everything unwholesome that you need,  
 Your ambition's an ever distant goal,  
 You're clever with your head, but the man within you's dead,  
 Are you happy with your city-stunted soul?

# Horticulture.

## Home Grown Bananas.

**E**NTHUSIASTS are to be found in every occupation, who vie with each other in their attempts at producing something extraordinary or something rare. In recent years the fruit growers and greenhouse men of Ontario have done much by way of producing new varieties of fruit. Again, others have spent time in maturing specimens of different plants merely for the novelty of the thing, and not because of commercial value. Mr. Hunt, of the college greenhouses, looks to both these points and has had unequalled success in his attempts at maturing bananas. For some years past the massive-leaved banana plant in the tropical house has been the centre of attraction to the many visitors to the horticultural department from the time of the June excursions, when the fruit is usually just formed, until the fall, when it is nearing the edible stage. Mr. Hunt has succeeded in making the climate sufficiently congenial to our southern friend for several years to produce a nice bunch each season. Each plant bears but one bunch but while it is developing, young suckers arise which produce fruit the following season. An extra fine bunch of the luscious product matured this season. Despite the fact that the nature study courses have made several visitors so investigative as to take the liberty of sampling the tempting fruit, a good 60-pound bunch was the reward Mr. Hunt



Canadian Grown Bananas.

got for the special care and attention. Needless to say the coloring was not so high as that of southern grown specimens, but after all "The proof of the pudding is in the eating." This year Mr. Hunt decided that the students should sample the fruit. One evening recently, smile after smile traversed the countenances of all as they entered the dining room and found each table decked with a plate of the delicious dessert and learned that it was off the



same bunch which had been for so long a time in the greenhouse. The general decision was that it stood the test all right, and it is to be hoped that even a larger bunch will be induced to mature

next year. In the meantime Mr. Hunt has the good wishes of the student body and many thanks for his most excellent treat.



## The Transportation Question.

**P**ROBABLY no class of the community who have occasion to use the railroads and transportation companies of the country in their dealings with the public have a greater claim on these companies than the fruit growers. The transportation question is one of the most important that they have to consider. Their industry is constantly growing, and it is doubtful if any movement would benefit them more than a satisfactory solution of the transportation problems.

The fruit grower, after having run the risk of climatic influences, and having fought the insects and diseases that attack his products, raises a good crop of fruit. Then the express man, or freight handler, in a very short time may cause all his care and efforts to bring practically no returns. His fruit may be delayed for hours, or even days, before it finally reaches the market, and, owing to this, it is in a very unsaleable condition. For such poor service the fruit grower is charged the highest rates possible, not only for the transportation of his products, but also large percentages on fictitious capital. The time has certainly come when the farmers and fruit growers should have lower rates of transportation and more efficient service from the different companies.

The fruit industry has always been looked upon by the transportation com-

panies as one that deals in what they consider to be a luxury more than a necessity, and one upon which they are accustomed to charge high rates. It is a difficult matter to change the opinions of the officials of the companies and bring them to see that the products of the fruit industry are necessities of life. Not until we can make them realize this fact can we obtain the service and rates we are justly entitled to. Through co-operation in certain districts, the fruit growers, by shipping in car load lots, have obtained better rates and succeeded to a certain extent in doing away with some of the difficulties in freight shipping, but with the increase of the fruit industry and larger amounts of products there must come lower rates for carriage generally.

The shutting out of the American markets from the reach of the Canadian growers by the McKinley tariff, along with the increased production of fruit, has caused the prices to fall greatly during recent years. Therefore, it is important that transportation charges shall not be excessive, if the fruit grower is to ship his products to distant markets, and have sufficient profit on them to induce him to continue in his honorable occupation.

In the transportation of fruit, delays often occur which frequently cause the fruit to miss the market for which it was

intended, and it has to be sold at a sacrifice. Therefore, speed is required for the successful transportation of fruit. The express charges are so exorbitant that it is impossible to ship fruit with any degree of profit in that way. The local rates are very high and for carrying of fruit for short distances the consignor has to pay very heavily. Why should higher rates be charged for the shipping of apples in car lots than than for the shipping of sugar beets? If the local rates were what they should be, there would be a saving annually of thousands of barrels of apples that are now wasted.

Then again to successfully transport fruit to markets at a distance, it is necessary that well-equipped refrigerator cars be supplied. We need cars that will carry our fruit in first class condition and then the fruit grower will be able to pick his fruit and ship it at the right stage of maturity so as to place it in the market in the best condition and receive the highest prices. The charge of sixteen dollars for icing the car during its trip, no matter what the distance is and how many times it has to be iced on the trip, is no fair basis upon which to make the charges.

The accomodation afforded at the station and in freight sheds is often anything but suitable. The fruit grower is often obliged to load his car right at the platform with his fruit exposed to all the inclemencies of the weather, such as would cause it, especially if in barrels,

to slacken. These when opened on foreign markets are inferior stock and the fruit grower is blamed for poor picking, thus receiving injury to his trade. On all properly equipped railways if a carload of any goods is despatched, the officials should be able to tell where the car is from day to day. One of the grievances the fruit growers have is the very long time it takes for the delivery of their goods after being shipped. If the fruit growers in Ontario were given such prompt service, as is given in England, where the freight service is equal to the express service here, the margin of profit to our many fruit growers would be much greater.

The time has certainly come and indeed it was here years ago, when the fruit-grower and all others engaged should demand from the Railway Commission, so far as rates are concerned, control of the operations of the great companies which have the monopoly of inland transportation.

There is no commodity handled by the railway companies, that costs more for transportation than fruit, and none that gets poorer accommodation for the money paid. It is to be hoped that the presentation of the facts to the proper authorities, as has been done by our fruit growers during the past season, will have much to do by way of making a substantial improvement in the service given by all the transportation companies to the ever increasing trade.

F. E. B.

## GRAFTING.

**T**O the farmer with his ten or twenty acres of fruit trees, or even to the average fruit grower, the question of grafting may seem to be a very

narrow one. However, due thought and study have not been given to the methods of propagation used in producing the different varieties of trees, shrubs,

vines and plants of different kinds. To the ordinary man the term *grafting* suggests the propagation of one variety of fruit on a stock of a different variety, while in general practice, nearly all the great class of plants known in the botanical world as Exogens, may be grafted. As a rule, the scion must be more or less closely related to the stock to ensure success, but experimenters have, in some cases, found scions and stocks of distinct genera to unite readily.

From green-house work, with the tenderest plants, to orchard work, with the widely branched apple, grafting is a common labor at certain seasons of the year. In fact it is employed to perpetuate any variety which does not reproduce itself from seeds and cannot be economically reproduced from cuttings. However, in every case, roots or stocks must first be developed from seeds, layerings, or cuttings, and then the desired variety grafted on these. In the nursery, perhaps, this is best illustrated. Practically all the stock sold by nurserymen is secured by grafting the desired variety on some cheap and suitable seedling or cutting.

Another object attained by the practice of grafting is a marked change in the habit of growth, or in the taste, color, quality, etc., of fruit or foliage. Dwarf pear trees are developed by the nurseryman by grafting the desired variety of pear on a quince stock. Dwarf apples are got by using stocks of Paradise, a slow growing variety. Plums naturally thrive best in heavy soil but by grafting them on peach stocks they may be made to do equally well on sandy soil. Some trees have naturally straggling crooked growth and the variety may be top grafted on a tree of more pleasing appearance. Apples

grafted on crab stocks become more tart in flavor. And so, many changes may be given by grafting. In fact in some cases the change has been so radical that experimenters have named the product "graft hybrids."

There are many methods of grafting but these may be divided into two main divisions: one, commonly known as budding, where simply one bud of the desired variety is taken to unite with a certain stock; and the other, a more common division, where scions containing three vigorous buds are cut from wood of the previous season's growth. Although these two classes have several marked distinctions, and although the several methods adopted have slight differences, still the one main essential is to be sure that the cambium tissue, (the layer between the bark and the wood) of the scion meets the cambium tissues of the stock. It is from this cambium layer that all growth takes place and if these layers do not meet there cannot be the desired union of scion and stock.

Budding may be done at any time during the growing season but usually late summer, from July 20th to August 31st, is chosen for the work. In the spring when the cambium tissue is very active and the flow of sap is great the buds are liable to be completely covered by callous or forced out of place. For spring working dormant buds may be taken during winter and stored in the cellar in sand or sawdust. Mature buds may be taken direct from the tree for late summer work. A shield-like portion of the bark is removed with the bud, the whole being about one inch in length. Only stocks with smooth bark can be used. Two cuts, one vertical and the other horizontal, are made, forming a **T**, and the corners of the bark turned out so that the scion may be





Fig. 1  
Scion of  
Whip-Graft.

laid on the cambium. The wound should be bound with soft cord or raffia, care being taken that the binding does not pass directly over the bud. In three weeks, union should have been made and the cord may be removed. It is good practice to place the buds on the north side of the seedling or limb, so that the hot sun will not dry them out before union is made. There are also many methods of inserting the scions and each method is specially adapted to certain lines.

In nursery practice where budding is not resorted to, *whip-grafting* is the common method, as it is suited to small stocks. Both scion and stock are cut diagonally, giving cut surface of over one inch. Then a vertical cleft is made in each and the two joined by shoving the tongue of the scion into the cleft of the stock. Fig. 1 shows the end of a prepared scion, and Fig. 2 a finished whip-graft. This method is extensively used in root grafting, but when the union is to stand above ground the wounds must be well protected by a covering of wax.

In top-grafting of orchard trees the method in common use is *cleft graft*. Scions are made with wedge-shaped base. The stock is sawed off and split across the centre. Then a scion may be inserted



Fig. 2.  
Whip-Graft in  
position.



Fig. 3.  
Scion of  
Cleft Graft.

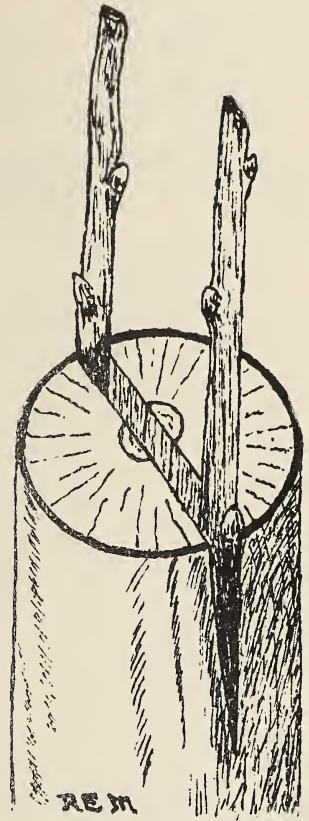
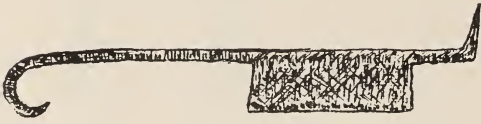


Fig. 4.  
Cleft Graft  
ready for waxing.

on each side, care being taken that the cambium layers meet in each case. Fig. 4 shows a cleft graft with scions in place. The wounds must well protected by an application of wax, and it is also well to put a drop of wax on the tips of the scions. With large limbs, sometimes total healing does not take place the first season and the wax falls off. In that case a second application should be made. The scions are usually cut so that the lowest bud stands just above the sawn-off stock, and a covering of wax does not hinder its growth. All cuts should be made clean and smooth.

In budding, or whip-grafting the only tool necessary is a good sharp knife. In

cleft-grafting the necessary tools are a sharp fine-toothed saw for cutting the stock ; a strong, heavy knife for making



**Fig. 5**  
Handy Knife for Cleft Grafting.

the cleft, (Fig. 5 shows a cheap and handy knife which any blacksmith can make out of an old file or rasp. It may be hung on a limb by the hook on the handle end when not in use, and the other end is made into a wedge for holding the cleft open while the scions are being placed) ; a mallet or club, the handiest of which is a common billy about fifteen inches long hung over the wrist by a soft cord ; and a sharp knife for preparing the scions, if they were not prepared beforehand.

Many grafting waxes give good satisfaction, but most grafters use one composed of resin 4, beeswax 2, and tallow 1, by weight. Others prefer a wax containing linseed oil, as they claim it ad-

heres better to the wounds. The proportions recommended are : resin 6 lbs., beeswax 2 lbs., linseed 1 pint. For neat work, where time is not at a premium, wax bandages are prepared. Strips of muslin are dipped into melted wax and then cut into suitable lengths.

Only a few of the more important methods and factors have been discussed, but there is not so much in the method as in the care that is taken by the beginner. In many sections the futile attempt of some amateur grafter who did not know the essential points of the work, or a single failure under very adverse conditions, has aroused a feeling against grafting and resulted in a very great loss. A good grafter with reasonably favorable conditions readily has sufficient success to prove to those who have any knowledge of the methods of propagation, that this system which English writers used to term pernicious and unnatural, and productive of short-lived and less thrifty plants, is practically essential to the present day horticulturist.

# The O. A. C. Review

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## Editorial.

A well arranged and complete library is the most valuable asset of any college.

### A Library Catalogue.

This is not because every student is going to assimilate the contents of the whole library, but owing to the diversity of human tastes and aims, different students have as many different goals and each following his own ideal is led to choose a different subject. Hence the necessity for a complete library.

Since modern library methods forbid the possibility of a prospective reader searching through the shelves and comparing books until he finds one most suited to his individual needs, it is only proper that these same modern methods should provide a way by which he may become equally well acquainted with the contents of the storehouse of knowledge.

The card index cabinet is an ideal filing system. But should there not be some

connection between the student and the book shelves, other than that which he must seek? Possibly there should not, if all our students had been trained to read systematically and regularly inspected the card catalogue. They are not accustomed to collateral reading, do not realize its importance, do not know what they should read, and do not find the inclination strong enough to warrant going over the stacks of cards, where they can only see one title at a time, finally handing in a name, only to find that where general information was wanted, abstruse and technical details were the result, and where detail was desired the book received was a popular edition forty years ago.

If a catalogue of the books in the library were published and a copy supplied to each student it would remedy these evils. If a student were not in the



habit of going over to the library he would, when examining this catalogue, become interested in books whose existence he had never before suspected and would be led to investigate further. Moreover he would see the names of the books together, would be able to compare them at his leisure, and if there is anything in a name he would be much more likely to get it in this way than by poring over any case of detached cards.

Another valuable addition might be made to this catalogue which would prove of great service to any who were preparing articles, debates or were desirous of systematically studying any subject. Many books bearing upon the same topic contain equal amounts of the same information and a knowledge of one of them renders the reading of the remainder unprofitable, while in other cases some works are so far advanced that it is not advisable to attempt a perusal of them until those of a more primary nature have been thoroughly mastered. Working with this idea, little reading courses, each of eight to ten books, could be suggested for every subject in the college curriculum. These lists could be included in the catalogue, and from time to time, there might be posted in a conspicuous place the names of books bearing on current events. These and other little devices might be practised to encourage "the library habit."



Of the many practical ideas which the great American stockman, Mr. Gosling, implanted in the minds of the students at the O. A. C. none aroused greater enthusiasm, than his description of the means by which a more thorough knowledge of live stock could be obtained.

#### An Aid to Judging.

The importance of this department in Agriculture needed no emphasis, but Mr. Gosling's vivid description of the openings and opportunities for College Graduates in Chicago, and other packing centres, aroused the interest of all.

The best of colleges can give but an insight into the problem of judging market animals, and the want of internal as well as external examination has often been felt when a class is to be placed. But how can this knowledge be obtained?

Mr. Gosling showed how this could be accomplished and indeed was already being accomplished. In some colleges the students kill and dress every animal which comes to their dining-room, and those who are specializing in animal husbandry gain an invaluable experience, not as butchers but as judges. There are but few taking this branch of agriculture, who are so little interested in their work as to regard this as an imposition, and the advantages more than compensate for the inconvenience and the disagreeable work.

Judging by the animated discussions in many of the college rooms after the meeting, it seems to be the concensus of opinion, that innovations along this line at the O. A. C. would be looked upon with favor by the students.

That there are brilliant prospects for a qualified graduate is apparent; that the present system of gaining this knowledge is not all that can be desired must be admitted, and that the plan outlined by Mr. Gosling is practical has already been proven. The question is a live one and one which may sooner or later have to be considered.

Should not the O. A. C. be in the lead in this matter and thereby maintain her position as one of America's leading Agricultural Colleges?

## Book Reviews.

A book well worth more than a passing glance has lately been issued by the Orange Judd & Co., under the title, "The Cereals of North America." The author is Thos. F. Hunt, Professor of Agronomy at the University of Cornell, and a man thoroughly familiar with the work. All the important features are touched upon, and history and origin, structure and composition, cultural methods and insect foes come in for consideration, and in addition much valuable information of a general nature is given. To the student of Agronomy it is an excellent text book, and to the general farmer it is certainly well calculated to give a more intelligent idea of the extent of growth and national importance of the leading cereal crops of the farm.

To those only passingly acquainted with nature, ferns are interesting, because of their unique structure and frail beauty. To others who are close students, they are more interesting because of their complicated life, habits and relations, yet it is a lamentable fact that so well known as a class they should be so little known individually. Of the common varieties many can distinguish none and none can distinguish many. Nor would a botanically, scientifically constructed key simplify matters; the intricate structure of the plants renders this plan useless. For the popular mind a popularly attractive guide must be conceived. This has been originated and successfully accomplished by Helen Costman in "New England Ferns and Their Allies" which gives engravings of

all the different species, accompanied by popular distinctions and reliable information. Houghton, Mifflin & Co., Boston, \$1.00

While the movement of nature study in the public schools is at its height we are in danger of forgetting the importance of other subjects. It is necessary that the foundations of law and order be understood and that the debt we owe to our ancestors of two thousand years standing be not overlooked. A book admirably designed to preserve this connection is "Famous Men of Rome," in which the history of that glorious empire is given in simple stories of the lives of her history makers. The authors, John Haareu and A. B. Poland, and the University Publishing Co. of New York, have combined to make this story so natural that one unconsciously reads it and unknowingly becomes acquainted with history.

The subject of forestry is one about which many people are wondering and others are investigating. It is hard to find literature which is not technically tiresome nor merely a resume of elementary definitions and nature study ideas. S. B. Green of Minnesota is again to the fore with a work which combines practical farm advice concerning trees with the science of lumber methods. Although treating a great many subjects, some of them not actual forest operations, it carefully illustrates and accurately explains the details of each. The plan is not so

much to cover exhaustively any phase of true forestry as to outline different branches of the profession. What renders it most valuable are the different tabular classifications and the treatment of nursery practise, forest mensuration and forest economics. It is possible that in some of the other chapters the spirit of horticulture has crept but this may be praiseworthy in a book which aims to include Western home forestry with the broader problems of the actual forester. Unley & Sons, New York, \$1.50.



The exchange column of the college magazine has of late been a source of much irony and tribulation. Every editor has different ideals, some of which have been expressed and others which have been plainly shown without expression. Some think that it is a place to deposit sundry clippings gathered from other papers and delayed by the smile they caused in the way to the waste-paper basket, that is a sort of "Punch-bowl." Others use it as a means of welcoming and advertising everything that comes each month, commenting on the color and mechanical make up in size but avoiding any mention of quality. There is still another method which shows attention and thought on the part of the editor. This is the plan of criticizing the material and style of the articles as well at the selection and exposition of illustrations, and leaving all jokes for the local section of the paper. If the department exists for the benefit of the exchanges, it is

from this friendly criticism that they will learn, and if it exists for the training it affords the editor, the careful study and true judgment necessary for a fair criticism will be of infinitely more value to him than the scissors he would otherwise wield.



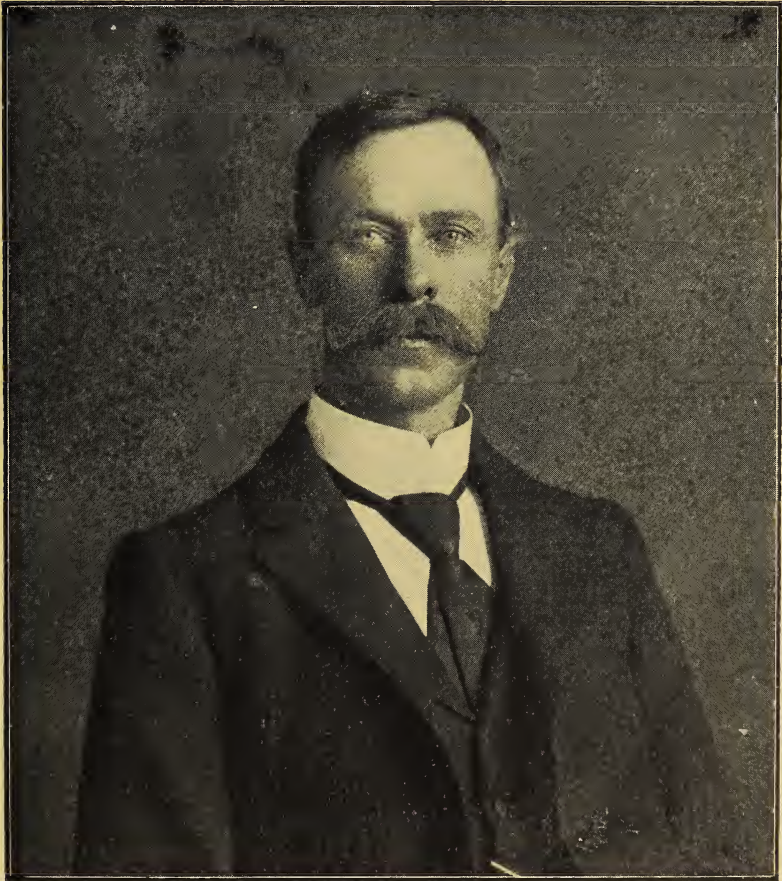
A college paper may do many things, train students, connect alumni, or spread the latest news concerning the particular profession it espouses, but it cannot have a more laudable object with a more gratifying result than a special number recently issued by Queen's. This magazine, illustrative and descriptive of the University publishing it, sets forth clearly and concisely the object and results of each college department. This is valuable both to student and ex-student, enabling the former to show in latter days the home of his college breeding, and showing the latter the effect of evolution and progress in his Alma Mater.



"World Wide" makes its readers world wise. Professional people have not time to search through several papers to find a harassed reporter's idea of what is doing, nor is it necessary when in this busy little weekly appear the best sayings of the greatest authorities, as they appear in the foremost publications of every empire. It is a regular and reliable correspondence course in general information.



# Somewhat Personal.



HON. NELSON MONTEITH, B.S.A  
Minister of Agriculture for Ontario.

**HON. NELSON MONTEITH, B. S. A.,****Third Minister of Agriculture.**

Mr. Nelson Monteith, of Perth County, our new Minister of Agriculture for Ontario, is forty-two years of age. Just in the prime of life, with a splendid record of obstacles overcome and results achieved, he may look forward now to carrying out many ideas which he has cherished while working quietly on his farm at home. Starting first in his township council, then in the county council, through the Warden's chair to the Ontario Legislature, Mr. Monteith has, without ever neglecting his farm operations, proved himself to be well fitted for all the duties of citizenship.

The fact, however, that Mr. Monteith is a graduate of this College interests us most of all. He first heard of this Institution at a political meeting, where one of the candidates took occasion to severely criticise the work being done at the O. A. C. As Mr. Monteith listened to

the scathing criticisms, he became interested and decided that at the very first opportunity he would visit the institution, and if possible, stay long enough to find out if what he heard were true. Entering as a student in 1887, he was at first curious, then interested, and finally infatuated; so that he remained the three years, taking in 1890 the degree of Bachelor of the Science of Agriculture. While at the College, he was associated with such men as Craig, Zavitz, Creelman, Dean, Brodie, Morgan, Hutt, Raynor, Linfield, Lehman and Palmer, men who have since made names for themselves and an enviable record for their Alma Mater.

We wish Mr. Monteith every success in his new field of labors, and we congratulate Mr. Whitney upon his choice of Minister for the most important portfolio of this great agricultural Province.

**HON. JOHN DRYDEN,****Second Minister of Agriculture.**

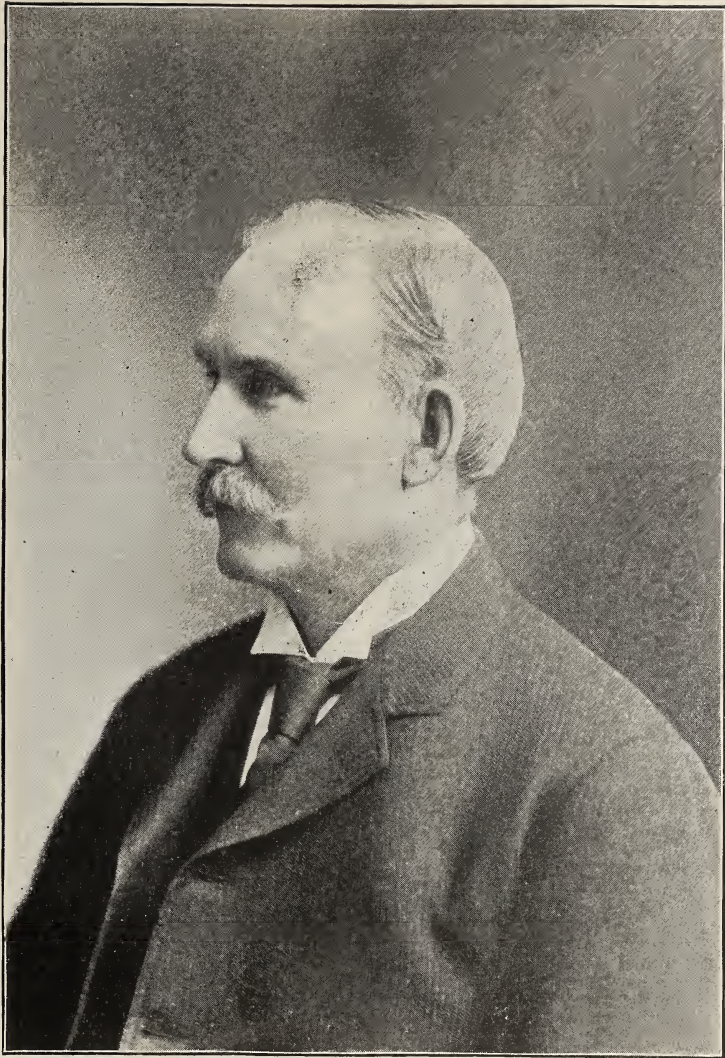
Last week "Honest" John Dryden handed in his resignation to the Lieutenant-Governor of Ontario, thus laying down the Portfolio of Agriculture which he has honored since 1890. It would be hard, indeed, for any one to state in exact terms just what Mr. Dryden has done for the Agriculture of Ontario, but we may be allowed to enumerate a few items.

The Ontario Agricultural College has been broadened, developed, and extended until now it is recognized as one of the very best Institutions of its kind in the world. The Farmers' Institutes have been organized and have grown

until they cover every part of this great Province, carrying the new agriculture to the uttermost part of each riding. The Fall Fairs have been improved and encouraged. Fruit Experiment Stations have been established and Live Stock Associations have been organized and developed until they have become a power in the land. In fact, Ontario has been organized for agriculture, and the farmers have been systematically served as nowhere in the known world.

The Portfolio of Agriculture is probably the hardest of all to fill, for the occupant must not only be a thoroughly practical man and a good farmer, but he





HON. JOHN DRYDEN.

must have the tact and good judgment of a trained lawyer, if he would fulfil properly his duties as a member of the Legislative Council. Mr. Dryden combines a thorough practical knowledge of Canadian agriculture, a keen appreciation of the value of scientific discoveries, good administrative abilities, a desire to employ only first-class men, and a broad, dignified, hopeful outlook of the farmer's calling.

A word or two now as to the man and his life. His father, James Dryden, came from Sunderland, England, in 1820, being at the time a mere boy in his mother's charge. When coming of age, he bought a farm of 200 acres in Ontario county. On this farm John Dryden was born in 1840, and here he has won his reputation as a lover and breeder of fine stock, cattle, horses, and sheep. The son added to the farm, so



that it grew to 420 acres, and the vigorous trees soon suggested the appropriate name of "Maple Shade." Here he has lived his married life, a life of ideal home happiness, and here he and Mrs. Dryden have seen grow up, their family of five daughters and one son. The name Dryden will still be renowned, for, though there is only one boy he has inherited his father's love for live stock, and after a short course at the Agricultural College, is managing the farm under his father's direction.

The agricultural society, the public school, the township council, the village

church, all felt the influence of John Dryden, and he in turn was moulded by them. At last he was chosen in 1879 to represent the constituency in the Legislature, and he has occupied a seat there every year since with the exception of one session.

There may not be much romance in the life of the Hon. Minister of Agriculture, but he has served his country well, he has been honored by his fellow men, he has lived an honorable straight-forward life, and even his political opponents can point to him as an example and an inspiration for the young men of Ontario.



**HON. CHARLES DRURY,**  
**Ontario's First Minister of Agriculture.**

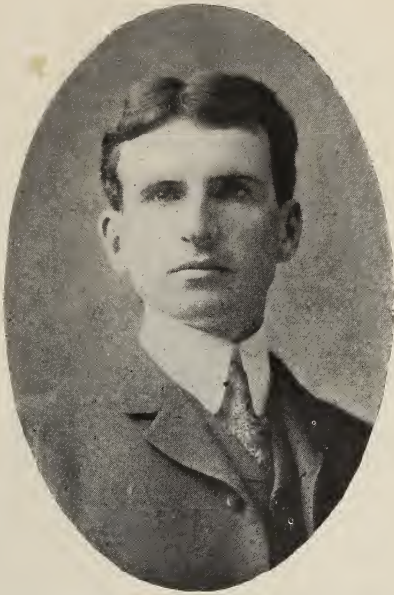


In 1888, when the portfolio of Agriculture was created by Sir Oliver Mowat, Charles Drury was the man selected to fill the position. Born of English parentage in 1843, he was at this time one of the most advanced and intellectual

farmers of Simcoe county. He brought to the position a large experience gained in public affairs, a shrewd, practical mind, administrative ability of the highest order, accompanied by the strictest integrity. But as is often the case, the most worthy are not always the winners, and two years later at the general elections, Mr. Drury was among the defeated candidates.

In 1894 he was appointed Sheriff of Simcoe county, in which position he enjoyed the highest public esteem. Mr. Drury was twice married, their family consisting of one son, E. C. Crury, Ex-President of the Experimental Union, and three daughters, all of whom are living. Mr. Drury was a Methodist in religion, and a warm supporter of all philanthropic work.

The death of the Hon. Chas. Drury, which occurred December last, at the comparatively early age of sixty-one years, removed from this life a man who was highly esteemed by all who knew him, for his ability, integrity, and genial personality, a credit to his vocation and an honor to Ontario.



NORMAN FRANK WILSON, M.P.

First ex-Student elected to Dominion Parliament'

Those who were class-mates of Norman Wilson, '96, will be pleased to learn of the distinguished honor conferred upon him by the electors of Russell County, Ont. Although but 28 years of age, he was elected by the handsome majority of 900 votes.

On "Pewland Farm," Cumberland, Ont., Mr. Wilson is breeding some excellent Shorthorn cattle and Shropshire sheep, and is conducting a well equipped modern farm. There is doubtless a successful future in store for Mr. Wilson, and the REVIEW extends its best wishes.

J. W. HART, who graduated in '84, is among the old boys, who are forging ahead. Mr. Hart was born in Nova Scotia, that province noted for good men, and after securing a B. S. A. with special work in dairying, he went first to Alabama and then to South Carolina. Returning to Ontario in '98, he accepted the position of Supt. of the Eastern Dairy School at Kingston. In 1903 he was appointed head of the Dairy De-

partment in the University of Illinois, and in March he goes to San Paulo, Brazil, as Director of the College of Agriculture, at \$4000 per year. This is the largest College of Agriculture in



J. W. HART.

South America, and we congratulate Mr. Hart on his appointment, believing that he will do credit to the position.

A. M. SOULE, whose name we mentioned in a previous issue, has recently received another advance. He has been appointed Director of the Agricultural Experiment Station of West Virginia. The place vacated by Mr. Soule, that of Director of the State Agricultural Experiment Station of Tennessee, is being filled by H. A. Morgan, who has lately occupied the position of Professor of Entomology at the Agricultural College, Baton Rouge, La. The REVIEW wishes them every success.

Since our last issue one more of our prominent graduates has joined the *silent*



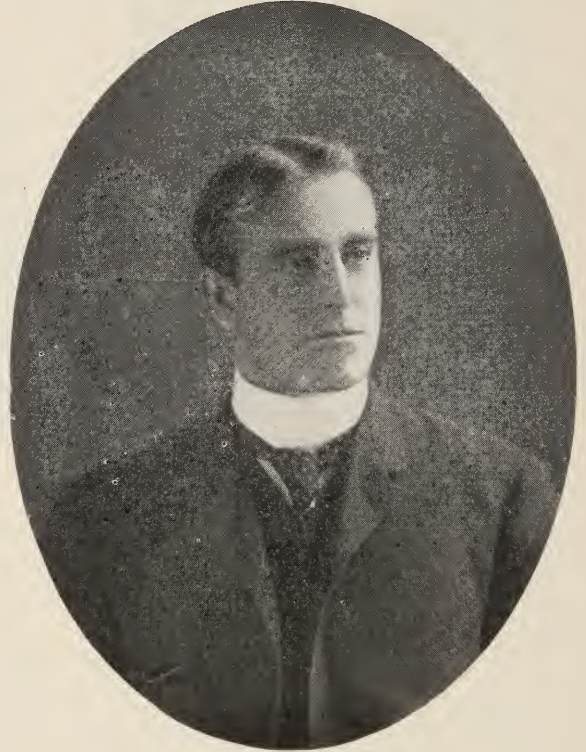
*majority.* These fascinating affairs at the *altar* seem to be the matriculating exercises for a post graduate course, of which many of our ex-students avail themselves. May their instructors be genial and warm hearted, and learn to overlook the many faults and failings, which aided in swelling the revenue of the O. A. C. by giving occasion for the collection of numerous needless *needed* fines.

G. B. McCALLA, '96, is one of the ex-students who seems to be on good terms with a kind Providence. He has certainly accomplished more by coming to Guelph, than has the average student. Upon graduating he was asked to take a position on the staff as assistant in the Physics Department, which he resigned some months after to take charge of a farm in the fertile Niagara district. His latest and probably best move on this world's great checker board was to entice from her happy home Miss Mabel Watt, one of Guelph's most charming and popular girls. That their future may be "just as rosy as a summer day in June," is the wish of the REVIEW staff.

Among the graduates who have chosen to garner from the fertile field of journalism, is F. S. Jacobs, London, Ont. "Jake" as he was better known by the boys, was one of that somewhat illustrious class, which graduated in the spring of '01. On securing his B. S. A. he accepted a position on the staff of "The Farmer's Advocate," for which he has industriously worked ever since. Recognizing ability and worth, the management of the Advocate have advanced Mr. Jacobs to the position of Editor of

the Western Edition with headquarters at Winnipeg. This is an important position for a young man but we believe Mr. Jacobs is well qualified, and will do credit to himself, as well as the Advocate.

Another man who is climbing skyward on this literary ladder is W. D.



F. S. JACOBS, B.S.A.

Albright. He took the two year's course with the class of '05, and since, has done excellent work as editor of the "Maritime Farmer," Sussex, N. B. Being offered the position vacated by Mr. Jacobs on the staff of *The Farmer's Advocate*, Mr. Albright severed his connection with the "Farmer" and accepted the "Advocate's" offer. Albright is a young man for whom difficulties have no terror. He deserves to succeed and certainly will.



## College Life.

**T**HE officers in charge of the Literary Society held their first Union meeting, Jan. 21st. Not only literary but social talent of a kind that could be participated in by all formed part of the program. That our union meetings are of no mean order is evidenced by the fact that at such meetings Massey Hall or the large gymnasium is always filled by an attentive audience. The character of the last program called for the gymnasium. Mr. F. M. Logan,

Address—Professor M. Cumming.

Solo—Mr. R. M. Bruce.

The remaining numbers consisted of many duets carried on simultaneously, and though to an onlooker the noise was not particularly musical yet everyone seemed to thoroughly enjoy it, perhaps from the fact that each one was taking part in the performance. The promenading is a new feature in our Union Lits., but seems to be a happy and welcome diversion. The next Union



Sophomores on Field Excursion

President of the Society, opened the meeting with a short and appropriate address. The rest of the program consisted of—

Instrumental—Miss Robertson.

Address—President Creelman.

Japanese Sword Dance—Mr. B. R. Nag Tany.

Solo—Mr. R. M. Bruce.

Reading—Le Vieux Temps, Drummond. Miss McDunnough.

Presentation to R. J. Deachman, retiring editor of REVIEW.

meeting, which is to be purely literary, will be held February 18th.

The students of the O. A. C. and Macdonald Institute were "At Home" to their friends on the evening of Jan. 27th. The conversazione was held in the spacious corridors and elegant parlors of the Hall. The building needed no decorations, but was made comfortable and home like by the use of lounges, cushions, draperies and a profusion of flowers, palms, and cozy corners.

1905  
J. C. [unclear]



The guests were welcomed in the reception room by President and Mrs. Creelman, Mrs. Watson, Mrs. Fuller and Miss Kennedy.

It was a scene of joyousness and gaiety that followed. Thain's orchestra was situated in the centre corridor and flooded the halls with its music. Happy smiles, winsome couples and useful cozy corners were everywhere. The guests quickly became acquainted and seemed to fill the moments with thorough enjoyment.

The program given during the evening was of a character highly appreciated. The gymnasium was filled at each selection and the artists certainly merited the applause of the large audience. A glance at the numbers did not show any which one would wish to miss. The features of the program were the violin selections by Mr. Weir, the inimitable drollery and

fun of Mr. Harry Bennett, the solos by Mrs. McIvor-Graig and Mr. DeCoriolis, the duets of Mr. and Miss Kellsy and Miss Springer, and the grand closing chorus of the students, under the direction of Mr. R. W. Mills.

Ample refreshments were served during the evening in the spacious dining hall, which was tastefully decorated with plants and cut flowers. The cooling drinks, the delicious ice cream, and the home-like appearance of the tables were certainly inviting.

About seven hundred guests were present at the function, including many of Guelph's prominent citizens, as well as friends from a distance. The representatives from sister (and brother) colleges included:

Mr. Hutton and Miss Ward, Toronto Varsity; Mr. Riddell, Victoria; Mr.



Schinler, Woodstock ; Mr. Landon, Western University, London ; Mr. T. T. Hodgson, Queen's, Kingston ; Miss Kelly and Miss Mitchell, Ontario Ladies' College, Whitby.

made by the boys' verdict, was a thoroughly enjoyable occasion. Not only Mrs. Zavitz, but Mrs. Day, Mrs. Graham, Mrs. Reed, Mrs. Lochhead and other ladies acted as hostesses, and added



Life in the Residence at the O. A. C.

Much credit of the success of the affair is due to the efforts of President Creelman, Miss Fuller and Miss Kennedy in assisting the students in making their home exceptionally attractive for the occasion. With the help of Mr. Hunt's hothouse beauties, with cheerful fires in the grates, the lively music, and the animated faces of all, we trust that the moments quickly sped to "God Save the King."

In the series of At Homes given by the ladies of the Staff, it was up to the third year on the evening of Feb. 1st. The reception took place at the home of Mrs. Professor Zavitz, and if judgement is to

to the fun of the evening by their contributions of such forms of entertainment as Professors Lochhead, Graham, Reynolds, Dr. Reed and other scientific subjects. President and Mrs. Creelman were also present. Games, new and unique, and, (in the college vocabulary) a pleasant little "feed," all too quickly brought the evening to a close.

On Jan. 30th the O. A. C. lost a valuable member of the staff in the person of Professor Cumming, who has left his Alma Mater, to take up his work as President of the Agricultural College at Truro, Nova Scotia. We were fortunate enough to retain Professor Cumming



during our short course here, though he received his appointment before Christmas. Mr. Cumming has acted as assistant Professor of Agriculture at the O. A. C. for four years, and during that time has proved himself not only thoroughly practical in his work, but possessed of that culture and refinement so necessary to a public man. Those with whom he came in immediate contact and in fact all the students and professors regret his departure, and will miss his help both in and out of the class room. The regret, however, is for ourselves, for Professor Cumming is entering a field similar to the beginning of the O. A. C., but with the example and experience of this and similar institutions behind him, and a lack of much of that prejudice against which this college had to struggle. He has before him then, work and opportunities of which any man might be proud.

To show something of the esteem in which he was held by his fellow officers, Professor Cumming was asked to meet the staff at the home of Dr. Reed, and was presented by these gentlemen with

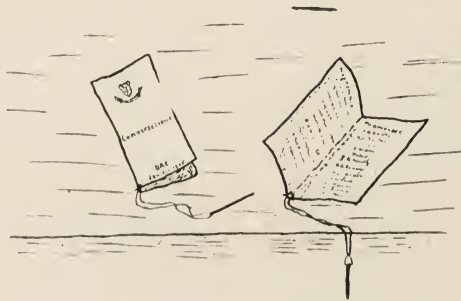
an address and a slight remembrance in the form of a gold watch.

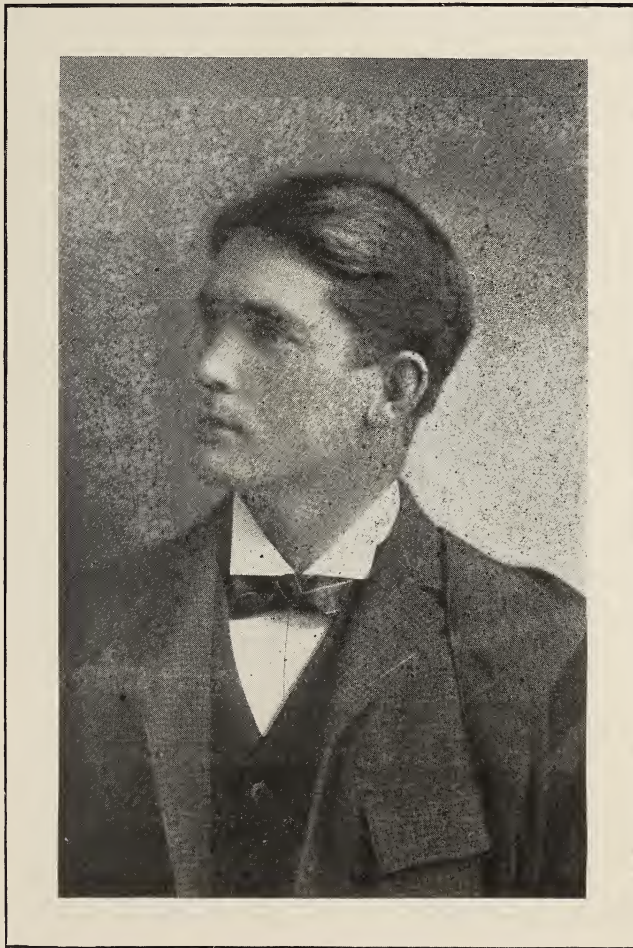
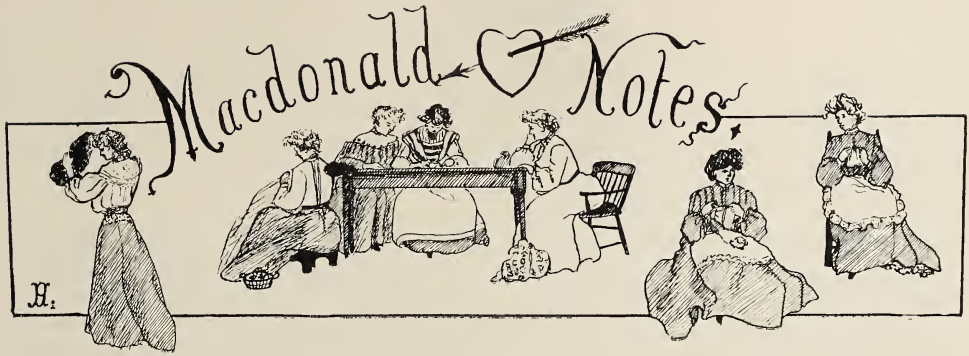
The senior year students, with whom Professor Cumming has been most closely associated, entertained him at their evening meal in the College dining hall on the evening of Jan. 27th. After the usual bill of fare, toasts were proposed by various members of the class, and in proposing the toast to the guest, President Wade, on behalf of his year, presented him with a fine English saddle.

Professor Cumming replied in a happy manner and the National Anthem closed the pleasant event.

Three members of our staff have been advanced from the position of Demonstrators to that of Lecturers.

Mr. T. D. Jarvis, B. S. A., who has been Professor Lochhead's assistant for some years, is now Lecturer in Biology. Mr. W. H. Day, B. A., becomes lecturer in Physics, and Mr. J. Buchanan, B.S.A., lecturer in Field Husbandry, under Professor Zavitz. The appointment as Professor Cumming's successor will likely be made in the near future.





SAMUEL B. MCCREEDY, B.A., WHO, AS PROFESSOR OF NATURE STUDY,  
BRINGS TO THE MACDONALD INSTITUTE STAFF WIDE  
EXPERIENCE AND HEARTY ENTHUSIASM.

## Domestic Art.

In viewing the progress and growth of our country during the past century, it is interesting to note the strides that have been taken in the educational world. The seemingly insurmountable barriers have one by one been broken down, and the whole system of education has been revolutionized.

Many and varied have been the theories presented from time to time, each one no doubt fulfilling its part in the whole. The less important ones have passed into oblivion, while the more vital have remained with us. Today, as we still see confronting us the great problems which inevitably rise along the line of so great a scheme, we cannot but feel thankful for the steps onward and upward during the century just ended.

Let us glance backward from our present standpoint to the days when woman's place was essentially in the home, sitting quietly by the spinning-wheel, or weaving the material to be made into garments; when education meant chiefly the development of the domestic side of her nature. From that point we will consider briefly the changes that have taken place. Educational avenues that had been devised for men alone were thrown open to women. It was deemed advisable to develop both men and women along the same lines. This experiment, while excellent in many ways, did not in all points prove a success.

Accompanying this educational movement, we find great changes in the commercial world. New inventions constantly lessened hand labor, thereby removing the necessity of many of the domestic crafts and industries. Education,

therefore, naturally turned more to the development of the higher mental and artistic states of consciousness. This step did much for the progress and growth of women, but it left much still to be gained, inasmuch as there was a tendency for the pendulum to swing to an extreme, and the domestic side was somewhat neglected.

Many graduates of schools and colleges, where the domestic side of their natures was not developed, returned to their homes only to find disappointment awaiting them; no one in sympathy with them, and they out of harmony with their environment. What was the result? A return to college life in some advanced form. It was once said of a college graduate that "there was one thing she could boil without burning, and that was water." This seems an exaggeration, but unfortunately there have been many college graduates, in days not long past, whose knowledge of the duties of home life was woefully deficient. Fortunately that state of affairs was realized by educators, and little by little the domestic arts and sciences are being introduced into the school curricula.

The physical and psychological powers of the student should be developed along with the mental; not one to the exclusion of the other, but working together, for the richest and fullest development. Therefore, by instruction in the domestic arts, it is the educators' idea to fit girls not only to hold a social position as graduates of schools and colleges, but to meet the needs and emergencies of daily life in the home. Charity and settlement workers too often testify to the inadequate preparation of the laboring classes,



also, to meet domestic needs. Home life the majority of them are now living, yet how have they been prepared? How are we preparing the children of to-day to better their conditions?

Doubtless the pioneers of domestic art and science have had uphill work, as

of almost every girl. If this is encouraged and wisely directed she is soon interested in the making of articles for the doll, and from that point is gradually led to the advanced work of making her own dresses and hats. If a glance at some of the costumes of to-day worn by the people



Beauties of our Canadian Winter.

pioneer workers always have, but their efforts have been blessed, and conditions are being improved through the opportunities for domestic education now open to the public. Will not our girls be happier and make better and more helpful sisters, wives and mothers if their early training develops their hands and hearts in the thoughtful performance of home duties?

To learn to sew seems a natural instinct

who throng our public thoroughfares gives us a clue to the taste and individual feeling in color, form, and textile combination, then well may we say that domestic art has a tremendous responsibility. Dress, with its suitability to the wearer, and the occasion, has become an art with those who are studying the matter.

The need of developing the artistic with the practical was felt in 1854, when

Mrs. Merrifield in her little book, "Dress as a Fine Art," expressed these sentiments: "There can be no true beauty without health, and how can we hope to secure health if we are ignorant of the means of promoting it, or if we violate its precepts by adopting absurd and pernicious fashions? Surely it is not too much to hope that dressmakers will hereafter attend the schools of design to study the human form, and thence learn to appreciate its beauties and to clothe it with appropriate dress, calculated to display its beauties to the greatest advantage and conceal its defects."

Mrs. Merrifield spoke wisely, and to-day we can look upon as accomplished what was then merely suggested. Until people are trained to appreciate what colors are becoming to certain complexions and coloring of hair, and what styles of line add to or detract from the figure, we can hope for little improvement. Many people know at once when they do or do not like a hat or gown, but why, they know not. Domestic art makes these points clear, one of its aims being to raise all branches of the work to as high an artistic standard as possible.

To many, the value of art and design in connection with such practical subjects may not be understood, and the question is frequently asked, "What have drawing and color work to do with dress-making and millinery?" One might almost reply to such a query by saying, "Everything," for of what value are good work and costly material if the combinations of line and color are atrocious? Of what value the costume if unbecoming to the wearer? And how is the student to know and understand such points as these if the subject is never presented to her? She must have thorough and systematic training, step by step. It is the daily training of the hand in drawing and sketching, and of the eye to a recognition of pleasing proportions and good color combinations, that opens the mind to a new field of thought and observation. The student is stimulated to a desire beyond that of commonplace creations in color and line. Originality has been made active, and as an outcome, designs and color schemes

are thought out artistically, and produced on paper for the criticism of the instructor before the costumes are begun. The advantages over the old method, of accepting without question other people's ideas by entire dependence of fashion magazines, will be seen at a glance. Every means of self-expression is an added power, and the ability to make and design or appreciate artistic costume is proof of the value of art training in this work.

The blackboard has proved to be a helpful medium through which to express one's thoughts. It trains the mind to a broader conception of things in general and gives a dexterity and freedom difficult to acquire by means of pencil or brush.

Practical instruction is given to the students, and criticisms are made of hats on different figures. With these, explanations are given as to why they are becoming, or otherwise, from an artistic standpoint.

Throughout the course of domestic art, the students are kept in touch with the natural sources and manufacture of articles and materials they use; visits are made to the factories, and lectures and stereopticon views of processes aid in impressing the student mind.

The art needlework carries the student into the intricacies of stitches, and their great possibility from a decorative standpoint. Drawing, color and design are also important factors in this branch of work.

Basket weaving, a revival of one of our old industries, has proved itself to be most helpful in the training of the hand to deft and accurate manipulation of unwieldy materials.

The correlation of domestic art with the other studies of the curriculum is benefitting, slowly perhaps, yet surely, those who have come under its influence. Let us hope that long ere the bells peal out the advent of another century, the result of our united effort to "help the other fellow" will have been more fully realized, and all that domestic art stands for, morally, mentally and physically, may have made its impression on the world at large.

GRACE ROBERTS.



## Athletics.

ONCE more our rink has become the centre of interest to those who take an interest in college sport. Lively enthusiasm, if not the best of scientific hockey, is a striking feature of all the games played between the teams from the different years. The struggle for the hockey trophy is unusually keen and the result more uncertain than usual, so that the enthusiasm of the players and their supporters is rapidly climbing to the highest notch, and as each successive match is played

themselves. They had their laurels to win and they played like men determined to exert every energy toward the desired end. The second year men felt that they must not incur the disgrace of being beaten by a team from the freshman year, and played with a grim determination to succeed. The result however 3-0 for the first year was a surprise and opened their eyes to the fact that the team from the first year would be formidable competitors for the trophy. The teams lined up as follows :



Open Air Hockey.

the expectations of each class in the college fluctuate like the Wall St. money market.

### SECOND YEAR VS. FIRST YEAR.

On Jan. 21st, the first game of the series was played. Especial interest was lent to this game by the fact that the first year team were on the ice for their first match, and everybody was anxious to see how they would conduct them-

### SECOND YEAR.

Jacobs.	<i>Goal.</i>
Brodrick.	<i>Point.</i>
Clark.	<i>Cover Point.</i>
Greenshields.	<i>Rover.</i>
Fairbairn.	<i>Centre.</i>
Montgomery.	<i>Rt. Wing.</i>
McBeath.	<i>Left Wing.</i>

### FIRST YEAR.

Shepherd.
Johnston.
Russell.
Smith.
Foster.
Davidson.
Hodson.

### FOURTH YEAR VS. THIRD YEAR.

On Jan. 25th, those two old-time rivals met for the first time this season to match their skill and strength. The contest



was keen and indecisive and when time was called both teams had secured two goals. It was a well-contested game, neither team seemed to have any advantage, and both were so confident of victory that it was decided to play twenty minutes more. During this extra time the third year showed their superior staying powers and won by a score of 5-2.

FOURTH YEAR.		THIRD YEAR.
Leitch.	<i>Goal.</i>	Weir.
Barber.	<i>Point.</i>	Monroe.
Baker.	<i>Cover Point.</i>	MacMillan.
Brereton.	<i>Rover.</i>	Bracken.
Lennox.		Duncan.
Rothwell,	<i>Forwards.</i>	Mulloy.
Williams.		Scott.

#### THIRD YEAR VS. FIRST YEAR.

On Jan. 28th, the third year sprang a nine day's wonder on the student body by defeating the first year by a score of 5-2. The third year played from beginning to end with more than their usual vim, and so completely rattled their opponents by their aggressive play that they carried everything before them. This was a game of superior speed and skill against bull-dog tenacity and hard work, and hard work won.

The teams lined up as follows :

THIRD YEAR.		FIRST YEAR.
Weir.	<i>Goal.</i>	Shepherd.
Monroe.	<i>Point.</i>	Johnston.
MacMillan.	<i>Cover Point.</i>	Russell.
Bracken.	<i>Rover.</i>	Smith.
Scott.	<i>Centre Forward.</i>	Foster.
Duncan.	<i>Right Forward.</i>	Davidson.
Colwell.	<i>Left Forward.</i>	Hodson.

#### FOURTH YEAR VS. SECOND YEAR.

Feb. 1st placed a victory to the credit of the Sophomores. Here they were pitted against the fourth year, who have probably the heaviest team in the college. The re-arrangement of the second year team first tried in this game certainly proved the wisdom and good judgment of their captain : they showed better combination and played more effec-

tively than formerly and, as the score 7-1 in their favor would indicate, outclassed their opponents in every respect.

The following men represented the two years :

FOURTH YEAR.		SECOND YEAR.
Leitch.	<i>Goal.</i>	Montgomery.
McFayden.	<i>Point.</i>	Clowes.
Baker.	<i>Cover Point.</i>	Fairbairn.
Brereton.	<i>Rover.</i>	Clark.
McKillican.	<i>Right Forward.</i>	Brodrick.
Mayberry.	<i>Centre Forward.</i>	Greenshields.
Lennox.	<i>Left Forward.</i>	McBeath.

#### FOURTH YEAR VS. FIRST YEAR.

On Feb. 4th our sedate seniors tried conclusions with the freshmen. Here we had the spectacle of weight and strength striving to uphold the honor of their class against more nimble and skilful opponents. The first year won by a score of 4-0, which, circumstances considered, was by no means a large score. The teams were :

FOURTH YEAR.		FIRST YEAR.
Leitch.	<i>Goal.</i>	Shepherd.
McFayden.	<i>Point.</i>	Johnston.
Baker.	<i>Cover Point.</i>	Russell.
Brereton.	<i>Rover.</i>	Smith.
Hoodless.	<i>Centre Forward.</i>	Foster.
Mayberry.	<i>Right Forward.</i>	Hodson.
Lennox.	<i>Left Forward.</i>	Galbraith.

#### THIRD YEAR VS. SECOND YEAR.

Perhaps the keenest and closest game of the season was played on Feb. 4th, between teams from the third and second years. Both teams had old scores to settle and on this game to a great extent depended the winning of the championship. Realizing this every man strained every nerve and muscle, and from beginning to end the game was most exciting. The third year defence however proved impregnable and the game resulted in a victory for the Juniors by a score of 3-1.

The following men constituted the line-up :

THIRD YEAR.

Weir. *Goal.*  
 Monroe. *Point.*  
 MacMillan. *Cover Point.*  
 Bracken. *Rover.*  
 Scott. *Centre Forward.*  
 Duncan. *Right Forward*  
 Colwell. *Left Forward.*

SECOND YEAR.

Montgomery.  
 Clowes.  
 Fairbairn.  
 Clark.  
 Greenshields.  
 Brodrick.  
 McBeath.

FOURTH YEAR VS. THIRD YEAR.

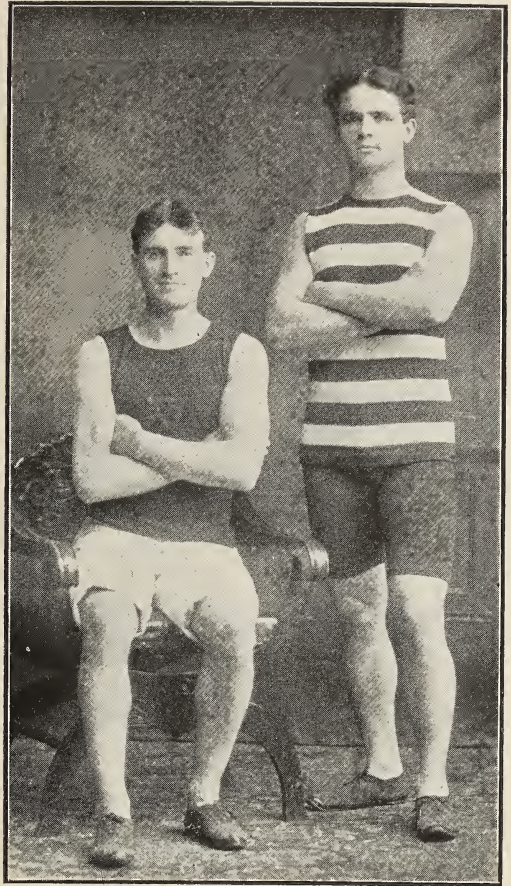
On Wednesday, Feb. 8th, the third and fourth years played their farewell game of hockey. For four years the Seniors have striven with varying success for the championship not only at hockey but also on the football field. And now as the hockey series is drawing to a close, they participate probably for the last time in our inter-year games. Though the Seniors felt that they were out of the competition for the trophy this year, they kept up the sportsman-like traditions of their class and played their last losing game in the same spirit as the old champions of '02 and '03. The game was entirely free from any rough play but as in previous games the Juniors defence played their old steady game and won the day by a score of 4-2. The teams were practically the same as played in former games of the series.

THIRD YEAR VS. FIRST YEAR.

A close and exciting game was played between the third and first years on Saturday, Feb. 11th. The fate of the championship hung in the balance. Should the third win this game, the trophy would be theirs for the season. The first year however were determined to wrest it from their opponents if it were possible to do so and played their best. The teams were well matched, the third year having a stronger defence, while the first year excelled in speed. Until the last few minutes the result was very uncertain but the third year defence lost their nerve at a critical moment and lost the game, the score being 6-4 for the first year.



In this number appears a cut of one of the best athletes in the college. Ever since 'Jack' came to the O. A. C., he



A. C. Cameron, U.C. J. Bracken, O.A.C.  
 Winners of the Double Sculls, Y.M.C.A. Conference  
 Lakeside, June, 1903.

has been a leader in all kinds of manly sport, standing high on the exam. lists as well as taking an active interest in all other branches of college life. He is a man who believes in showing his colors wherever he goes. Last summer he attended the student conference at Lakeside and won the single sculls, and in company with another Canadian, also shown in the cut, won the double sculls in competition with some of the best oarsmen of the Central Northern States. Jack says that Lakeside is a fine place to spend a holiday, and would advise any student within easy reach of this now famous annual student conference to strain a point in order to be present this year.

## Locals.

Greenshields—(in horticulture,) “I can’t see why we have to learn all about beets unless it is to teach us to beware of ‘dead-beats.’”

Over-heard in car—

“I say, old chap, I am awfully lucky, don’t you know? All the Macdonald girls smile on me.”

“You certainly are lucky. Some girls would laugh outright at you.”

Fernandez—“Do they grow peeled potatoes in Peel County?”

Rose—after asking 15 questions, “Why is a crow?”

Prof.—“Caws.”

Young—“Have any of the Geologists any idea of how the earth will end?”

Prof. Jackson—“No! they are not anxious to find out.”

Goulding—“Didn’t horses used to climb trees long ago with those ‘spurs’ on their legs?”

Professor—“Yes, they do now since automobiles came into use.”

Professor—“What effect has oxygen had on the earth?”

A. B. Smith—“Don’t know.”

Professor—“Oh! I forgot. You are not interested in such things. Perhaps you know what hockey pucks are made of?”

Smith—“Rubber!”

Wade, (shovelling rink)—“You bet

your sweet life, we fellows are making history to-day.”

Recently one of the students was examining his plants in the propogating house. He was so overcome by the presence of some of the Macdonald girls, that he backed into the tank to hide his confusion. Although he was not half seas over, he was more than half ways under, causing a ripple on the water, which produced more than a ripple of laughter from those present. Fortunately he was a good navigator and landed without difficulty. The tank has since been christened Hudson’s Straits.

### PROSPECTS OF HOCKEY TEAMS.

The Fourth Year team are strongly backed by their year who advise them to Wade right into the game. They got away to a bad start but hope to let fewer games Leitch through in future. They play a first-class combination especially when Lennox the puck across to Macfadin’ away down the rink. They are a doughy crowd and with Baker to knead them into shape Mayberry the other teams completely. They have slain several men and relying on their old stalwart Maykillagin.

The Third Year never lose Hart and their goal-keeper has grown Weir-y in well-doing. There is some Scott-ish blood in their veins, and they talk gleefully of Bracken sticks and of Mac-Millin the other fellows. Their supporters line the fence betting freely, and are known as the Mun-ro. They can cheer and



Col-well and when sarcastically asked who can score for them they enthusiastically reply Dun-can.

The Second Year have an unusually strong aggregation and expect to make the rest Montie up to quite an extent before the season is brought to a Clowes. That Mac-Beith a good man goes without saying. They are so swift they Fairburn the ice up and Greenshields the goal so well that few games are scored. If they cannot do the the thing up brown they at least do it in a C-P-ia color and so spread their fame a-Broad.

The First Year naturally expect to smash everything to Smith-er-een's, especially when Davids-on and Hods-on and Johns-on. They claim that any goal which gets past their Sheppherd must come like a thief in the night. Hopes of success are Fostered in the minds of all and they expect to make the others Russell for the championship.

Prof. Day—"The great drawback with this style of cutting-box, is the fact that so many have been killed in using it."

Voice—"That would be all right if one's relatives could be induced to feed it."

Fair Maiden—"It seems too bad that our theatre managers do not give us something really good this winter. We see the same thing week after week."

Duke—"Yes and it gets 'weaker' and weaker."

Resident Master, (before conversat)—  
"Remember that faint heart ne'er won fair lady.

Chorus—"What! Frank Hart ne'er won fair lady. Poor fellow!

Echoes from conversat—

So freezy goes the hat without a crown.

One stair bestrewed with the remains of garments is sufficient to make more than one stare.

One hall was not sufficient to hold the coats, nor were two hauls sufficient to get them away. Even a pull with the authorities availed but little.

"'Twenty,'" after a forty minute wait on the experimental steps for the Bard, welcomed the foeman at 7 a. m. with, "What time does yer fellers git up anyway?"

The early bird catches the worm; the early experimenter catches the cold and the early laundryman catches the water.

The Sophomores certainly have the interests of the college at heart, as instanced by the many and varied petitions presented in the course of their Practical English Classes. Unfortunately the official record of these petitions has been lost, but the second hand version of one of especial interest is something as follows:—

Whereas the present open air rink ranks rankest of Ontario's rank rinks:

Whereas the aforesaid rink does not afford much sport except the sport made of it by outsiders:

Whereas the O. A. C. cannot "cut any ice" in O. H. A. circles:

Whereas the open door policy in the stable, proves that a draught on the cows is not so profitable as a draft on a bank from a financial point of view:

Whereas the present rink is not healthy:

Whereas any open air rink is difficult to clean:

We therefore most humbly request

your consideration of the advisability of including in your estimates, a sum for the building of a new covered rink.

(Signed) E. P. CUNION.

After the presentation of the petition, a prolonged discussion followed in answer to several questions of the premier pro tem.

The estimated cost was :

Material,.....	\$1,935.11.
Labor, (student) .....	2.14.
Fixtures .....	102.47.

Hot Air would be furnished by the spectators.

No definite figures were obtainable bearing on the cost of ice, which it was thought could be imported from Mexico, or else manufactured by the college ice machine.

The students would undertake to defray part of the cost by collecting all of the checks seen on the ice this winter and by looking out for draughts.

In addition, the sum of \$11.91 had already been collected by extensive canvassing among students and ex-students.

All were against the proposal to hand the matter over to a company, owing to the practice of "watering the stock," which prevails at the O. A. C. and also because the interest in hockey would not pay the interest on borrowed capital.

Many considered that it should be built on the grounds of health, but it was finally decided that it ought to be built on the grounds of the O. A. C.

It was further pointed out that the building could be used in summer as a place in which visitors could be nourished, and also as a shelter for students on hot or rainy working days. The Premier promised to consider the matter if there was any timber left after the new cabinet was constructed.

*Continued on page xvii, Advertising.*



**Dunlop**  
**Solid Rubber**  
**Carriage**  
**Tires**

*This mark on every genuine*  *Dunlop Carriage Tire*

**Make a carriage more comfortable to ride in. Worth their cost in the wear and tear they save. Lasts as long as iron rims on all ordinary roads.**

---

**Dunlop Tire Co.**  
LIMITED  
**TORONTO**

ST JOHN VANCOUVER      MONTREAL WINNIPEG

400

# GETTING THE FULL VALUE OF A COW



If you have cows you should have a Cream Separator. Experience teaches that it is the only way to get the full profit out of your milk. So it is not a question of "Do I require a Separator?" but "Which Separator shall I buy?" Ofcourse you want the best: but all makers claim that distinction for theirs. We not only claim but prove and Guarantee the merits of the Empire Cream Separator.

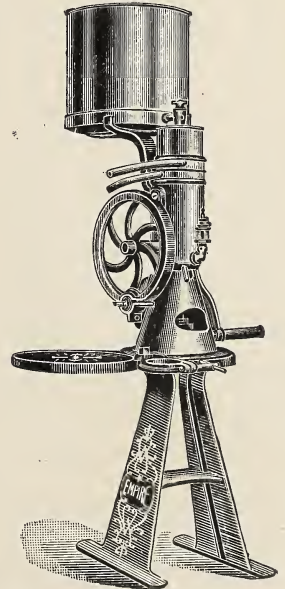
The Bowl is the most important factor in a Cream Separator. The efficiency of the machine depends upon the construction of the Bowl. The

## EMPIRE CREAM SEPARATOR

Bowl consists of a few simple parts, thus doing away with a complicated device which goes easily out of balance. The Empire is also a light-weight bowl, requiring much less energy to turn than any of the other makes. The Empire Bowl is easily kept thoroughly clean as there are no corners or crevices in which the milk can accumulate. The inside construction of an Empire Bowl is such as to extract all the butter fat from the milk.



We do not ask you to buy until you are thoroughly satisfied that the EMPIRE is the best Separator on the market. We shall be glad to demonstrate this to you. You should have a copy of our Catalogue; free to any address. Write for one.



*The*  
**EMPIRE CREAM  
SEPARATOR CO.**

**28 Wellington St., West, Toronto, Canada**



The interest of the public in the REVIEW, and the promptness of the Business Manager in remedying mistakes, is illustrated by the following actual correspondence :

*My Dear LeDrew :*

The last REVIEW,  
Has not come through  
To C. H. Shuh,  
Of Waterloo,  
Who has paid his due.  
Yours truly,  
C. H. SHUH.

REPLY :

*Dear Mr. Shuh :*

We learn from you  
That your REVIEW  
Did not get through  
To Waterloo.  
It is very true  
You have paid your due,  
And the last REVIEW  
Should have gone to you ;  
So now anew,  
Will hot pursue  
Another REVIEW.

H. H. LEDREW.

Tailor—"I can sew the button on for you, or would you sooner take it and sew it on yourself?"

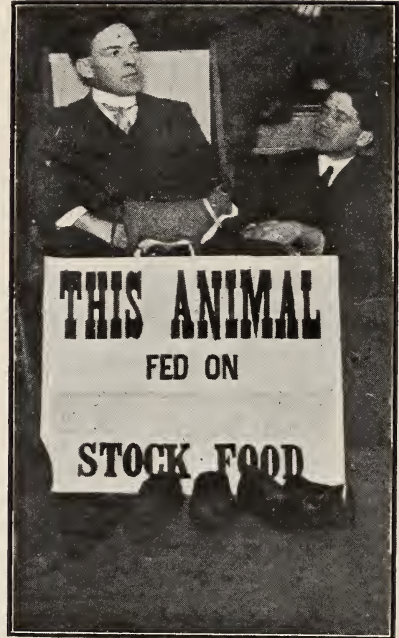
Bracker—"I would much rather sew it on my coat."

What would you do with an inveterate *butter-in*?

It ought to be *bred-out* of him.

Recently the victim of a practical joke performed several experiments with the water which had been substituted in his acid bottles. When the trick was discovered, it was seen that a base action

will produce considerable acidity in the temper.



Student, (to visitor)—"That man ahead of us has a most wonderful history."

Visitor—"Well! Well! How interesting? Are you sure its true?"

Student—"Yes, he has Vol. III of McCauley's under his arm."

That the students should *drill* regularly is indisputable. By so doing they *cultivate* a good impression with the authorities and avoid *harrowing* the mind of the President.

The unknown poet from the first year gets in a Maud Muller parody, as follows :

"Jake Muller on a summer's day raked the meadow sweet with hay. The mule with which he raked the hay was

*Continued on page xxiv, Advertising.*



# London Fence

## THOR, (Greek God of Thunder and Friend of Man.) To the Farmers of Canada.

These coiled steel strands of famous "London" Wire, Secured to end posts anchored firm as earth herself, And tightened independently, do perfectly to hill or dale conform. These are the grinders, in their great strength and resilience Doth mostly lie the endurance of the fence.

In this machine, you take, but purchase only "London" spring steel wire—coiled, not kinked, (warranted by the makers.) These strands or girders, each to each, so solidly secured by this machine, With tough steel wire automatically prepared or spooled, Thereby produce a barrier so perfect that well do ye exclaim, "Eureka!"

"This London Fence Machine no equal hath on this broad earth, That doth in speed or perfect product bear comparison."

**London Fence Machine Co**  
LIMITED.  
LONDON AND CLEVELAND.

Western Agents—A. E. Hinds & Co., 602 Main St., Winnipeg.  
Quebec and East. Ont.—F. Phelps & Smith, 69 McGill, Montreal.  
Maritime Agent—J. W. Boulter, Summer side, P. E. I.



# Carnefac

## Gives Quick and Permanent

# Results

To the Carnefac Stock Food Co.:

Dear Sirs—Enclose please find balance due on "1 Pail" Carnefac, which duly arrived here on Dec. 24th, 1904. Must say that Carnefac has proven very satisfactory. As a matter of fact, do not think I shall ever be without it again. I have recommended it and you shall certainly hear from me when this pail is empty. Yours truly,

(Signed) JEFFREY MAUBOURQUETTE.

**T**HE above is but a sample of letters we receive every day from farmers who have had 25 lbs of Carnefac on trial. A few points in these are worthy of especial notice, namely, the short-time use, the small quantity, the trifling cost, and the satisfactory results. If any of these points concern you in the feeding of your stock a few weeks use of Carnefac will satisfy you that it does all claimed for it. We would particularly invite you to try it, if you have any stock seriously out of condition.

# The Carnefac Stock Food Co.

## WINNIPEG

## TORONTO

### IMPROVE YOUR STOCK and SAVE HAY and OATS by using International Stock Food

THIS FOOD, "THREE FEEDS FOR ONE CENT," is a purely vegetable, medicinal preparation, composed of nature's remedies such as roots, herbs, bark, seeds, etc. It is entirely harmless, even if taken into the human system, and is fed to stock in small quantities in addition to the regular grain ration in order to promote digestion and a rapid assimilation.

## FREE

A \$3 000 Stock Book and Colored Lithograph of Dan Patch 1-36 1-1.

We will pay you \$10 if Book and Lithograph are not as described.

The cover of the Stock Book is a beautiful live stock picture printed in six brilliant colors. Book is 9 1/2 inches long by 6 1/2 inches wide. It cost us over \$3,000 to produce the engravings. It contains an up-to-date veterinary department, which will save any farmer or stockman hundreds

of dollars, as it treats of the ordinary diseases to which stock are subject, and tells how to cure them. The large colored lithograph of Dan Patch is 2 feet 1 1/4 inches long by 9 inches wide, printed in six colors. It shows the International Stock Company's model barn in the background, and is worthy of a place in any home.

Write to us to-day and answer the following questions:

1st—Name this paper.

2nd—How much stock have you?

Capital Paid in  
\$2,000,000

## International Stock Food Co.

Largest Stock Food  
Company in the World

Toronto, Canada.

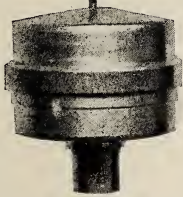


# “Melotte”

## Cream Separators

Have 4 Important Advantages

1. Frictionless, Self-Balancing Bowl.
2. Wholly Enclosed, Self-Oiling Gears.
3. Ball Bearings, turning in Oil.
4. Wide-Open Bowl, free from Tubes.



Melotte Self-Balancing  
Self-Emptying Bowl

The result is that IN EVERY DAY USE they are turned up to speed and kept clean, producing consequently the largest quantity of cream of more than pristine purity.

**FOUND**

**Simple, Safe, Durable**  
and in all ways satisfactory, by over  
**100,000 Satisfied Users**  
(Outside the U. S.)

**R. A. LISTER & CO., Limited**  
**MONTREAL**

# THE CANADA STATIONERY CO.

**Lithographers & Embossers  
Commercial and Legal Stationers**

## OUR SPECIALTIES—

<b>Wedding Invitations</b>	&	&	<b>Copper Plate Printing</b>
<b>Visiting Cards</b>	&	&	<b>General Society Work</b>

The Invitations, Programs, Etc., used at the O. A. C. Conversat were furnished by us.

**Write for Quotations**

# THE CANADA STATIONERY CO.

8 LOMBARD STREET



TORONTO

# Macdonald Institute

## Nature Study ✧

(1) Year's Course. September to June. (2) Three Months' Courses. For actual teachers. September to December, January to March, April to June

## Manual Training ✧

(1) Year's Course. Teacher's or Specialist's Certificate. September to June. (2) Three Months' Courses or longer, in Woodcarving, etc.

## Home Economics ✧

(1) Two Years' Formal Course in Domestic Science. (2) Two Years' Normal Course in Domestic Art. (3) Three Months' Courses—(a) In Domestic Science. (b) In Domestic Art. September to December, January to March, April to June. (4) One Year's Course in Housekeeping.

The Macdonald Institute, through the Ontario Agricultural College, is affiliated with Toronto University, and the work of the above classes will be recognized *pro tanto* in the courses leading to the University degree in Household Science.

**G. C. Creelman**



**President**

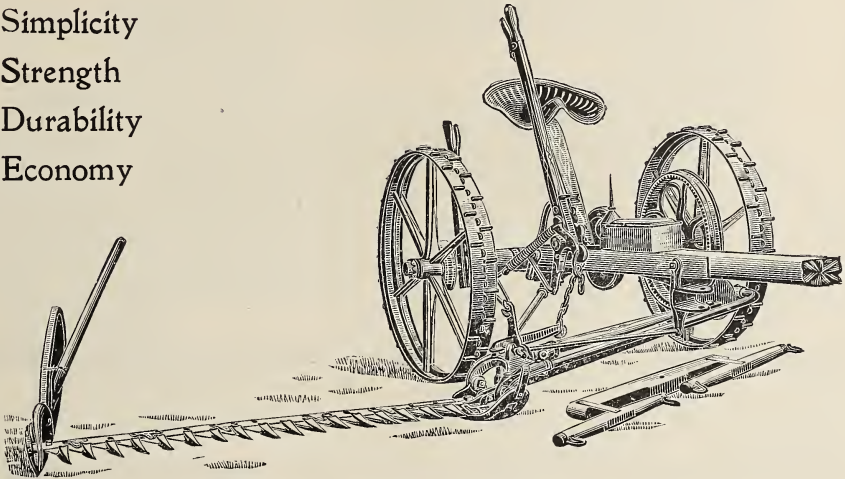
# SAVE YOUR HAY

By Using A

## Frost & Wood No. 8 Mower

in Your Hay Field

Simplicity  
Strength  
Durability  
Economy



Cuts a swath 4½ feet, 5 feet and 6 feet wide.

Spring Foot-lift. Internal gear. Roller and Ball Bearings. Durable finish.

To **Save** a **Light** crop you need a No. 8.

To **Cut** a **Heavy** crop you will profit by a No. 8.

It will pay you to examine a Frost & Wood No. 8 before going elsewhere. If interested in 20th Century Machinery, write us for our Catalogue. It's free and contains a lot that will interest you.

*THE*  
**Frost & Wood Company**  
LIMITED.

HEAD OFFICE AND WORKS

SMITH'S FALLS, ONT.

BRANCHES

Winnipeg, Man. Toronto, Ont. Montreal, Que. Quebec, Que. St. John, N. B. Truro, N. S.



# The London Mutual Fire Insurance Co. of Canada

Established 1859

**Head Office, Toronto**

~ FULL GOVERNMENT DEPOSIT ~

Losses paid since Organization.....\$4,000,000.00

Assets ..... 755,707 33

HON. JOHN DRYDEN, President.

GEO. GILLIES, Vice-President.

H. WADDINGTON, Sec'y and Managing Director.

L. LEITCH, Supt.

D. WEISMILLER, JOHN KILLER, Inspectors.

## Keleher & Hendley's Tailor Store



The Charm  
of  
Refinement

To the discriminating people the  
elegance and charm of good clothes  
is always apparent. Our hand-  
some suits and overcoats are dis-  
tinctive in design and finish giving  
to the wearer that quiet air of  
refinement.    :-    :-    :-

## Golden Fleece

# “Success”



“Young Men are buying S. & M. Engines, realizing that they have been largely selected by men whose lives are examples of Success.”

“Their decision cannot be other than judicious.”

“S. & M. Engines are as true as steel and brains can make them.”

FOR PARTICULARS WRITE

## Sawyer & Massey Co., Ltd.

Manufacturers of High Grade  
THRESHING, SAW MILLING and  
ROAD MAKING MACHINERY

Hamilton, Canada

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

*Continued from page xviii.*

muckledum with spots of gray. Jake's shirt was hickory, his pants a brown, with a patch on the part where Jake sat down. Jake cussed in a way it was sad to see, when the mule went 'haw' when he said 'gee.' A bumble bee's home in the stubble lay, where Jake and the mule raked the hay. A rake tooth ran through the humble home and the bees came out and began to roam in search of the man, on that summer's day, who raked the meadow of clover hay. They swarmed inside of Jake's shirt and quickened the mule to a lively spurt. It was tough on the mule; it was worse for Jake, and woser still for that sulky rake for the mule turned loose in a promiscuous way, and scattered that rake o'er the hay.'

Did you ever see a tree bark?

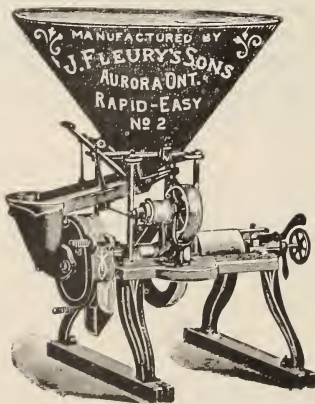
"Whatsoever a man seweth that will he also rip."

From the Cape Mercury, Thursday, November 3rd, 1904:—

"Wanted, for German West Africa, a man to look after one horse, two cows and three pigs. One who can impart the rudiments of French, singing and the piano to children preferred.—Apply by letter to L., King Wm. Town."

We understand that Mills, Munro and the Duke have all applied, but as the animals seem to be of the most importance, we hope that the Duke gets the job.

It isn't the thing you do or say,  
It's all in the way you do or say it;  
For what would the egg amount to, pray  
If the hen got up on the perch to lay it.



## EVERY O. A. C. STUDENT

Recommends the use of a

### GRAIN GRINDER.

He would like to recommend only the **Very Best**.  
**What** one shall it be?

### The "RAPID-EASY"

Grinders are **shapely**—appeal to the eye—thoroughly **well built** and carefully **painted**—but their **great merit** lies in the fact that they **will do more work with the same power** than **any other** Grinder.

FURTHER LETTERS: See last month's advertisement.

"I am pleased with the work done by your No. 3, 10-inch Grinder. It will grind a ton of grain per hour and do it well."  
Jas. Ewing, Osgoode Station, Jan. 23rd, 1905.

"I have one of your 10-inch Rapid-Easy Grinders. It is the best Grinder on the market to-day. I can grind 60 bushels per hour and do it first-class."  
Wm. Boyle, Cumbermere, Jan. 12th, 1905.

"Your No. 2 'Rapid-Easy' Grinder is pronounced the best Grinder in this locality. I am doing custom work with it and am able to grind 20 bags of grain per hour, using 1 1/2 h. p. engine, an 1 carrying 45 pounds of Steam. If I had known your Grinder was so easy running I should have got the larger size No. 3. It is a pleasure to run and handle such a machine as the 'Rapid-Easy'."  
Louis C. Jensen, Lamerton Feed Mill, Lamerton, Alta., Dec. 21st, 1904.

#### PROVINCIAL AGENTS

The Fairchild Co., Winnipeg, Man., Calgary, Alta.

J. Clark & Son, Fredericton, N. B.

Lounsbury Co., Newcastle, N. B.

Bligh & Prince, Truro, N. S.

T. J. Trapp & Co., New Westminster, B. C.

J. M. Clark & Co., Summerside, P. E. I.

A. Horne & Co., Charlottetown, P. E. I.

R. E. Mutch & Co., Charlottetown, P. E. I.

APPLY TO ABOVE, OR TO THEIR LOCAL AGENTS, OR TO US DIRECT  
A FINE LITHOGRAPH HANGER AND ANY INFORMATION YOU ASK

## J. Fleury's Sons, Aurora, Ontario, Canada

MEDALS AND DIPLOMAS, WORLD'S FAIRS, CHICAGO AND PARIS



**Most People Have No Idea**

of the size of our establishment. Call in some time and let us show YOU through. Visitors are Always Welcome.

**John M. Bond & Co.**

**CONCLUSIVELY**

**“ THE ”**

**Hardware Store**

*of*

**Guelph and Wellington County**

<b><u>We</u></b>	}	Largest Premises
<b><u>Have</u></b>		4 Stories and Cellars
<b><u>The</u></b>		Largest Staff of Clerks
		And Most Important of All
		Largest Stock for You
		To Choose From

**John M. Bond & Co.**

**GUELPH**

**Wholesale & Retail**

## Two of a Kind



The Ontario Agricultural College is the best of its kind in the world.



The Clothes made here are in keeping with the College.



The Best, only, is good enough for the boys of the O. A. C.

## J. A. Scott

MAKER OF MEN'S CLOTHES

**26 Wyndham Street**  
**GUELPH**

## FOSTER & FOSTER

### Dentists



Office and Surgery: Corner Wyndham and Macdonnell Sts., over Dominion Bank.  
Residence, "Sunset," Paisley Street.

**Telephone, 14**

## We Lead

Them all in Oil, Gas, Coal and Wood Heaters, Graniteware, Tinware and Sheet Metal Goods of every description.



## H. Occomore & Co.

Stoves, Tinware and House Furnishings, Etc. Etc.  
**86 Upper Wyndham St.**  
**GUELPH**

## The Authorized College Pin



Adopted March 30th, 1903, by Joint Committee of Students and Faculty elected by O. A. C. A. A. Design Registered at Department of Agriculture, Sept. 17th, 1903.

For sale at

**Pringle's Jewellery Store**  
Sterling Gilt, Price 50c.

## \$4 Cabinets

for \$3.00

at Hurndall's old stand,

**95 Upper Wyndham St.**

## Special Feeds



When you are planning a little special feed remember that McCrea is headquarters for fine Chocolates Biscuits, Fruit and Oysters. We supply both the O. A. C. and Macdonald Hall with Groceries, and can always send anything out for you. We solicit a trial.

Noted Tea Store

and China Palace

## J. H. McCrea

PHONE 48

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**John D. McKee, Phm. B.**

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# A Happy New Year

## STUDENTS!

Start the New Year aright by purchasing at McKee's Drug and  
Boohstore a tube of

## Wampole's Fermolid Cream

An Antiseptic Dentifrice, in the form of Paste, for cleansing and  
preserving the teeth. Heals and hardens the gums, sweetens  
and purifies the breath. Is absolutely safe, being guaranteed to  
contain no injurious drugs or chemicals whatever. The ideal  
preparation for smokers. Put up in collapsible tubes,

**25 Cents each**

A Free Sample on Application.

---



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## Yunora Perfumes

The standard of excellence. Once used, always the favorite. We  
have a full line of these superior goods at the popular price,

**50 Cents per oz., try them**

---



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## Text Books

Just bear in mind that club orders for books are a specialty  
with us.

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**John D. McKee, Phm. B.**

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## THE CONFECTIONER'S SECRET



is his ability to please the customer. The result of our work is seen in the popularity of the candy we sell.

### BOYS REMEMBER

when down town, we have Hot Soda, in 10 different flavors, also

Oysters as you like them,

15c., 2 for 25c.



Ice Cream Every Day in the Year.

## The Kandy Kitchen

## STUDENTS...

Please make note of the fact that we have THE MOST COMPLETE and BEST STOCK of

## Sporting Goods IN THE CITY

WE are agents for the FAMOUS SPALDING ATHLETIC GOODS and the CELEBRATED FORSYTH FOOTBALL. We carry a full line of FOOTBALL, BASEBALL, LACROSSE, TENNIS, GOLF and HOCKEY GOODS. We stock BOXING GLOVES, PUNCHING BAGS, WHITELEY EXERCISERS, SANDOW DUMBBELLS, CLUBS, FENCING FOILS, MASKS, SABRES, Etc., and we have an extensive stock of GUNS, RIFLES, REVOLVERS and AMMUNITION. Anything we do not have in stock, we will be glad to procure for you.



Come in any time and see our Sporting Goods Department, we will not expect you to buy.

## G. B. MORRIS,

HARDWARE,  
22 LOWER WYNDHAM.

The Guelph Cartage Co. deliver baggage and do General Cartage Work.

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

# Robert Mitchell, The Grocer

Fruits and Fancy Groceries,  
Chocolates, Coconos, Etc.

No. 22 LOWER WYNDHAM STREET.

## The Tysons

Wholesale and Retail

BUTCHERS AND CATTLE DEALERS

J. & A. Tyson, Stall No. 1,  
Guelph Market, 'Phone 78.  
Tyson Bros., Shop cor Green  
and Norfolk Sts., 'Phone 152.

## NEILL THE ... SHOE MAN

SOLE AGENT FOR

THE  
SLATER  
SHOE

GUELPH, - ONTARIO.

## T. H. GEMMELL & CO.

STEAM DYERS AND CLEANERS

No. 70 Wyndham Street, West Side

Suits Cleaned, Dyed and Pressed  
Pressing Done on Shortest Notice  
Also Agents for Parisian Laundry

FOR YOUR SKIRT AND TROUSER HANGERS

GO TO

**JAMES STEELE'S**  
Woolwich Street,

Opposite Wellington Hotel.

Yours truly,

**JAS. STEELE.**

# SAM LEE HING.



Me Want your Washee !

Do it Quickee !



Call on

MONDAY,  
WEDNESDAY  
AND FRIDAY.



## SAM LEE HING,

St. George's Square.

## DR. COGHLAN, DENTIST

Co. Cardigan and Woolwich Streets.  
TELEPHONE 223.

## W. A. CLARK

Watchmaker  
Jeweller and Optician

79 Upper Wyndham St., Guelph  
Issuer of Marriage Licenses

## STUDENTS

If you want SHOES that fit well, look  
well, and wear well, go to

Rowen's Shoe Store,  
WYNDHAM STREET.

## WATERS BROS.

Wyndham Street

Supply all you need in Mounting Sheets, Seed  
Bottles, Scales, Compasses, Squares, Entomological  
Supplies, Artists' Supplies.

Picture Frames and Souvenir Presents.

For  
Convenience of  
**Students**



Our driver will be at the main building of the O. A. C. MONDAY, WEDNESDAY and FRIDAY mornings from 7.15 to 7.45 to collect your Laundry. A Thorough Wash and Perfect Finish Guaranteed.

**Guelph Steam Laundry**

D. W. HUNTER,  
Manager.

**Robert Stewart**  
Limited.

The Pioneer Industry of Guelph

Manufacturers of

**SASH  
DOORS  
BLINDS**

And all House Furnishings  
for over half a century

Largest dealers in Canada of

**B. C. Shingles and  
Hardwood Lumber**  
Telephone 26 Guelph, Ont.

**PRESERVATION  
OF  
SIGHT**



Are you interested in how we recognize and remedy eye defects, or in the preservation of your sight? If so, drop us a post card and we will mail you without charge our booklet "The Eyeglass Question." It is sure to interest you.

**SAVAGE & CO.  
Jewellers**

**Central Bookstore**

Opposite where the Street Cars stop

Text Books. Exercise Books.  
Foolscap. Writing Pads. Up-to-date Note Papers and Envelopes. Papeteries, Etc., Etc. Bibles. Hymn Books. Books by Standard Authors. Poets. Prayer Books. :: :: :: ::

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

**C. ANDERSON & CO.**



**THORNTON & DOUGLAS,  
LIMITED**

Makers and Importers of wearing  
apparel for men and boys ❁ ❁

Dairy Suits  
a Specialty

Stratford, Chatham,  
Guelph.

W. J. STEVENSON. ANDREW MALCOLM,  
Phone 143.

**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.

Masonic Block, - Guelph, Ont.

**C. Henry Burgess**

**| PHOTO ARTIST |**

Special Scenery—For Groups.  
Platinum and Carbon Finish.

The Leading Drug Store

**LAW, The ❁  
Druggist**

95 Upper Wyndham St. - - Phone 61

When you Want ❁ ❁

Material to Smoke or Chew Call at the  
**SENATE CIGAR STORE**

You will find everything you want there.

**McHugh Bros., 26 Lower Wyndham**

FOR THE MOST DELICIOUS ❁ ❁

Confectionery, Ice Creams, Oysters,  
Pastry, Fancy Cakes, Wedding Cakes  
and Plain Goods.

Catering Promptly attended to.

**GEO. WILLIAMS.**

*The ❁*

**ELECTRIC BOILER  
COMPOUND CO., Ltd**

PHONE 396, BOX 45, GUELPH, ONT.

Walker's Electric  
Boiler Compound

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

**Crystal Cream Separator Oil**  
A Specialty

**The Lion ❁ ❁**

Guelph's Leading and  
Largest Store.

5 and 7 Wyndham 56 McDonnell Street s

3 ENTRANCES

*D. E. Macdonald & Bros.*

Clothiers and Furnishers

**R. B. Kennedy**



**Photographer**



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



Interior view of Stewart's 20th Century Pharmacy  
 "The Store with a Good Record."

The ❀  
 Students ❀  
 of the ❀

O. A. C.  
 and  
 Macdonald  
 Institute

are invited to make  
 this store their buy-  
 ing centre for  
 everything in

DRUGS  
 TOILET ARTICLES  
 FINE PERFUMES  
 COLLEGE SUPPLIES  
 ETC., ETC.

2 Doors Below  
 the Post Office

ALEX. STEWART, CHEMIST.

COON

IS THE

College Barber



GO TO

COON

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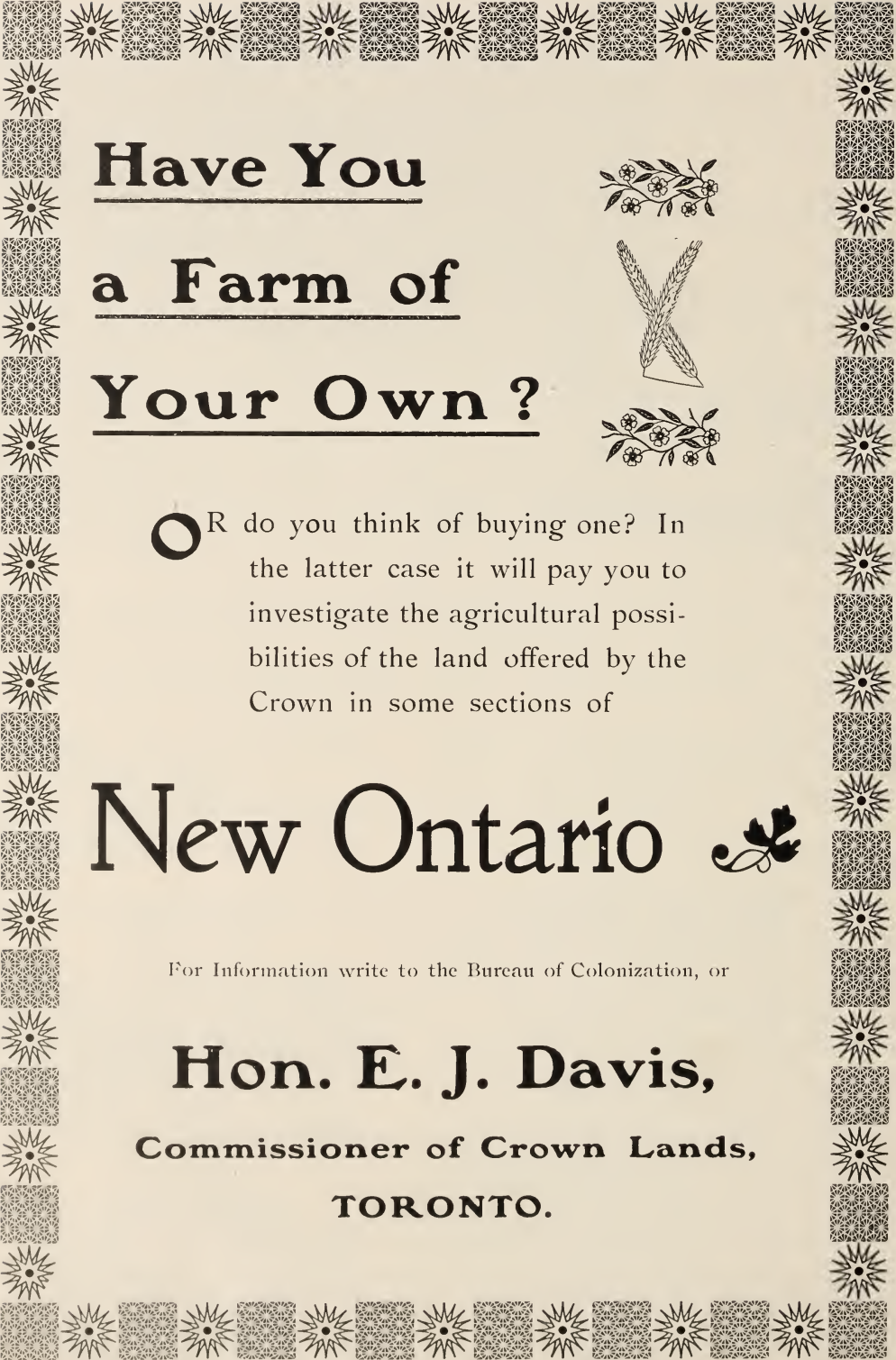
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For Information write to the Bureau of Colonization, or

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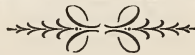
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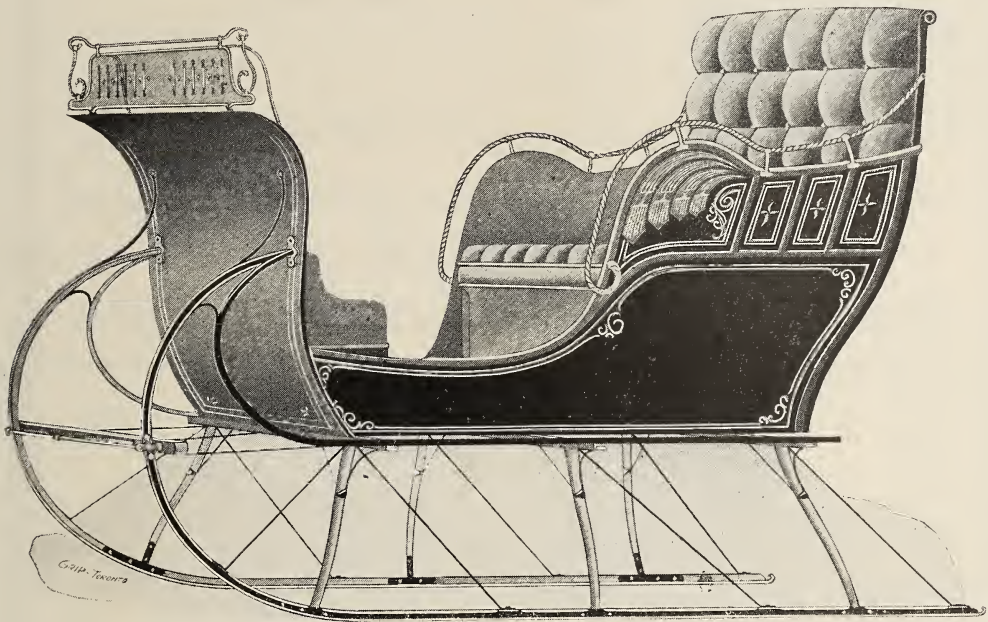
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An Up-to-date Tailoring Business. Large Stock of the very Choicest Suitings, Trouserings and Overcoatings to select from. Satisfaction Guaranteed. One Price. Goods marked in plain figures. Be sure and give me a call.

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Men's Furnisher, Hatter and Fine Tailoring



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**T**HE Faculty and 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.

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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.  
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Dressmaking at very reasonable rates.  
Ready-to-wear Coats, Skirts, Blouses, Etc., in great variety of new things.  
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February, 1904,		February, 1905,
<b>107</b>	<b>50%</b>	<b>129</b>
Advertisers occupy	<b>INCREASE</b>	Advertisers occupy
38.5	<b>IN</b>	63
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## Record for 1903

Paid to Widows and orphans and disabled Members...\$	1,658,108.92
Paid Sick and Funeral benefits.....	192,163.71
Increase in membership.....	14,123
Membership December 31st, 1903.....	219,492
Increase in accumulated funds during the year.....	1,234,236.97
Total accumulated fund December 31st, 1903.....	7,453,308.14
Total benefits paid to December 31st, 1903.....	16,290,991.78
Total accumulated funds February 1st, 1904.....	7,518,852.09

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It will keep them in touch with important matters pertaining to their Alma Mater, will furnish them with full information concerning the Ontario Winter Fair; will give them the news of the Royal City, and the Farm and Live Stock News of the District.



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To let your home be lacking in the very best that you can give it in the line of Good Literature, High-class Art and the most up-to-date Practical Suggestions of this Twentieth Century age in regard to Farming, Gardening, Flower Culture, Housekeeping and Home-making.

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these things is to be without a great share of all that goes to make home on the farm what it should be, the most pleasant place on earth. Besides, the reading and thinking farmer of to-day is the one who fills the highest place in the profession of agriculture. The man who reads the best methods by his fireside is the one who goes out and makes a success in his fields.

### The

aim of the Farmer's Advocate and Home Magazine is to supply every requisite to the farm home at the smallest possible cost to the subscriber. We wish to help young and old, rich and poor alike—to help our people to be better farmers, better home-makers, better housekeepers, better men and women for the country. Think of it—a comprehensive home paper joined with the best farm paper published in America to-day—and then ask yourself if you can afford to be without the

## Farmer's Advocate and Home Magazine

There must be many intelligent farmers in your vicinity who would appreciate our paper. Why not secure some of our valuable premiums by sending us the subscriptions of these people? Premium lists may be had by applying to our office at London, Ontario.

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for the production of first-class work

The following with reference to the O. A. C. REVIEW, is from the *Canadian Thresherman*, Winnipeg:—

#### A CREDIT TO CANADA

"Most publications aim to do their best at Christmas time but none have succeeded more admirably than the O. A. C. Review. This magazine published by the students of Ontario Agricultural College, is indeed a long step towards magazine perfection in Canada. The editors and publishers are to be highly commended for the good work they are doing and any one desiring good, clean, interesting reading should not fail to investigate this publication.



THE REVIEW is the production of this office

## Practice With Science

### You may have the very best Seed

but unless your soil contains all the elements of Plant Food in sufficient abundance and in available form you can never obtain the

## Best Possible Crops

Available Phosphoric Acid is the first element that becomes deficient in cultivated soils.

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**The Harold A. Wilson Co.**  
**35 King St. West, Toronto**

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**GENERATORS, Patented.**

Fifty per cent. increase in Sales in Canada in 1904 as compared with 1903.

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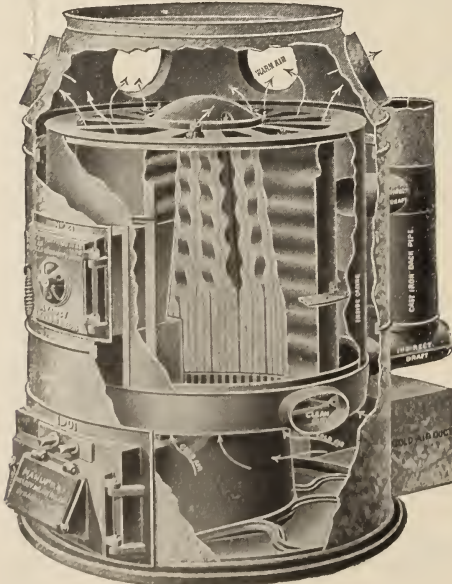
- Most Heat with Least Fuel.
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- Pure, Mild, Warm Air.
- Freedom from gas and smoke
- No heat radiated in cellar
- No Waste of Heat in Smoke Flue.
- Efficient, Economic, Healthful Results

The "KELSEY" is the only "warm air Generator" and is not in the "How Cheap" Class.

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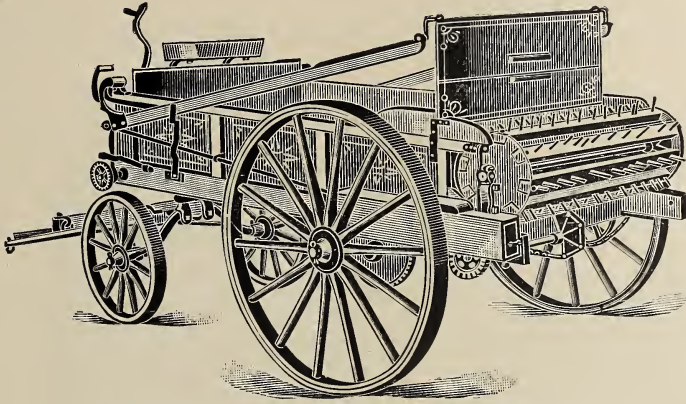
If interested write for our Kelsey Booklet

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**THE JAMES SMART MANUFACTURING CO. LIMITED.**  
 WINNIPEG, MAN. BROCKVILLE, ONT.  
 Exclusive Canadian Makers.



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# 20th Century Manure Spreader



Massey-Harris 20th Century Manure Spreader

"The man who makes two blades of grass grow where one grew before, is a public Benefactor."—EMERSON.

**MASSEY-HARRIS MANURE SPREADERS ARE WITHOUT A DOUBT THE FINEST MANURE DISTRIBUTERS ON THE FARMS OF CANADA. THEY PUT YOUR FARM AT DOUBLE ITS VALUE IN CROP PRODUCTIONS. MAKE YOUR FERTILIZER DOUBLE THE VALUE TO THE SOIL. THEY ARE THE ONLY TIGHT-BOX SPREADERS, SPREAD EVENLY FROM STARTING POINT, DO NOT CLOG AND BREAK THE BEATER. SIMPLEST, SUREST AND LIGHTEST DRAFT.**

One man and team with a Massey-Harris Manure Spreader will do more work than four men and four horses with two ordinary Manure Wagons, and do it better.

## Massey-Harris Co., Limited

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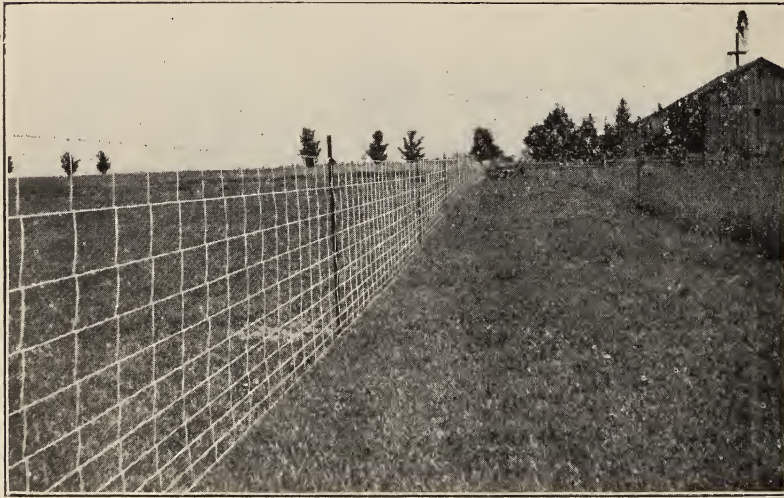
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For All Kinds of  
Good Farming**

# Steel Fence Posts

Manufactured only by

THE CANADIAN PORTABLE FENCE CO., LTD.

TORONTO, CANADA



Cut  
Shows  
an  
11-wire  
Fence  
erected  
on  
our  
Single-  
Piece  
Interim  
Posts

## STEEL POST LOGIC: Why it will Pay You to USE OUR POSTS

1. When once set they cannot be heaved by Frost. Your wire will not be injured by Sagging.
2. They are Fire-proof, Frost-proof and Weather-proof.
3. Although slightly higher in first cost than wooden posts, by the time your fence is completed; it will cost no more than an ordinary fence and is Infinitely More Durable.
4. Steel Posts being lighter and more compact than wood, are cheaper to ship and handle.
5. Work of setting Steel Posts about half that necessary for wooden posts.
6. Posts adapted to any wire or web hold web tightly, always adjustable.

**OUR PATENTS, as applied to END, GATE, CORNER and INTERIM POSTS, STATIONARY FENCE, PORTABLE FENCE and GRAPE TRELLIS, give the most satisfactory POSTS and FENCE on the Market To-Day**

Write us for Further Information.

Catalogue, Prices, Etc., on Application



**MADE IN CANADA**  
**FARMING WITH**  
**DEERING MACHINES**  
**MAKES FARMING WORTH WHILE**

BINDERS, HEADERS, HEADER-BINDERS, REAPERS, MOWERS, RAKES, TEDDERS,  
 BINDER TWINE, CORN BINDERS, HUSKERS AND SHREDDERS,  
 KNIFE GRINDERS, HARROWS, DRILLS, CULTIVATORS,  
 SEEDERS AND FARM WAGONS.

**Canadian Farmers Unhesitatingly Endorse**

**DEERING**

HARVESTING MACHINES, TILLAGE AND SEEDING IMPLEMENTS.

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**CANADIAN BRANCHES**

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**Made in Canada**

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**McCormick**

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**FARM WAGONS**

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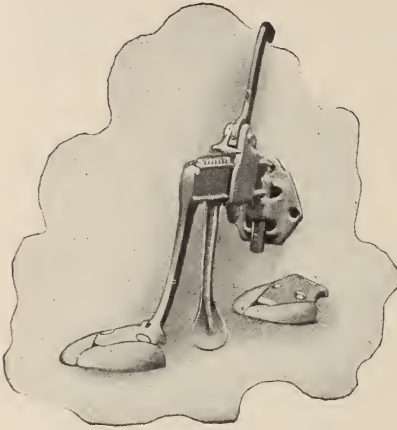
**Toronto, Ont.**  
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# The "TIP-TOP" SHOE HOLDER

Patented in Canada, Great Britain and United States.



**The Best Idea Yet**

**So Simple Too**

**Why Didn't Some One Else**

**Think of It Before ?**

Patented and Designed by a Canadian.

Will hold any style or shape of boot or shoe tightly stretched for cleaning. Can be used for Men's, Ladies' or Children's Boots. The three-piece last is what does it. If you haven't a set yet, order one with next goods from your dealer, or mail us \$1 and we will ship a set to you.



Manufactured by

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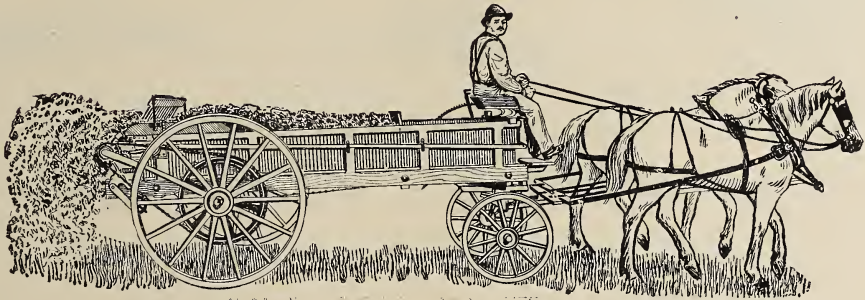
Limited

GUELPH, - ONTARIO

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# Success Manure Spreader

Its name tells a true story.  
 Years in advance of other spreaders.  
 The result of 25 years experience in the building and field  
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By thoroughly pulverizing the manure and more evenly spreading over a greater number of acres, than is possible by hand, you can increase the earnings of the farm, save your money, and the saving in labor alone will pay for the machine.

Our booklet, "Worth its Weight in Gold"  
 Will tell you how to increase your production  
 Save your time and save your money

The "Success" Spreader is a necessity on every farm

Manufactured by

**The Paris Plow Co., Ltd.**  
**PARIS** **ONTARIO**

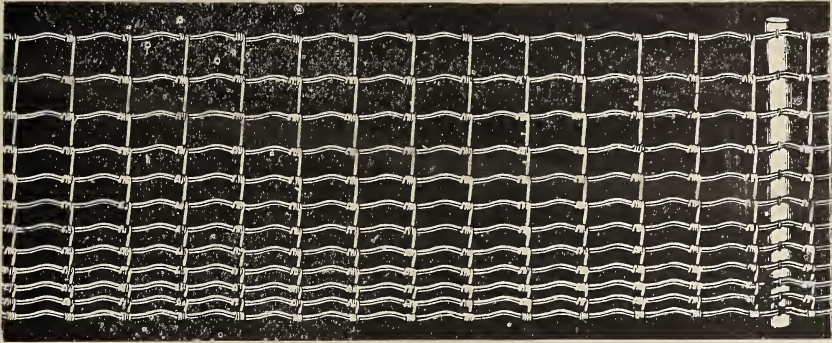
Agents for Manitoba and North West—The Stewart Nelson Co., Limited,  
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For eight years we have been continually engaged in the manufacture of wire fencing and fence building machinery. In presenting for your consideration **CYCLONE SPRING STEEL FENCE** our foremost idea has been to make fence, with full provision for the changes of heat and cold, having the lateral wires made of high carbon Bessemer steel and the cross wires of the best annealed wire on the market, drawn especially for us. Every piece of fence we put out will be perfect in workmanship and material.

We also manufacture a full line of **LAWN FENCES**.

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**GRAND SUCCESS FROM START TO FINISH**

*Farmers' Binder Twine Co.*  
**LIMITED**  
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Opposition of every kind helplessly helpless against such an aggregation.

The Kingdom of Denmark's mighty success at home, and with its products in the great markets of the world, is allowed to hinge wholly on true co-operation, properly operated.

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**Pruning** comes in March and April.

**Painting** and Repairing April and May.

**Hay Fork** work June and July

**Fruit Picking**  
August to November

**Storm Sash** April and November.

**Fire Protection** January to December.

For all these you need a good ladder. The qualities of a good ladder are: *First—Safety*  
*Second—Handiness*

The Waggoner Extension Ladder combines these qualities better than any other. There are lower priced ladders, but no other so really cheap. Our steel safety lock and our steel wire reinforcement enable us to combine strength and lightness in the highest degree.

Send for free descriptive circulars, prices, etc. When writing ask about our CLOTHES LINE REEL for the yard. The women want it—so do the men.

The Waggoner Ladder Co., Ltd

London, Ont.



# MAXWELL'S

## FAVOURITE CHURN

### LIST.

No.	HOLDS	CHURN
0	6 gal.	½ to 3 gal.
1	10 "	1 to 5 "
2	15 "	2 to 7 "
3	20 "	3 to 9 "
4	26 "	4 to 12 "
5	30 "	6 to 14 "
6	60 "	8 to 20 "



Patent Foot and Lever Drive  
Patent Steel Roller Bearings  
Improved Steel Frame  
Bearings Bolted No Screws Used

Easy to Operate  
Superior in workmanship and finish  
If not sold by your dealer, write direct to

David Maxwell & Sons  
St. Mary's, Ontario, Canada.

## We Pay Special Attention

To the making of Suits, Overcoats and Trousers for O. A. C. Students.

Our stock is always new and up-to-date. We buy only the best material and employ only the most skilled workmen.

Our prices are such that you can save money on every garment we make for you.

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## WHEN YOU ARE IN NEED OF CUTS IN HALF-TONE, ZINC & WOOD.

SEND TO

SPECIAL FACILITIES FOR PROMPT DELIVERY

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# The Goldie & McCulloch Co., Ltd.

Galt Ontario Canada



## EXTENSIVE MANUFACTURERS OF

Wheelock Engines, Corliss Engines, Ideal Engines, Gas and Gasoline Engines, Boilers, Water Wheels, Steam and Power Pumps, Flour Mill Machinery, Oat Meal Mill Machinery, Oat Meal Steam Pan Kilns, Wood Working Machinery, Iron Pulleys, Wood Rim Split Pulleys, Shafting, Hangers, Gearing Friction Clutch Pulleys, Friction Clutch Couplings, etc., Safes, Vaults and Vault Doors.



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The Goldie and McCulloch Co., Ltd.

**GALT ONTARIO CANADA**

## Reliability

Has been our motto in everything we sell whether for the

**Garden, Field, Farm, or Dairy**

Farm Seed Catalogue, Field Root Grains, Fodder Plants, Etc.

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Market Gardeners' Catalogue, for the use of those who are raising Vegetables and Flowers for Market.

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Poultry, Dairy and Creamery Supply Catalogue, for Poultry Keepers, Cheese and Butter Factories and Home Dairies.

Wheat Catalogue, issued in the Fall.

Flowering Bulb Catalogue, also issued in the Fall.

We will be pleased to send any of these Catalogues to interested parties.

**Darch & Hunter**

"Seedsmen to the Canadian People."

**London**

**Canada**

**Founded 1863**

**Waterloo, Ontario.**

# The Waterloo Mutual Fire Insurance Co.

## 42ND FINANCIAL STATEMENT

RECEIPTS.		EXPENDITURE.	
Balance brought forward.....	\$212,433 35	Losses.....	\$160,829 67
Premiums.....	220,217 66	All other Expenses.....	89,869 38
Interest, Rent and Re-Insurance..	26,262 68	Balance .....	208,214 64
	<hr/>		<hr/>
	\$458,913 69		\$458,913 69
ASSETS		LIABILITIES, ETC.	
Real Estate.....	\$ 17,475 72	Unadjusted Losses.....	\$ 5,284 38
Bonds, Mortgages and Cash.....	178,121 12	Re-Insurance Fund.....	111,882 37
Other Assets.....	16,040 58	BALANCE .....	94,470 67
	<hr/>		<hr/>
	\$211,637 42		\$211,637 42

Cash Balance over all Liabilities...\$ 94,470 67  
 Unassessed Premium Notes..... 249,049 92  
 Total of Assets..... 460,687 34

Audited and found correct

(Signed) J. M. SCULLY, F. C. A. }  
 (Signed) BENJ. DEVITT } Auditors.

WATERLOO, January 21st, 1905.

FRANK HAIGHT,                      GEORGE RANDALL, President.                      T. L. ARMSTRONG }  
 Manager.                      Wm. SNIDER, Vice-President.                      R. THOMAS ORR } Inspectors.

## Chas. A. Cyphers' Announcement.



SINCE my withdrawal from the Presidency and General Managership of the Cyphers Incubator Co, a year ago, my "Model Incubators and Brooders" have become as well known as the "Cyphers," my older invention. That the newer invention, the "Model," has been doing better work than the older has also become well known.

The progressive poultryman needs the best, and will have it at any cost, but, at the same time does not like to pay a premium over that which another has to pay who is situated perhaps only across a river.

To place my Canadian customers on an equal footing with their brother poultrymen across the border, avoiding the duty and giving them the machines at the same price at which they are sold in the States, I have decided to manufacture in Canada. I have made arrangements with MR. C. J. DANIELS, of Toronto, to take charge of the manufacture, and the Canadian branch will be entirely under his management. Mr. Daniels is too well known to Canadian Poultrymen to need any commendation from me. I place the Canadian business in his care with full confidence in his integrity and ability, and the assurance that my Canadian customers will receive courteous and honorable treatment at his hands.

CHAS. A. CYPHERS  
 Manufacturer,

**BUFFALO, N. Y.**

**TORONTO, CANADA**

Please address all Canadian business communications in the future to

**C. J. DANIELS, 196-200 RIVER ST., TORONTO, CANADA**

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

# Gowdy Bros.

Market Square, Guelph

PHONE 445

Wholesale and Retail Dealers in

↔ Coal and Wood ↔

SEWER PIPE

DRAIN TILE

CHIMNEY FLUES AND TOPS

PORTLAND CEMENT

PLASTER PARIS

PLASTERERS' HAIR

FIRE CLAY

BRICK

LIME

PROMPT ✂ DELIVERY

# CLYDESDALES!

Smith & Richardson  
COLUMBUS, ONT.

Importers of Clydesdale Horses

Now on hand a grand 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

## Shorthorn Bulls

## Shropshire Sheep

## Yorkshire Swine

of the highest standard  
of their respective breeds

**Richard Gibson**  
DELAMERE, ONT.

## Avoid Disappointment

## Buy Bruce's Seeds

### Bruce's Re-Cleaned Farm Seeds

Farmers all over the Dominion are awakening to the fact that it pays to buy the very best seeds that can be procured, and our long connection with the best growers in the seed-producing districts gives us exceptional advantages in securing the best samples offered, while our cleaning facilities are unequalled. The large annual increase in our trade with the farmers of the Dominion is an evidence of the superiority of our stocks and of the personal attention we give to the interests of our patrons. Our first grades of Clovers and Timothy are in all cases export seed.

We offer as follows for early orders, subject to being unsold:

#### Clover Seeds

Per bushel 60 lbs

Alsike, 1st Grade .....	\$ 8 00
do 2nd Grade .....	7 50
do 3rd Grade .....	7 00
do and Timothy .....	3 50
Crimson, 1st Grade .....	6 00
Lucerne, 1st Grade .....	8 00
do 2nd Grade .....	7 50
Red, 1st Grade .....	9 00
do 2nd Grade .....	8 50
Mammoth, 1st Grade .....	9 00
do 2nd Grade .....	8 50
White, 1st Grade .....	13 50
do 2nd Grade .....	12 00
Yellow, 1st Grade .....	6 50

#### Grass Seeds

Per bushel, 14 lbs

Blue Grass, Canadian Fancy .....	\$ 1 10
do Kentucky, Fancy .....	1 75
Bromus Inermis, Fancy .....	2 00
Meadow Fescue, Fancy .....	1 75
Orchard Grass, Fancy .....	2 25
Red Top, Fancy .....	1 75
do Common .....	1 25
Lawn Grass, Bruce's .....	2 80

Per bushel, 48 lbs

Hungarian .....	\$ 1 00
Millet, German .....	1 25
do Common .....	1 00
Timothy, 1st Grade .....	2 25
do 2nd Grade .....	2 00

Prices of Seed Grains, Feeding Stuffs and Poultry Supplies on Application

Remit 20 Cents Each for Two-bushel Cotton Bags

Our Beautifully Illustrated Catalogue of Seeds and Supplies—88 pages—mailed free to all applicants.

#### LITTLE GIANT GEARED HAND SEED SOWER

The best Seeder offered; gives universal satisfaction; \$1.75 each; smaller size, \$1.50 each.

## John A. Bruce & Co.

SEED MERCHANTS

HAMILTON, CANADA

Established over half a Century.

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



# The George White & Sons Co., Limited

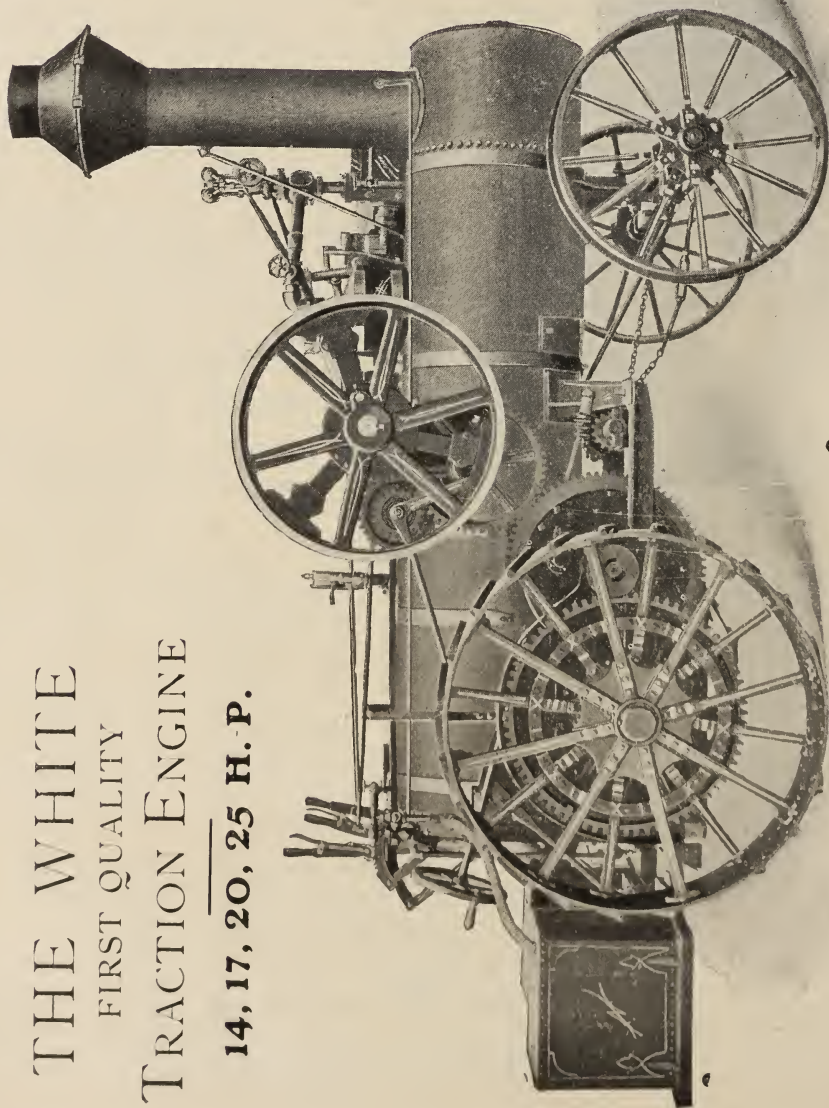
LONDON, ONTARIO

In Connection With

## THE WHITE FIRST QUALITY TRACTION ENGINE

14, 17, 20, 25 H. P.

The White  
Challenge  
Thresher  
with  
Cutting Box  
Attachment  
is the  
Labor Saver  
and  
Money Maker  
of the age



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Our stock of  
Engines and Boilers  
New and Rebuilt  
Is at its Best  
Write us for  
Information

Engines for Farm use a special part of our Business

# Two World's Records



THAT CONCERN EVERY FARMER AND DAIRYMAN

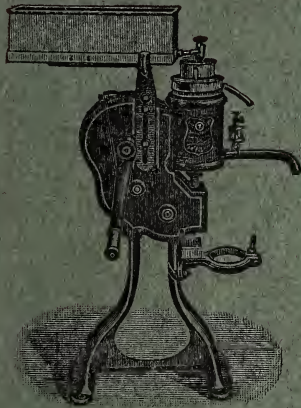
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THE IMPROVED

## U. S. Cream Separator



The World's Champion Dairy Buttermaker



The SWEEPSTAKES, and every highest dairy score in the four great butter scoring contests **open to the world** at the **World's Fair, St. Louis, 1904**, were awarded to butter made from U. S. Separator cream. "**U. S.**" **Quality Wins!**

## The World's Champion Skimmer

The U. S. Cream Separator has **indisputably and conclusively** proven that it is the closest skimming separator in the world. In 50 **consecutive** runs it averaged to leave *only .0138 of one per cent.* of butter fat in the skimmilk.

**Never Equalled by any other Separator**

Now these records *MEAN* something to *YOU*. Find out about it.

## The Vermont Farm Machine Co.



**Bellows Falls, Ut.**

For the convenience of our customers, we transfer to British Columbia points from San Francisco; to North-west Territories from Minneapolis, Minn. Montreal and Sherbrooke P. Q., and Hamilton, Ont. **NO DELAY** in deliveries.



# The Judge and the Jury

The Jury of Awards of the

**ST. LOUIS EXPOSITION**

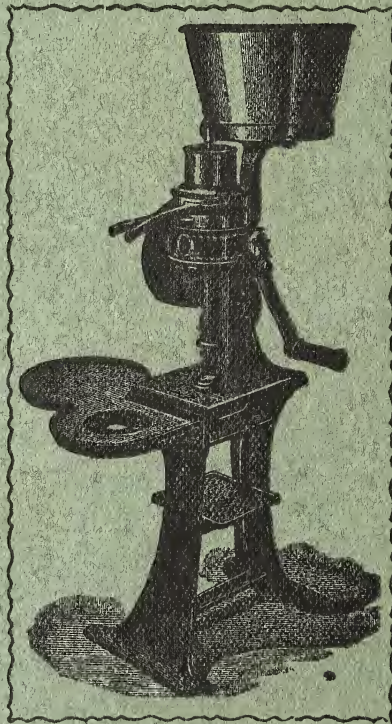
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## **GRAND PRIZE**

HIGHEST AWARD

ON THE

### **De Laval Cream Separator**



GET  
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DE LAVAL  
AND  
BE  
SATISFIED

600,000  
USERS  
OF THE  
DE LAVAL  
ARE THE  
JUDGES

✿ **GET ONE** ✿

**The De Laval Separator Co.**

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