VOLUME XXII. NUMBER 4.

# THE O·A·C REVIEW

January
1910

# DON'T OVERLOOK THE FREE WINTER COURSES IN AGRICULTURE

FOR FARMERS AND THEIR SONS, AT THE

## ONTARIO AGRICULTURAL COLLEGE, GUELPH

CANADA

| | |
|---|---|
| Stock and Seed Judging, Jan. 11 to 22, | 1910 |
| Poultry Raising, Jan. 11 to Feb. 10 | 1910 |
| Fruit Growing, Jan. 25 to Feb. 5 | 1910 |
| Dairying, Jan. 3 to March 25 | 1910 |

¶ At our Short Courses a large amount of instruction is crowded into a brief period. Classes and Laboratory Work extend from 8 a.m. to 5 p.m. each day except Sunday, and the evenings are devoted to Illustrated Lectures and the discussion of topics suggested by those in attendance. This is an intensified system and a modern method of practical instruction to busy, practical men, whose lives are devoted to agricultural pursuits. Many prominent agriculturists attend these sessions annually.

We believe the work furnished during the coming winter will be more practical and popular than at any previous session. We invite all men, young and old, who are interested in any branch of Agriculture to ask for further information concerning these Courses.

An Illustrated Calendar will be sent free upon application to

**G. C. CREELMAN, PRESIDENT**

# OFFICIAL CALENDAR

**JANUARY:**

1. New Year's Day (Saturday).
   By-laws for establishing and withdrawal of union of municipalities for High School purposes to take effect. [H. S. Act, sec. 6 (1) (2)].
3. High, Public and Separate Schools open. [H. S. Act, sec 51; P. S. Act, sec. 7; S. S. Act, sec. 81.]
5. Truant Officers' Reports to Department, term).
4. Provincial Normal Schools open (Second due.
   First meeting of Rural School Trustees. [P. S. Act, sec. 68 (1)].
   Polling day for trustees in Public and Separate Schools. [P. S. Act, sec. 60 (c); S. S. Act, sec. 31 (3)]
6. First meeting of Municipal Boards of Education.
7. Principals of High Schools and Collegiate Institutes to forward list of teachers, etc.
10. Appointment of High School Trustees by Municipal Councils other than County. [H. S. Act, sec. 14, 21 (1); see also Mun. Act, secs. 259, 587].
    Annual meeting of Rural Municipal Public Library Associations. [P. L. Act, sec. 19 (4)].
11. Clerks of Municipalities to be notified by Separate School supporters of their withdrawal.
14. Annual Reports of Boards in cities and towns to Departments, due.
    Secretaries of Rural School Boards to notify Inspector and Municipal Clerk of names and post office address of Trustees and Teachers. [P. S. Act sec. 76 (c)].
15. Trustees' Annual Reports to Inspectors, due. [P. S. Act, sec. 76 (e); sec. 118].
    Annual Reports of Kindergarten attendance, to Department, due.
    Annual Reports of Separate Schools, to Department, due. [S. S. Act, sec. 28 (18); 33 (9)].
    Annual Reports from High School Boards, to Department, due [H. S. Act, sec. 24 (1)].
19. First meeting of Public School Boards in cities, towns and incorporated villages. [P. S. Act, sec. 67 (1)].
25. Appointment of High School Trustees by County Councils. [H. S. Act, sec. 14, 21 (1); see also Mun. Act, 259, 587].

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# THE O. A. C. REVIEW

THE DIGNITY OF A CALLING IS ITS UTILITY.

VOL. XXII. JANUARY, 1910. No. 4.

## Drainage Survey Work

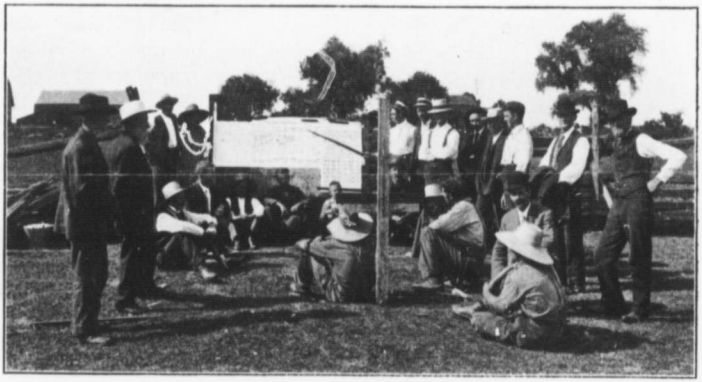
BY PROFESSOR WM. H. DAY.

UNDERDRAINAGE has been known and practiced in Ontario to some extent from the days of the early settlers when slabs and stones were the only materials at hand for drain pipes. As the wooden pipes decayed and the stone ones filled with sediment, they gave place to clay tile, and for many years these have been laid in gradually increasing numbers, and usually with gratifying results, as is shown by the fact that the most enthusiastic advocates of tile drainage today are those who have done most of it. Yet despite this success, the practice of underdrainage has spread comparatively slowly. To be convinced of this, one has only to travel over the Province in April, May, and sometimes June, and note the thousands upon thousands of farms in well settled districts, amounting to millions of acres, that are so wet in whole or in part that seeding operations are delayed from two to six weeks, and then travel again in August and see these same vast areas producing only one-quarter to half a crop, while dry land in the same vicinity yields a full crop. In several cases practically whole counties need underdraining, and there are even some counties where tile are not yet manufactured and where practically no underdrainage whatever has been done. With these facts before us and being ever more strongly emphasized by widening experience and by accumulating data, and knowing at the same time that many farms and various districts, once wet and useless, have been transformed by underdrainage into the most productive in the land, we cannot but wonder why the practice has not spread more generally into other wet districts. Contact with the pepole tells us why. To begin with, the results of underdrainage are not generally known, the immensity of which truth only on intimate knowledge of the facts will reveal. Secondly, the critical operations of drainage are even less understood than its benefits—farmers, generally, have no way of telling whether they have fall enough for underdrainage, what the grade of a proposed drain should be, nor how to dig to a given grade, and fearing disaster in undertaking to drain by guess, they leave it strictly alone. Thirdly, there is an impression abroad that a poor man

can't afford to drain, as the cost is so great. And lastly, the scarcity of labor is preventing many men from draining who are fully impressed with its value. Four years of contact with hundreds of farmers, eager for knowledge on drain age, has led us to these conclusions; and we are endeavoring in our humble way to remove the impediments to what many farmers are pleased to style "the best investment I can make on my farm."

Some years ago we began by going out and making drainage surveys for any who might apply for our assist ance. In doing this we locate the out lets and the drains, determine the grades and size of tile, and finally send the farmer when ready a map of his farm containing all the above informa tion. At first we stopped there, but we soon saw the great lack of and the op portunity to spread information on the subject of underdrainage. Now, at the conclusion of the survey, after the map has been worked out in the rough, a public meeting is held in the field where the survey has been made, and the methods of finding the fall, deter mining the grades, digging the ditch true to grade, etc., are demonstrated. The map is examined, difficulties dis cussed, and details of constructon dealt with, and in fact, drainage in all its aspects is fully considered. The ac companying photograph shows a typic al scene at a demonstration with an average attendance.

These demonstrations are beneficial in many ways. Besides giving much in formation about drainage they are practically a public pledge of the owner to "do something," to put in some of the drains, and usually he does so at an early date; secondly they lead the public to watch results, and the effect is sometimes remarkable. In June, 1908, I surveyed about fifty acres for Mr. John McIntaggert, Brechin, and at the conclusion of the survey a drainage demonstration was held, at which many of the neighbors were present, one of whom applied for a survey of his farm, but it could not be undertaken then,



A TYPICAL DRAINAGE DEMONSTRATION.

and was later turned over to Mr. J. H. Hare, District Representative of the Department of Agriculture at Whitby Collegiate Institute. In June of the present year Mr. Hare went to the locality to make the said survey, and in the meantime Mr. McIntaggert had put in two and a half miles of drain on about twenty-five acres, and the neighbors had been watching results. What they thought may be judged from the fact that Mr. Hare had to make *nine surveys instead of one* before leaving the locality. Where the movement has reached its third and fourth years, practically whole communities are draining, e. g., in the vicinity of the Horticultural Experiment Station at Jordan Harbor, Lincoln County. The station farm was drained in 1907 with eleven miles of tile, and this year there have been enough drains put in there, within a semi-circle of five-mile radius to keep a traction ditcher busy all summer.

### Results of Underdrainage.

Last spring we endeavored to get some definite information as to the results of our work, and wrote a large number of men for whom surveys had been made in 1906, 1907 and 1908, asking them if they had put in any of the drains surveyed by the department, and if so, to give their experience, paying special attention to cost of drains, difference in dates of seeding, difference in growing crops and increase in yield. A few others who had done drainage in earlier years were also written. Many very valuable reports were received, quotations from which will appear in our bulletin on Underdrainage now in the printers' hands, but in the meantime I might give a brief summary of the main points:

### Difference in Dates of Seeding.

Twenty-six of our correspondents gave us the difference in dates of seeding their drained and undrained land. A summary of their reports is given in the following table:

| Difference in Seeding Time. | Number reporting each Difference. | Per cent. |
|---|---|---|
| 1 to 2 weeks..... | 5 out of 26 | 19.2 |
| 2 to 3 weeks..... | 4 out of 26 | 15.4 |
| 3 weeks or over.. | 17 out of 26 | 65.4 |
| 4 weeks or over.. | 13 out of 26 | 50.0 |
| 5 weeks or over.. | 8 out of 26 | 30.8 |
| 6 weeks or over.. | 6 out of 26 | 23.1 |
| A whole season.. | 4 out of 26 | 15.4 |

It is worthy of note that two-thirds of them gained three weeks or over. This much added to the growing season puts the crop so far ahead that it is but little affected by the droughts of July and August.

### Difference in Yield.

The averages for the difference in yield have not yet been made out, as some reports are still coming in, but the gains most commonly reported are as follows: Oats, 35 bushels; fall wheat, 20; barley, 20; hay, 2 to 3 tons.

### Underdrainage as an Investment.

To many whom this article will reach no argument is needed to show that underdrainage is a profitable investment—they have proved it or seen it proved, but some others have doubts on that point, long established and deep rooted—these are they who from time to time tell us that "underdrainage is no good"—while still greater numbers have no settled opinion one way or the other and are open to conviction. Some of our correspondents stated that their drains paid for themselves in one year,

some in two years. Even where the drains were put less than two rods apart and the cost ran up to $40 an acre they paid for themselves in two crops. Has the farmer any other place where he can invest his money and have the principal returned to him every year, or every two years? But, says someone rendered poor and kept so by the wetness of his land, we haven't the principal and how can we invest it? For such cases the Province has long since made provision in the Tile, Stone and Timber Drainage Act (R. S. O., 1897, Chapter 41; Revised in Chapter 22, 9 Edward VII., 1909), by which any township is authorized to borrow money from the Province to lend to farmers for underdrainage purposes. When an individual wishes to borrow money in this way he applies to the township council, and if they approve of the loan to him they pass the necessary by-law, if one has not already been passed, and issue debentures which the Province buys from the Consolidated Revenue Fund. The proceeds is lent to the applicant for underdrainage purposes, and he pays it back on the installment plan, $7.36 per year for twenty years on every $100 borrowed. If the reader will "figure this up" he will find he is paying exactly 4 per cent. compound interest. To-day's papers give the following prices for Ontario crops: Wheat, $1.00; barley, 58 cents; oats, 47 cents; hay, in Toronto, $16 to $20; in Guelph, $14.50; straw, in Toronto, $8.00; in Guelph, $8.00. Computing the value of the increases of grains previously mentioned at to-day's prices we find that the men who have reported are each year making from $16 to $31 an acre by their underdrains, counting an increase in straw of one-half ton an acre at $8.00 a ton. Now, tile drainage to-day costs about $14 to $40 an acre, depending on depth, distance apart, size and price of tile, kind of digging, etc., say $25 average, hence if a man borrowed $100 under this Drainage Aid Act, it would drain about four acres, and the annual payment would be only $7.36 or $1.84 an acre, while as pointed out above, the annual increase in crop reported by men who have put in drains is worth $16 to $31 an acre. Surely a man is safe in borrowing $1.84 to get back $16 to $31. Surely that's a good investment. Surely even the poorest "can afford to underdrain" with this assistance. The writer knows of at least one man, who, with very little capital, bought a large wet farm under heavy mortgage and at once underdrained it with money borrowed under the Tile, Stone and Timber Drainage Act. To-day he is well off, and still a man in his prime.

### The Value of Underdrainage to the Province.

In 1906 we surveyed 500 acres, in 1907 3,500, in 1908 5,000, and 5,157 in 1909, making in all 14,147 acres. Probably not more than half of that, say, 7,000 acres, has been drained to date, but even at that the annual value is great. Taking the increase in crop to be worth $20 per acre, a very reasonable estimate when compared with the actual results reported to us, these 7,000 acres are producing annually $140,000 more wealth than before draining, and the other 7,000 will be drained within a few years, raising it to $280,000 annually. But the estimate should not be confined to those areas directly affected, for farmers are quick to adopt methods their neighbors find profitable, and hence thousands of acres not sur

veyed by us, but of which we hear from time to time, are being drained indirectly as a result of the surveys made. Tile manufacturers tell us that the demand for tile has increased very greatly in the last few years, so much so that many of them who before were not running at full capacity, are now unable to fill all their orders.

The Department of Mines, Toronto, has for many years been keeping a record of the number of tile manufactured in Ontario. From their reports we learn that the number in 1900 was 19,544,000, and that this gradually dropped to 15,000,000 in 1905, but it has risen since then to 24,800,000 in 1908. Reports for 1909, which the tile manufacturers have sent us direct, indicate that this year the output is approximately 29,000,000, or almost twice what it was when we began our drainage campaign in 1905. Is it too much to claim that, in the main, the accumulated increase in tile output since 1905 represents the benefit that the Ontario Agricultural College has been to the farmers of the Province directly and indirectly on this one line of farm drainage? In view of the previous falling off in drainage, we think not. If this ground is well taken let us see the result. The accumulated increase since 1905 amounts to 27,078,000 feet of tile, which would drain 53,178 acres, more than if the rate had continued as in 1905, and the annual value of the increased crop on this area at $20 per acre would be $1,063,560. Thus each year the farmers are receiving in round numbers, $1,000,000 more than if the amount of drainage being done had continued at the 1905 rate.

The total number of acres drained during the years 1905-1909 is 193,436, the product of which is worth $3,858,720 more each year than before being drained. All these estimates are based on reports from farmers and tile manufacturers.

To gain a comprehensive view of what underdrainage may mean we must consider the Province as a whole and estimate what proportion of it needs drainage. As a result of careful enquiry and statements of underdrainage advisers, based on examination of many sections of the Province, I have made the calculation that at least one third of the cleared land of the Province, or 4,710,000 acres, is in urgent need of underdrainage. If that were all drained and each acre produced $20 more than it does now, the increase in crop would be worth $94,200,000 annually. The value of all field crops in Ontario in 1908, according to the latest report of the Bureau of Industry, was $164,077,000. Thus drainage of all the cleared land needing it will increase Ontario's field crop 57.4 per cent. At the present rate it would take 100 years to complete the drainage.

But that does not tell the whole story of the possibilities of underdrainage. Ontario has two and a quarter million acres of slash land, and two and three quarter millions of swamp, marsh and waste land, or five millions altogether, much of which remains in this comparatively useless state only because it would be too wet for cultivation. On much of the slash and marsh a comparatively small amount of labor would do the necessary clearing and under drainage would reclaim the land and make it equal to the best. The swamp too when cleared would yield to drainage in the same way. Thus an immense area could be added to the arable land of the Province.

### The Need.

As we visit various counties of the Province we are impressed with the fact that the great need in the flat lands is *thorough drainage*, which being properly construed, means *systematic drainage*. Fifty farmers in that part of Bosanquet Township (Lambton County) lying west of "the gravel ridge," were questioned regarding their drainage. All claimed to have their lands "thoroughly drained," but only *four* had complete systems, the others having drains in the depressions only, though their lands were as flat as those of the four. My informant, who was making a close study of conditions in that and other townships, states that the output of the remaining forty-six farms would be increased 33 to 50 per cent. by systematic drainage. People who have flat lands should disabuse themselves of the idea that drains in the courses gives them "thorough drainage."

Most of our work consists of surveying for systems; of the 613 miles laid out this year only about 60 miles consisted of separate drains.

So far as our work here is concerned the great need is more men, which, of course, means more money to get them. Already we are holding over 120 applications and more are coming in rapidly. The number will reach 150 by the time winter sets in. The average per survey is 28.8 acres, hence these 150 applications represent 4,320 acres. Had we been able to make the surveys this season probably 2,000 acres of this would have been drained before seeding time next spring. At $20 per acre this delay means an immense loss. That is why I say we shall need more men next year. I believe the College should go as fast as demanded by the people it serves.

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### CONFIDENCE.

Flow on, flow on, wild, hurrying tide,
There waits for thee
Fulfillment of thy dream—the wide
Deep-bosomed sea.

And thou, wild heart, press on, nor fear
But there shall be
In some wide sphere, afar or near,
A home for thee.

—*Helena Coleman.*

# Character and Treatment of Swamp or Muck Soils

BY PROFESSOR GAMBLE.

OF late years considerable attention has been given to the study of swamp or muck soils, including their chemical composition, manurial treatment, reclamation and permanent improvement. In the Province of Ontario alone, we have thousands of acres of such soils, many of them valueless and abandoned, others yet unreclaimed, large areas under cultivation, but yielding poor crops, whilst others again are some of our richest and most productive soils. The economic importance of this question will, therefore, be clearly recognized when we remember that according to the report of the Ontario Agricultural Commission appointed in 1881 "to enquire into the Agricultural resources of the Province of Ontario, the progress and condition of Agriculture therein, and matters connected therewith," almost every township is reported to have some such land, the estimated acreage yarying from a few hundred to forty thousand or more. In the aggregate, there must have been hundreds of thousands of acres of these swamps.

Undoubtedly, in some instances the owners of these lands have gone to considerable expense in draining these areas, but in many cases the results have been far from satisfactory. Indeed, in some cases, the cultivation of ordinary farm crops has been abandoned and the land allowed to remain in pasture. There is not the slightest doubt that these soils, if properly understood, and cultivated, would form a valuable asset of wealth to the province and the object of this paper is to deal with the nature of these soils, their chemical composition and manurial treatment, their reclamation, and some of the causes of their unproductiveness and to suggest remedies for the same.

## Origin and Formation.

Usually these swamps are formed in low-lying places where the seepage water from the surrounding land has collected, or along river banks or lake shores. The water naturally contained some plant nutrients that formed food for certain forms of plant life which could live under the prevailing conditions. The presence of the water excluded air and prevented the complete decomposition of the vegetable matter. Thus, year after year, and possibly century after century, the organic matter accumulated, until it was one or many feet deep. When the surface of this accumulated organic matter rose to near the level of the surrounding land so that the surface water drained off during the summer months, trees of various kinds capable of growth in such a soil took root and grew. Thus cedar, tamarack, elm, and ash swamps were formed, or, according as other conditions prevailed, marshes, growing reeds and sedges of various kinds may have formed. Finally, as the land was needed for cultivation, timber and stumps have been cleared away, and the swamp soils, in various stages of decomposition remain.

### Character of the Soil.

All these filled in bog or swamp areas, then, naturally contain materials rich in organic matter, and, consequently, in nitrogen. However, owing to the high acidity of the peat and bog water, poor aeration of the entire mass, and to low temperature, the action of nitrifying germs (germs that convert organic nitrogen into soluble nitrates) is almost entirely prevented, and, as a result, very little, if any, of the large amount of nitrogen present is in a form that can be assimilated by domestic plants. This class of soils is also usually deficient in potash, although they frequently contain rather large quantities of magnesium and lime, and about the normal amount, or a little less, of phosphoric acid. On the other hand, where a certain amount of sediment from the surrounding upland mixed in with the accumulating organic matter during the filling up period, and when the temperature is more favorable, bacterial action is more active and the organic matter decays more rapidly. Such soils are naturally less acid and contain more potash than other swamp soils, and may be brought into a productive condition very much more quickly than the deposit in the deeper and colder bogs.

In a true swamp soil such as this article treats of, the peaty matter is frequently found throughout the Province from one to several feet deep, and in various stages of decomposition. Some of the samples of soil sent to this laboratory for analysis showed that decay had proceeded far enough to give it a good physical condition, while others consisted almost wholly of partially decayed wood and plants of such a nature that when drained it dried out too much and because of the coarseness of its texture could not lift water by capillarity from the abundant supply lying immediately below.

PLOT OF OATS ON MUCK LAND, UNFERTILIZED.

In some cases our farmers have entertained an erroneous idea with reference as to what constitutes a swamp soil. A low-lying black soil, two to four

inches of depth, does contain considerable organic matter and is rich in nitrogen, but it is usually mixed with large quantities of mineral matter, and is not of the true swamp type. Sometimes, however, when the swamp land has been under cultivation for a long time, or when the greater part of the organic matter has been burned off, the vegetable matter may not be any deeper than that mentioned above. The value of such land will depend largely upon the nature of the subsoil and the care exercised in the handling of it.

The productiveness of swamp soils appears to be more or less dependent on the nature of the tree growth. Correspondents throughout Ontario generally agreed that where the original growth was tamarack or black spruce, the soil was rather unproductive. Indeed, many farmers stated emphatically that reclaimed tamarack swamps make very poor farm lands.

The nature of the subsoil also influences productiveness. In general, when the swamp material lies over clay, it will be richer in potash, and the yields are frequently excellent. A sandy subsoil invariably yields poor results. There also seems to be a general agreement among correspondents that the deeper the black layer of organic matter the poorer the crop returns. In many cases where there is two or three feet of muck, sufficiently drained, and decomposed enough to allow of it holding moisture, the crops have been excellent for a few years. Gradually, however, the crops have become less and less satisfactory until farmers seem to have lost hope of ever obtaining remunerative returns.

The acidity of these soils is a point worthy of note. When decomposition of soils rich in vegetable matter takes place, large quantities of various acids are formed. These must find in the soil bases with which to combine or else the excess of unneutralized acid present will become injurious, arresting nitrification and checking growth. The most common base with which these acids combine is lime, and soils containing a large amount of free acid are generally lacking in that constituent. It has been conclusively shown by the analysis of many swamp soils scattered throughout Ontario, that usually they do not give an acid reaction, but, on the contrary, are rich in lime, the percentage of which in most cases has been much higher than that in ordinary clay loams. Out of forty four samples analyzed, only three were found to contain less than one per cent. of lime, and none of them were noticeably sour or acid. In this respect they show a marked difference to the sour or acid swamp soils of Illinois, which are mostly deficient in lime. This point of high lime content, should be borne in mind, as it influences the form in which commercial fertilizers are applied, as will be shown later.

### Application of Farmyard Manure.

Farmyard manure has been found in nearly all cases to greatly improve even the best of these lands, enabling them to give large yields. Liquid farmyard manure, however, has not been found to have an appreciable influence on the yield. This would leave us to suppose that it is the coarse litter and the straw present in the manure that is beneficial, rather than the fertilizing ingredients themselves, for the urine itself contains the greater quanti ty of potash, though nearly all the phosphoric acid and the greater part of the lime is found in the solid excre

ment. A good dressing of farmyard manure may materially increase the yield for four consecutive years; as a rule the effect of applying potash is seen only the first and second year. An experiment to compare the relative value of manure and blood with that of potassium sulphate was carried on at Wisconsin, with the following results. When the data is expressed as percent age of increase due to each fertilizer, it stands as follows:

SHOWING EFFECT OF FERTILIZER ON MUCK LAND.

Potassium sulphate, 34.4 per cent.

Dried blood, 20.1 per cent.

Farmyard manure, 29.2 per cent.

Thus it is seen that farmyard man ure and dried blood have their part in being good fertilizing materials to ap ply to swamp soils. The addition in every case seems to cause the greatest luxuriance of growth and earlier matur ity, but with a tendency to lodge.

**Chemical Analysis Alone Not a Sure Guide.**

It is generally admitted that the pro ductiveness of a soil cannot be deter mined by a mere chemical analysis alone. True, the analysis will show what elements are present and in what quantities, but it does not show what is absolutely available for the immedi ate use of the plant. Of two soils showing great similarity in chemical composition, the one may be highly productive and the other very unpro ductive. The reasons for this may possibly be found in different moisture conditions, or a difference in physical texture, or in the difference in amount of available plant food, or in a combina tion of all these differences. The chemical analysis may, however, be of value in showing what the possibilities of the soil are under the proper treat ment.

This subject has been studied by the agricultural chemist, the soil physicist, and the practical farmer, and all have contributed to the fund of knowledge.

**Application of Commercial Fertilizers.**

Whether commercial fertilizers need to be applied to swamp soils or not will largely depend on the nature of the subsoil. Deep muck soils resting upon

sand will almost certainly be deficient in potassium, and phosphoric acid will be apt to be low. In cases where the subsoil is one of clay and where portions of it have been mixed with the top soil through cultivation, good crops are often raised, potash and phosphoric acid then both being present in sufficient quantities. But in the former case great gains have resulted from their application, particularly from addition of potash. Applied both to corn and oats, it has given very marked results. The cut illustrated here shows its effect on a crop of oats.

In 1904, muriate of potash applied alone on oats at the rate of 200 lbs. per acre, gave an increase of 15.3 bushels. In 1905, an increase of 12.7 bushels per acre were obtained. In 1906, there was a gain of 13.5 bushels per acre from potash alone, whilst Thomas phosphate applied alone gave an increase of only 4.4 bushels. A mixture of muriate of potash and Thomas phosphate, however, gave on increase of 27.2 bushels per acre. From this it will be seen that frequently the application of a mixture gives distinctly larger yields than the application of one ingredient alone.

Numerous other results could be cited, but space will not permit. Its effect upon corn, however, will be mentioned. In 1904, muriate of potash alone gave an increase of 728 lbs. of threshed corn per acre, whilst a mixture of both potash and Thomas phosphate increased the yield by 1,080 lbs. In 1908, potash alone increased the yield by 1,340 lbs. per acre, a very marked result.

Potatoes respond very readily to an application of muriate of potash and Thomas phosphate usually gives a large increase in yield.

In general, it might be said that the application of mineral fertilizers help to prevent too rank growth and lodging, by balancing up the food materials present. They produce a better filled ear, and usually a stronger straw, besides an increased yield of grain. Their application must be studied by means of small test plots conducted by the farmer himself on his own soil if he would secure the best results.

### Improvement and Reclamation.

Before discussing the improvement of these soils, it is as well to classify them briefly. In general, they may be placed in one of four classes.

1. Soils in which the muck deposit is very deep, often extending several feet.

2. Soils in which the muck varies from a few inches to about one foot, and with an underlying clay subsoil.

3. Soils in which the subsoil is of sand, or quick sand.

4. Soils which are underlaid by a deposit of marl.

The question as to whether these soils should be tile drained or not, as to whether they should be devoted to the growing of cultivated crops, or whether it is more desirable to permanently pasture them will depend to a great extent in which of the above classes the soil falls.

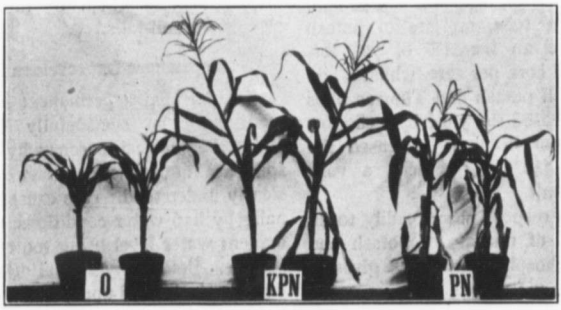
### Permanent Improvement.

In order that a permanent improvement may be successfully brought about, the physical reasons why swamp soils are unproductive must first be clearly understood. It is caused principally by bad water conditions, the permanent water level being too near the surface. Before any special method of drainage is decided upon, it will always be both desirable and profitable to

make a preliminary drainage survey of the land in question, in order to determine its present water level, and the depth below the surface of the real water bearing layer. With these facts in mind, the most economical method of reducing the water level can be determined upon. A system of drainage which taps the water bearing subsoil underlying the humus soil, and lowers the water level to at least 40 inches by removing the cause of unproductive ness insures permanent improvement, in many cases. In all ordinary cases the removal can best be accomplished with either tile or open drains, and attention to drainage should always be the first step in the reclamation of these lands. Frequently when the swamp is under water and being reclaimed for the first time and there is an abundance of surface water to be run off, open ditches often are the most rapid and effective. Once this is effected, the permanent lowering of the water table can be proceeded with. For corn growing it should be lowered to about 42 inches. With a permanent water table of 30 inches, it is certain very little corn can be raised, while with a permanent level of 42 inches first-class crops have been grown on these soils.

As to whether it is advisable to tile drain will depend on the nature of the subsoil. If it be a stiff, hard pan extremely difficult to work and break up, little will be gained by tile drainage, for the simple reason that all the surface water the muck holds will drain off, and no more water will be able to rise from below, through the hard pan, and thus the soil dries out and crops die off. On the other hand, if the soil belong to class one, and be very deep, it is advisable to burn off some of the surface soil, being careful not to let the fire run too deep, and then put in a system of drains if the subsoil be one of clay or marl.

A sandy subsoil, provided it be not quick sand, may be profitably drained. After drainage subsoiling should be resorted to when the underlying stratum be of clay, and thus in all probability rich in potash and most likely in phosphoric acid. The nitrogen is nearly all in the top soil, and potash largely in the subsoil. The chief problem with these particular soils is to bring these two plant foods together in the top soil sufficient for the needs




SHOWING EFFECT OF FERTILIZERS ON CORN.

of the growing crop, especially during its earlier growth before its roots reach the lower stratum. This may be accomplished by deeper ploughing, to a depth of 18 inches or so. When the top soil is too deep for this, or the sub soil is sandy, this method of treatment cannot be followed. Many correspond ents have remarked that the more they cultivate their swamp soils the better the crop produced. Along with this, the statement has usually been made the subsoil has been clay and they have attributed, and quite correctly, the beneficial result to be due to the inter mixture of clay and muck. Besides en riching the soil chemically, the physi cal texture is much improved also.

Burning has already been briefly re ferred to. Where there is a great depth of top soil this method may be follow ed and the remaining soil improved because the ash produced brings up the balance between the various essential constituents for plant growth; but the danger is that the fire will run too deep and destrop all the organic matter and leave the soil poor in nitrogen. At best the method is wasteful and should not be followed except in extreme cases and at such times when the fire can be controlled.

If, after complete drainage, these soils fail to produce satisfactorily, the defect may arise from one of three causes. The soil may have dried out too completely, which has already been spoken of, and the remark made, that such soils had better not be under drained at all, but used as permanent pastures. Or, the soil may contain ex cessive amounts of some substance, such as proto-oxide of iron, which is known to be poisonous to plants, or else the soil is deficient in some avail able form of plant food. It sometimes happens, though rarely, that unproduc tiveness is due to poisoning from the proto-oxide of iron occurring in exces sive amounts. Its presence can be easily detected by the unusually dark color of the soil, which also assumes a reddish tinge when fresh portions of it are exposed to the air. Such exposure causes the lower oxide (proto-oxide) to take up oxygen and to be converted into the higher "sesquioxide" form which is entirely harmless to vegeta tion. Where this difficulty arises with a soil, the remedy is to thoroughly break it up and work the soil from time to time so as to expose fresh por tions to the air. Often, frequent deep ploughing and harrowing during a single season will remedy the matter. When this has been done and the land is in good tilth, its failure can usually be attributed to a lack of available plant food. This will need to be sup plied by application of the proper fer tilizers; then by giving attention to these, the principal points that confront the farmer, it ought to be an easy mat ter for him to bring all varieties of swamp soils into a profitable state of cultivation.

# Factors Influencing Prices of Ontario Fruit

BY T. B. FAULDS, '10.

THE factors which influence the price of fruit, as of other com modities, are many and complex. They may, however, under conditions of free competition be classified under three main divisions—Supply, Demand and Cost of Production.

Price is fixed by (1) the amount buyers are willing to pay—demand, and (2) the amount at which sellers are willing to sell—supply. Under free competition the price which suits the greatest number of both buyers and sellers at any given time is the price of the goods in question at that time.

This price, in any one market, will be more or less equal to the amount which the producer, having the greatest cost of production and who still finds it profitable to produce, spends on pro duction. This is so because no seller who cannot sell at the market price—or point of compromise between buyer and seller—and obtain enough to pay his cost of production and proportion ately enough to provide his own living, will any longer remain a seller. The effect of reduction of cost of pro duction is reduction of price (and vice versa), because the number of those who are willing to ac cept a lower price than the market one is increased. If, for any reason, this does not happen the price will still ultimately fall, because, in the future, ground which before would not pay to produce will now be utilized. This will increase supply, reduce price, and so force this poor land again out of competition, but the balance of supply and demand being again reached, the price will tend to remain at the reduced figure.

In the case of a monopoly the price is fixed by the highest amount the buyer is willing to give and the lowest amount the monopolist is willing to take; the latter amount being independ ent of the cost of production.

The following is a detailed classifi-cation of the factors influencing prices of Ontario fruit.

**(a) Supply—**

1. Acreage devoted to crop con trolled by,

(a) Prices of previous years.

(b) Growers' estimate of the condi tion during coming years, which will be influenced as to demand by,

(1) Fluctuations of population, gen eral and local.

(2) Fluctuations in market demands.

(3) Opening of new markets, and as to cost of production by,

(4) Changing local conditions e.g. establishment of industries which will supply cheap fertilizer, changes in local labor market, etc.

(c) Miscellaneous personal consider ations.

2. Climate and season.

3. Degree of damage done by injuri ous insects and diseases.

4. Better implements.

5. Fuller agricultural knowledge and more scientific farming—the adoption of spraying, etc.

6. Facilities for cold storage, transportation, etc.

**(b) Cost of Production—**

1. Availability and quality of labor.
2. Price of raw material, as nursery stock machinery, spray material, etc.
3. Climate, season, and suitability of soil.
4. Local cheapness or scarcity of fertilizers.
5. Distance from markets.
6. Distance from canning factories, evaporation plants, etc.
7. Cost of trasportation, cold storage, etc.
8. Co-operation.
9. Fuller agricultural knowledge and more scientific practice, and better implements.
10. Size of business.
11. Rent.
12. Rate of interest on capital.

**(c) Demand—**

1. Season.
2. Growth of markets and opening of new markets.
3. Scarcity or abundance of similar commodities.
4. The class of buyers.
5. Prosperity of people.
6. Growth of civilization and refinement of taste.
7. General satisfaction of buyers with previous purchases.
8. Appearance of goods as to packing, conformability to grade, coloring and general attractiveness of fruit, etc.
9. Whether demand is satisfied by home-growing.

**(d) Monopoly—**

1. Tariff.
2. Special advantages—season, scientific knowledge, etc.
3. Established reputation.

## NOTES ON FOREGOING CLASSIFICATION.

**(a) Supply—**

| 1. b. 1.—Population. | 1891. | 1901. |
|---|---|---|
| Canada..... .... | 4,833,000 | 5,371,000 |
| Ontario ..... | 2,114,321 | 2,182,947 |
| Toronto ..... | 181,215 | 208,040 |
| Montreal ..... | 219,616 | 267,730 |
| Hamilton ..... | 48,959 | 52,634 |
| London ..... | 31,977 | 37,976 |
| Windsor ..... | 10,322 | 12,153 |
| Ottawa ..... | 44,154 | 59,928 |
| Peterborough .... | 9,717 | 11,239 |

1. b. 3.—The chief markets for Ontario fruit, excluding local ones, are the United States, Europe, and the West. The latter, because of its large area, increasing population, and quite inadequate supply, is of most importance in this connection.

| Population. | 1891 | 1901 | 1906 |
|---|---|---|---|
| Manitoba ... | 152,506 | 255,211 | 365,688 |
| Saskatchewan ..... | | 91,279 | 257,763 |
| Alberta ..... | | 73,022 | 185,412 |

| Exports of Fruits to | 1903 | 1906 | 1907 (9 months.) |
|---|---|---|---|
| Britain | $3,102,735 | $3,755,490 | $2,814,803 |
| U. S. . | 154,848 | 262,071 | 231,723 |
| Other Countries | 432,079 | 798,327 | 381,853 |

"Mr. A. Mallinson, who has this year bought very largely in Ontario for Western firms, estimates the total quantities of fruit shipped this year to the West from Ontario, as follows:—83,500 barrels of apples, 220 car-loads of grapes, 73 car-loads tomatoes. Mr. Mallinson states further that shipments of fruit from Ontario to Winnipeg have increased 50 per cent. during the last five years, and fully 100 per cent. during the last 10 years."—J. W. Crow in Canadian Horticulturist, Jan., 1909.

**Land in Orchard and Garden in Ontario.**

| 1891-1901 | 1907 |
|---|---|
| 13,223,313 acres. | 14,123,742 acres. |

6. Cold storage facilities are improv ing every year. Government is now paying a considerable amount of atten tion to the matter. "All perishable cargoes are inspected at Montreal, Quebec, St. John, and Halifax, and British ports." "In season 1906-7 the Department of Agriculture had 182 thermographs in commission in steam ship chambers and holds, and in refrig erator cars. For the first time, in 1906, the Department agreed to pay icing charges to extent of $5 per car for the shipment of apples in car-loads con signed to Montreal and Quebec for export. There is now ample cold stor age accommodation for all classes of perishable produce for shipment across the Atlantic from Canadian ports."—Report of Minister of Agriculture, 1907.

Cold storage warehouses for all kinds of perishable goods are now subsidized under certain conditions as to manage ment, etc., and are inspected periodi cally.

The various co-operative societies now have suitable warehouses for tem porary, and winter storage.

**Transportation**—The Georgian Bay canal is of great importance to growers in Georgian Bay district, as an outlet to the East. The subsidized company which has this affair in hand, has now, according to the "Toronto Weekly Globe" of 23rd Dec., 1908, obtained sufficient capital to warrant the com mencing of operations. Freight rates are considered much too high at pre sent by growers of all classes of fruit.

**FRUIT PRODUCTION.**

| | 1891 | 1901 | |
|---|---|---|---|
| | Large fruits (bush.) | Large (bush.) | Small (qts.) |
| Canada | 8,572,000 | 20,669,000 | 21,707,000 |
| Ontario | 5,779,000 | 15,168,000 | 16,232,000 |
| B. C. | 122,000 | 343,000 | 691,358 |
| Nova Scotia | 1,107,000 | 2,131,000 | 992,787 |

U. S. orchard fruits, 1899, 212,360,000 bush.

**(b) Cost of Production—**

1. Harvest labor is exceedingly im portant. The difficulty of obtaining this is decreased by availability of school children, proximity to large towns or ports, or railway termini where immigrants may be found, and by local conditions, as the suspension of local industries, etc. The discovery and adoption of labor-saving imple ments also tend to simplify the labor problem.

2. This is influenced by proximity to nurseries and factories.

3. Climate, while directly influencing cost of production, has an indirect in fluence on the abundance of insect pests and fungus diseases.

4. Cases in point are the obtaining of pomace from cider mills, of wood ashes from factories, etc., whose furn aces consume wood, lime from lime kilns, blood meal, bone ash, etc., from meat factories, barn-yard manure from hotels, livery stables, etc.

8. Co-operation tends to reduce cost of production in such ways as purchas ing of raw materials, co-operative use of machinery and implements, securing of harvest labor, cheaper and better storage, etc.

9. A large farm is more economical than a small one in such matters as buildings, fences, cultivation, purchase of raw material, labor, use of imple ments, marketing of produce, freight, etc.

10. Rent will be influenced by the

relative richness of the land, nearness to large towns and centres of population, transportation and market facilities, growth of local industries, etc. Advertisement plays a large part in the amount of rent; e.g. the Niagara Peninsula has been boomed so much that it is known as a good fruit district all over the world, and prices there, for cultivated, but unplanted ground, is from $100 to $200 per acre, whereas in Georgian Bay, where the land, climate, and market, for certain kinds of fruit, are equal, if not superior, to those of Niagara, but where the country is comparatively unknown, the price of similar land is $30 to $80 per acre. It must be added, however, that Georgian Bay is much farther from the centres of population than is Niagara.

**(c) Demand—**

1. For instance, hot weather increases the demand for luscious, juicy fruits.

2. See export, etc., figures under Supply 1. b. 3.

3. The trade in oranges and bananas, neither of which can be grown commercially in Ontario, is becoming a serious competitor with the fruit business here.

Imports from U. S. of oranges, lemons and limes in 1903, $626,224.; in 1906, $1,238,541, 100 per cent. increase. Bananas in 1903, $774,737; in 1906, $1,124,154, 45 per cent. increase.

Population of Canada, 1901, 5,371,000

Average annual immigration, 140,000

Approximate population of Canada, 1903, 5,651,000; 1906, 6,071,000, 7 per cent. increase.

4. For instance, "Ben Davis" apple sells well in Great Britain, but is not appreciated here.

5. Fruit is only eaten as a luxury by the prosperous to a large extent at least.

6. As people become more refined and better educated they appreciate and know the value of fruit better.

7. A case in point is the wide-spread dissatisfaction in Great Britain and the West, because of fraudulent and careless packing of apples.

9. This is the case with the more easily grown kinds of fruit, e.g. hardy plums, cherries, and apples, particularly in those districts best suited to the growing of these fruits.

| Population. | 1891 | 1901 |
|---|---|---|
| Canada... ..... | 4,833,239 | 5,371,315 |
| Ontario ..... | 2,114,321 | 2,182,947 |
| Man.& Territories | 219,305 | 414,151 |
| | 1890 | 1900 |
| United States.... | 62,979,000 | 84,233,000 |
| | 1891 | 1901 |
| Great Britain..... | 37,881,000 | 41,609,000 |

**(d) Monopoly—**

1. The Canadian tariff has little effect in raising prices of common fruits in the eastern parts of the Dominion, because there is an over-abundant supply of home-grown fruit. In the apple market especially our sellers can undersell American produce, and export large quantities annually to the States (e.g. Apples, 1906, $122,991). This is also true of nearly all the berries, and generally of the commonly grown fruits. It is not the case, however, in the West, vide E. D. Smith, Winona, quoted in "Canadian Horticulturist," Jan., 1909. "The West is an outlet which enables us to very largely increase our acreage in many lines of fruit. Ouh chief difficulties are the high express rates, and the low duties. If we had high duties or low express rates, we could capture nearly the entire Western trade for peaches and plums, which would amount to hundreds of thousands of dollars annually; but we are seldom able to com

pete with California peaches and plums laid down there by freight under a low duty. On articles such as grapes, pears and apples, we have no difficulty in competing except in the early part of the season. Even in these fruits, with higher duties, we would secure a greater share of the market.

Canadian tariff on fruits from the U. S.—

Apples, 40c. per barrel.

Pears, 50c. per 100 lbs.

Peaches, 1c. per lb. (weight of packages included).

Grapes, 2c. per lb.

Plums, 30c. per bushel.

Cherries, strawberries and Raspberries, 2c. per lb. (package included).

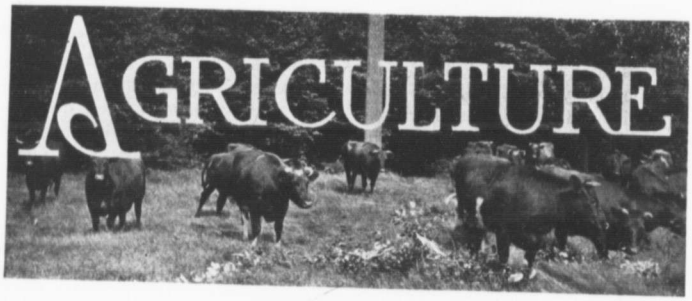
Tomatoes, 30 per cent. ad valorem.

2. Owing to inadequate transportation facilities, high tariff rates, etc., one or more growers of exceptional agricultural ability or more fortunate circumstances (e.g. better storage facilities) obtain command of the local supply; and this monopoly will raise local prices.

3. A reputation for good produce, proper packing, and honest practice, will confer a real and deserved monopoly, e.g. St. Catherines, Norfolk, and other Co-operative Societies, and certain individual growers, can usually obtain prices a little higher than the ordinary market prices for their produce.

In forming any estimate of the prices which will rule in the near future the most important items to consider, exclusive of such uncertain things as season, insect attacks, etc., are: Supply—"acreage," "implements and scientific knowledge and practice," "cold storage and transportation;" Cost of Production—"co-operation," "implements, knowledge, and practice," "cold storage and transportation;" Demand—"growth of markets and population," "condition of banana, orange, etc., trade," "advance of civilization." No accurate conclusions, however, can be drawn in the absence of recent census reports of Canadian, British, and United States population; but it is significant to note that every one of the above items tends to lower the prices of fruit, except the first and third under "Demand." The proportionately great increase of Canadian population—due to immigration—will lessen local reduction of prices; as will also the extension of foreign trade (by diversion of Supply). Foreign trade, however, would suffer to some extent by a rise of U. S. tariff, or the adoption of a preferential policy by Great Britain.

When we consider the vast increase of scientific agricultural knowledge, and improved methods, the greater facilities for transportation and cold storage, and the spread of co-operation of the present, we must conclude that the steady decrease of the past years in the prices of fruit, and all agricultural produce, will continue to an even greater extent in the future.




# The Tenth Chicago International

BY C. M. LEARMONTH, '10.

IT has often been averred, for most justifiable reasons, through the columns of the O. A. C. Review and other agricultural journals, that each International Exposition held at Chicago has been the "greatest ever," until now that statement has become threadbare. However, it may be used once more and this time with perfect truth. Never in the history of the International has there been such a truly wonderful exhibit of live stock and the stockman who visited the show and was alert for ideas on improvement and betterment of the various breeds must surely have come away convinced that first quality animals have a fascination for him, and he will ever continue to improve the breed which holds him by a peculiar tie, that always continues to lead the successful stockman to better work.

Ten years ago the International was founded in the hope and apprehension of developing agriculture and particularly of serving as an educational factor for the stockman. The roots have gone deeply into the vitals of American Agriculture and finding suitable conditions for rapid development, have spread and enlarged until they are firmly embedded in the sympathy and support of that largest body of men on the American continent today—the farmers.

To many it may seem that the International, held at Chicago, not as well known in this country as our own Fat Stock Fair, is entirely a show consisting of exhibitors belonging to the United States. Such is not the case and as the name International suggests, competition is open to all on the American continent. This gives our Canadian breeders a chance to exhibit, and judging from their exhibits this year, they are alive to the breeding of winning stock and quite capable indeed of competing with our neighbors across the line. National prejudices are set aside and all combine to spend either days or weeks in reviewing the production of another year's careful stock breeding.

Permit a few ideas to be given so

that some conception of the magnitude and magnificence of the show may be realized.

Horses, that always add dignity and spectacle to any exhibition, were there in quantity and quality to satisfy their most fastidious followers. Percherons clean limbed, energetic and sleek held positions as regards numbers. The year's exhibit was considered to be the finest showing of Percherons ever given on any continent and some idea of the keen competition may be in ferred when in one class twenty-two stallions faced the judges. The most extensive breeders were Finch Bros., Crouch & Son, and Pabst, and their uniformed men and gaily decorated stables showed that the horses were receiving much better treatment and care than many men.

The Clydesdales, hairy-legged, big bodied and glossy-coated, took the fancy of the majority of Canadians present, and when Gartley Pride, own ed by Graham Bros., Claremont, Ont., won the championship in the aged stallion class the canny Scotsmen and justly proud Canadians were glad to see their favorite horse capture the blue ribbon. The outstanding fea tures were the quality shown in all the exhibits, and the apparent gain in popularity of this breed.

Shires, Belgians, German Coaches, Hackneys, and harness classes were well represented and the lighter breeds were judged the second week of the Fair.

The nightly parades of all animals entered were sights that will not be forgotton and a crowning climax was the exhibition of the six horse teams. Six uniform draught horses, three sep arate entries, Clydesdales, Percherons and Shires moved about the large arena, hitched to a heavy dray and their perfect submission to the reins was indeed marvelous.

As usual deep interest centered around the beef cattle and the perfect ly groomed, typey animals shown must surely have left a deep im pression on every one who witnessed their parades. The Grand Champion ship fell to a pure bred two year old Aberdeen Angus steer owned by the Kansas Agricultural College. They also had the Reserve Champion. Here it may be stated that the leading agri cultural colleges exhibit herds and in dividuals the same as the private breed ers. This is a commendable feature as it keeps interest stimulated and also gives the agricultural students a chance for profitable study in methods of preparing show stock.

For the first time in the history of the International the "Roans and Reds," stood first in the carlot com petition. This year a carlot of Short horn yearlings beat the Hereford and Angus carlots and Shorthorn breeders were jubilant.

Canadian exhibitors were excep tionally strong in sheep, the Grand Champion fat sheep of the show be longing to Sir George Drummond, Quebec. In Shropshires, Lincolns, Southdowns and Leicesters, Cana dians did very creditably indeed.

It was quite generally conceded that this year's showing of swine has never before been equalled, neither in num bers nor in quality. All the leading breeds were exhibited and owing to the breeding classes being added, the exhibit was much larger than in former years.

The time for the show is necessarily brief but its influence will be imperish able. For many the influence of the International ended with the transi tory flush of the entertainment pro

vided, but for the breeder the show carried very important lessons, which will result in a careful and more rigid study of the production of winning stock.

Breeders need ideals and ideals were supplied. With the close of the International in 1909 one of the greatest live stock schools of the world closed, and with its reopening in 1910 we may look forward to another show which we do not doubt will be truthfully designated as the "greatest ever," reaping as it must the progressive spirit so eminently characteristic in 1909.

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# Our Judging Team

EVERY year this College sends a stock-judging team, consisting of five men, to Chicago to compete against teams representing the the leading agricultural colleges in the United States. The Spoor trophy, the bronze bull, which we won three times in succession is our property but there is another Spoor trophy at stake, a bronze stallion, awarded to the team securing the highest number of points in judging cattle, sheep, swine and horses. We have yet to win this latest trophy and this year's team came very close to securing the coveted prize. As it was we stood second, and have reason to feel gratified, despite the fact that we labor under adverse conditions, and are often confronted with classes that are rarely if ever judged by our trained team.

This year Ontario, Nebraska, Iowa, Texas, Missouri, Ohio and Kansas competed. The teams did much better judging than they ever did before. The possible number of marks for every team to secure was 6,000. This year Iowa came first with 4,940; Ontario, second; and Ohio, Kansas, Nebraska, Missouri, in the order named. The highest previous record ever made was a score of 4,580, made by Iowa in 1905. The highest individual record ever made was 992. This year five men made higher scores.

The picked College team consisted of O. C. White, Ashburn, Ont.; A. M. Shaw, Niagara Falls South; W. C. J. Edwards, Balsam, Ont.; R. L. Moor house, Cairo, Ont. Two of our men succeeded in getting in the first ten places. O. C. White came second, just 13 points behind the first man, Mowles, an Ohio student, and W. R. Reek, came ninth.

The team, on the whole, stood second on sheep and cattle, and third on horses and swine. We do not hesitate to say that had our men the opportunities for seeing prize stock such as our American friends make a special effort to see and study, that we can produce winning teams because we consider our students are better stock men and we have coaches that are equal to the very best. The State Colleges that send teams to Chicago pay the expenses of the picked team to go about and get in touch with the very best show animals. We trust that in the near future our Government will see its way clear to help financially our stock-judging team, which would then be in a much stronger position to bring honor not only to Ontario but to the Dominion, and also to the Ontario Agricultural College.

# The Winter Fair

BY R. B. COOLEY, '10.

THE record of the Ontario Provincial Winter Fair held annually at Guelph, brightens as it ages. For a number of years, proposals have been made for the erection of a new building, thereby giving exhibitors more adequate accommodation and visitors a better opportunity to learn of the merits of the various classes of live stock. Also to include an exhibit of the equine species, which would be a commendable step in advance in completing a live stock exposition. These proposals have now matured, and great credit is due the Board of Management, the Ontario Government and the Royal City itself.

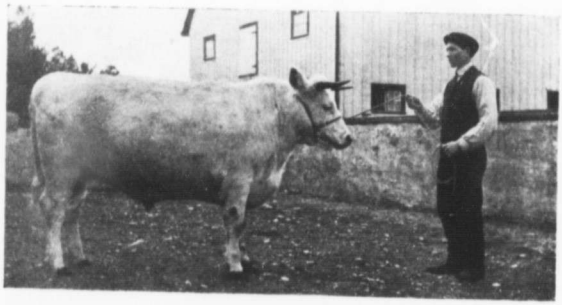
There were over two hundred entries in horses alone. The horse judging arena furnished an unlimited element of interest for everybody. So keen was the interest during the judging that all the seats and aisles, and even the space surrounding the judging ring fence, was at a premium. Special prizes formed a very commendable feature. A great deal of keen interest existed in who would win the "Canadian Farm Silver Cup" for the two best Clydesdale fillies. It was finally awarded to Graham & Renfrew, of Bedford Park, Ont.

The volume of entries in cattle, sheep and swine eclipsed those of any previous year. Dressed carcasses of beef and sheep were well up to the average, but greater improvement than ever predominated among dressed carcasses of swine.

Poultry fanciers had reason to feel much elated. In live poultry there were over four hundred entries more than last year. The splendid showing of dressed poultry monopolized the attention of many visitors. Quality was an outstanding feature of the poultry exhibit and the new building furnished increased space and excellent light for examining the birds.

The seed department occupied its position on the second floor of the building, and was one of the main educational features of the Fair. There were three separate and distinct departments offering prizes for seed. The Government offered prizes for seed grown by any Ontario farmer, it not being imperative that the exhibitor should observe any particular regulations in the growing of his seed. Then the Canadian Seed Growers' Association offered prizes to its members for seed, providing such seed had been produced according to the regulations set forth by the association. Mr. J. Buchanan, B.S.A., of the College Experimental Department, was judge for both these departments. The growth of the work in seed selection under J. Lockie Wilson, of the Ontario Agricultural Societies, is worthy of consideration. A spirit of progress in seed selection is clear when we consider that last year only oats were exhibited in connection with Agricultural Societies. More than that, only three prizes were offered last year. With the assistance of Prof. C. A. Zavitz and others, the Superintendent this year offered ten cash prizes for oats. Besides this, three prizes were offered in each of the following classes of cereals: Winter, Spring and Goose wheats, barley, peas, beans, corn and potatoes. There were a

hundred and fifty entries in all, and only those winning prizes in the standing field crop competition were eligible to compete. Prof. C. A. Zavitz and M. J. H. Clark, of Ottawa, were the judges in this competition. They were particularly well pleased with the purity of the twelve best samples of oats. In samples taken throughout the whole depth of the twelve bags, not a weed seed was found. The grain which won prizes was distributed among the different agricultural representatives to distribute among the farmers as they see fit. The grain which won no prizes was sold at auction and "top notch" seed grain values returned to the exhibitor. Transportation expenses were also paid these men that they would lose nothing from exhibiting.



"SILVER NUGGET"
Senior Yearling Shorthorn Steer, fed at Ontario Agricultural College.

That the whole student body appreciates the value of the Winter Fair was borne out by the degree of profound interest which was prevalent among so many assembled around the judging rings. To the observing man there was an excellent opportunity to learn considerable about this important phase of agricultural education. Keener than ever was the student judging contest. But when its educational significance is considered of foremost importance by the students as it was, we feel that the correct view is entertained.

Another important feature which attracted the attention of so many farmers was the College Drainage Exhibit. Those in charge were kept unusually busy in explaining the operations and benefits of underdrainage. Much benefit throughout Ontario has resulted from the work of the College Physics Department, but, when we consider that if the cleared land in Ontario requiring drainage, were underdrained, it would mean an annual increase of nearly 60 per cent. of our field crops, that 4,710,000 acres in Ontario is in urgent need of underdrainage and that on the average throughout the Province, drained land yields $20 more per acre than undrained land, we cannot but notice that with increased drainage appropriations, much more could be accomplished.

The evening lectures this year were somewhat varied in their nature. Besides the discussions of farm animals,

lectures on "Underdrainage" and "Seed Selection," with special reference to the "Seed Control Act," were delivered by most competent men. The lecture room was usually crowded to its ut most capacity and considerable inter est was shown by the nature of the dis cussions and questions asked the speakers.

The influence of the Winter Fair up on stockmen and visitors alike seemed most favorable. "Uniformity, quality and excellence" and "What magnitude and magnificence the new building, with its commodious arena, displays" were foremost among criticisms offered by the public. Its influence seems to mark, in a most striking manner, the tremendous potentiality in inducing stockmen to breed and exhibit only the best. The exhibits in all the various classes show clearly the magnitude and strength of our growing live stock in dustry.

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# Good Roads

BY A. M. SHAW, '10.

## PART II.

The best method for making these drains and at the same time crown the road, is, first, to find out the amount of fall required and available, stake out line of ditch, and mark all places where culverts and side drains are needed, then plow lightly two or three furrows and either throw them toward the cen tre of roadway or toward the roadside as the case requires.

In the case of a very flat earth road it is usually advisable to throw toward the centre, but, if a flattened out ma cadam road the earth from the sides should be thrown outward. Earth from the ditches and drains must never be graded up on top of an old metalled surface. The reason for this can easily be seen. When new metal is placed on the road, the layer of soil which is on top of the old and beneath the new coat of metal, forms a soft yielding mass which will never consolidate sat isfactorily.

The best implement to use in grad ing is the "Champion Grader." It does excellent work, is not difficult to oper ate, and can be handled by three good teams anywhere.

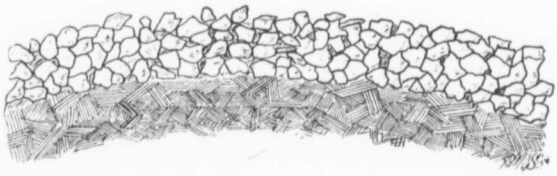
Water in freezing exerts an outward pressure of 300,000 lbs. per square foot. The injury done to roads by frost is due entirely to the presence of water. The more water under a road and above the frost line the greater the in jury. When large quantities of water are present the surface becomes up heaved, and later as the frost is going out, cut into deep ruts due to the por ous or honeycombed condition of the subsoil. It is, therefore, important that the subsoil be made dry.

To accomplish this underdrains are necessary. All roads except those on

pure sand can be improved by tile draining. In nearly all cases a single line of four or six inch tile laid about three feet below the bottom of the open drain on the high side of the road will be found to give excellent results. Give the tile drains a fall of from three to five inches per hundred feet.

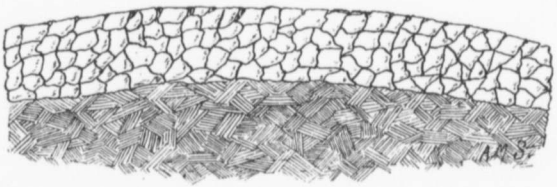
On the face of "spongy or spouty" hillsides tile drains prove very effective. There are cases on record where hundreds of dollars worth of road metal had been placed on one of these hillsides with no good results. The surface would quiver and shake in the spring of the year and finally cut through. A tile drain was put in on either side of the roadway at a cost of some twenty dollars, and a permanent cure effected. The next step after the road has been properly drained and graded is the placing of the metal.

Some road builders advocate making an excavation in crown of road from six to ten or twelve inches deep and from eight to twelve feet wide to receive the broken stone. Others hold that it is better to have your grade on a twenty-four foot roadway made with a rise of one inch to the foot from the drain up to the centre of the road, and then place your metal directly on top in the centre and grade up the sides to hold it in position.



MACADAM BEFORE ROLLING

It matters little which method is followed, providing it is properly done. It is very important, however, that the metal be placed evenly and straight. Another important point is the firming or consolidation of the metal by means of a steam roller. To do this the metal should first be sprinkled with water and then rolled, each layer of stone being gone over as it is laid down.



MACADAM AFTER ROLLING.

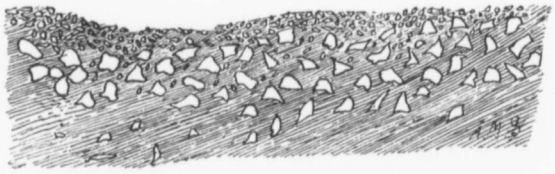
When wheel tracks appear in a new ly metalled roadbed they should be filled at once by drawing in the metal which has been pushed outward by the traffic. The grader can be used to ad vantage in this operation. If this prac tice is kept up, it is not long until the roadbed and particularly the part along the wheel tracks will be as hard as a pavement.

With regard to the suitability of stone and gravel for road making pur poses, I might say that stone, to give the best results, must possess three characteristics. First, power or strength to withstand the crushing effect of heavy loads, second, must be tough rather than brittle to withstand the blows from horses' shoes, and third, have power to withstand to a certain extent the action of the air, water and frost.

Gravel varies even more than stone in quality. The best grade are usually obtained from "pits" and should be clean and bright, free from loam, sand or clay, and ranging in size from one quarter of an inch to an inch and a half in diameter with just enough fine ma terial to fill in the interspaces. The wall of a good gravel pit will stand upright and not slip even after a spring thaw. It should appear just like a conglomera tion of pebbles, all adhering together, forming a fairly solid mass.

For roads where the traffic is not very heavy gravel perhaps is the best material to use. It makes an excellent road and lasts well. If the road is a main one and is used for heavy team ing, then the broken stone is the ma terial to be preferred. It lasts longer, and will bear a much greater weight than gravel. The principal item of ex penditure in road making is the cost of metal, i. e., gravel and stone.

This cost is not made up entirely by their actual value, but by the outlay for quarrying, crushing and teaming. In handling gravel the expenditure is al most wholly for teaming. Now to ob tain the most satisfaction from the



STONE PLACED IN THE MUD.

teaming of the metal the work must be laid out well. Certain men must be on hand to direct the placing of the metal on the road, others to spread it, still others in the pit, if gravel is being drawn, to direct in the loading or in the quarry if stone is the material used.

Teamsters as a rule are very indif ferent as to the manner in which they leave the material on the road, and it is because of this fact that it pays well to have someone at hand to direct, when the wagons are being dumped.

A day's work should be specified by the number of loads according to the length of haul, and every load should contain a certain quantity, from one and a quarter to two cubic yards. The

size of load varies somewhat, due to the fact that some pits are much easier to get out of than others.

In connection with the size of wagon boxes used by teamsters, I may say, that I have personally measured numbers of them and found that they nearly invariably lacked several cubic feet of the two yards, which they were supposed to hold. In several cases they lacked even as much as six feet. These men were being paid by the yard. This is one of the hardest mat ters to handle in connection with road work, i. e., dealing with the teamsters. They will not draw any more than is actually required, and in the majority of cases much less unless the overseer is strict with them. The only remedy is to specify the size of wagon box to be used and the number of loads to constitute a day's work.

Before closing I will deal briefly with clay roads. In the first place, they re quire grading to ensure good drainage and then frequent scraping to obliter ate the ruts which will always form after a heavy rain. A very effective method for doing this last is by using the "Split Log Drag." The degree of success attained by using the drag de pends entirely on the operator. He must use it frequently, after each rain throughout the entire season and in this way a clay road can be kept very good for the greater portion of the year.

The value of good roads can scarcely be overestimated. A country or dis trict cannot obtain its full share of prosperity unless, and until, the roads, at least the main roads, are brought to a good condition. Railway lines or steamships will not take the place of country roads. The construction of these lines and harbors, only means a greater need for good country roads to enable the farmer to reach them more easily.

Any farming country that is worth living in is worth the cost of building good roads, and the only problem should be as to the best and most equitable method of procuring them.

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How lovely are Earth's various moods,
Her winter snows, her summer woods,
Her meadows green and broad;
But O, I find no loveliness
In mountain, sea, or sky, unless
Their changing forms to me express
The changelessness of God.

—*Helena Coleman.*


# What Ontario Offers the Young Man in Horticulture

## Vegetable Growing

BY A. McMEANS, O. A. COLLEGE.

"THE value of an education lies in the means by which it has been acquired," so, too, the stability of a business which has strug gled upward from a small beginning is likely to be greater than that of one whose growth has been easy and rapid.

Properly speaking, vegetable grow ing is one of the most intensive types of agriculture, and requires a compara tively high capitalization, as well as a large amount of labor. At the same time, where markets are good, the in come is so large that a family can make a good living on a small area. The size of the garden will depend on the soil, the crop, and the man. Ten acres, I would consider large, and would rather see the beginner err on the side of having a garden too small, than too large. The writer personally knows of a case where two families are making a good living on three and one-half acres of land, from which should be deducted the space covered by two dwellings, a barn and storage house. This is only possible where high and intense cultivation is prac tised. If the beginner be willing to start the forcing of vegetable crops in a small way and increase his plant with the increase of his own capacity in handling not the plant alone but also its output, he is well started along the highway of success.

I would not advise any young man to enter this or any other branch of agriculture without a practical knowl edge of the same. Study the literature written on the subject; keep up to date by reading trade or farm papers; maintain close touch with the agricul tural college, not only by means of its bulletins but by personal visitation.

Knowledge comes slowly and labor

iously from the fields. It is only when close and intensive methods are prac tised that careful study is made of the character of a plant; its likes and dis likes, as well as the habits of its ene mies. Through this close study of and association with his chosen vegetable a man stamps the mark of his individu ality on the product he grows.

At the present time there is a call for increased quality in food products. Judging by the past, whenever a cry ing demand is made for an article of a certain quality, the leaders in produc tion put forth strenuous efforts to sup ply the demand and seldom does such labor go unrewarded.

There is still another point that goes hand in hand with the production of quality, namely, marketing. No matter how good or how nice your pro duct is, if it is not placed before the public in an attractive manner so as to catch the eye, your efforts in pro ducing quality will largely be in vain. Let me illustrate: the City of Pitts burg, Pa., is one of the best canta loupe markets in the United States. Among several cars of cantaloupes that arrived there one morning during the past summer was one car in which the melons were not wrapped. That car resulted in a loss not only to the grower but to the commission man as well. The other cars containing wrapped melons gave a fair profit to everybody concerned. The cars were all shipped the same day, by the same train, with the same variety of melon, shipper and receiver the same. Re sult: on one car money lost, on other cars money gained. All the difference between the cars was that one lot of melons was wrapped in a sheet of pa per bearing a brand while the other lot had none. So you see that the divid ing line between success and failure, profit and loss, was literally a sheet of paper.

Again, some years ago, the growers along the Eastern shore of Virginia sent their products to market in a hap hazard way with the result that the money returns did not justify the labor spent. In the fall of 1899 an associa tion was formed to further the inter ests of the growers. Last year this association spent $12,000, in telegrams in connection with the sale of their goods. Their gross returns were $2,500,000. The chief articles handled are Irish and sweet potatoes. It is a well-known fact among produce men that potatoes bearing the brand of this association, namely, "Red Star," bring an average of ten cents per barrel more than other stock of equal quality. Why? Because produce men can al ways depend on the contents being graded to standard.

In the vicinity of Ashtabula, Ohio, there is a little band of men, about a dozen, who have some twenty acres of glass devoted to the production of vegetables. Last year their express account was over $11,000. They have an association with a local manager whose duty it is to inspect each local packing house twice or more daily, to make assurance doubly sure that the product is graded correctly. The man ager also tells the grower when his product is ready to ship. Upon visit ing the growers in the month of Octo ber, I found them all one happy fam ily, whose sole aim seemed to be to produce the best quality of goods. One of the growers remarked, "at the present time with meat at high prices, people turn to vegetables and once they start to eat Ashtabula green house products they never quit."

But to return to Ontario and what it offers the young man in vegetable growing: the outlook is so vast that one is almost lost in contemplation thereof. Owing to the geographical and climatic conditions governing the older and western portions of this Pro vince, it is naturally the garden from which will come the fruit and veget able products of this fair Dominion when we shall have a population of upwards of twenty-five millions. I look forward to the time when the dis trict between the Detroit and Niagara Rivers, and the district between the cities of Hamilton and Belleville, will be chiefly devoted to the production of fruits and vegetables with which to supply the people of Canada. What has been accomplished in the United States during the past quarter of a century can be duplicated in Canada during the next quarter of a century. Young man, "dare to achieve!"

# A Problem of Vital Import to Canada

BY J. D. TOTHILL, '10.

BIOLOGY, that noblest of all sciences, which delves into the very mysteries of life, being a product of recent years, is consequent ly in an incipient stage. Yet already what vast strides toward a clearer un derstanding of our universe have we made! Our most eminent scientists tell us that even "homo sapiens," im measurably superior as he is to any other form of life, is himself but an animal, and as such is disciplined by those iron laws which govern nature. Again, look to our farms with their crops and animals; here we see the hand of selection at work de licately weaving the types of the fu ture, eliminating the bad, preserving and accentuating the good; this hand is guided by man and has only been re vealed through the recent light of biology.

This "study of life" has many phases and not the least of these is the study of insect life, technically known as en tomology. Now, if biology itself is in an incipient stage, what a juvenile scion must this entomology be? Yet even in this field there is to-day a vast hoard of ever accumulating knowledge, and the channels along which this knowledge is being directed are those of economic agriculture.

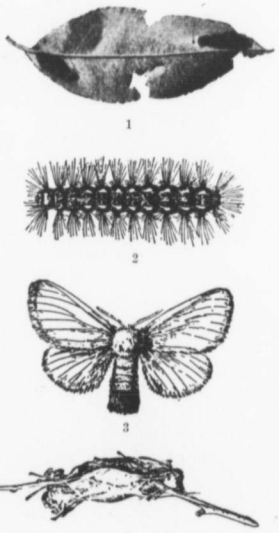
Already a study of this economic phase of entomology has borne fruit. Through it the mystery of fig culture on this continent has been solved, and we now grow figs that will vie favor ably with any. Again in the case of the orange industry of California, which was threatened with such total disaster by the introduction of an in sidious scale, we now have a flourish ing industry, and this also is directly attributable to the growth of entomo logy.

To-day America is faced with a prob lem even more potent and grave than was that of either of the above in stances. We have within a few hun dred miles of our Canadian frontier in sects at work, which, if not checked,

will prove the most devastating and death dealing plague to which the agriculture of the New World has ever borne witness.

This invasion consists of a combination of the Brown Tail moth (Euproctis chrysorrhoea) and the Gipsy moth (Porthetria dispar).

The former of these pests we already have in the Annapolis Valley, and last



BROWN-TAIL MOTH.

1. Egg Cluster on Leaf.
2. Caterpillar.
3. Moth.
4. Winter stage.

year a small colony was even found in Ontario; this latter, however, was small enough to be readily stamped out.

It is not this moth, serious as it is, which, however, threatens disaster of such colossal magnitude. It is the latter of the two, the Gipsy moth, that is the dreaded insect.

The first mentioned moth is happily amenable to treatment owing to the fact that it winters over in the half grown larval condition in conspicuous, though small, nests, which may readily be destroyed. The latter moth, however, hibernates in the egg stage in masses which simulate the bark of trees with such a subtlety of cunning that it is extremely difficult to find them. Again many of these egg masses are hidden away so deftly under logs and in crevices of bark, etc., that even the sharpest eye cannot hope to locate them.

As to the damage these united pests are capable of causing it is impossible to give an adequate idea in words. In the woodlots, in the vicinity of Boston —which is the centre of infestation— where control has been impracticable and the insects have done their worst in untrammelled innocence, it is a sight in mid summer which must appeal to the most prosaic and unimaginative mind. Instead of the deep and lusci ous verdure of the trees and the peace ful umbrage of those "pleasing veget ables," instead of the fulsome chatter of the birds, instead of that indescrib able atmosphere of peace, there is nothing but a great melancholy; there is not a leaf to be seen, there is not a particle of shade, the trees are dead or dying, the birds have gone and on every hand there meets the eye nought but a veritable "winter of discontent."

Again, in areas where the insects are but comfortably established the scene is equally appalling. Countless millions of the caterpillars, dying of star vation or disease, fall to the ground in a perpetual shower, the sound of which may be likened to the patter of the

large drops of rain, heralding a thunder storm.

As regards the spread of the plague it is, thanks to the rigorous measures adopted by the State of Massachusetts, comparatively slow. Each year, however, records an increased area of infestation despite all that is being done to prevent this spread. In 1900 the infested area was limited to a few hundred square miles in the immediate vicinity of Boston, while this year it was estmated at something over 5,000 square miles. These figures need no explanation.

We are thus confronted with a menace of inconceivable possibilities. The insects must inevitably spread in all directions until climatic or vegetative conditions arrest their progress. If nothing were done to impede this progress they would march through and ruin our shade trees, our woodlots, and our forests. In this latter case such a blow would be dealt the prosperity of Canada that she would be crippled to an incalculable degree.

As regards methods of control, there are two—the artificial and the natural.

Until the year 1907 the artificial methods were the only ones in vogue. These consist of cutting out under growth in woodlots, of burlapping, of banding with tanglefoot, of spraying the trees along all the main thorough fares (in some cases as far back as a hundred yards on either side of the road), of creosoting the egg masses of the Gipsy moth, and of destroying the Brown Tail nests in winter.

These methods, taken collectively, are of primary importance in minimizing the spread of the insects, but at the same time the necessary expenditure attending them is something colossal, and at best they can never control the invaders.

The other method of control, the natural method, is the one that bids fair to solve the problem. This natural means consists of introducing the native parasites of the two pests into this country.

In the native haunts of the two moths, namely countries in Europe and Asia, and in one case Japan, serious outbreaks are of seldom occurrence. In fact in most of these countries the moths are so scarce that they attract little or no attention. The reason for this scarcity is attributed to parasites. Now in Massachusetts we have the

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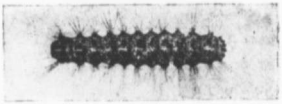

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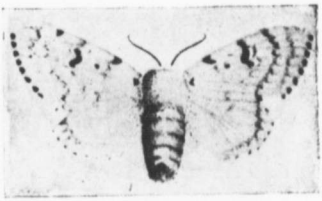


3

THE GIPSY MOTH.

1. Egg Cluster.
2. Caterpillar.
3. Moth.

host insects, but not their parasites, and thus it is that they multiply in such extravagant numbers.

The balance of nature is disturbed, and in order to counteract this condi tion the parasites are now being im ported and colonized. This is an under taking that bristles with obstacles, and the final result is still problematical. The work, however, of the last three years has shown promise of results, and the promoters of the undertaking are most sanguine as to the millen nium. Some of the most efficient para sites have already been colonized, and are increasing rapidly on American soil; as Dr. Howard says, it must take several years before all these parasites become really established, and it will take some years after this before they can really make themselves felt in checking the pests.

In conclusion, it may be said that this is the most daring and brilliant entomological enterprise that was ever undertaken. This branch of entomology, namely parasitology, has been aptly termed the New Entomo logy. It deals with the primary forces of nature in that it seeks to adjust or readjust, the "balance of nature." If the present undertaking meets the reward of success that it so richly de serves—and everything points to the fact that it will—it will constitute a landmark in the annals of the entomo logical record that will not be effaced by the tides of time.

# THE O. A. C. REVIEW

REVIEW STAFF.

S. H. GANDIER, - - - Editor

C. M. LEARMONTH, Agriculture.
W. R. REEK, Experimental.
S. E. TODD, Horticulture.
F. M. CLEMENT, Athletics.
H. A. DORRANCE, Alumni.
W. DAWSON, Locals.
P. E. LIGHT, College Life.
S. ROGERS, Staff Photographer.
A. C. BAKER, Cartoonist.
MISS BELTON, Macdonald.
MISS FLAVELLE, Ass't Macdonald.
MISS ROSS, Locals.

O. C. WHITE, Business Manager.
W. W. Emerson, Assistant Business Manager.

## Editorial

**The New Year**

"A Happy and Prosperous New Year" is the glad greetings which go forth to our readers with the January issue. Congratulations to the successful at the Christmas examinations are in order, also condolences to those who must needs plod on under the burden of a "supplemental," to be written off at the close of the spring term. With our best wishes to our Old Boys, we wish also to convey our thanks for their support. With a continuation of this support, and that of the students, we have no fears for the future of The Review. It has already mounted high upon the ladder of College Journalism; we expect it to mount still higher. The prospects for 1910 are most encouraging, thanks to those who have worked so faithfully in her interests in the past. However, no matter what its merits or demerits may be, the Review would not live were it not for the support of the students and ex-students. Let us then have your co-operation in making our College paper an even greater success.

**The February Issue**

To those interested in poultry the February Review will be especially attractive. We plan to publish several articles upon different phases of the poultry industry, written by persons prominent in this department of agriculture. Owing to the demands of the Poultry Club of the O. A. College that it be represented in our columns, we have been led

to consider the installation of a perm anent Poultry Department. The Feb ruary issue is intended to introduce this department to our readers.

**The Retiring Editor**

From the standpoint of The Review and its success, it is to be regretted that each year the Editorial Chair is vacated. Es pecially is this the case at this period in the history of our magazine, when Mr. F. C. Nunnick retires from the office of Editor-in-chief.

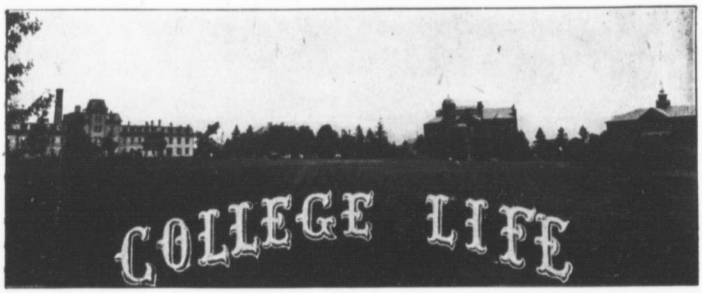
It will be difficult to duplicate the work of Mr. Nunnick, or even to ap proach his success. Since his election to office he has been a man of extraor dinary enterprise, and this coupled with his ability, has placed The Re view upon a higher footing both finan cially and in a literary way, than has heretofore been attained. His excel lent judgment in Review matters has not been without result. For the most part Review affairs have run smoothly during the past year, the entire staff having been enthused by the zeal of their chief. In the selection and pre paration of material for the Christmas issue, our able editor surpassed him self, reaching in the publication of this number, a climax to an extremely suc cessful term of office.

In various phases of College Life Mr. Nunnick has been a prominent worker, his efforts in the Literary So ciety deserving special mention. On the public platform he has on various occasions demonstrated his skill, call ing forth admiration and envy.

On behalf of the students, we extend to Mr. Nunnick heartiest thanks for his untiring efforts in the interests of their College magazine.

**A College Press**

We wish to once more call attention to the Press Fund which was dis cussed at some length in the Editorial col umns of the Decem ber number. At the present stage of Review affairs the idea of installing our own press may appear somewhat idealistic, but we be lieve that in making true and swift progress in any undertaking, a code of ideals is necessary. In its policy for 1910 The Review has the utmost faith in the feasibility of this project and expects to instil into the student body its confidence before another year has passed.




THE eight day plague has passed and those of us who were immune by virtue of our knowledge of the various scientific antidotes, which we had studied during the term, or "plugged up" in the winter fair week, have returned to continue our physical and mental activities once more.

Many of us have entered this new year with resolutions which are brand new, and, in a good many cases, of gigantic proportions. If there were giants in these days, those determinations would undoubtedly be put into effect, but we are mere men. Therefore the advice of those who have resolved only to forget, is "thrust aside your poetic resolutions and let every opportunity be grasped and improved on." This is an age of realities. The period of dreams has long since died a natural death.

### Theatre Night.

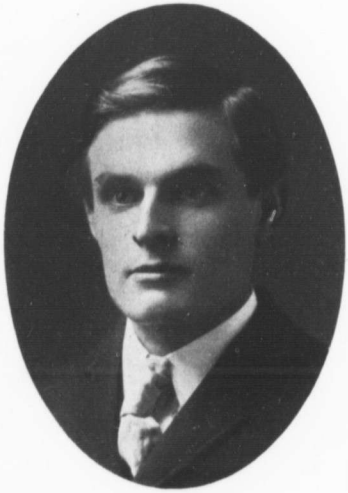
The citizens of Guelph heard, with quaking hearts, that the "demons of College Heights" were contemplating a visit to the "gods" of the Theatre Royal. Much relieved, and dumb founded with amazement, the people of the "depths below" watched the orderly students from "the heights above," as they marched to the opera house to the strains of the "Grasshopper."

The production entitled "Prince of To-Night," was out of the ordinary, being excellently well staged and faithfully presented, except for the fact that a miscellaneous collection of stuffed frogs and ancient fish introduced themselves to the pit, order reigned supreme.

The evening was a decided success and it is to be hoped will be repeated. Credit is due to the Presidential Quartette for the enjoyment of this event.

By virtue of his executive bigness, Mr. O. C. White has ably filled the chair of the big chief of the Union Literary Society for the fall term.

Napoleon was small of stature, but his ability to command was in inverse ratio to the size of his shoes. Mr. White has shown by his work in the capacity of president that he has many of the Napoleonic qualities, and although he has reached his Waterloo, it is not with the feeling of Napoleon



O. C. WHITE, '10.

Bonaparte, but with the sweet consciousness of a Wellington.

May the presidential chair be as ably occupied by his successor.

In the retirement of Mr. W. R. Reek from the presidency of the Y. M. C. A. this important college organization has lost one of its main pillars.

Mr. Reek has done good work for this association in more ways than one. The influence of his presence alone in Y. M. C. A. meetings has done fully as much for the furtherance of this work, as has many another man's mental and physical efforts.

On behalf of the students, we take this opportunity of thanking Mr. Reek for his unselfish services, and also of congratulating him on his successful occupancy of a difficult position.

Loud indeed might our eulogy swell in voicing the sentiments of those who have been closely connected with Mr. F. C. Nunnick in his late capacity as editor of this college organ.

This present time is an age of results, and consequently men are known by their works. We can bring to your notice the ability and excellent work of Mr. Nunnick, in no better way, than by asking you to take a retrospection of the Review year of 1908-9.

### Experimental Union Banquet.

This annual event was held in the College gymnasium, on Tuesday evening, December 7th. A generous repast was partaken of by over five hundred people.

The Hon. F. Cochrane, Minister of Lands, Forests and Mines, was the guest of honor, and during the evening, delivered a fine address on "How to Get On in Life." Toasts to the guests, ex-students and students were generously proposed and replied to.

W. R. REEK, '10.

During the evening the Hon. Mr. Duff, Minister of Agriculture, Hon. Mr. Nelson Monteith, and Deputy Minister C. C. James, also delivered able addresses.

The musical programme was good, and added greatly to the enjoyment of a splendid evening's entertainment.

### Philharmonic.

The annual concert of the Philharmonic Society was given in the gymnasium on Friday evening, November 29th. A large and justly appreciative audience gave quiet attention to a well arranged programme of some two hours' duration. The tableaux, comedies and musical items earned well merited applause, and showed excellent selective ability on the part of the executive.

Whether the presence of outside talent is a means of furthering the growth of this College organization is a matter of doubt. However, it can truthfully be said that the presence of the Misses Springer and Kelly, and of Mr. C. R. Crowe, of the city, added greatly to the success of the evening.

The College orchestra, under the able leadership of Mr. J. D. Tothill, delighted the audience with well chosen selections. Just as appreciative were the offerings of the Philharmonic Choral Club consisting of some forty voices, whilst the vocal solos of Miss Springer, the mandolin solos of Miss Kelly, and the cello solos of Mr. Crowe, well deserved the delight and appreciation with which they were received.

A farcical dialogue entitled "A Pair of Lunatics," consisting of two characters, which were impersonated by Miss Marjorie Winters and Mr. H. L. Phillips, was well produced and extremely funny.

F. C. NUNNICK, '10.

Credit is due to the executive of the society for the presentation of this well prepared programme, and also for the financial success of the evening.

### Y. M. C. A. Organizes.

The organization of the Young Men's Christian Association for the next year is as follows:

Hon. President—Prof. J. B. Reynolds

President—Mr. R. B. Coglon.

Vice-President—Mr. P. O. Van sickle.

Secretary—Mr. R. T. Motherwell.

Treasurer—Mr. H. S. Ryrie.

Chairman Bible Study Com.—Mr. J. E. Smith.

Chairman Mission Study Com.—Mr. W. Dawson.

Musical Director—Mr. J. H. Auld.

Librarian—Mr. J. T. Johnson.

# ATHLETICS

## Hockey.

BY THE MANAGER.

PERHAPS the most popular winter sport at the College is hockey, and without doubt it well deserves the place. Each season greater speed and skill are required on the part of the winning team, and as long as this is the case we can expect that the interest will not only be sustained but increased.

Two years ago we played in the Inter-Collegiate series, but owing to the fact that here we got so few games it was deemed advisable to enter the Intermediate O. H. A. where the number would be much increased, and we would be more in our own class. Consequently a year ago we entered the above mentioned association and were grouped with the neighboring towns, and though we did not always win the experiment proved a success. This year we have continued the experiment and we are likely to be grouped with the same teams as a year ago, which means that once more we need the support of the whole student body.

Also we are in a good position to enter the City League, or at any rate play a number of games with city teams. The city teams are good ones and to compete successfully with them it will be necessary to begin practising early and keep in first-class condition throughout the season.

The two above mentioned series furnish some interesting games, and help to develop men for future winning teams when we have a covered rink of our own and a student body much increased in numbers, though not more enthusiastic over the great national winter sport.

## Basket Ball.

BY THE MANAGER.

The Basket Ball outlook for the coming season is very promising. Although nearly all of last year's team have left the College, we still have material, old and new, which with practice are bound to make a winning team.

We are now trying to form a league between Woodstock College, Western University, London, and the O. A. College. Woodstock have written to the effect that they would do their best to make a success of such a league, but we have not

yet heard from London. It is to be hoped that they will join us, as we need an Inter-Collegiate League of this kind to get the student body as a whole interested in the game.

Both the Stratford and Paris Y. M. C. A. teams have written for games, so that, if the league is not formed, we still have prospects of some very good exhibition games. Our hope is that every player will get out faithfully to the practices and do his best to make a success of this, the most popular of indoor games.

## Baseball.

BY THE MANAGER.

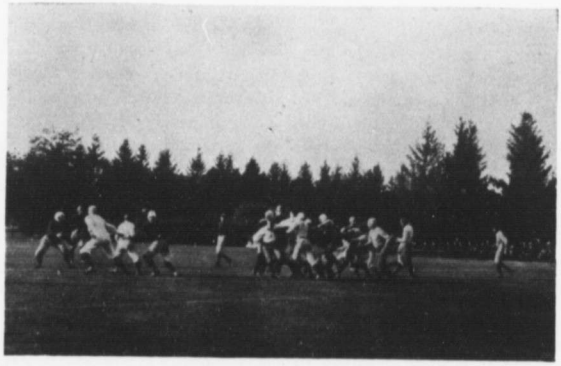
Although the American National game has not gained a very firm foot ing with the student body at our Col lege, yet are we all ardently fond of baseball as played beneath the arc lights of our spacious gym. When the diamond is wrapped in slumber be neath a blanket of white, lovers of outdoor baseball must naturally look about them for some other form of recreation. It is here that indoor base ball steps in, for it is practically the outside game on a smaller scale with out the frequent disadvantage of scorching sun or a pelting rain.

The game is not a new one by any means. Indoor baseball was invented in Chicago in 1887 but for the first dozen or more years of its existence it remained as a mere "fad." Since that time it has emerged from the mere "fad" to a well-balanced, scienti fic, exciting sport. It is a pleasant game, demanding much skill in the good player and only moderately stren uous and there is no doubt that it has come to take its proper place among such games as rugby, cricket, tennis or basket ball.

Our prospects for a good season of indoor baseball at College are bright indeed. The preliminary schedule of the fall term has limbered up the old players and developed some good new material among the Freshmen, and all taken together should give selection for a fast nine. A series of outside games is being arranged which with the regular Inter-Year games should assure us an interesting season.

## A Win and a Lose.

A large number of students journey



O. A. C. VERSUS TRINITY.

ed from McMaster, Toronto, to O. A College, on October 13th, to spend the day in sight-seeing and to eventually engage in a couple of games of foot ball. In the morning the juniors played a very exciting game which resulted in a win for the College. The visitors did good work individually, but seemed to lack in confidence and team practice, while the College team used to advantage the experience gained in the hard fought matches with 'Varsity Thirds. The final score was College 17, McMaster 7.

In the afternoon it was the visitors' turn to cheer. The game started with a rush and for a few minutes it looked like another win for O. A. College. But such was not the case. In a heavy tackle Moorehouse, the centre half, was badly hurt which forced him to withdraw from the game. Madden, the plucky little back, was brought forward, but being entirely inexperienced in this new position failed to do the work that was expected of him, though at times showing up well. Both teams worked well and played good ball, the game ending with a score of 17-2 in favor of McMaster.

### Inter-Year Rugby.

The Inter-Year Rugby series opened with a hard-fought game between the Freshmen and Sophomores, which resulted in a win for the latter. The Juniors and Seniors were to have played next but owing to some of their men being hurt in the Inter-Collegiate series, the Seniors were unable to put up a team. They defaulted to the Freshmen also, thus leaving the Sophomores and Juniors to fight for the championship. In a hard fought game the Sophomores proved themselves the better team, and though winning by a comparatively narrow margin deserve the laurels of their victory.

### Freshmen Meet.

The annual Freshmen Meet was held in the College gymnasium, Dec. 14th. This meet is for the purpose of familiarizing the members of the first year with indoor sports in general, and in a measure preparing them for the College meet in the spring. From this point of view it is regrettable that more students do not take an active part and still more regrettable that so many can not spare a few moments from their regular work, to come to the gym, and by their presence help their fellow-students to a greater interest in indoor athletics.

Pope secured the greatest number of points, winning a number of events quite handily and setting a new mark for the standing high jump, in the Freshmen records.

The following are the events with the winners of each: Potato race—1, Gardiner; 2, Whaley; 3, Hextall. Standing high jump—1, Pope; 2, Powley; 3, Jenkins. Running high jump—1, Pope; 2, Jeffrey; 3, Hopkins. Chinning the bar—1, Ward; 2, King; 3, Evans. Rope climb—1, Evans; 2, Harding. Fence vault—1, Pope; 2, Chaffey; 3, Jenkins. Hitch and kick—1, Pope; 2, Gardiner; 3, Woltz. Rope vault—1, Culham; 2, Harding; 3, Jenkins. Shot put—1, Culham; 2, Pope; 3, Davies. Pole vault—1, Pope; 2, Gardiner; 3, Woltz. Standing broad jump—1, Pope; 2, Culham; 3, Jenkins. Sixty yards swim—1, Davies; 2, Hextall; 3, Madden. Diving for form—1, Hextall; 2, Jarvis; 3, Ward. Rescue contest—1, Davies; 2, Harding; 3, Hextall.

Grand Champion—Pope, with 33 points.

# Alumni

ONE of our old boys who has climbed high on the ladder of success since leaving his Alma Mater is Ralph D. Prettie. After leaving the College, Ralph went to the "Wild and Woolly West," where he purchased a farm and began to till the soil. Shortly after buying the farm he received the offer of the position to act as chief of the C. P. R. Forestry De partment in the West. The position being sufficiently good enough, Ralph sold his farm and is now manag ing the department in a very capable manner.

He has established three nurseries, where a large number of trees and ornamental shrubs are grown. When the trees are one year old they are taken out of the nursery and planted in cuts along the railway, where they serve as fences to prevent the snow from drifting upon the track and also to beautify the landscape. Some of the largest and finest of the trees and shrubs are planted around the station, where their beauty is appreciated to the fullest extent by a great many travellers. During the past summer Mr. Prettie had four O.A.College boys working for him—A. M. W. Patch, em ployed at the Wolseley Nursery; W. J. Strong, in charge of landscape gar dening around the stations; T. Twel teridge, and G. W. Collins, each in charge of a gang of men planting trees along the main line of the C. P. R. Many other things might be said with regard to Ralph's work, but this will serve to show its nature and what he is doing in the West.

Mr. Emerson Bradt, an associate of '09, returned to his father's farm near Caledonia, Ont., with the intention of making farming his life work. But professional life held out such an at traction that, when the position of assistant to Mr. R. S. Hamer, district representative at Perth, was offered

E. BRADT.

him, he accepted. Emerson is a prac tical man, and Mr. Hamer will find him an able assistant and the farmers of Lanark County will find him both capable and willing to aid them in solv ing many of the knotty problems of the farm.

Prof. W. J. Elliott, O. A. College, '98, now Professor of Dairying at the Mon

tana Agricultural College at Bozeman, Montana, has just resigned his position to take charge of the demonstration farm and Farmers' Institute work for the Canadian Pacific Railway in the Province of Alberta. This company owns a large tract of irrigated land south of Calgary, and has a very sple didly equipped demonstration farm at Stratmore. Professor Elliott will be in charge of these farms and will have general direction of the work in con nection with the establishment of new farmers on the irrigated lands.

The salary is a very handsome one, and while the Montana Agricultural College greatly regrets to have Profes sor Elliott discontinue his work, they feel proud that one from the faculty has been chosen for this very remuner ative and highly responsible position. Billy has had a large place in the de velopment of the dairy industry of Montana and is one of the most popu lar Farmers' Institute speakers in the West.

George J. Callister, an associate of '09, has secured a very responsible po sition on the staff of the Montague Agricultural High School, at Mon tague, Mass. Mr. Callister has charge of the manual training and agricultural departments of the school. George has already done excellent work, having in troduced many new features and rear ranged many of the older departments of the institution. With such a man as Callister in charge we are safe in predicting great things for the Mon tague High School.

Congratulations, De Coriolus—a daughter.

"Scotty" Lawson and "Willie" Fair head, both of '08-'09, are pursuing their studies along horticultural lines at the State College of Washington, at Pull man. They are progressing favorably, and we may expect something doing in B. C. fruit growing before long.

Among the many old boys that we met at the International at Chicago was John Gunn, '03-'05. Gunn is now a prosperous farmer in Minnesota.

J. C. Harkness entered the College in the fall of '03 and remained for two years, after which he returned to the farm at Irene, Ont. Shortly after this he was engaged by Mr. Greenshields to manage a large dairy farm near Mon treal. For two years he filled this po sition most successfully until the dis persion of the herd caused him to look for occupation in other fields of labor. In the winter of '09 he went to Arkan sas, and at Fulton is with his uncle engaged in a very successful and pros perous lumber and land business.

After taking the Dairy Course at the College, V. A. Hooper spent a few years in different parts of Ontario. Unable to find a suitable location in Canada he went to Arkansas in the fall of '04, where he is now Professor of Dairy Husbandry at the State Univer sity at Fayetteville. Hooper is very popular in his position and is making it a success.

J. W. Brownridge, an associate of '07, left the College with the intention of returning to enter the Third Year. Owing to severe ill-health he was un able to do so and we are sorry to learn that he is not recovering so quickly as we would wish. We trust, however, that with continued skilful treatment that Mr. Brownridge will soon be re stored to perfect health.

After leaving the College in 1890, Robert Elliott was for some years connected with the herds at the Central Experimental Farm at Ottawa. He is at the present time a most prosperous farmer near Owen Sound, Ont.

After completing his B. S. A. course in '08, M. A. Jull went as Assistant Poultryman on the staff of the West Virginia Experiment Station at Morgantown, W. Va. Last summer he was offered a very lucrative position under Prof. C. K. Graham, of the Hampton Agricultural College at Hampton, Va., but refused that and accepted an offer from the Department of Agriculture of British Columbia as Poultry Expert. Jull likes his present location, and the poultrymen of that Province will find in him a valuable addition to their ranks.

On October 20th, 1909, another of our old boys embarked on the sea of matrimony. This time it was Thomas Miller, of Bridgeburg, Ont., who took for his life partner Miss Sarah E. Anguish, of Nelles' Corners, Ont. That they may have a long and happy wedded life is the wish of their many friends.

### Obituary.

Those who attended the College during the years from '02-'06 will regret to learn of the death of John Craig, B. S. A., '06, which occurred at Creelman, Sask., September 18th, 1909. Craig came to the College from Glasgow University in '02, and was successful in completing the Associate Course in one year. The next year he went West and purchased a section of land near Creelman, Sask. In 1904 he returned to the College and completed his degree course, and after graduation went back to his farm and was engaged in practical agriculture until his death.

Craig was one of the brightest and

JOHN CRAIG, B.S.A., '06

most learned men that ever attended the College. He had a most brilliant college career, more particularly in English, being winner of the Thesis prize in his second year, and with his oration "Our Glorious Heritage," one of the finest speeches ever heard here, he won the public speaking contest in his graduating year. He was a writer of no mean ability, and under the nom de plume of "Ian Baig" he was a valued contributor to the columns of The Review, from the files of which we reproduce two of his compositions, "Song of the Plains" and a humorous selection.

### Song of the Plains.

No harp have I for the singing, nor
fingers fashioned for skill,
Nor ever shall words express it, the
song that is in my heart.
A saga, swept from the distance, hori
zons beyond the hill,
Singing of life and endurance, and
bidding me bear my part.

For this is song, as I sing it, the song
that I love the best,
The steady tramp in the furrow, the
grind of the gleaming steel,
An anthem sung to the noonday, a
chant of the open west,
Echoing deep in my spirit, to glad
den and help and heal.

And this is life, as I read it, and life
in its fairest form,
To breathe the wind on the ranges,
the scent of the upturned sod,
To strive and strive and be thankful,
to weather the shine and storm,
Penciling over the prairies the
destiny planned by God.

And no reward do I ask for, save only
to work and wait,
To praise the God of my fathers, to
labor beneath the sky,
To dwell alone in His greatness, to
strike and to follow straight,
Silent and strong and contented—
the limitless plains and I.

### From the Tablets of Azit-Strukmi, the Scribe.

(The following, transcribed from the cuneiform characters, engraven on bricks unearthed in excavating the foundation of the new machinery hall, would exemplify the time-worn apothegm: "There is nothing new under the sun."—Ed.)

1. Nau itappint i thi sihxt yirov kingedwâd.

2. In thagri kultuaral kollejov Kuelf.

3. That afoto mênyah eppi demn ik broke out.

4. Ann thi Wyem-Siê wershawt.

5. Lykyy thath lettik ekzekqutiv.

6. Then felthi tugov wawrtim pre tothi sikknez.

7. Eek thorêtorz.

8. Then wergatherto gether, lyk burrdz tothi slawter,
Al thoaz nobileeroaz huhad stormed thi kitchen. Bravin mizhardi.

9. Thê tu wershawt.

10. Yê thoas hûresis tedthi imposton smoking.
Thêr lidurthi Dook, "rangdivuing with D."

11. Thê tû wershawt.

12. Thenal hûcûd thredthi mazesov Armsbi.
Fû werthê in sûth, thêr lidur Makr-

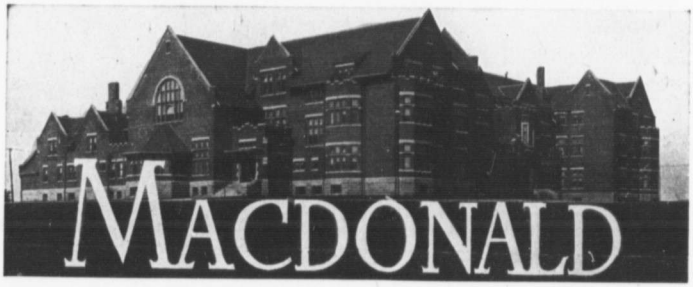
13. Thê tûtûk thitrêl kennediward.

14. Thi grûpz-thêr nêmwas ligun.

15. And thoas hûsikkent ovthi plêg werin numberas thi graz-hopperz.

A most unassuming fellow, yet one who was very popular with his classmates and all with whom he came in contact, his death in the prime of a useful career, is most generally re gretted.

Still another break has been made in the ranks of our old boys. A victim to typhoid fever, Thos. B. R. Henderson, B.S.A., '05, died at his home in Edmon ton, Alberta, November 22nd, 1909. Cut off in early manhood, being only thirty years old, at the opening of a very promising career, the community has lost a valuable citizen and trusted official. At the time of his death he held the position of Provincial Weed Inspector for the Province of Alberta. The Review extends to the bereaved relatives and friends our most sincere sympathy.




# Benefits and Advantages of Macdonald Institute Courses

BY HAZEL A. STAEBLER.

ONE of the best and most thoroughly equipped Colleges in Canada for the study of that important branch of education, Home Economics, is Macdonald Institute. In considering the merits and advantages of this College there are two sets of facts to be looked at: those involving the practical questions of cost, educational equipment, situation and industrial opportunities, and those more closely related to the social life of the girl in the student body,—the customs and ideals of the place, the attitude of the teaching corps, rules and restrictions and the question of exercise and of friends. In view of all these points concerning the school, we shall see what material benefits the student may derive from its courses.

Macdonald Institute and Hall are situated on the outskirts of the City of Guelph, and form a part of the famous Ontario Agricultural College. The buildings are both modern and beautifully planned, and are supplied with all the devices for heating, lighting and ventilation. The advantage of the new school is in providing on the whole more comforts and better food. For the student to whom making a living is only a remote possibility, the joys of the College life removed from the distraction of the city are greatly to be preferred. No eastern college can touch Macdonald Institute in the beauty and extent of country that is her very own. Nature counts tremendously in the Macdonald girls' memory of College days and has ever proved an inspiration to earnest work.

The equipment is most thorough for every branch of study, and the student can scarcely help putting forth her best efforts. Turning to the financial questions, we find that the terms of admission vary with the length of the courses, but the fees are such as to be easily within reach of the average girl. There are four different courses offered, and these are the Home-Maker short courses, and Housekeeper for the purpose of home-making, and the Normal to provide Home Science tea

chers for public schools. With the be lief that home-makers, more than bread winners, need versatility and literal culture, it has been made im possible for any girl to get through this College blind on one side. She cannot specialize so narrowly as to escape general intelligence. On the other hand she must specialize at some one point. Wherever by nature she seems to run deepest she does rigid, intensive work throughout her course.

A girl must needs know how to man age a home and to do so economically. In Macdonald Institute she learns do mestic science in all its branches, or at least in its rudiments and prime es sentials. Although the girl of wealth may never have to do the work at home in her own kitchen, she learns how it should be done. The girls learn the practical part of culinary art beginning with the selection of har monious articles of food for the menu, the purchasing of materials, and then preparing and mixing the ingredients, and doing the cooking. They are taught the classification of foods, food values, and the effects of heat upon dif ferent foods, singly and in combina tion. Besides this a study is made of chemistry sufficient for the understand ing of such a course. It cannot be ex pected to make "professional cooks" in a few lessons, but it is confidently believed that if girls once master the elementary principles which their lessons illustrate, they can with prac tice at home, acquire a degree of skill sufficient to do all that is necessary in plain family living, to make delicacies for the sick and to work in the kitchen in case of the cook's sudden departure.

As the first principle of culinary economy good quality of material is taught. The students learn the ways and means by which a prime quality of flour, fruit, meat, butter, molasses or any other staple article of foods is distinguished by the skilled in market ing. Instruction is given in regard to cutting, carving, garnishing and serv ing foods of all kinds. The pupils learn how to lay a table properly and how to preside over it. Thus they ac quire the three most important factors in culinary art,—economy in prepar ing, delicacy in cooking and grace in serving.

Homes cannot be bright and happy if order, thrift and providence are not taught there. So one sees that the courses include, not merely learning how to cook, but also how to handle a broom or duster, how to clean and re pair various articles; how the house should be heated and ventilated; how clothes should be laundered; how to engage servants and plan their work, —in short how to manage a household from actual experience instead of re lying on the common sense "that is too often found woefully wanting."

Manual Training and also dressmak ing are considered most important branches of study for young ladies who are preparing themselves for a useful life. In the former study ac complishments are acquired which equips the girl with the knowledge of how to make home beautiful accord ing to the principles of applied art. The Macdonald girls find that the whole scheme of handicraft education is an enlightenment in the study of objective beauty, and an introduction to the subject of home decoration and furnishing, color schemes and appropri ate furniture. Turning to the latter, sewing, we find the girls learning plain sewing, embroidery and dressmaking. These will always be helpful accom plishments and will save the money

which they have been wont to spend on dressmakers' bills.

Life at Macdonald Hall is one of serious work, studious, practical and altogether wholesome and refining. The student is a member of a large home circle, where she has as intimate and dearly loved friends as at home. Association counts for a great deal in the development of character. The girls find ideals in their cultured in structors and also in their fellow students. They strive to improve their habits, to follow the best and highest standards. For many of the students, this school is the last which they will attend, and as if realizing this, they take advantage of the companion ships that shall be in after years most lasting friendships or most cherished memories. The girls have school col ors, class pins and and all the rivalries and ambitions that are features of College life. Field athletics, vigorous games such as basket ball, tennis and hockey develop spirit and loyalty. The students enter into these events with a zest that speaks of health and hap piness.

The rules and restrictions are not too severe. Nobody is permitted to overstudy or under-exercise. New rules are made when they are found to be necessary, but great freedom is nevertheless allowed. By no means is the spiritual development neglected. Each Sunday chapel is attended by everyone, and prominent ministers preach inspiring sermons. Prayers are repeated each morning and Bible classes are held weekly. With this at mosphere there can be but few who do not raise their moral standard.

We have dealt with some, if not all, of the principal features of Macdonald College. From all its benefits and ad vantages we feel that it is well calcu lated to realize the desire which one principal expressed:—"I wish my girls to become women, strong in body, broad of mind, tender, respon sive in soul, to be lovers of country, loyal to church, masterful in all things which affect the home, remembering that as our home, so is our country; that as leads our country, so moves the world. I wish them to live vitally, to feel deeply, to work cheerfully, to face facts and not play with them, to look up fearlessly to God and sympathetic ally out, not down upon mankind; and in all things and at all times to feel within themselves the joy of exist ence."

### Our Short-Course Friends.

Once more our happy ranks are broken as the end of the term draws nigh, and the Short Course girls drop out to give place to those who are to join us after the New Year. These short course classes get but a glimpse into the real life of Macdonald, as their time is not occupied with studies or the more serious aspects of life here, and their work, affording them more freedom, does not tend to deepen in them the College spirit as it does in those who remain longer. Many friendships have been made during their short sojourn here that will leave a lasting impression upon their minds, and while friends must part knowing not whether they shall ever meet again, the close contact with others tends to develop their character and give them a broader view of life.

The short course girls this term have indeed been a very jolly crowd, and ever ready to assist in any way to make the work easier for those who have their studies. The Literary meet ing held last Tuesday evening was pre pared entirely by the short course. The meeting was indeed a success and

thoroughly enjoyed by those who left their studies for a short hour and cent ered their thoughts on other things.

Then, too, this class intends having some form of entertainment for the long course students before parting so what can we say but that we will miss the familiar faces and many friends as we re-assemble after Christmas.

But we must not forget a word of welcome to those we are to enter with the New Year, to welcome them and give them a place and have them take part in all the phases of Macdonald life.

Let us just say a word about some of the short course girls.

First we have Miss May Moffatt, the class representative, always bright and cheerful and ready to help anyone in trouble. Having graduated as a nurse, all the short course aches and pains were taken to her to be soothed. Miss Moffatt also came to Macdonald for a short course reason, and the best wishes of all are extended to her for her future happiness.

Miss Eloise Chapman, possessed of a rich soprano voice, has been a great assistant in the choral work, and has also afforded very pleasant diversions for those who were engaged in the more strenuous part. Of life here, of a very bright and jolly disposition, she will be greatly missed.

Miss Marjorie Warner is a very no ticeable character among the short course students. Everybody recog nizes the fact that wherever Marjorie is everything is bright and jolly. Never at a loss what to say next, she keeps her audience in peels of laughter from the time she joins the group until she passes on. A disposition such as hers will leave a decided blank when we return without her.

Miss Dora McKay, a bright and clever girl and a very accomplished musician, has assisted in all forms of entertainment. Miss McKay has al ways entered heartily into any plans that have been made and has done her utmost to help in making things a success.

There are many others that we might mention as all have played their particular part in making the last three months one of great pleasure to all of us, and we all join in wishing the girls every success in their future life.

# Among Ourselves

The first meeting of the Literary Society for this term was held on No vember 12th. The President, Miss Louise Hogg, gave a short address of welcome to the new girls, and an ex planation of the aims of the society. After the business of the meeting was completed, the following delightful programme was rendered:—

"Solon Muzurka"— - - Bohn
Miss Cinnamon.

Reading— - - - - - ——
Miss Allen.

"Hesitation"— - - - Kussher
Miss Loughrin.

Pantomime— - - - - -
- - "The Ballad of Mary Jane"
Misses MacKay, Freeland, Burke,
Moffatt, and Seaborn.

"Meditation"— - - Morrison
Miss Davidson.

During the Institute meetings many of the girls were overjoyed to have their friends with them for a few short hours, but the happiest day for the long course girls was the day Misses Edna Hartley, Edna Spence, Lena and Eva Messecar spent at the Hall. It seemed like old times to have the girls back again and all enjoyed a dance to some familiar old tunes. The visit was enjoyed immensely both by the visitors and the old girls.

On Tuesday evening, December 7th, the members of the Macdonald short course classes delighted their fellow students by the rendition of one of the most edifying and enjoyable pro grammes that has ever been given in a Literary Society meeting. The mu sical numbers were highly appreciated and reflected great credit on the Misses Loughrin, Pollock, Chapman, and Davis. "The Life and Works of Robert Service," comprised the liter ary part of the programme, and the au dience undoubtedly gleaned a most comprehensive idea of this young poet of our own Canadian West. Miss Moffatt read a sketch of his life, and this was followed by readings from some of his descriptive, humorous and sentimental selections, given by the Misses Pollock, Chase and MacKay. After singing "God Save the King," the long course students gave vent to their feelings of appreciation by a unanimous burst of cheers.

# Much Ado About Nothing

**Motto of House Practice.**

Lives of drudges all remind us
We must do our drudges too;
Or, departing, leave behind us
Work for other girls to do.

Bones, bones, bones!
Forever and ever, it's bones.
With long bones and short bones,
And flat bones and cross bones,
We murmur with curses and groans.
Bones, bones, bones!
Forever and ever, it's bones.
You cause consternation,
You ossification,
You bones, bones, bones.

—'Varsity.

Girl (on the evening of the Presto Choral concert)—Did you see all the boys with their dress suit cases on?"

Mr. X.—Do you like flowers?
Miss Z.—Yes.
Mr. X.—Do you like candy?
Miss Z.—Yes.
Mr. X.—Do you like cake?
Miss Z.—No.
Mr. X.—Do you like ice cream?
Miss Z.—No.
Mr. X.—Then, why do you go to Williams' so much?
Miss B.—At least, not to see you.

Miss D. (coming in to a 3-period lecture two minutes before over)—Did I miss much, Miss Allan?
Miss Allan—Well, I really can't say Miss D.

Overheard in the corridor—Say, J—, I wish you would fine me a quarter every time I use a word I hadn't ought to.

**Short Course Intellect.**

In the good, old summer time,
When exams. are ended,
And Domestic Science notes
To the bookcase wended.
Muslin dresses take the place
Of the "Blue and White,"
And Oh! What fun to stay out,
After 10:15 at night.

It's very nice to have a car
To take you to the door,
And a thoughtful chaperone
To say, "Just 15 minutes more,"
Until the lights will all go out;
And then it won't be long
Until the radiators crack!
And then, the "rising gong."

Each day our intellect expands,
And broader grows the mind;
But not enough to make us wish
There was no "vacation-time."
For soon we hear the prattle
Of sleigh-bells, in the air,
And soon, there is a whisper
"Holidays will soon be here."

Our trunks we then begin to pack,
And soon there seems to come
A feeling of remorse,
When we know our course is done;
But when another year
Brings new duties to us all,
We never shall forget the hours
Spent at "Macdonald Hall."

# Schools' and Teachers' Department

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

**N. B.—Free Copies of the O. A. C. Review.**—Owing to the demands of a growing, paid-up subscription list, there is an unexpected shortage in the supply of Reviews available for free distribution amongst the teachers who have taken courses at the College. It is found that complimentary copies will have to be limited to the Normal Classes of the last spring term. Teachers in other classes will be put on the mailing list for the Schools' and Teachers' Bulletin if they make application for such. Inspectors are advised that the distribution of free copies to the rural schools has had to be restricted to schools taught by teachers who have recently received instruction at the College.

## INDUSTRIAL ARTS.

ONTARIO
DEPARTMENT OF EDUCATION

**Elementary Industrial Arts**

**This is to Certify** that Miss Juanita Thomson

having attended the special session of the Ontario Agricultural College, Guelph, from April 19 to June 29 1909, and having passed the examinations prescribed by the Department of Education, has been awarded a certificate in **Elementary Industrial Arts**, valid during good behaviour.

**Dated** at Toronto this 30th day of July 1909

*Registered Number* 136

R. W. Taylor, M.A. *Registrar*

R. A. Pyne *Minister of Education*

John Seath *Superintendent of Education*

Form H.-300-July, 1909.

The cut shows the certificate issued by the Department of Education in Elementary Industrial Arts. Recent regulations announce special encouragement to School Boards employing teachers with this qualification, and carrying out a satisfactory course of instruction in the subject. The terms are practically the same as for the teaching of Elementary Agriculture and Horticulture, viz.: An initial grant, not exceeding $50.00, to meet the expenses of providing equipment, and a subsequent annual grant of $30.00.

To the teacher who organizes and carries out the work satisfactorily, an annual grant of $30.00 is paid, in addition to the regular salary paid by the School Board.

The certificate is awarded teachers who complete satisfactory courses at this College, either in the special Normal classes or in the Teachers' Summer School. At the present time there are about forty teachers in the Province qualified for the work. The movement now awaits the action of Trustee Boards.

For fuller particulars regarding the regulations and the scope of the work, teachers should send to the Department of Education, Toronto, for Circular 7

## HOME ECONOMICS.

### The House-Practice Work of Macdonald Institute.

The House-Practice Work of Macdonald Institute has become a strong feature of the regular courses owing to the individual nature of the instruction and the proven value of the knowledge gained.

The equipment consists of a room fitted up with the necessary apparatus, cleaning materials, cloths, etc., for the different operations of housework; a set of House-Practice cards for each student, which are filed in drawers with guide cards for each student's name; and an instructress whose business it is:

1. To know what parts of the building are available for the work when the students are ready to do it. She learns this through personal observation, through consultation with the janitress, and through special memoranda of work which needs doing furnished by different members of the staff .
2. To assign the available work according to the student-lists furnished for each school day.
3. To start the girls at work and to observe its progress as fully as possible.
4. To inspect the finished work, and if ill done, to require it to be done over again.

During the first two weeks half a dozen general lectures on the care of the house are given, and then each student is assigned two periods weekly for the practical work of carrying out the directions of the cards. The instructress plans to give the short course students the jobs with which they are least familiar, but the long course students carry out most of the work outlined on the cards. Any part of the Institute not occupied by classes, and certain work in Macdonald Hall is available for House-Practice; every chance of unusual work is seized upon for the students' benefit, but the students are never subordinated to the janitor work of the building. Some of the operations demand considerable muscular exercise, but the instructress is warned to regulate carefully the assignments to the girls unaccustomed to moderately hard work.

The House-Practice sets consist of thirty-five cards, each giving clear directions for as many different kinds of work, ranging from dusting to stove-cleaning or mopping. Each regular student is required to purchase a set as part of her text-book outfit; it is in the hands of the instructress until the course is completed; it is then carried home by the student to have holes punched to string them together, and we hope they have many days of further usefulness before them.

Following is a sample of the House-Practice cards, showing the fulness of the directions and the method of assignment. They are printed on manila cards about the weight of postcards, and are very durable.

This method of washing by the use of paraffine can be recommended, and teachers may pass on the information with confidence.

No. 31.

## MACDONALD INSTITUTE, O. A. C.

### House-Practice Card.

### PARAFFINE WASHING.

**APPARATUS**

**Paraffine wax, laundry soap, soft water, clothes boiler, sauce-pan, laundry tub and wringer.**

**PROCEDURE**

1—Soak the clothes over night in cold soft water.
2—Shred one-half cup of paraffine and one-half pound bar of soap, and melt in one pint of hot water.
3—Fill the boiler with soft water and bring to boiling point; add the paraffine mixture.
4—Wring the clothes out of the water in which they are soaking ,put them in the boiler, and boil one-half hour.
5—Remove the clothes to a tub of water, or a washing machine, and rinse the soap suds well out of them. Only the very dirty parts need to be rubbed.
6—Rinse in clear cold water.
7—Rinse in blueing water .

Note.—For a washing of about five boilersful, prepare twice the amount of paraffine and soap, putting one-half of it in the first boilerful, and adding some more to each succeeding boiler of clothes.

---

**Student**..... ..... ..... .....**Date**..... ..... .....

**Get Apparatus in Room**.....

**Work is to be Done in Room**.....

**Hang Wet Clothes in**.....

**Actual Time Occupied in the Work**.....

---

When the Student has finished the assigned work she will record the time occupied, and deposit this Card on the Teacher's Desk in the House-practice Room.

## NEWS ITEMS.

Miss Mary McLennan (1907), Dietitian in the University Hospital, Philadelphia, writes of her work:—"My kitchen has white-tiled floor and walls, and all the woodwork is painted white. We have all the pretty china, silver and linen necessary for attractive trays. I have always two nurses and two probationers in training, and am responsible for the preparation of all food sent to the private wards, and for the service of all the trays. In addition twelve other nurses receive one lesson weekly, in food preparation.

Miss Frances Miles, 1904, has resigned her position on the Hamilton Public School staff, for a position on the Domestic Science staff of the Kansas State Agricultural College, Manhattan, Kansas, U. S. A.

Miss Bessie Peebles, 1909, has been appointed to succeed Miss Miles, on the Domestic Science staff of the Hamilton Public Schools.

Miss Nealina Macmillan, 1908, Superior of House-Practice in Macdonald Institute, O. A. College, has resigned in order to take a housekeeper position in Macdonald College, Quebec. She begins the new work in January.

Miss Katherine Fisher, graduate of the Ontario Normal School of Domestic Science and Art, has resigned her position in the Berlin Manual Training High, to join the staff of Macdonald College, Quebec. Miss Fisher began work in Berlin in 1902, and has developed it along sound lines.

Miss Edna Ferguson, 1905, has resigned the position in Macdonald Instiute, O. A. College, for the wider experience of the Berlin Manual Train ing High School. She begins the new work in January.

## AGRICULTURE.

### Agriculture in Ontario High Schools.

Up to the present time, eleven Agricultural Departments have been established in Ontario High and Continuation Schools. Six representative county centres were selected in 1907, two in 1908, and three in 1909. The following table shows the location of the schools and gives the names of the College graduates who are in charge of the work:

| County. | Date of Establishment. | School. | Representatives. |
|---|---|---|---|
| Carleton | 1909 | Carp | H. Sirett, B.S.A. |
| Dundas | 1907 | Morrisburg | A. D. Campbell, B.S.A. |
| Essex | 1907 | Essex | A. McKenney, B.S.A. |
| Lanark | 1907 | Perth | R. S. Hamer, B.S.A. |
| Norfolk | 1909 | Simcoe | P. Angle, B.S.A. |
| Ontario | 1908 | Whitby | J. H. Hare, B.S.A. |
| Peterborough | 1909 | Norwood | H. C. Duff, B.S.A. |
| Prince Edward | 1908 | Picton | A. P. MacVannel, B.S.A. |
| Simcoe | 1907 | Collingwood | I. F. Metcalfe, B.S.A. |
| Victoria | 1907 | Lindsay | D. A. MacKenzie, B.S.A. |
| Waterloo | 1907 | Gal | F. C. Hart, B.S.A. |

There have been a number of changes in the schools since their estab lishment. Mr. Campbell succeeded Mr. Munro at Morrisburg, Mr. Mac Vannel took up Mr. Winslow's work at Picton, Mr. Metcalfe followed Mr. Mortimer at Collingwood and Mr. MacKenzie has charge in Lindsay, where Mr. Reid commenced the work. At the present time Mr. Lewis, '08, is assist ing Mr. McKenny at Essex, and Mr. McIntosh, '09, is with Mr. Metcalfe at Collingwood.

Under the regulations of the Department of Education these representa tives are required to attend the annual meeting of the Experimental Union, at the College, in order to keep in touch with the developments of Agricul tural Science and education in general, and to confer together on their work In this connection some very interesting reports were made at the recent meeting:— Mr. Metcalfe, on **A Series of Short Judging Courses**; Mr.Mac Kenzie, on **The Influence of a Five Day's Judging Course**; Mr. Campbell, on **Agricultural Possibilities of Dundas County**; Mr. Sirett, on **The Need of Local Demonstration Plots**; Mr. Hamer, on **The Value of Experimental Work Undertaken at Perth**; Mr. Angle, on **Half-a-Year in Norfolk County**; Mr. Duff, on **How I Started Work in Peterboro County**; Mr. Hart, on **What the Farmers' Clubs are Doing**; Mr. MacVannel, on **Growing Corn for the Canning Factory**; Mr. Lewis, on **Teaching Agriculture in the High School**; Mr. Hare, on **The Encouragement of Underdraining.**

This new feature of Agricultural Education in Ontario, while still in the experimental stage in many respects, seems to be showing, by its varied successes, a real need for a wider recognition of the value of technical educa tion for the industrial workers on the farms of the Province. So far the development of the work has been along the lines of organizing short judging courses, farmers' clubs, ploughing matches, or demonstrating drainage plans, experimental plots with field crops, etc. The school side of the work has not developed to the same extent owing to the fact largely that students are not forthcoming to be taught. This phase of the work will likely develop through the other.


Little girl—Father, what is worse than finding a worm when you bite in to an apple?

Father—That is a difficult question. What is worse ?

Little girl—To find half a worm.

**Stages of Development.**

Johnnie Lemon, at public school.
John Lemon, at high school.
J. Lemon, at collegiate.
Mr. J. Lemon, at college.
Mr. J. LeMon, in business.

Mr. Crow (in Horticulture)—Well, well! I'm looking for something I can't find.

John de Roo (aside)—I wonder if he means a wife.

**A Short Extract from a Composition on "Christmas."**

"We eat chicken, turkey, pudding, pie and many other beautiful things, until saturation point is reached.

Yule—Say, Shaver, what are you going to write your thesis on?

Shaver—The Eradication of Whiskers.

Spry—When was the last revival of learning?

Marcellus—Just before the Xmas exams.

Gerow (at Zoology)—Mr. Jarvis, would you call a worm an insect or a reptile?

Brown (to Mr. Crow)—Please, sir, what is the difference between a musk melon and a can't-i-leave-er?

Freshman (at exams)—Professor, will I just write what I know?

Professor—Well, you needn't waste paper writing what you don't know.

Shibly to Bennett—Hello Soup!

Bennett to Shibly—Hello Ship wreck!

Mr. Eastham (in Botany Class)—Where are the stamens situated?

Noble—Down below the gymnasium.

First Passenger (on Hamilton train)—What are they?

Second Passenger—Oh, just empties going West to get filled up.

McLennan (on his way to survey)—Say, aint I a Ducky Level to get this new Lumpy Devil

Prof. Dean—How would you hasten the ripening of cream?

Webster—By adding a commercial or home made mother.

## The Royal Military College of Canada.

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

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

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

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

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

The strict discipline maintained at the College is one of the most valuable features of the course, and, in addition, the constant practice of gymnastics, drills and outdoor exercise of all kinds, ensures health and excellent physical condition.

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

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

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

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

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

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

H.Q. 94—5.
9—09.

That the Third Year experience great difficulty in their French translation work may be clearly seen from the following:

Correct translation—
We love the red carrots best,
Because they make the best soup.
Webster's translation—
We like the red carrots best,
Because they make good porridge.
Shortill's translation—
We love the red carrots best,
Because they are white.

Knapp (pointing to exhaust pipe on Tubular separator)—Mr. Stratton, is this where the milk comes in?

Last year the styles in the sick room
Were bruises, or scrapes, or mumps;
But as the autumn goes, the fashions change—
Today the style is "Bumps."

Monroe (in church)—Wake up, here comes the collection man.

MacDonald—Shut up, you fool; that's why I'm asleep.

Mr. Crow (reading programme of Exp. Union meeting)—Next speaker on the programme is C. C. James—subject "Svalof."

Hugo Knauss—Svalof! What's that, a new brand of whiskey?

Mr. Howitt, in Botany—Mr. Buchanan, what is the meaning of the term hypogynous?

Mr. Buchanan (promptly)—Below the gymnasium.

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