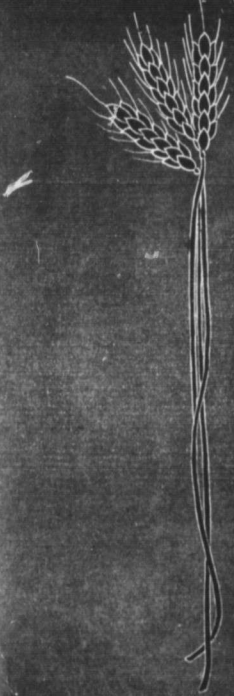
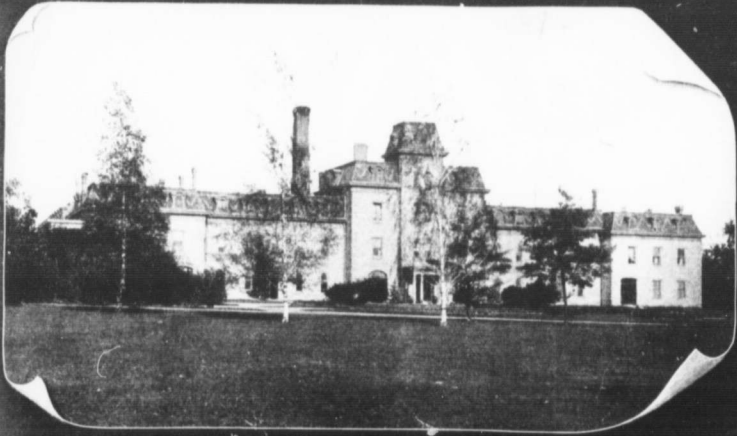


VOLUME XXII



NUMBER 8



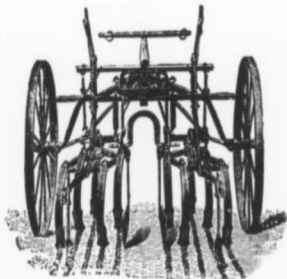
THE O·A·G· REVIEW

May
1910

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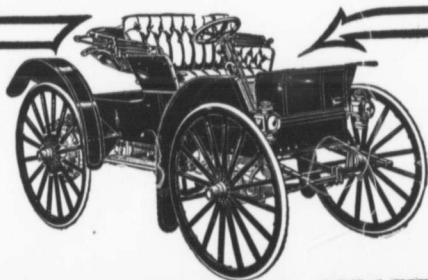
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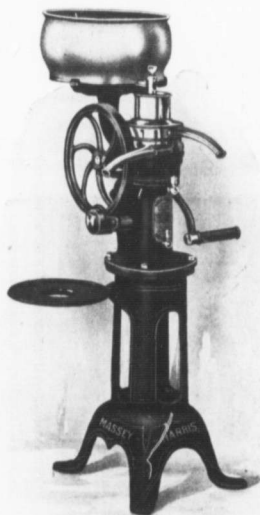
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Paying Investment**

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HERE'S WHY:

Skims Close with hot or cold milk because of the Improved Bowl—proven by repeated tests the best ever put on a Cream Separator.

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**NO DANGER FROM
EXPOSED GEARS—**

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Because made from the highest grades of materials, carefully finished, and because of the easy-running bearings which reduce wear to the minimum.

SIMPLE—and not likely to get out of order.

The Self-Balancing Bowl

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Lead Arsenate

(Made in Canada)

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TORONTO.

OFFICIAL CALENDAR

OF THE DEPARTMENT OF EDUCATION

FOR THE YEAR 1910.

May:

2. Toronto University Examinations in Arts, Law, Medicine and Agriculture begin. (Subject to appointment).
4. Inspectors to report number of High School Entrance Candidates.
6. Arbor Day. (1st Friday in May).
23. Empire Day. (1st school day before 24th May). Notice by candidates for the Entrance Examinations to Faculties of Education, Normal and Model Schools, and Commercial Specialist Examinations to Inspectors, due. (Before 24th May).
24. Victoria Day. (Tuesday).
25. Inspectors to report number of candidates for Entrance Examinations to Faculties of Education, Normal and Model Schools, and Commercial Specialist Examinations. (Not later than 25th May).
31. Assessors to settle basis of taxation in Union School Sections. (Before 1st June).

June:

1. Collectors in Unorganized Townships to report to Sheriff uncollected rates for previous year. (On or before 1st June). Assessor in Unorganized Townships to return assessment roll. (Not later than 1st June). Public and Separate School Boards to ap-

- point representatives on the High School Entrance Boards of Examiners. (On or before 1st June).
- By-law to alter School boundaries or form Consolidated School Sections—last day of passing. (Not later than 1st June).
10. University Commencement. (Subject to appointment).
15. Senior Matriculation Examination in Arts, Toronto University, begins. (Subject to appointment).
17. Provincial Normal Schools close (Second term). (Subject to appointment).
21. Model School Entrance and Public School Graduation Examinations begin.
22. Inspectors' report on Legislative grant due. (Not later than 22nd June). High School Entrance Examination begins. (Subject to appointment).
27. University Matriculation Examinations begin. (Subject to appointment). Examinations for Entrance to Normal Schools and Faculties of Education. Examination for Commercial Specialist begins.
29. High, Public and Separate Schools close. (End on 29th June).
30. Protestant Separate School Trustees to transmit to County Inspectors' names and attendance during the last preceding six months. (On or before 30th June).



The Royal Military College of Canada.

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

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

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

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

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

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

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

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

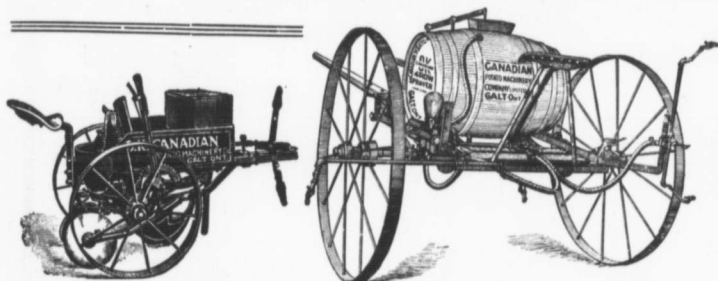
The annual competitive examinations for admission to the College, takes place in May of each year, at the headquarters of the several military districts.

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.

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Sprays 4 rows while you drive. No hand pumping to be done. Adjustable wheels; adjustable nozzles for wide and narrow rows; discharge pipes can be raised and lowered as desired; spray one acre in 20 minutes; can be furnished with tree spraying, vineyard or broadcast attachments. Write for full particulars.

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of a degree—because the directions are so simple and correct. The Hamilton Incubator hatches every fertile egg. The chicks are so plump, healthy and lively they make the old hen jealous of the Hamilton. You can make a success of hatching chicks with the Hamilton Incubator, and just as big a success of raising them with the Hamilton Brooder. Send for our free booklet and get complete information about the always successful Hamilton Incubators and Brooders.

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A Practical Suggestion



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The Thresherman's Favorite

IT CLEANS THE GRAIN FIT FOR MARKET

Send for our 1910 Catalogue of PORTABLE and TRACTION ENGINES, THRESHING MACHINES, WIND STACKERS, SELF-FEEDERS, Etc., Etc.

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WESTERN HEADQUARTERS—PORTAGE LA PRAIRIE, MANITOBA.

THIEVES IN YOUR GARDEN

**Easy to Handle
Strong, yet Light**

**This is No. 1
Scuffler
with
7 Standards
10 Steels**

Not only in the night, but all day, they'll rob your growing vegetables and fruits of the soil-food they need. Cut them off, destroy them in the act with a

Frost & Wood Scuffler

It is so convenient and well-nigh indispensable, for cultivating the garden or for root-crops. It cuts to any depth you wish, can be set to every width of furrow with two simple levers easily reached by the operator. It is light, elastic, strong, conveniently handled by man or boy. Get one for your garden this spring; see how much labor, time and back-ache it will save you, besides increasing the crop. Scuffler here shown is No. 1, with 7 standards and 10 steels or plow points. No. 2 is smaller—has 5 standards and 8 steels. Send for our free catalog and learn of this and our other farm implements.

THE FROST & WOOD CO., LTD., SMITH'S FALLS, CANADA

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TORONTO, Ont. HAMILTON, Ont. WINNIPEG, Man.

THE O. A. C. REVIEW

THE DIGNITY OF A CALLING IS ITS UTILITY.

VOL. XXII.

MAY, 1910.

No. 8.

The Canadians of the Future

R. FRASER, '10.

[The Annual Oratorical Contest was won by Mr. Fraser, with "The Canadians of the Future" as his subject. The following article is Mr. Fraser's speech, quoted verbatim, hence the oratorical style.—Editor.]

IN the life of every nation there arise great problems—problems which involve religious beliefs, social customs, racial characteristics, and political government, and upon the solving of these problems depends to a large extent the future welfare of the nation's people. Particularly is this true of a young country whose national life is still in its infancy and whose growth and development are just beginning. There will come critical moments in the life of that young nation when she will find herself face to face with these great problems, and all the wisdom of her statesmen and all the loyalty of her citizens must rise up and meet these national difficulties if the future happiness and prosperity of her people is to be assured.

In speaking to you to-night upon the Immigration Problem in Canada, we are considering what is without doubt one of the greatest national problems that the Canadian people are confronted with at the present day—a question upon which depends the progress and development of a mighty nation—the Canada of the future.

* * * * *

If I were to ask you upon what the greatness of a nation depends, you

would immediately answer, "Upon the qualities of its citizenship," and citizenship is simply the relation of a people to their ruler and to each other. The true ideals of citizenship are not only those of certain individuals—they must be the ideals which guide the aspirations of the entire nation, for without national aspirations there can be no worthy progressive national life. It is only in the cherishing of these lofty ideals that we can hope to bring honor to ourselves as a people, and it is *now* in the early morning of our great work of nation-building, that these ideals must be wrought into the rapidly uprising framework of our national structure. To-morrow grows out of to-day, and the aspirations and activities of the present determine the channels along which the current of our future national life shall flow.

To-night I want to present to you as Canadian citizens two principal thoughts, and I cannot lay too much emphasis upon either of them.

The first is that this is the formative period in the national life of Canada and that it is for us, the Canadian citizens of the present, to largely determine what the future of our country shall be.

The second thought is that this problem of immigration is primarily a problem of citizenship, and that the thousands upon thousands of immigrants who flock to this country, year after year, are the Canadian citizens of the future.

We have heard this problem of Canadian immigration discussed by noted speakers on the public platform, by men prominent in the fields of education, of politics, of religion,—but have we heard as much on the subject as its importance deserves? We have read columns upon immigration in the pages of our daily press; we have read books devoted exclusively to the subject—but have we read enough? We are all more or less familiar with the subject in a general way, but are we as familiar with its details and statistics as we should be? Do we realize the great responsibility that has been placed upon our shoulders in the fact that it is *our* attitude toward this immigration problem that shall largely influence the future character of Canadian citizenship?

If any Canadian doubts the great importance of this problem, or if he fails to see the reason for calling it a serious question, let him go down to the dock of some large transportation company as a great steamship comes in, laden with its burden of immigrants, and let him look into the faces of the crowd as it surges down the gangway to the wharf, and what will he see? Men and women and children of all races, of all nations, of all creeds, and of all characters. Here will he see sturdy British workmen looking forward to greater progress in a new land; pallid-faced Russian Jews flying from the terror and darkness of political oppression into the sunlight of a free country; stolid Germans, bringing

with them the spirit of industry and progress; worthless denizens of the London slums, lured on by the exaggerated advertising of the transportation companies; honest and thrifty Scotch mechanics; Doukhobors crazed with religious fanaticism; fair haired men of Scandinavia; swarthy men of Italy; Slavs, Galicians, Ruthenians, Finns, Greeks, Russians, and a host of others.

And into the West come the China men and the Japanese,—men of a race that we may have more cause to fear than all the races of the European countries.

These, then, are the people to whom we are throwing wide our gates; these are the people that are sweeping across our country from the Atlantic to the Pacific; *these* are the people that will, in the years to come either uplift or degrade the standards of Canadian citizenship.

When Kipling said that "East is East and West is West, And never the twain shall meet," he stated one of the greatest truths in the science of sociology. We cannot band together into a united people a number of races and nationalities, all having different social, racial, and religious characteristics, and if we through a lax immigration policy allow an influx of undesirable types of immigrants to continue indiscriminately, we shall soon be face to face with race problems fully as serious as those with which the country to the south of us has been troubled.

The President of Toronto University, in a recent address before the Canadian Club, took for his subject the old maxim that "An ounce of prevention is worth a pound of cure," in the conservation of Canadian resources, and his remarks are particularly true when ap

plied to the subject of immigration. By means of making our immigration policy a process of rigid selection, preventive measures may be now exercised that will forestall the necessity of administering in future years many pounds of cure for the political strife and social antagonism that are bound to arise within a nation whose people are of all creeds, customs, characters, and countries. The conservation of Canadian resources means much, but the conservation of our ideals of Canadian citizenship means infinitely more, for it has been truly said that of all the vast resources and of all the infinite wealth that Divine Providence has so lavishly bestowed upon our country, her greatest resource and her most precious treasure lies in her citizens—the men and women of Canada.

So much for the Canadians of the present, but what of the Canadians of the future? Our national and social ideals are now of a high character, but will they retain their high standard in the years to come if we permit the entrance of undesirable classes of immigrants?

We have a right to consider the future of Canadian citizenship, for we as a people expect great things of our country in the future. We look forward through the steady advance of the oncoming years to a vision of the New Canada,—a vision of a vast and mighty nation sweeping from where the Atlantic thunders against our Eastern shores across to the snow-capped mountains that overlook the sunlit waters of the Pacific; a land of illimitable wealth, her prairies rippling with great billows of golden grain, her mines glittering with precious metals, her majestic forests stretching for endless miles, and her citizens—a race of men and women whose watchwords

shall be truth, justice, and honor, whose spirit shall be the spirit of progress, whose dominating force shall be a love for the nation that they have made mighty in the eyes of the world, and whose proudest boast is that they are subjects of a British empire, and children of a British race.

But, on the other hand, picture to yourselves a vision of another Canada,—a land of shattered hopes and of un-realized ideals, a nation of many races, broken into little communities and petty factions separated from one another by different social customs and different creeds, antagonized against each other by the bitter race-hatreds that are as old as the history of mankind itself, and lacking the unity of spirit and purpose that alone can bind a nation together. Picture to yourselves the fair lands of the West over-run by the yellow men of China and Japan. Picture to yourselves the face of our nation spotted with squalid communities of Russian Jews, of Italians, of Mongolians,—plague spots of squalor peopled with illiterate men and women that completely lack the spirit of worthy and efficient citizenship. Picture to yourselves the effect that their presence would have upon the political situation, for it must be remembered that in the hands of these aliens will rest the mighty power of the ballot.

Picture to yourselves these things, and when you have drawn this mental picture you will turn from it in revolt and loathing and cry out "No, it can never be! This is not the future that we have planned for our country! We have a higher and a nobler vision, and as long as Canadian blood runs through Canadian hearts we will strive to make that vision a national reality!"

"Exaggerated descriptions of imaginary and improbable dangers," you say.

My answer is, "Turn to the immigration conditions in the United States, study them carefully, and then see whether or not my remarks are exaggerated. Turn to New York, who calls herself the proudest city in the world, and stretching along her eastern side is a livid weal of squalor, of poverty, of filth, and crime—the notorious East Side. And why is this the case? Simply because this East Side is peopled with immigrants from all parts of the world, and who are for the most part of the undesirable and unthrifty type. Turn to any newspaper and notice how many headlines bear the names of criminals of foreign origin. Do you still think that there is any exaggeration in the pictures I have drawn?"

Let us turn now from the idealistic to the practical. It was necessary that we should first consider the idealistic aspect, because ideals furnish the power that drives the engines of national activity, but ideals are useless, and as pirations are worthless, and patriotism means nothing if it does not give rise to practical action in the form of wise legislation.

The problem therefore resolves itself into the question, "What must be our legislative attitude toward this immigration problem?"

The answer is brief: we must raise the standards that qualify an immigrant for admission into this country. Our present immigration system is steadily improving, but it still lacks a severe enough restriction upon the incoming of undesirable types of immigrants. Above all, we must encourage a greater percentage of immigration from the British Isles, for it is at present far too low. We are the descendants of the English, the Scotch, the Irish, and the Welsh, and we are proud to ac-

knowledge that descendency. We are closely allied to them in every respect; we are of the same race and we speak the same tongue; we have the same social standards and the same national ideals; we pay our allegiance to the same king and we worship the same God.

British hands have hewn this Canada of ours out of the primeval forest and mountain rock; British hearts have paid for it with their life blood; Canadian statesmen have fought its political battles and Canadian men have developed its commerce and resources, and the moral is obvious: let the future citizens of Canada be a race of British Canadians and let us construct our immigration policies with that object in view.

We do not forget the debt we owe to our forefathers who worked and fought in the years gone by, but neither must we forget the debt that we owe to posterity in the years to come, for, as the poet expresses it,

"As yet the waxen mould is soft, the opening page is fair,
It rests with those who rule us *now* to leave their impress there.

The stamp of true nobility, high honor, stainless truth,

The earnest quest of noble ends, the generous heart of youth;

The love of country soaring far above all party strife;

The love of learning, art and song, the crowning grace of life.

The love of science soaring far through nature's hidden ways,

The love and fear of nature's God,— a nation's highest praise;

So that in the long hereafter, this Canada shall be

The worthy heir of British power and British liberty."

Social Life in Rural Districts

RONALD MACDONALD, '12.

"Comparisons are Odorous."

I FIND it quite a useless task to compare the social conditions existing in rural Canada of to-day, at least in rural Ontario of to-day, with those prevailing in European or American country life. At the same time, when I endeavored to obtain any written records in regard to the social life of rural Canada, I found no works of a really national character; no information except a few glimpses of the past and the present, dished up under the guise of fiction; many platitudinous speeches of rural lawyer and doctor politicians, as uninformed as they were plausible, and weak, lifeless articles in the "Woman's Corner" of the agricultural press. I found reports of many Royal Commissions conducted in the interest of life, agricultural and social, in England, Scotland and Ireland, reports to Congress from Country Life Commissions in the neighboring Republic; but delve as I would, I could find practically no contributions of note or worth in Canadian literature or official reports. It is for reasons such as these that the writer, fully aware of his own immaturity of thought and the impression of presumption, which his frankly expressed opinions must have upon the reader, for such reasons it is that he has voiced his own thoughts, exercised his own censure, suggested his own remedies; for it is absolutely essential that we be very careful not to imitate those constructive methods which have proved themselves eminently successful in Europe or the United States. Their conditions and problems differ

greatly from ours. We have, I rejoice to say, no social peasantry, and a much less centralized form of government than the European countries, whereas we have also a different kind of democracy, a less cosmopolitan population, a slower if more stable economic and social growth than the country which lies to the south of us. Our country life social necessities are essentially Canadian, not European, British or American.

I have been fortunate enough in the short span of my experience to have glimpses of the social life in many countries, and I will state definitely that although I am not blind to the many evils and shortcomings, which exist in the lives of Ontario country people, yet nowhere have I seen so many prosperous, happy and contented people on the land as in this province.

It is an easy thing to blame. It is an easy thing to praise, but to discriminate wisely in discussing the great question—social progress—throughout the premier Province of the Dominion, requires the wisdom of a Solomon, the patience of a Job, the charity of a John.

It is my intention in this theme to treat fairly of the "Educational Shortcomings," the "Weaknesses of the Church," the "Use and Abuse of the Library," and the "Curse of Intemperance," and the "Empty Home."

Those more mechanical devices, the "Rural Mail Delivery," the "Rural Telephone," and the "Inter-urban Railroad," which are doing so much for rural progress, are all subservient improvements, and are, I believe, bound

to follow in the wake of an intellectually, spiritually, and artistically quickened temperate people.

Education.

As an occupation agriculture is at one and the same time one of the simplest and one of the most complex. There are all grades of production, varying from the primitive scratching of the ground to the most concentrated forms of "French" gardening, and although all our land cannot produce the huge crops per acre, which the more intensive forms of farming demand, it is an undeniable fact that in this province for many reasons the toll taken from the soil is disgracefully small. Especially is this true in an area largely devoted to the dairy industry.

As a dairyman I will make the bold statement that three times the number of cattle could be fed on the existing dairy farms of Ontario, and thus an additional forty million dollars or so might be added to the material wealth of the farmers. Material prosperity is imperative to the social welfare of any community, rural or urban, and the material prosperity of Ontario could be thus nearly trebled if the farmers were fully informed of the exact conditions underlying the proper cultivation of their lands, and were mentally capable of applying practically the work of the great agricultural institutions of the country.

By making our public school education have as its basis agricultural knowledge, encouraging nature study, nay more, by instilling a love of nature and scenery, as well as the rudimentary teaching of the science of biology in the minds of all the children, boy and girl alike, in every community. By such means, I maintain, would the youth and the maiden be induced to stay on

the farm, and thus the grievous labor problem would be partly solved.

I am glad to record that efforts, most laudable efforts, though childishly inadequate, have been made to supply this long felt want by the present Provincial Government.

I also hold a brief against the present system of "hot-house" education, the method of forcing children, cramming them with useless memorized facts, and absolutely stunting their natural reasoning power. And all this torture is inflicted in order that they may "graduate" to what or from what I care not. I seem to have met so many uneducated people throughout the country who were termed "graduates" that the word has lost all meaning to me now.

I must frankly admit also that I am no believer in co-education. I am quite aware that it is almost a necessary evil in the sparsely populated districts; but from my personal observations, and from the experiences of teachers of many years standing I have known, it has been brought forcibly home to me that coeducation is not a moral, but actually an immoral influence in the country; and, if it is the only system compatible with existing conditions, then it should be so conducted as to keep separate the sexes as much as possible.

The standards should be raised in all rural public schools. It should not be necessary for all ambitious boys and girls to travel to the nearest city or town to finish their education. In fact I often think that the high schools are a positive curse to the farming community, in that they act as a powerful recruiting agency for the professional and business ranks of urban life.

There must, indeed, be not only a fuller scheme of public education, but

a new kind of liberal education, specially adapted to the real needs of the agricultural people of the country, if the campaign for rural progress is ever to make real headway, for without education, it will lack organization, union and strength.

The type of man we wish to rear in the country is he

"Who with a natural instinct to discern

What knowledge can perform, is diligent to learn;

Abides by that resolve, but stops not there,

But makes his moral being his prime care."

The Church.

In the history of the world, no great institution has ever exerted so potent an influence for good and for evil in the social community as has the church. I say for good and for evil advisedly and with all reverence and respect.

I have seen the good work of the church for social progress in Scotland and in Western Ontario. I have seen its work of temporal social depression in Ireland and Eastern Ontario. It is not my intention here to discuss theological dogma, but, in any social community, where the affairs of this world are absolutely subservient to the spiritual treasures of the people, in such communities will be seen magnificent cathedrals, costly and comfortable priests' houses, well equipped nunneries and convent schools, but miserable hovels of farmers' houses and ramshackle barns, neglected farms and mortgages by the hundreds in the hands of the money lenders.

You may think that I over-color the picture. Go live among them, those people of the Ottawa Valley, and other

eastern sections, and you will find that I am most restrained in my language, most moderate in my censure. Ignorance and the most revolting superstition still exist in the miserable, overpopulated homes, where indolence is at a premium, because the fruits of their labor may not be enjoyed by the people.

On the other side of the picture I can, thank God, show a brighter outlook. All signs point toward church union. The discordant sectarian strife, which has so long disgraced the Protestant churches, seems to have given way to a policy of moderate co-operation, if not of actual union of denominations.

The blessings of such union amidst our rural population cannot be exaggerated. It is one of the most hopeful, most stimulating signs of the times. But, if the Protestant church is to be a real leader in the social uplifting, a new type of clergyman must take the field. He must be a man, who understands our aims and our hopes, who takes an intelligent interest in our daily toil. Such a one will do infinitely more good than the university-bred man of glowing eloquence with all the misdirected zeal at his command.

There is, again, as much to be deplored the other extreme, the "good fellow" parson, who gains an undesirable popularity or notoriety at the expense of dignity and the respect of the neighborhood. Such a man opens the sacred precincts of the church to all kinds of buffoonery under the guise of charity. It is right and proper that the church should take a part, a leading part, in the social entertainment and instruction of the people, but not for a moment can I tolerate the custom—far too common—of turning over the church to the frivolous and base uses

I have seen it put to. No, I think of Him who drove the rabble from the temple.

I would throw out the suggestion that all who had expectation of ever taking country charges should be required to take a limited course of agricultural education. To my mind the theological colleges might well cooperate in this direction with such institutions as our own.

Too often are "stickit ministers" of the cities put over us in the country, where, instead of doing their duty, they simply vegetate.

Temperance.

The curse of intemperance has been practically banished from many neighborhoods by local option measures. Where such enactments have the whole-hearted approval of the people the results are extremely gratifying. In other communities this very temperance legislation has often been made the excuse for excessive orgies, such as had never been indulged in before, by the simple method of shipping in intoxicants from outside points.

Legislation never will render men temperate in their habits without absolute prohibition, but law can restrain them, and education and fuller social life will eventually, I believe, solve the problems of intemperance. It is in a great measure due to the emptiness of life on many farms, that so many poor souls rush to the temporary solace found in the wine cup.

Yet though no thinking man can deny the enormous benefits of local option to rural social life, in that the social celebrations, the "barn-raising," the dances, the "harvest-homes" are no longer marred by the drunken tragedies of past generations; still in the stiffer and more formal atmosphere, which

now prevails, wholesome as it is, I somehow miss the note of true sociability, and real, warm, Christian charity, which pervaded the temperate, though not teetotal, communities of my boyhood in Scotland; and, so I understand, such communities were one time numerous in this country also.

But such regrets are far outweighed by the self-evident benefits which the new order has brought about:

"The old order changeth, yielding place to new,
And God fulfills himself in many ways
Lest one good custom should corrupt
the world."

The Library.

Reading is, in my experience, almost entirely neglected among the farm people of Ontario. Of course most of them read the head-lines of a daily newspaper, and the more intelligent farmers also scan the market reports, while mother looks for the recipes and household hints in "Woman's Corner," and sister imbibes the insipid love story on the fiction page. Technical literature sometimes reaches the home in one or more of the more or less useful agricultural papers or magazines. But by reading, I mean the perusal of the standard works of English prose and verse. In this one thing I believe the rural population of the Mother Land are more advanced. Self-education and self-culture are often observed among the poorest and most isolated districts of Great Britain.

Technical reading should also be encouraged; but do not let the people of the country dwarf their imaginations by too much of the wholly material, dollars-and-cents culture, which is so prevalent in the urban districts.

The obtaining of reading material is a matter of co-operation. With

this co-operation really good libraries are possible in the poorest neighborhoods. This statement I have proved by once starting a lending club and book exchange in a community, where people had fuller hearts than pockets, and very few of the "hundred best books" but could be obtained at the shortest notice.

Travelling libraries and elaborate library buildings are desirable, but not essential. It is a genuine love of literature, a desire to acquire knowledge and culture, which is the "sine qua non."

In connection with the library, however mean, may be organized a literary society, a musical society, a debating club, and meetings held under the auspices of such societies will prove of both educational and social value. Bonds of intellectual sympathy will give pleasure and encouragement to all, and the spirit of leadership, which is essential in every community, and so often conspicuous by its absence in rural districts, will there be best manifested.

So important a force for good have such societies become in many neighborhoods, that I believe all such literary and debating clubs deserve to be encouraged even by government grants, as likely to foster men who will prove of use to a young and rising nation. The schools should also try to initiate and encourage the reading habit. It is Carlyle who somewhere has said, in substance, that the aggregate of books is the greatest of all universities. It is a university at which all may study and profit thereby.

The Home.

All the schools, all the colleges, all the churches, all the reforms, all books and all societies of the world, will be useless in moulding into a better being

our rural social life if the true spirit of the home is not upheld. In the development of character the home is the most important factor of all; and as the individual homes are, so will the social life of the community be, healthy or unhealthy.

The influence of the farmers and the farmers' wives on their off-spring is the chief factor in determining the attitude of their children towards farm life.

"The farmer should realize that the person who most needs consideration on the farm is his wife."

"If woman shirks her duty as housewife, as homekeeper, as the mother, whose chief function is to bear and rear a sufficient number of healthy children, then she is not worthy of our regard. But if she does her duty, she is more entitled to our regard even than the man, who does his duty; and the man should show special consideration for her needs." I quote from Theodore Roosevelt.

How many farmers' wives do we know who are really overburdened with work, women who toil from morning till night, cooking and baking in the house, making the butter in the dairy, aye, and often helping even in the barn and the fields? What pleasure can such a woman have in life, what time has she to use her moral influence on her children—she considers herself fortunate if she has no family—an influence, which only a mother can use? I feel sure that there are not many homes so bad as I have painted, but it is a crying shame, a blot on our rural social life, that such a condition exists, even in isolated instances. It is for such reasons, I doubt not, that many girls shrink from the idea of staying on the farm. To them rural domesticity spells a life of endless

drudgery; and yet there can be no more happy homes than those one sees, where the father and his hardy sons cooperate to make the life of the women of the house as light and pleasant as possible. Such a household on the farm must have been in the mind of Cowper when he wrote:

"Oh! friendly to the best pursuits of man,
Friendly to thought, to virtue and to peace,
Domestic life in rural pleasures past."

It is also, I believe, an unwise thing to force the boy on the farm to do even the lightest kind of work at too early an age, unless the needs of the family imperatively demand it. Childhood is the day of dreams and of play, and if the young mind is deprived of these golden days of freedom, it misses what it never will regain. Such a child usually develops into a man narrow in every sense of the word, narrow chested and narrow minded. But on the other hand, if the boy shows a desire to do something for himself, to make as it were, a hobby of any one department, he should not be laughed at—a child is more keenly hurt by ridicule sometimes than by a whipping—he should be encouraged and helped in every possible way.

But the home itself, the dwelling place, must stand for something more than a mere lodging, a place for taking meals. There are many well-meaning parents who positively drive their children from their own homes by the care with which they guard their household treasures, their best carpets and tawdry ornaments being too precious for the use of their own people, and be-

ing only visible on the rare occasions when visitors arrive. I hate these "best parlors" "as the devil hates holy water."

But above all things must exist that full trust and confidence between all members of the family which really signifies home wherever we go, and the want of which so often causes the youth or the maiden to flee to the labyrinth of the city, where not every one will know all the doings of their lives. But if trust and love prevail in the home, what care they who know all their goings-out and comings-in?

"Honi soit qui maly pense."

In Conclusion.

I have tried to draw attention to a few of the more pronounced of the failings and weaknesses of our social life in rural Ontario. I have put forward where I could suggestions for improvement. I have drawn almost entirely from my own experience as a unit in the social life of various parts of the Province, and I have tried to paint a true picture. Where I have failed is due to the lack of careful observation, rather, I trust, than to bias on the part of the observer.

I have treated chiefly of the social life of the young people, and my excuse for this is that this is a young man's country and, that the social destinies of our rural population must be wrought out by the young people. Besides I am a young man myself, and yet if

"We call our father's fools, so wise we grow,
Perhaps our wiser sons will call us so
—socially.

The Hydrometer and the Lime Sulphur Wash

H. L. FULMER, O. A. C. LECTURER IN CHEMISTRY.

ALL matter, or, in other words, everything which occupies space, possesses the property which is known as weight. This is really a statement of the measure of that mysterious force known as gravity, or downward pull, which is exerted upon a body. Some kinds of matter are, as is well known, bulk for bulk, much heavier than others; while a constant quality of any one kind of matter always weighs approximately the same. Thus, a gallon of water weighs 10 pounds, while a gallon of mercury weighs 136 pounds, and a gallon of ether 7.36 pounds, etc.; the weights of these various substances are markedly different from each other, but only a very little fluctuation occurs in the weight of the same substance, (at a constant temperature, say 60° Fahrenheit, there is no fluctuation).

This fact regarding the weight of various bodies gives us what is known as Specific Gravity, or relative weight, or the weight of any body as compared with the weight of the same bulk of some substance taken as a standard.

Water is the standard substance to which the weight of all solid and liquid substances is referred; its weight is therefore unity. Taking the figures for mercury and ether given above then their specific gravities would be 13.6 and .736 respectively.

To get the specific gravity of any substance it would of course be necessary to have some way of accurately measuring its bulk and taking its weight. For this purpose a very ingenious and simple apparatus has

been invented for taking the gravity of all substances which exist in a liquid condition at ordinary temperatures. This apparatus is known as the hydrometer, or specific gravity spindle. It has a structure very similar to that of a floating dairy thermometer, i.e., it is made of glass and has a long, slim stem above an expanded portion at the central part, and a load of mercury or lead at the bottom to keep it in a vertical position while floating in the liquid. The principle of this instrument is based on the well-known fact that the denser a liquid is (or the greater its specific gravity) the less distance will a solid body, such as a piece of wood, sink into it in order to come to equilibrium, and vice versa. The graduated stem of a hydrometer is so marked that when it comes to rest in pure water at a temperature of 60° Fahrenheit, the point marked 1.000 (unity) is just exactly at the surface. If the hydrometer is floated in a heavier liquid, at 60° Fahrenheit, or a lighter liquid, at the same temperature, then the graduate point at the surface will indicate the specific gravity of these liquids. This point will be greater than 1.000 in the first case and less than 1.000 in the second case. Thus, specific gravity is easily and quickly obtained.

If ordinary salt or sugar, or any other soluble solid be dissolved in pure water, the depth to which the hydrometer will sink into the salt, sugar or other solution decreases in proportion as the amount of salt, sugar, etc., which is dissolved increases, i.e., the

specific gravity rises in almost direct ratio to the amount of material dissolved.

The above is true of lime-sulphur solutions. As the amount of sulphur in the form of polysulphides, theosul plates and sulphites of calcium increases, the specific gravity, as shown by the hydrometer, also increases, and in almost direct ratio. This is shown by the following figures:

No.	Sp. Gr.	Sulphur in Solution in all forms (lbs. per gallon.)
I—	1.232	2.393
II—	1.232	2.371
III.—	1.232	2.371
IV.—	1.245	2.670
V—	1.300	3.225
VI.—	1.323	3.566

These figures are taken from some analysis we have made of "home-made concentrated" and "commercial" lime sulphur solutions, but the same truth holds good for the more dilute home boiled washes. It is readily seen that specific gravity directly corresponds to the amount of sulphur in solution, or the strength of the wash. Where we have the greatest strength we also have the highest gravity, and vice versa, and where we have equal strengths we have practically the same gravity.

It is quite evident, then, that the hydrometer could be made a very useful instrument in controlling the strength of our lime-sulphur washes. A fact brought to our attention the past year through our study of lime-sulphur washes used in the Niagara District was the great variety of strengths of wash being used, even by the same orchardist very often. This, of course, was not surprising to us since no definite control is attempted, except in quantity of materials used and length

of time for boiling. If the rate of boiling varies, the strength of the wash is bound to vary also. This could be easily remedied by making use of a hydrometer and boiling each time till approximately the same gravity is obtained.

But, perhaps, the greatest use to which the hydrometer can be put is in the handling of the concentrated lime sulphur solution, both home-made and commercial. In fact, on account of the variability in the strength of these washes it is impossible to use them with any degree of confidence without having some convenient method of arriving at their strength. These washes must be diluted with several times their volume of water before they are used. The amount of water needful can also be easily calculated directly from the specific gravity of the concentrate itself when the specific gravity of the wash of the desired strength is known. This can be done according to the following formula:

$$\frac{\text{Decimal part of sp. gr. of concentrate}}{\text{Decimal part of sp. gr. of spray}} = \frac{\text{No. of gallons of spray produced by one gallon of concentrate.}}{1}$$

That is, if the concentrate has a specific gravity of 1.280 and the spray desired has a specific gravity of 1.028 (the average specific gravity of the home boiled wash) then one gallon will produce

$$\frac{.28}{.028} = \frac{10 \text{ gallons of spray, or to 1 gallon of the concentrate}}{9 \text{ gallons of water would have to be added.}}$$

There is no doubt but that the hydrometer should be in the hands of every one using the lime-sulphur washes for orchard control work. Spraying would soon be reduced to a better basis if it were, and there would be less heard concerning the proper methods of manufacture, and other things which now give such a fertile field for discussion.

The Cost of Living in the United States

MALCOLM N. ROSS, REGINA, SASK.

SOME attempt to reach a definite understanding of the causes for present unprecedented high cost of living in the United States will be made by every thinking man in that country. Systematic efforts in the way of enquiry by committees are already in progress, and the information resulting from these investigations should afford valuable knowledge to those living in other countries, where many constitutions resemble those existing and that have existed in the States, notably for their mere academic and economic interests, but as information which will enable them to take precautions to avoid many objectionable conditions which surround every day life in that country.

The subject, of course, is extremely coupled with ramifications, extending into practically all branches of industry, finance, transportation and administration. At present a thoroughly comprehensive grasp of these is practically impossible, even for a professional economist.

So far most of the articles written in American publications in connection with the present agitation conclude with the statement that even higher prices for the necessities of life are inevitable, and that the fundamental cause is the increased amount and rapidity of circulation of gold. The consumer logically enquires how it is that more of the gold does not find its way into his pockets; the producer in the case of the farmer asks why a greater proportion of the increase in price does not come to him; it is quite evident to both that there is a consid-

erable leakage, when they compare prices paid with prices received.

The American has long ago devised means, legitimate and otherwise, whereby the old economic influences of supply and demand can be almost eliminated. It is quite within the bounds of reason and common sense that the storage of surplus supplies should be practised to make up deficiencies at later periods, so long as the practice is not abused, but when the natural demand and supply are artificially interfered with and both are worked upon by the middlemen for their personal advantage a very unsatisfactory condition must exist, and indeed, it cannot be questioned, that the manipulation of the supply to the consumer and the demand from the farmer is one of the greatest of the causes of discontent on both sides—because one of the least excusable or tolerable. In the case of clothing, rents, etc., other influences even more powerful and equally artificial are at work.

One condition existing in the United States, which seems to have escaped attention so far, is the enormous expenditure of money and labor on various extensive enterprises which are not immediately productive, and many of which may not be materially productive for many years. Not only do these developments—such as canals, railroads and terminals, etc.—necessitate the employment of hundreds of thousands of the very best men of all kinds, but they drain chiefly from the working classes that would in the ordinary course of events find their way on to the land, at the same time the land—

or the farmer—has to work to support them; other countries in which the work of development is more advanced are now reaping the benefits of their completed works—notably, good roads, canals and railroads. Countries must spend money on developments just as the individual must, and when the schemes are properly organized and capitalized and due regard is paid to the future requirements of the country the results will be beneficial to all, but as everyone knows the principles actuating the organizers in many instances have been anything but philanthropic.

In connection with development work, it must be borne in mind that the farmer in America and other new countries is obliged to spend much more money on buildings, fences, drains, roads, machinery, etc., out of his profits than farmers in other countries, because in the latter the farms are already in a more or less advanced stage, most of them have long been adequately equipped, and only call for small expenditures for upkeep and repairs, and the equipment is actually giving cash returns; thus the farmer can put all of his surplus into goods which will bring in quick returns, such as fertilizers, concentrated feeds and store cattle, and also he can afford to more carefully and thoroughly cultivate his land; one reason why farming cannot be really extensive in new countries is that it requires a good deal of extra capital, and so far the capital is not available.

We find that the farmer is handicapped as compared with the manufacturer, owing to the fact that profitable farming demands two distinct qualifications—those of a good practical manager to ensure economical production, and those of a good business man to dispose of the produce—and which on

the ordinary farm must be possessed by one person, the result being that one is generally developed at the expense of the other. In manufacturing enterprises it is generally admitted that the production and disposal of products necessitate quite different types of ability, and they are organized accordingly; where farmers have recognized this fact and have adopted these methods so as to conform to it, we find that the returns received vary in proportion as they have succeeded in specializing the various processes in producing and marketing, and the greatest efficiency seems to have been reached in the cases of certain associations of fruit growers and other specialists whose methods tend themselves to a highly organized system throughout.

The condition of those who practise mixed farming is, however, much more difficult; price is no general standard of quality, and the quantity of any given product at any one time is usually so small that it will seldom warrant the employment of efficient salesmen in a district which could be economically controlled by our organization; a most difficult question then is: How can the products of the "mixed farm" be disposed of with the greatest advantage to the producer and the consumer? Especially in the States the position of the "mixed farmer" is not what it should be. The American is eminently a specialist, and all the business practices of the country have been developed so as to conform to this condition, and while extreme specialization in the case of large manufacturing concerns has certainly resulted in economy of production and distribution, owing to a full control by a general executive organization, the results in the handling of farm products has had the very opposite effect; not only are the meth-

ods of collection and distribution of perishable products frequently most inefficient, but they have often enabled individuals to exploit both the producer and the consumer, and such conditions are not altogether unknown in Canada.

There is a very general impression that our cause of high prices is greatly due to the comparatively small number of farmers; another, that farming methods are not as good as they might be, but with farming, as with any other business, inadequate returns do not encourage investments of either labor, brains or capital, and until agriculture proves attractive to a larger class of people than it does at present there is not much hope for a great increase in agricultural production.

In selling his product the farmer can not actually receive the full price paid by the consumer any more than can the manufacturer. For even if he sells at retail he increases much extra expense, due to loss of time, etc., and unless he is provided with more extra capital than most farmers are much of his time is occupied in retailing, to the detriment of his farm operations, and an attempt must be made to determine just how much the farmer can afford to loose and the consumer to pay for the distribution of the product, with satisfactory results to both.

Evidently the farmer cannot afford to receive less than he is now getting. As a whole farmers are now considered to be prosperous—for farmers—but there is no evidence of any increase in agricultural investment as compared with other industries—in fact the reverse is the case—and we must admit that to encourage investments in agriculture it must ensure returns equal to those offered by competing investments. To do so in practice, an increase

in prices for his products is necessary, also improved methods of production and distribution, and at the same time the education of all classes of people to understand the possibilities of country life and to appreciate the fact that life in the country need not be considered as synonymous with personal discomfort, crudeness and absence of refinement and culture; it is not considered so in Europe, and there is no excuse for the attitude the majority of town Americans take in regard to it.

We may get some interesting information by comparing the differences between the wholesale and retail prices of similar products in America and England. The following examples are taken, in the case of English prices, from the reports of 19 local markets in the south of that country on Jan. 21st. The American prices from current market reports a few days later:

England.

	Wholesale.	Retail.
Pork	13c—14c	15c—18c
Beef	8c—14c	13c—19c
Mutton	8¼c—12c	10c—18c
Eggs.....	25c—27c	27c—37c
Butter.....	25c—35c	34c—37c

United States (Eastern).

	Wholesale.	Retail.
Pork	8c—8½c	20c—25c
Beef	4c—7c	20c—22c
Mutton	3c—4½	20c—25c
Eggs.....	25c—48c	30c—60c
Butter	25c—35c	27c—40c

The "wholesale" prices in both cases are those paid to the farmer—not to a dealer. The "retail" prices are those paid to the dealer, who, in a few cases might be the farmer.

In England, however, and all over Europe, there are many places where the working man can buy at lower prices than the above, which are for

articles of good quality. The following prices are given in a report just published by a Liverpool committee which investigated the conditions of the laborers of that city as being the average paid by these people: Tea, 25c per lb.; sugar, $4\frac{1}{4}c$; bacon, 10c; meat, 6c per lb.; potatoes, 12c per peck; coal, 18c per hundred weight.

These figures show that the margin of profit to the dealer is much less in England than America. Of course, in either country, if one wishes to buy from a butcher or grocer who keeps a store in a part of town where rents are high and who allows unlimited credit, one must be prepared to pay for such conveniences, and the tradesman trusts to his shrewdness to make his charges offset his risks, but all over Europe the price will vary with the quality to a very much greater extent than in the States; there is more competition amongst the dealers and less organization, and the buyer insists on getting more nearly the value for his money than does the American. The reasons why the English tradesman can deal on such a small margin and yet make a profit, if explained, would go far to show why the American must pay 22c a pound for pork to the butcher (not the packer), who pays the farmer 8c a pound for it; why he pays 40c—45c a pound for butter which brings the farmer 20c—25c, and that very often in trade.

One great influence on prices in Europe is the existence of excellent roads, by means of which the farmer can transport cheaply, easily, and rapidly his produce to the local markets under all conditions of weather; another, and perhaps equally strong, is the system of parcel post through which the city customer can be, and is, largely served at a smaller rate than

the dealer charges for his services; another is that the dealer, his wife, a family, are able to buy clothing, boots, etc., that will wear for nearly as many years as the American's will months, and will pay just about one half the price for them that the American does for his, largely owing to the fact that he is not obliged to support an expensive force of state employees, whose duty is to assist the manufacturer to plunder the public in general for the benefit or "protection" of the struggling manufacturer.

Many American writers loudly insist that the "tariff" has little to do with the "increased cost of living," others that the "trusts," "combines" labor unions are innocent. Whatever the conditions are that are wrong, and many of them are very obvious, if one will take care not to be misled by the noisy articles now filling the popular magazines, Canadians must view with satisfaction the fact that in Canada the need of the whole of the Canadians for warm clothing is considered of more importance than the interests of a few woolen manufacturers; that labor unionism is being controlled and directed towards its proper functions, and that a bill is being brought before the House for the efficient control of "trusts and combines," and that the farmers of the West show that they understand what is necessary in order that they should secure the profits, which in the States, go into the pockets of the dealers.

Parcel post is not yet, however, much in evidence; the consumer should understand that the nearer he gets to the farmer the more will his requirements be met in the way of quality; the farmer is usually willing and anxious to improve his product, if it pays him to do so, and the individual customer will

gladly pay when he understands that quality represents real value; parcel post will enable the farmer and the consumer to gain a mutual advantage.

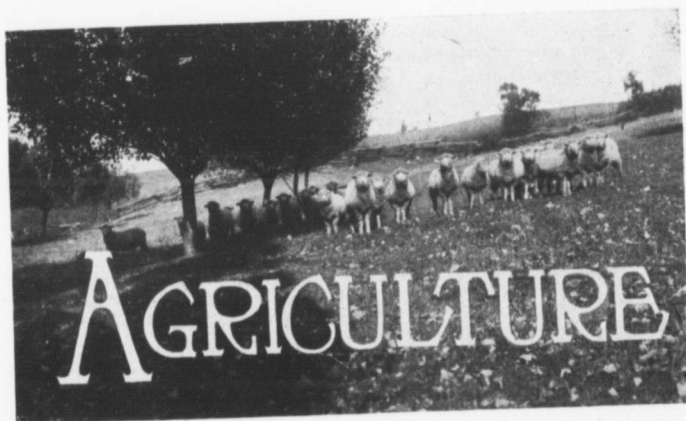
In the States and other new countries the cost of living has been overlooked in the struggle for high prices and big wages, and as long as personal privileges can be secured in the way of tariff rates, rebates, combines, etc., by which men can secure unduly high profits for themselves they will not find it necessary to worry about what is to them a comparatively small increase in personal expenses, but they will fight with all their power to retain their advantages, and the result can only be a revolt of the unprivileged classes against the privileged; it may be waged by moral pressure, acting through legal processes if the course pursued by the legislators is wise and just; but when

we call to mind the lawless and forcible actions of certain wealthy interests and labor unions in the past, we must be prepared for a much more serious conflict.

"Cheap living" is of much more importance than high prices and big wages.

The full results of the present "boycott" proceedings cannot be seen. That they have occurred is evidence that something is lacking in the administrative measures of the country; that they will cause the dealer to lower his standards of living and consequently his prices is very unlikely, and that they will seriously demoralize the source of supply—the farmer—is very certain; it is decidedly a curious way to stimulate improvement in a branch of industry that is notoriously in need of stimulation.





The Draught of Flax Upon the Soil; A Comparison

IT is well known that the constituents of plants often vary in the proportion in which they are present, with different conditions of climate, locality, soil, etc. Different samples analysed by the Minnesota Experiment Station, by the Ontario Agricultural College Chemical Department, and by the writer vary somewhat in percentage composition, although the amounts of each constituent bear the same general proportion to those of the others.

The results obtained differ in the aggregate from those of the Minnesota Experiment Station, although the percentage composition is very much the same. They show that where the entire crop is removed, as is the case with a crop for fibre, the draft is heavier than in the case with cereals, being on a par with corn and mangels. If grown

for seed only and the straw returned to the soil, the draft is lessened.

The following tables give the percentage composition as obtained by the writer and by the Minnesota Experiment Station:

Table I.

Being the percentage composition of a flax sample analysed in the Guelph laboratory:

	Seed.	Straw.
Moisture.....	6.170	7.806
Pure ash.....	3.817	6.811
Sulphuric anhydride,		
S.O ₃	6.893	3.480
Phosphoric anhydride		
P ₂ O ₅	47.202	8.020
Potash, K ₂ O.....	20.450	26.140
Lime, Ca. O.....	13.770	25.280
Silica, SiO ₂.....	.820	4.540
Nitrogen N.....	4.472	.7145

Table II.

Being the average of results obtained at the Minnesota Experiment Station:

	Seed.	Straw
Pure ash.....	3.73	2.98
Sulphuric anhydride,		
SO ₃	2.23	3.54
Phosphoric anhydride,		
P ₂ O ₅	43.14	6.15
Potash, K ₂ O.....	25.27	34.86
Lime, Ca. O.....	9.15	23.69
Silica SiO ₂.....	.88	6.05

Table III. gives in pounds the amounts of fertilizing constituents removed by a crop of flax yielding 20 bushels of seed and 2 tons of straw per acre. These figures regarding yield were obtained from the Department of Agronomy.

Table III.

Plant food removed from an acre of land by a crop of flax, in pounds:

CONSTITUENT	In 1000 lbs. Seed	In 4000 lbs. Straw	Total
Nitrogen	44.72	28.58	73.30
Ash.....	39.17	156.68	195.85
Phosphoric acid,			
P ₂ O ₅	18.48	12.56	31.05
Potash, K ₂ O.....	8.01	40.94	48.95
Lime, Ca O.....	5.39	39.80	45.20
Silica, SiO ₂ .....	.32	4.90	5.22
Sulphuric Acid,			
SO ₃	2.68	5.45	8.14

The following table, Table IV., affords a comparison of the common farm crops as soil impoverishers. The authority is Henry's "Feeds and Feeding," the tables of which are based upon the Year Book of the United States Department of Agriculture for 1895, except in the case of flax, which is based upon my own investigations.

Table IV.

Amounts of the three principal fertilizing constituents removed by farm crops:

Crop.	Gross Weight lbs. per Acre.	Nitro- gen. N.	Phos- phoric Acid P ₂ O ₅	Potash K ₂ O.
Wheat, 20 bu.1200		28.32	9.48	6.
Straw	2000	11.8	2.4	10.2
Total		40.12	11.88	16.2
Oats, 50 bu..1700		35.02	13.94	10.54
Straw	3000	18.6	6.	37.2
Total.....		53.62	19.94	47.74
Barley, 42 bu.2000		30.2	15.8	9.6
Straw	3000	39.3	9.	62.7
Total		69.5	24.8	72.3
Peas, 20 bu...1200		36.96	9.89	11.88
Straw	2000	....	4.	20.
Total.....		36.96*	13.84	31.88
Flax, 20 bu..1000		44.72	18.48	8.01
Straw	4000	28.58	12.56	40.94
Total		73.30	31.05	48.95
*Flax		77.5	40.6	43.8
Corn Silage..30000		84.	33.	11.
Timothy ... 4000		50.4	21.2	36.
Red Clover.. 6000		124.2	22.8	132.
Potatoes ... 9000		28.8	10.8	41.4
Mangels ... 20000		75.	35.	150.

*This report is taken from Colorado Bulletin No. 90.

In its capacity for nitrogen, flax is only exceeded by Red Clover and corn, as shown by Table IV., and equalled by mangels. But clover, as is well known, derives most of its nitrogen from the air. This leaves corn and mangels to be placed upon a par with flax as a depleter of soil nitrogen. Wheat takes slightly over half, oats and timothy two-thirds, potatoes one third and barley slightly less than the amount of nitrogen required by flax.

Phosphoric acid is in as great demand by flax as by any of the other crops, although corn, mangels and barley require approximately the same amounts,

barley falling short by five pounds of the amount taken by flax. Wheat and potatoes take one-third as much P₂O₅ as does flax. Oats slightly over half; peas slightly under half, and timothy and clover two-thirds as much.

Mangels, clover and barley all take much more potash than does flax, mangels taking over three times as much. Oats takes approximately the same amount and potatoes, timothy and peas require anywhere from seven to seventeen pounds less. Corn takes one-quarter and wheat one-third as much.

Of the grains peas is the only crop requiring more lime (Ca. O.) than does flax, taking nearly five times as much. Clover takes as much as peas and mangels and potatoes both require considerably more than flax, mangels taking nearly twice as much.

Flax draws very lightly on silica, requiring only 5.22 lbs., compared with wheat 116 lbs., barley 72 lbs., oats 75 lbs. and corn 90 lbs.

In comparing the amount of fertility removed in the flax crop, with that removed by other farm crops, it must be remembered that only the exact amounts removed are stated, and not the comparative ease or difficulty with which the various crops obtain their supplies of food. We have as much reason to expect a varying digestive strength in plants as in animals. Flax is a weak feeder, requiring a seed bed in a fine condition and plant food easily available in order to secure large returns.

On the prairies of the West flax is often sown on freshly-broken sod with but little preparation of the soil. The effect upon the next year's crop of wheat, however, is such that it would often pay the farmer to have omitted the flax crop altogether, a very poor

crop of wheat being obtained. Upon oats this effect is very much less marked, and oats is now the crop generally used to follow flax.

This is directly opposed to the experience of Ontario growers, those interviewed, without exception, claiming that flax left the land in the best possible condition for wheat. The reason for this difference is difficult to explain satisfactorily at present.

Investigation has shown that flax can not follow flax with any prospect of success. This is not due to soil depletion, because there is still a failure when all the elements removed by the previous crop have been added to the soil. The trouble appears to be in the undecomposed roots and straw remaining in the soil. One would not expect the physical effect of this residue to be the cause of the failure of the succeeding crop, but would be more inclined to suspect some toxic effect, as is the case in "clover sickness," of soils. Dr. Luggier, in a bulletin issued in 1890, advised, as a result of investigation work carried on by him, that a period of from five to seven years be allowed to elapse between two crops of flax on the same soil, to permit of the thorough decomposition of all residue from the previous flax crop, before the second crop be sown.

In comparing the ash of the seed with that of the straw, it would be well to note the greater percentage of ash in the straw than in the seed, there being nearly twice as much. In potash, lime and silica, and particularly in the two latter, the straw ash is the richer, but the greatest difference of all is with phosphoric acid, the ash of the seed having nearly six times as much as the straw ash. The seed ash also contains more sulphur trioxide than does the ash of the straw.

The significance of this is much more evident after a study of Table III. Owing to the greater weight of straw it contains by far the greater part of all the ash constituents removed by a crop. Therefore, if the seed alone were disposed of and the straw returned to the land, the draft on the soil would be materially decreased.

The Effect of Sprouting on the Germination of Wheat

WILLIAM BOWMAN, '10.

IN Ontario occasionally we have heavy rain at the time of harvest ing the wheat crop, which causes the wheat seeds to become more or less sprouted in the sheaf. There is considerable doubt in the minds of many farmers as to the value of these sprouted seeds for germination. In order to arrive at some definite conclusion in regard to this matter experiments were carried out under the direction of Professor Zavitz, both at the home of the writer and at the College. The conclusions arrived at from this experiment, though differing slightly from the results obtained in the Experimental Department, are nevertheless definite enough to allow us to draw our own conclusions regarding the relative value of sprouted and non-sprouted seed for germination purposes.

The experiment was started at the home of the writer, some twenty miles east of the City of Guelph. Four varieties of wheat were procured, being respectively Dawson's Golden Chaff Abundance, Imperial Amber and Early Red Clawson, making two varieties of red and two of white wheat. This wheat was procured as soon as cut and before any dew was allowed to fall upon it. In performing this experiment the foremost idea kept in mind was to

treat the grain as far as possible in the natural way. When the sheaves are subjected to the natural conditions of the field, they are sprouted to a greater or less extent, according to the amount of rain which falls. After the rain is past the farmer opens the shocks and the sheaves are dried by the sun's rays. When thoroughly dry they are hauled to the barn and mowed away to await threshing. In order to follow this method as closely as possible a shed was procured for the sprouting of the seed. This shed contained an earth floor, one-third of the walls were of glass and it was provided with means of ventilation. This corresponded as nearly as possible with field conditions, it, of course, being impossible to carry on this work in the open air owing to the effect of the sun.

The sheaves of wheat were placed in this building as soon as each variety was procured. Five sets, consisting of two sheaves each, were selected from each variety. One of these sets from each variety was stored away and labelled "not watered," with also the name of the variety. The other four sets from each variety was placed in rows, one sheaf against the other, about three feet apart, in the the building. These four sets were labelled respec

tively: 1 hour, 24 hours, 48 hours and 60 hours, this being the time that each set was to remain wet; this corresponding to a passing thunder shower, one day's rain, two days' rain, and two and a half days' rain.

The whole experiment was done in duplicate, and five other sets of each variety were also set apart, those labelled "not watered" were set apart and the remainder were placed in the building with the others, and in the same manner, thus making a total of thirty-two sets.

The sheaves were watered by means of an ordinary watering can, and about every half hour. In this way they were kept quite wet and a slight touch to the heads would shake the hanging drops to the ground. When the sets labelled one hour had been wet for that period they were carried from the buildings, the bands cut and the straw opened out to the sun to dry. When thoroughly dry they were tied up again, re-labelled and stored away in the barn with the non-watered sets. This same performance was repeated when each of the other sets had been watered according to length of time specified, and all were stored in the barn.

The threshing was done in the month of August. The method adopted was to thresh the seed out by means of a flail over a white sheet. The grain was then placed in tin boxes, labelled and stored away to await the seeding.

At the time of seeding, the grain was examined, in order to ascertain the length of sprouts. The seed watered one hour showed no difference from the normal grain. No signs of sprouts were visible. In the sets watered 24 hours, the skin was just broken. In the seed from the 48-hour watered wheat the sprouts averaged $\frac{1}{4}$ -inch in length. The seed from the 60-hour

watered wheat averaged $1\frac{3}{4}$ inches long. There was very little variation in the length of the sprouts between the varieties. Early Red Clawson seed had slightly the greatest length of sprout; the other varieties were approximately the same.

On September 6th the wheat was sown. A piece of level land was selected, and a good seed bed prepared. One hundred average seeds from each set were counted out and sown in plots two feet square. Records were kept of the number of plants which appeared above the surface from day to day, and thus the total germination and rate of growth were obtained.

On Oct. 13th a germination test was begun in the Biological greenhouses of the College. One hundred seeds from each set were counted out as before and sown in boxes filled with medium sand as is used by the Horticultural Department. Records were also kept of these in the same way as stated before in speaking of the field sowing.

Another germination test, carried on at the same time, was to germinate the seeds between blotting pads. These pads were moistened with water, and as each seed showed signs of germination they were removed from between the pads, and in this way records were kept of the rate and percentage of germination.

Following are the average results of the germination tests of all varieties:

Non-watered seed, 90% germinated in 18 days.

Seed watered 1 hour, 91% germinated in 21 days.

Seed watered 24 hours, 95% germinated in 14 days.

Seed watered 48 hours 67% germinated in 11 days.

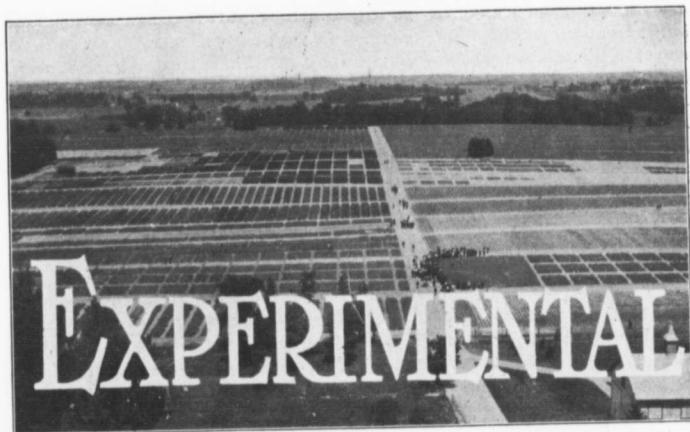
Seed watered 60 hours, 41% germinated in 8 days.

The best wheat for germination purposes from the standpoint of the farmer is the one which produces the greatest number of plants and in the shortest time. Ranked according to this view the wheat in the above tests, from best to the poorest, is as follows: Seed watered 24 hours, non-sprouted, 1 hour, 48 hours, 60 hours. The 48 and 60-hour watered wheat rank poorest, and a glance at the above results is sufficient to show us that wheat sprouted to the same degree as above is very poor in powers of germination indeed, and would hardly pay to sow. Notes were also taken of the appearance of the plants from the different sets, and it was noticed that the plants from the 48 and 60-hour watered seed were lacking in color and vigor and did not show the healthy green color as did the plants from the other sets.

In regard to the 24-hour watered seed, the showing it made is, in the mind of the writer, a question of the absorption of water. In this seed the skin was only just broken, so that damage by external influences during the period of storing was at a minimum, and the seed was also in the primary stages of germination, which would account for more rapid appearance of the plants above the soil than from the non-sprouted seed when the radicle and plumule were yet undeveloped. In addition to these factors the seed would unquestionably absorb a large amount

of water during the period of watering and they would hold this water until the time of seeding. The non-watered seed would have to absorb water before germination could commence, but in the 24-hour seed the water was already absorbed and the seed lacked only soil conditions before making further growth.

It is very doubtful in the opinion of the writer, however, whether slightly sprouted seed is as good for seeding purposes as non-sprouted wheat. Before any definite conclusions can be drawn it is necessary to carry on more thorough investigations in regard to the germination of the seed, health and vigor of the plant and yield when harvested. The results from this experiment are from one test only, and therefore cannot be accepted as applying to all conditions. There is no doubt from the results obtained that badly-sprouted seed is very low in powers of germination, but, as stated before in regard to the slightly-sprouted seed, there is need of more investigation before any conclusions can be drawn. Without doubt slightly-sprouted seed is more susceptible to external influences than non-sprouted seed, and even though it produces a larger percentage of plants than the latter, it might be found to be seriously lacking in health and vigor and yield of grain when compared at later stages.



An Annual Pasture Mixture

W. J. SQUIRRELL, B.S.A.

AT the request of Prof. Zavitz, I am submitting, Mr. Editor, this short article for your paper.

During the past few years many questions have been asked of the department of Field Husbandry, and none with greater frequency than this: "What can you recommend as an annual pasture crop?" For a number of reasons this has always been difficult to answer satisfactorily. The man in want of such a pasture seldom discovers he is going to be short of pasture until late in the spring; it is therefore necessary that we be able to supply his wants with crops maturing in a very short space of time; therein lies the main difficulty.

After a period of experimenting, extending over ten years, during which there has been tested nearly all the cultivated annual crops that will grow in

Ontario, we feel that we are now in a position to answer this question with a fair degree of satisfaction.

The crop which we are prepared to recommend is made up of the following mixture:

	Per acre
Siberian Oats.....	51 lbs.
Early Amber Sugar Cane.....	30 lbs.
Common Red Clover.....	7 lbs.
—	
Total.....	88 lbs.

In the early part of the season, in June and the forepart of July, the pasture is comprised principally of oats. Oats will provide good pasture for a considerable length of time if they are pastured heavy enough to prevent them from coming into head. The mid-summer pasture is made up of oats, with an almost equal amount of the Early Amber Sugar Cane and with a fair percentage of Common Red clover. In the

fall the composition of the mixture is found to be largely Common Red clover with considerable Early Amber Sugar Cane and a small amount of oats.

to put the animals on six weeks after seeding. Three years out of the four in which this mixture has been tested has seen this aim accomplished; in the



CATTLE PASTURING ON MIXTURE SHORTLY AFTER BEING TURNED IN (ABOUT JUNE 25th).

The question is often asked why corn is not used in place of the Early Amber Sugar Cane; the reason is this, corn will not stand pasturing, while Early Amber Sugar Cane will. Early Amber Sugar Cane has been cut as often as six times in a season, and at the end of that period found to have 85% of plants left. The amount of pasture obtained from a given area has invariably been greater from Early Amber Sugar Cane than from corn.

The best time of sowing the mixture is the end of the first week in May, although I have no doubt in the southern counties of the Province it could be sown as early as the first of May. The oats and sugar cane are mixed and sown together, the clover sown ahead of the drill. Better results have been obtained where clover has been sown before the grain drill in preference to seeding it behind.

In regard to time of commencing to pasture the mixture, the aim has been

other year the growth was so rapid, pasturing had to be begun at five weeks from the date of seeding.

The following table gives the average results at the time of turning animals on pasture (about June 15th), in height of the different crops, and in percentage of each in the mixture:

MIXTURE	Average of 4 Years' Results.	
	Height of crop at turning commencing, inches.	Percentage of each in mixture when commencing
Siberian Oats.....	16.4	77.8
Early Amber Sugar Cane	6.0	10.2
Common Red Clover....	3.8	12.0

A glance at the table will show the relatively large proportion of the oats in the mixture at this early date.

The length of time during which steers have been pastured, and the gains made by each, have, of course,

varied somewhat from year to year. The accompanying table gives the average results for the length of time pastured, the gains made, and also of the average amount of land pastured by each animal.

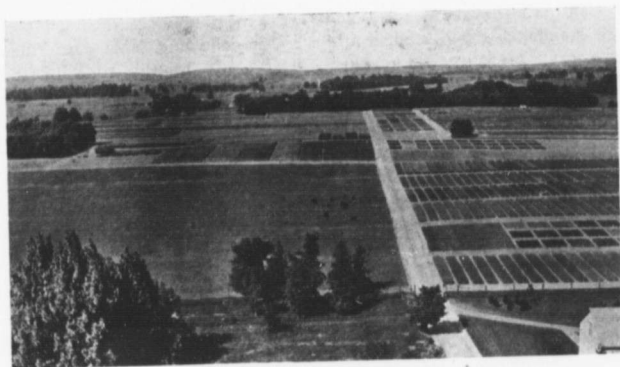
MIXTURE	Average of 4 Years' Results.		
	Amount of land pastured by each steer, Acres.	Number of days Steers were on Pasture.	Aver. number of lbs. increase per acre.
Siberian Oats.	.85	43	141
Early Amber Sugar Cane..			
Common Red			
Clover.....			

It will be seen by the above figures that it required rather more than one steer to keep an acre of pasture under control, and that the animals had good

The total amount of pasturage secured from the mixture would have been increased by giving the mixture a rest for a week or ten days and then pasturing it again later in the autumn. Owing to land requirements for winter wheat we were unable to do this.

The mixture in the autumn, being made up largely of clover, is valuable for plowing under, or a good catch of clover the next year may often be secured by leaving the crop unplowed. The plowing under of the crop on heavy clay or on wet soils may be attended with some difficulty, though very little difficulty has been experienced here at the College, where the soil is an average clay loam.

Cattle seem to be very fond of the different crops in the mixture; particularly is this so in the case of the Early Amber Sugar Cane.



CATTLE PASTURING ON MIXTURE, MIDSUMMER.

pasturage for more than six weeks. Last year was the best in the history of the mixture at the College, the steers making an average gain of 33-5 pounds per day.

The seed cost of the mixture per acre will average about \$2.75; this, no doubt, will be lessened in the next few years, as several men in the southern part of the Province are now successfully raising

ing seed of the Early Amber Sugar Cane, and it is this crop which brings up the cost of the mixture.

A number of farmers throughout

the Province have given the mixture a trial, and in nearly all cases the reports received have been very favorable.

By-Products of the Edwardsburg Starch Factory

E. ROBINSON, '10.

AT Cardinal, Ont., a beautiful village on the St. Lawrence River, 105 miles west of Montreal, is situated the largest starch factory in the Dominion of Canada. The industry was begun about fifty-two years ago, and to-day it gives employment to nearly 300 hands. The starch is made from corn that is grown in the United States and is purchased on the Chicago market. It is conveyed in summer by boats and in the winter by rail and is stored in the company's large elevators until it is required for grinding. The number of bushels ground per day is between three and four thousand.

The important product from corn is starch. Starch is used for culinary, laundry or confectionary purposes. By hydrolytic methods starch is changed into glucose sugar. By some additions and modifications glucose sugar is put on the market as corn syrup, or grape sugar, or made into confectionery.

In order to get the starch the grain is put through various processes that I am going to describe to you briefly. In doing this we will arrive at the various by-products that are of considerable interest to the farmer who feeds them to his stock as concentrated foods.

Steeping.

The dry corn from the granaries is conveyed by carriers into large, hopper

bottomed steeping tubs. The water impregnated with sulphur dioxide is run upon it. By means of steam siphons the water is kept in circulation, and at the same time heated and maintained at a temperature varying from 120° F. to 140° F. This steeping process is continued for from two to four days according to the hardness of the corn, as a certain degree of softness is required for the operations that follow.

Milling.

The steeped corn is next run through the steel mill or Foss mill, by which the grain is cracked and the germ liberated. The grain is partially ground, giving rise to a pulp-like mass. This, when properly diluted with water so that the most finely ground portions form a liquor, is passed through a germ separator—a long, large V-shaped tank. This tank has a screw conveyor at the bottom and skimming paddles at the top, and by means of gravity the endosperm sinks and is conveyed away from the bottom of the tank, while the germ is taken away from the top.

The Germ.

The germ is then washed free from any starchy matter that may adhere to it and is then dried. The dried germ is next ground, cooked with steam and its oil expressed by means of powerful hydraulic presses. This oil is known

as "Corn oil" and is used largely in the manufacture of soaps.

What is left after the oil is expressed is large plates of compressed material known as "Oil cake." This cake is dried and broken into smaller pieces and sold to the farmers for to feed to stock. Sometimes it is finely ground and is sold as corn oil meal. In the latter form it can be more easily adulterated.

Endospermal Portions.

After it leaves the V-shaped tank it contains some finely ground portions in suspension that are screened out by passing over a vibrating copper sieve. The coarse material is mixed with water and passed through a burr-stone mill and is finely ground. It is then mixed with the previously screened liquid. The mixture is then pumped over the shakers.

The first shakers are vibrating screens covered with silk bolting cloth of rather coarse mesh. By this means the starchy liquid is separated from the branny portions of the grain. The branny portion is conveyed into a stir ring tub agitated with water and pumped over the second shaker on which it is washed as free from starch as possible.

The bran is then conveyed to presses and a portion of the water is pressed out. This is known as "Press feed," and is sold to the farmers by the bushel. What is not disposed of in that way is dried and put in sacks and sold as "Corn bran."

Separation of Starch from Gluten.

The liquid containing the starch and gluten may be passed over a third series of fine sieves or shakers to screen

out the more or less gritty, glutenous and fibrous residues, or they may be passed immediately over the runs.

The Runs.

These are gutters about 120 feet long, six or eight inches deep and from ten inches to two feet wide, with a slope of about four inches between the ends. Into these the crude starch liquors are run, and during their passage through them the starch more or less free from gluten and cellular matter is deposited, the glutenous and other residues "Tailing off," carrying considerable starch with them that cannot be economically recovered.

The "Run tailings" are conducted in to continuous settling tanks, the solids are allowed to subside, while at the same time the clear supernatant liquid is siphoned off and runs away. When the tank becomes nearly full the concentrated tailings are sold as "Slop," or "Swill," or it may be filtered and dried and sold as "Gluten meal."

Gluten Feed.

This is a mixture of wet corn bran and wet gluten meal, dried and ground together.

You will see that there are three by-products from the Edwardsburg starch factory, viz.: oil-cake, corn bran and gluten meal, and a fourth, gluten feed, being a mixture. The following table shows the chemical composition of each:

Name of Feed.	Moisture	Ash	Crude Protein	Crude Fat	Carbo-Hydrates	Crude Fibre
Oil Cake	9.61	1.76	21.88	13.34	43.70	9.71
Gluten Meal	9.58	.62	32.58	3.17	51.65	2.40
Gluten Feed	8.72	.75	22.43	2.25	57.84	8.01
Corn Bran	12.01	.49	9.92	2.40	61.28	13.90



Horticulture

Horticulture and Science

PROFESSOR J. W. CROW.

HORTICULTURE is an art. According to such eminent authorities as Dr. L. H. Bailey the science of horticulture is in large measure unknown. The various practices which constitute the art of horticulture are, of course, based on the underlying sciences of chemistry, physics and biology, but up to the present time gardeners, florists and fruit growers have operated not on scientific but on practical knowledge. In their efforts to secure practical results they have simply tested the various ways of doing a thing and adopted the one which seemed to give the best results. Science has had heretofore but a small part in developing horticultural methods, and even yet there are many operations commonly practised in horticulture which science makes no attempt to explain. Take, for instance, the summer pruning of fruit trees commonly carried on by English and French fruit growers. Long experience has shown that certain effects follow the practice, but, so far as the writer is aware, no really scientific explanation has been

advanced to account for the result secured.

Other branches of agriculture such as Dairying, Agronomy, Animal Husbandry, and Poultry Husbandry, have reached a more advanced stage than has Horticulture. Agronomy, for instance, may correctly be called a science—which statement means simply that the sciences underlying the production of field crops have been studied and are now fairly well understood. The difference between an agronomist and a horticulturist is, in one sense at least, particularly well marked. Both are concerned with the culture of plants and both require, therefore, to investigate all the sciences which bear in any way on plant nutrition and growth. The chemistry of fertilizers is as important to one as to the other. Both must understand the chemical and physical composition of soils and the control of soil moisture. They study these and other subjects in common but they are engaged in producing entirely different classes or kinds of plants, and each must of neces-

sity bear continually in mind the requirements of the particular kind of plants with which he has to deal. In as much as the heat, light, moisture and fertilizer requirements of an apple tree differ from those of an oat plant, we have therefore a difference in the viewpoint from which these factors require to be approached. The most ignorant cultivator of, let us say, corn and oats, knows that these two field crops require different cultivation and care. The oat plant makes all of its growth in the cool and moist weather of spring and early summer and consequently requires no cultivation. The corn plant makes its growth during the hot, dry weather of summer and consequently requires to have moisture for its use conserved by cultivation. Every cultivator knows that this difference, although it may appear slight, is of the greatest importance. The difference between the requirements of these two plants and those of a fruit tree require only to be mentioned in order to be fully appreciated. The two former are annuals and are harvested in summer and fall respectively. The tree, however, stands year after year in the same spot. During spring and summer it is subjected to the same climatic and soil conditions as are the corn and oats. But its roots remain in the soil during the entire season and the trunk and branches require to endure the low temperatures and drying winds of winter. Fruit growers are all too familiar with the severe injuries which always follow a particularly rigorous winter. The most frequent and serious instances are found on low, undrained soil or where for any reason tree growth is continued too late in the autumn. Surely it becomes important to study most carefully the effects of soil treatment, of drainage and of fertilizers

on the period of maturity and consequent relative hardness of trees. The underlying sciences are the same as those which underlie the production of the cereals mentioned. The factors to be studied are heat, moisture, and fertility, but the viewpoint is different.

Between agronomy and horticulture a further difference exists, however,—one which constitutes the point of this article. Agronomy has already investigated with much care and study the chemistry and physics of soils and soil treatment. These matters are now comparatively well understood, as are also the various other problems concerned with the nutrition and growth of field crops. It is by virtue of this fact that agronomy has attained to the dignity of a science. Horticulture, on the other hand, is still an "art." It is not a science, for the simple reason that the horticultural viewpoint has not been applied to the study of the scientific problems which agronomy has so satisfactorily solved. Animal husbandry, poultry husbandry and dairying are sciences also, because practice in all these industries rests now on a basis of classified and systematized knowledge.

It would be difficult to account fully for the fact that horticultural science has been thus long in making its appearance. One reason, no doubt, is that field crops are of more direct importance and have consequently received first attention. Horticultural plants are, as a rule, of more difficult cultivation and being less extensively produced have fallen naturally into second place.

The cry for scientific investigation in horticulture is insistent and the questions calling for solution are innumerable. Between the green house radish, marketed in twenty

one days from the sowing of the seed, and the venerable apple tree with its hundred and fifty years of existence, there is a list of horticultural plants far outnumbering all those cultivated by the agronomist. Each plant is a problem, or rather a dozen problems in itself, and one need not go far in search of questions which for interest and attractiveness rival those presented in any other field.

It is, of course, to be expected that in new countries such as the United States and Canada where horticulture is also quite new very little scientific investigation work has been carried on. European horticulturists, particularly those of England and France, are far in advance of Americans with respect to their expertness in various practical matters connected with horticulture, and they are also far in advance from a scientific standpoint. But even yet in those countries there is comparatively little literature of a strictly scientific horticultural nature.

The Society of Horticultural Science, which is composed of United States and Canadian professors, teachers and investigators of horticulture, held its biennial meeting in St. Catharines last fall. Professor W. A. Taylor, of the United States Department of Agriculture, President of the organization, in his opening address made a strong point of the great and increasing need for scientific research in horticulture. It was pointed out that, as has been mentioned previously in this article, we have heretofore drawn largely from experience rather than upon our knowledge of principles.

Considerable interest has been aroused among the Experiment Station and Agricultural College men of the United States through a recent grant of the Federal Government known as

the Adams Fund, which is to be expended entirely on investigation work. It is timely to point out here the difference between "investigation" and "experimentation." Dr. L. H. Bailey in an address before the above named society gave a very clear definition of investigation or research. It was characterized as "a competent effort by a competent person to discover principles and facts that are underlying in one year as well as in another and that do not grow old and out of date, in distinction from the making of tests and the re-elaboration of present knowledge." Experimentation has been the method principally used by horticulturists in the past. It is the means by which a practical man tests methods with the object in mind of securing practical results. Scientific research, on the other hand, aims primarily at discovering the reasons underlying the various operations. It does not aim to be practical above all things, but frequently and usually the results of scientific research have more or less practical value. There are various methods of pruning trees, and each method gives a different result. To take a number of Northern Spy trees, prune some in winter and some at various seasons through the summer might be simply an experiment to determine from a practical standpoint the effect of pruning at different seasons. The results, of course, would be of a practical nature, and if the experimenter found that summer pruned trees bore earlier or more abundantly, or that winter pruned trees grew more vigorously, he would simply make practical use of the result of the test and proceed to prune other trees in the way which promised the best results in fruit. To take the same lot of trees, prune them in the same ways, and study them from a physiological stand

point with the object in mind of finding out the reasons for unusual bud formation, unusual productiveness, or unusual growth, if any, would be a scientific investigation. The results might or might not be of direct practical value. The probability is that they would be, and it is equally probable that the scientific facts discovered would be of much wider application than simply to the pruning of one variety of apple tree.

Dr. E. W. Allen, Editor of the Experiment Station Record and Assistant Director of the Office of Experiment Stations of the United States Department of Agriculture, found it necessary in addressing the Society of Horticultural Science to make very clear and plain the above distinction between experiment work and scientific research. He stated that under the recently granted Adams Fund, horticulturists and others were continually endeavoring to secure appropriations for the prosecution of work which could not properly be classed as research. The Office of Experiment Stations is called upon to decide whether or not a project submitted by an Experiment Station may draw the funds for its advancement from the Adams Fund, which, as before stated, is intended only for scientific investigation, or from a previous appropriation under the Hatch Act, the funds of which may be used for either purpose but which are no longer adequate to the present demands.

Some forty-five projects have been registered in horticulture under the Adams Fund. Only a part of these are being carried on by horticulturists, the remainder being in charge of men belonging properly to other departments. Half of the horticultural projects registered so far are in the field of Plant Breeding and many of them aim at se-

curing practical results in crop improvement rather than scientific knowledge of the principles of heredity and variation. Several stations are undertaking the study of factors influencing fruit-bud formation and are attacking the problem from various stand points. Studies of the physiological effect of the various methods of pruning are being carried on, together with investigations into the effect on fruit-bud development of different kinds of fertilizing materials and of different methods of soil treatment. Disease resistance and the climatic and soil factors bearing upon susceptibility to disease are being carefully investigated. The pollination and fertilization of blossoms is being studied, as are also the allied problems of self-sterility and cross-fertilization. These instances will serve to show the nature and importance of the problems requiring attention and are, of course, only a few of those which might be mentioned.

We have already referred briefly to the fact that horticultural plants are difficult to grow. One has only to glance at the conditions under which flowers and vegetables are produced in a greenhouse, for instance, in order to see the force of this statement. In glasshouse work the plant is placed in an entirely artificial environment. The climate is made to order, so to speak, and the warmth, moisture and fertility of the soil are also regulated in a manner entirely unnatural. It is self-evident that the production of plants under these conditions is much more difficult than the production of ordinary field crops. This added difficulty, however, gives added interest to the problems involved. The more difficult the plant is to grow, the more scientific the study required for its successful production and, to the student of scientific

temperament, the more attractive are the problems involved.

These artificial conditions are to be found not only in greenhouses but in outdoor work as well. Take, for instance, an apple tree. It is initiated in a purely artificial manner by either budding or grafting. In some cases it is never allowed to take its natural form. Its growth is forced if the needs of the gardener require it or checked as the case may be. If occasion requires it half of the root system may be cut away and destroyed and the removal of the branches is systematically carried on under the name of pruning. These are all artificial operations, and this very fact of artificiality complicates very considerably the scientific problems involved in the care and handling of the tree. In the case of field crops, the plants, as a rule, are given only the most natural conditions and are not interfered with as to their habit or direction of growth. The plant physiologist can and does explain very clearly what takes place under normal conditions when the plant is growing naturally. Up to the present time, however, plant physiologists have given very little attention to the manner in which plant nutrition and reproduction are affected by the artificial practices commonly carried on by horticulturists.

We have tried to emphasize the necessity of beginning investigation work in horticulture. It is without doubt true that the future progress of horticulture depends in a very considerable degree on the development of the scientific aspects of the subject. We do not mean to insinuate, however, that research work is the only branch requiring attention, because such is obviously not the case. We must continue to experiment and our purely experimental work will of necessity be,

to a considerable extent, a repetition of that which has already been done in countries in which horticulture is older and more advanced. Some of it will more correctly be called "demonstration" or "object lesson" work, because it will be the means of bringing well known methods to the attention of our growers rather than the means of discovering new methods and ideas on our own initiative. Those experiments which are no longer new to European horticulturists will require to be duplicated in this newer country for the additional purpose of giving our horticultural teachers a personal knowledge of each matter which may come up for discussion. Any one who has tried to tell a gathering of wide-a-woke farmers something of which he has only a reading knowledge will corroborate this statement. Our speakers on horticultural matters must be enabled to speak from experience and not from hearsay alone.

The situation with regard to horticultural matters in Ontario to-day is decidedly interesting. We have reached a stage in the economic development of our agriculture which compels the expansion and development of our fruit, vegetable and floral industries. This College is in a position to be of very material assistance in the matter, and the opportunity of service at present open to us is so great that it cannot be viewed without a sense of serious obligation to undertake the work. We are much better favored climatically than many of us have been led to believe, and although we are outside the so called "fruit belt," the writer submits that the climate of Guelph is fairly representative of that of Old Ontario as a whole. Given a favorable soil and location, we should surprise ourselves with the quality and quantity of fruits

that could be grown. We are geographically in a position to demonstrate to students and visitors, of whom we have thousands annually, the possibilities of horticulture as well as the most approved methods of caring for horticultural crops. Given suitable equipment, there is no good reason why experiment work of value to our rapidly increasing horticultural population should not be carried on. No better facilities could be found for the prosecution of scientific research work than

exist already in the laboratories of our various scientific departments. May the time soon come when we as an institution shall undertake our share of the work of placing horticulture on the basis now occupied by her sister branches of the great Science of Agriculture. Horticulture is, at present, an art. It will become a science. The length of time required to make the change will depend in large measure on those in whose power it lies to extend the needed assistance.

MUSIC EVERYWHERE.

There's music everywhere
 Thou canst not tread upon a pointed pin
 But Nature's music doth at once begin
 With plaintive notes to tremble through the air;
 There's music everywhere!

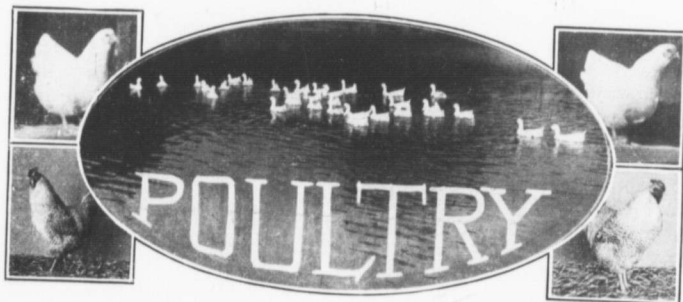
Thou canst not drop a boot jack on thy toe
 But one deep note unconsciously will flow
 Forth from thy lips and echo up the stair;
 There's music everywhere!

Thou canst not drive a nail into the wall
 But lo! the hammer on thy thumb will fall,
 And Nature's treble rends the quivering air;
 There's music everywhere!

Thou canst not rest at night upon thy bed,
 But lo, among the chimneys overhead,
 Two cats or three sing out in chorus there;
 There's music everywhere!

Thou canst not step upon the doggy's tail,
 Or drop a window on your finger nail,
 Or lift the boiling kettle from its stand,
 Or take a roasting chestnut in thy hand,
 Or get the soap into the other eye,
 Or stick a needle upright in a chair,
 But music—Nature's music rends the air;
 There's music everywhere!

Anonymous.



Advertising

M. C. HERNER, '11.

IN looking through the various poultry papers published in our country, one is impressed at the enormous amount of money spent in advertising. There are about half a hundred papers representing the poultry industry on our continent and practically two-thirds of the space in each one is devoted to advertising poultry, eggs, and poultry appliances. Situated here and there in conspicuous places we notice, in bold array, those new ideas and new departures which in a good many instances serve only to lead the buying public astray. These are not confined to the poultry press alone but have found their way into some of our most popular magazines, telling how fabulous sums of money can be made raising chickens on the back lot, or how nature in her own sweet way has revealed the secret of egg production to one single mortal specimen of humanity. Nor do the revelations end here, yet one more arises and has the audacity to say that he is "the great and only" in the poultry business. These are only a few of the

samples of advertising which come to our notice continually, and we are free to admit that the statements as they appear in the press look very attractive and inducing, but actual experience fails to bear them out.

It is not within our province to dictate to the advertiser in regard to the methods employed or the material used in bringing his goods before the public. In this he can do as he pleases, but we draw the line and acquire the right to criticize when it comes to the use of methods and material which common sense declares misleading, erroneous, and false representation.

Advertising is one of the means resorted to by the poultrymen to expand the volume of his business, and is in itself a perfectly legitimate undertaking as long as the facts are stated and the material presented in its proper form. Where something of a questionable nature is placed before the public, in the realm of poultrydom, it is generally clothed in such a manner that the unsuspecting reader becomes interested in it. The history of nearly every case,

where some new scheme or idea was sprung on the public, has been a rich and bountiful harvest for a season on the part of the originator, and then he withdrew from the scene and was heard of no more. This has been repeated time and again and we can only attribute its successful repetition to the continual clamoring of some poultrymen for something new and some thing original. It has been said that "one fool is born every minute," and we are aware of the fact that the poultry industry as well as any other in industry carries its full quota of these irresponsibles, but it does not justify the acts of uninterrupted wholesale robbery engaged in by these advertisers.

The art of advertising, for such we consider it to be, is acquired only by long training, and to be done successfully must be based on the principles of honesty. We hold that more discrimination should be made by the

press, and not allow advertising matter of a doubtful character to gain admission, regardless of the personal gain to be derived from it.

A very commendable feature of some of our poultry journals is the ironclad guarantee given against any fraudulent misrepresentation of any article advertised in their columns. This leads to absolute security against any deception when buyer and seller are brought together.

The advertiser who by honest representation secures the patronage of a buying public has laid the foundation for a successful mail-order business. Once a poultryman has his reputation for honesty and integrity firmly established let him turn neither to the right nor to the left or his brightest prospects will be shattered, but let him adhere strictly to principles throughout and his fondest hopes for success will be realized.

Poultry Keeping on the Farm

Among the many questions arising in connection with poultry keeping on the farm, is the one often asked by the farmer, "how many hens should the ordinary farmer keep?" In order to answer this question properly requires a knowledge of the conditions under which the poultry is raised and the amount of labor the farmer is willing to perform. To our way of thinking the average farm is considerably under populated with the feathered tribe rather than over populated. Striking an average a very fair estimate would be one chicken to every acre of land. This average would stand a very sub

stantial increase without the least danger of overstocking the place, or in any way making any material increase in the labor required to manage the flock, or any possibility of causing an over-production.

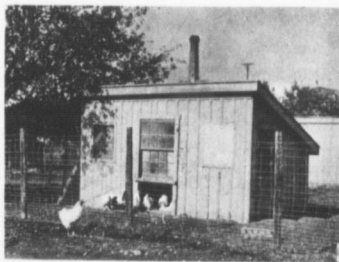
On most of the farms the poultry is allowed the run of the entire farm, so to speak, or given what is generally known as, free range but where the farmer limits his chickens in space they cannot be grown to the best advantage. This is one of the essentials necessary to grow poultry successfully and profitably. Without it strength, vigor, and vitality become a minus

quantity. With it, by it, and through it birds of the strongest constitutional vigor are developed; big, strong, healthy birds that quickly reach maturity. From this we see that so far as location is concerned the farm is the ideal place to raise chickens.

The farmer has the advantage over all other people as far as poultry food is concerned. Everything that is fed to poultry is produced on the farm; the farmer gets all his grain at first cost, no dealer's profits to pay; the price to him is simply what it cost him to produce it. This brings the cost of production down to a minimum.

The outlay required for poultry houses on the farm depends very much on the farmer himself. The day of the warm and expensive house has long since passed into oblivion, except with a few of the skeptical, and the cheaper cold house is here to stay until some thing better is devised. Since the so called "fresh air craze" has taken hold

not yet been adopted on the farm, but for efficiency and cheapness of construction it promises to surpass even the old curtain-front house. We see



OLD-TIME WARM HOUSE, IMPROVED.

no reason why the open front should not increase in popularity among poultrymen, and make its appearance on a number of our farms during the next few years.

The method of housing poultry on the farm is usually on the long house system, although some farmers are practising the portable colony-house system, but so far only in raising the young stock. The latter system, where used for laying stock, entails considerable labor which is usually at a premium on the farm. For young stock it far outclasses any system yet devised, as the chickens can be grown on free range on any part of the farm that the farmer desires. It has the additional advantage of enabling the farmer to grow two crops on the same piece of land; such as chickens and fruit.

One of the drawbacks to poultry keeping on the farm is the serious roads which disease annually makes



OPEN FRONT POULTRY HOUSE.

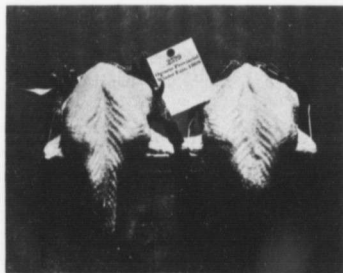
of poultrymen the curtain front and later on the open front have become an absolute necessity. The latter is of comparatively recent origin and has

on the returns that should be received from the farm poultry yard. There are certain complex conditions existing which seem pretty hard to straighten out. As a matter of fact cleanliness has in a good many cases become an unknown quantity, a missing number as it were, on which depends the solution of the whole problem. Supply this and note results.

From an economic standpoint labor forms the most important item on the farm at the present day. On this assumption it might be well to state that the labor actually performed in connection with poultry on the farm covers too much time in proportion to the number of birds kept. This is due more or less to a lack of system. By this we mean that were the work of managing the poultry properly systematized the flock might be increased from ten to thirty and in some cases even fifty per cent. without making any apparent increase in the labor. Were these leakages stopped some of the wrong ideas about poultry might be obliterated. There seems to be an impression existing among some of the farming classes that poultry does not pay, but we venture to say that in proportion to the investment made and the amount of labor expended it yields more profitable returns than any other department of the farm.

Since the raising of poultry on the farm has a two-fold aspect, the production of meat and the production of eggs, it is necessary to consider it from the view point of supply and demand. A few years ago the greater part of our dressed poultry was sent to the British market on account of the better prices there, in comparison to those of our home markets. The result was a decided improvement in the quality of the product and such a rapid increase

in home consumption, that the foreign markets had to be dropped in order to keep up with the demands of the home markets. The supply now of both eggs and dressed poultry is unable to meet the demands of the home market and instead of exporting we are importing some of the products of the poultry yards of other countries. We therefore deem it advisable for the farmer to devote a little more attention to his poultry and start in now and raise better poultry and more of it. When the Russian farmer can produce eggs and send them over here to Canada to compete with Canadian eggs, surely it is high time for the Canadian farmer to come to a fuller realization of the possibilities of the poultry industry in his own country.



QUALITY PAR EXCELLENCE.

While the production of eggs constitutes the main source of revenue from farm poultry yet the production of market poultry is equally as profitable, though not followed to so large an extent. The time required to properly fatten market-poultry is well paid for by the increased price for the finished product. If farmers would only realize the importance of placing the dressed poultry on the market in the best possible condition there would be less of

that motley lot of dressed chickens in the windows of the stores of our smaller cities and towns. Any person with ordinary skill and intelligence can become proficient in the art of fattening, killing, and dressing chickens for market. All the surplus cockerels on the farm should be crate fattened when three to three and one-half pounds in weight. The price of a bird can be increased from six to ten cents per pound in three weeks time, besides making a gain of one to one and half pounds of extra meat. By following this method

birds of the very best quality can be produced which will, as a properly finished product, bring the highest market price.

The methods of caring and managing farm poultry along with the lines of improvement here suggested will be some guide as to the number of birds that may be kept on an ordinary farm. The measure of success or failure which will accompany poultry keeping on the farm rests entirely with the farmer himself.



JERRY.

THE O. A. C. REVIEW

REVIEW STAFF.

S. H. GANDIER, - - - Editor

C. M. LEARMONTH, Agriculture.

W. DAWSON, Locals.

W. R. REEK, Experimental.

P. E. LIGHT, College Life.

S. E. TODD, Horticulture.

MISS BELTON, Macdonald.

F. M. CLEMENT, Athletics.

MISS FLAVELLE, Ass't Macdonald.

M. C. HERNER, Poultry

MISS ROSS, Locals.

H. A. DORRANCE, Alumni.

S. ROGERS, Staff Photographer.

O. C. WHITE, Business Manager.

W. W. Emerson, Assistant Business Manager.

Editorial

From the students' standpoint our June number will be an attractive one.

Our June Number

It will be the first "Graduation Number" of the Review that has been printed and the Staff is sparing no pains to make it a complete success. A new and attractive cover has been designed, special illustrations are being prepared, and we feel confident that this issue will meet with the approval of all our subscribers.

Every spring the responsibility of electing new officers for many of our College organizations rests upon the student body. We call it a responsibility because the success of each society and organization depends largely upon the judgment of the students; and it is necessary that every student be

in attendance at these elections. But when we consider the amount of studying that many of the students have in store for the last few weeks of the term it is no wonder that a large majority of them do not attend the several separate elections. If some method could be devised whereby the elections for those organizations that have their annual elections at the end of the spring term could be carried on concurrently, there is no doubt that a larger number of students would attend, which would result in greater satisfaction to all.

Our interest in this matter was aroused upon the suggestion of the retiring President of the Athletic Association at the election of officers for that organization. He suggested that the elections be carried on here similar to municipal elections; thus, on a certain afternoon near the end of the term nominations for each of the organ

izations could be held, consecutively. Speeches would be in order at these meetings. Just a week from nomination day would be the elections; scrutineers and clerks could be appointed and a ballot box placed in the College postoffice, thus allowing each student an opportunity to vote, and at the same time not occupying much of his time, unless he desire to do electioneering.

Such a scheme is now in vogue at Queen's University and if we could inaugurate this or a similar one, greater interest in elections would be aroused and consequently greater would be the satisfaction.

In this issue of *The Review* appear two essays written by students. Both

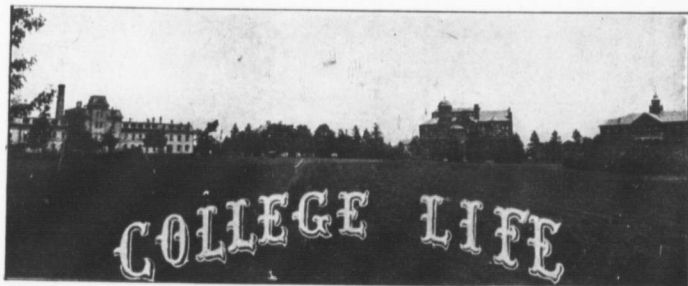
General Articles by Students

these articles are upon subjects which should prove extremely interesting to readers of our magazine. "Social Life in Rural Districts," by R. Macdonald, is an apt description of the social problem as it presents itself in our rural life; his suggestions with a view to improvement are timely and demonstrate the writer's insight into the conditions of social life as they actually exist throughout the agricultural population of our country. The fact that this essay is winner of the valedictory prize, is sufficient to recommend it as an article well worth perusing.

"The Canadian of the Future," by R. Fraser, who, with this subject as his theme, won the Oratorical Contest in February, will be read with interest by true Canadians. The Emigration Question is a vexing problem which touches most of us rather more closely than we suspect, for upon our solution of the same depends largely the future citizenship of Canada, hence arguments are

based upon a thorough study of the question and are written in a way which appeals to the reason and to the reader's literary taste.

It is not, however, for the purpose of criticism nor commendation that we insert these paragraphs, but rather to mention in a casual way the matter of "Articles by Students." To state that ten per cent. of the general articles appearing in our columns are written by students would be a generous estimate. *The Review* is the property of the students, therefore, why not use it more decidedly as a means of fostering journalism and developing literary ability among our men. From every graduating class which leaves our halls there are those who seek their fortunes in a journalistic career. Excepting members of *The Review* Staff, there are few students who have opportunity to test or to prove their ability as writers before accepting responsible positions upon newspapers and other journals. It is gratifying, however, to note the success of almost all graduates who engage in journalism as a life work. Adaptability rather than experience would seem to be the key note to journalistic success. A man seldom enters this field unless he possesses a natural bent in that direction. However this is no argument in disfavor of using *The Review* as a germinating ground for the seed of agricultural journalism. Such a move would surely be for the benefit of the student and for the closer union of the student body with their college organ. We have no proposition at present to make to the student body for the purpose of putting this idea into practical use. We merely offer it as a suggestion, one which, though somewhat difficult to solve, would probably prove beneficial if developed.



Athletic Concert

THE annual athletic concert which was held in the gymnasium on March 17th stands on record as unrivalled in the history of the College. Not only has it won pre-eminence because of superiority in talent, but it also occupies the premier place by virtue of originality.

The programme was divided into two parts, the first half being conducted by "The Nubian Minstrel Troupe," who made this entertainment the occasion of their first and last appearance in Guelph. The troupe consisted of the following: — Interlocutor, Professor Nunnick; Troupe, Messrs. Johnson, Fay, Emerson, McAleer, Boyd, Hardy, Moorhouse, Cooper, Carpenter.

The concert opened with an orchestral selection, followed by a song entitled "Colored Four Hundred," rendered by the colored chorus. This number called for great applause, and was well deserving of its reception.

A solo, entitled, "Brighteyes," by Rastus Hardy, was also well received and applauded. Mr. Edwards, a colored gentleman of some importance sang a solo which appealed very

strongly to the "fair ones" from the Hall. The music of "He's a College Boy," was well suited to Mr. Edwards' high tenor. "Way Down Yonder." This piece is ancient, yet ever new, and as interpreted by the "Nubian Minstrels," was as popular as ever. Professor Nunnick surpassed himself in his singing of "When You and I Were Young, Maggie," and was greeted with great applause.

Perhaps the most popular solo of the evening was that sung by Mr. W. W. Emerson, entitled "Take Me Up." It was a truly touching experience to listen to Mr. Emerson's invocation to the "Goddess of Flight." And as the gentleman of color soared to the last of the high notes, he was greeted with many rounds of applause. Mr. Emerson will be heard from in the future.

The beautiful "Madam Baldi Balogna" in the person of Mr. H. Auld, won the hearts of all by her delightful rendering of a high strung solo.

A colored quartette, A solo entitled "A Thousand Miles from Shore," by Mr. Cooper. "A Jolly Laugh," by "Chinky" Moorehouse and a Levee

song by the colored chorus, were also well received.

The work of the end men was good and many good jokes and old "familiar friends" were sprung upon the appreciative and unsuspecting audience.

Chanteleer, in the person of Mr. A. M. Shaw, caused a great deal of amuse-

teresting number, many difficult and intricate "stunts" being performed.

The presentation of the Pringle Cup, by Prof. W. H. Day, to the champion of the Indoor Meet, introduced a new element of interest to the programme. The winner of the cup was Mr. Pope, of Class '13.



THE MINSTRELS.

ment to the audience during the conclusion of the first part of the programme.

Part II.

The second part of the programme was devoted entirely to athletics. Great credit is due to Physical Instructor Nixon for his efforts toward making this part of the evening's entertainment the success it was. A word of praise is also due to Mr. A. A. Toole for his generous support and untiring efforts.

After the opening orchestral selection, an exhibition was given on the German Horse by the gymn. team. Some good work was in evidence. A Jiu Jitsu performance was given by Messrs. Kyona and Spencer. This exhibition was exceedingly clever and spectacular, and well merited the rounds of applause with which it was greeted.

In the exhibition on the parallel bars the audience were treated to a very in-

teresting number, followed by another drill entitled "Old Folk Game" (Swedish), was the contribution of the Macdonald Hall girls. Their graceful efforts were well received and applauded.

The "Johnson and Jeffries World's Champion" fight was the next number. Mr. Moorehouse Johnson was knocked out in the fourth round, and Mr. Graybiel Jefferies was declared the "champion heavyweight boxer of the world."

The work of the gymn. team on the parallel bars was excellent, as was also their mat work, which consisted of summersaults, pyramids, etc.

The concert was in every way a great success and was excellently well attended. The athletic executive and Mr. Moorehouse are to be congratulated on their efforts.

Valedictory.

The winner of the Valedictory for best original second year thesis was

won by Mr. R. Macdonald. The subject assigned was, "Social Life in Rural Districts."

Public Speaking

Mr. J. Spry was first in this department in Class '11, and Mr. F. Powell headed the public speaking Class of '12. We extend our congratulations to these men on their success.

Recital.

What was without exception the most high class, interesting and instructive entertainment of its kind ever given at the College, was the recital by John Duxbury, of Manchester, England. Mr. Duxbury is doubtless one of the most finished elocutionists in Canada, and the excellence of his entertaining abilities have been appreciated wherever he has appeared.

The Massey Hall was well filled when Mr. Duxbury was introduced by President Creelman. It were impossible to worthily describe the many excellent features of the programme. Suffice it to say that Mr. Duxbury was applauded to the echo again and again and responded to several of the many encores. Perhaps the cleverest number was a recital entitled "Little Jack Horner." In this Mr. Duxbury excelled, giving to his audience the recital of the piece in the different styles of Tennyson, Carlyle, Byron, Longfellow, Burns and Dickens.

Those who were not present have much to regret and it is to be hoped that they will have the opportunity to hear Mr. Duxbury at some future date.

Mr. Duxbury is the Principal of the School of Elocution, Manchester, England.

Programme.

Part I.

1. Recital—"A Waterloo Hero" - - - - -
2. Music - - - - -

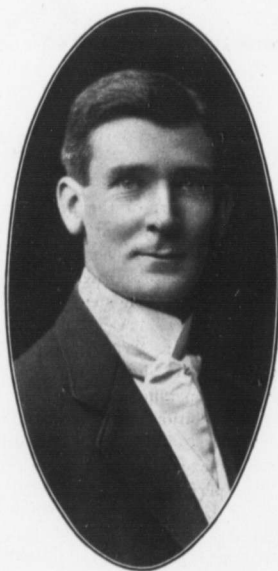
3. Humorous Recital—"Boots at the Holly Tree" - - - - -
4. Music - - - - -
5. Recital—"The Last Test Match"

Part II.

6. Character Recital—"Old Farmer Grey" - - - - -
7. Music - - - - -
8. Dramatic Recital—"The Grave Scene" - - - - - From Hamlet
9. Music - - - - -
10. Recital—"Little Jack Horner" -
"God Save the King."

Professor Gamble.

In the resignation of Professor Gamble from the staff the College



PROFESSOR W. GAMBLE.

loses a man whom it will be impossible to replace. There is not one student in

the institution who is not in some way indebted to Professor Gamble, for in the class room, on the street, and on the campus he has ever been the friend of our College days.

As Professor of Soil Chemistry and Geology, Mr. Gamble has done a great work for the students of this institution, and for the Province of Ontario. His unselfish devotion to his work and his generous treatment of the different classes well merit the esteem in which he is held.

In proof of their regard, the whole student body without exception petitioned the Minister of Agriculture to use his influence in endeavoring to cause Mr. Gamble to reconsider his decision. Their efforts were useless, as Professor Gamble believes there is a greater work for him elsewhere.

While we part with Mr. Gamble with great regret, we feel that he is acting as wisdom dictates, and our loss will be a gain to others.

Mr. Gamble leaves behind him "the influence of a splendid memory."

New Review Staff.

The Review staff for the year 1910-11 has been elected, and is as follows:

Editor-in-Chief—S. H. Gandier.
 Assistant Editor—E. B. Palmer.
 Business Manager—W. W. Emerson.
 Assistant Manager—E. A. Weir.
 Agricultural Editor—W. Toole.
 Experimental—I. B. Henderson.
 Horticulture—F. M. Clement.
 Poultry—M. C. Herner.
 College Life—J. M. McIlquham.
 Alumni—G. P. McRostie.
 Athletics—F. C. McRae.
 Locals—S. H. Hopkins.
 Cartoonist—W. H. Wright.
 Auditors—Messrs. Ryrie and Coglan.

Y. M. C. A.

The Y. M. C. A. Committee for 1910-11 is as follows:

Hon. President—Prof. J. B. Reynolds.

President—R. B. Coglan.

Vice-President—P. O. VanSickle.

Secretary—R. T. Motherwell.

Treasurer—G. P. McRostie.

Ch. of Bible Study Com.—J. E. Smith.

Ch. of Mission Study Com.—W. Dawson.

Ch. of Musical Com.—J. H. Auld.

Librarian—J. T. Johnston.

SOVEREIGN MOMENTS.

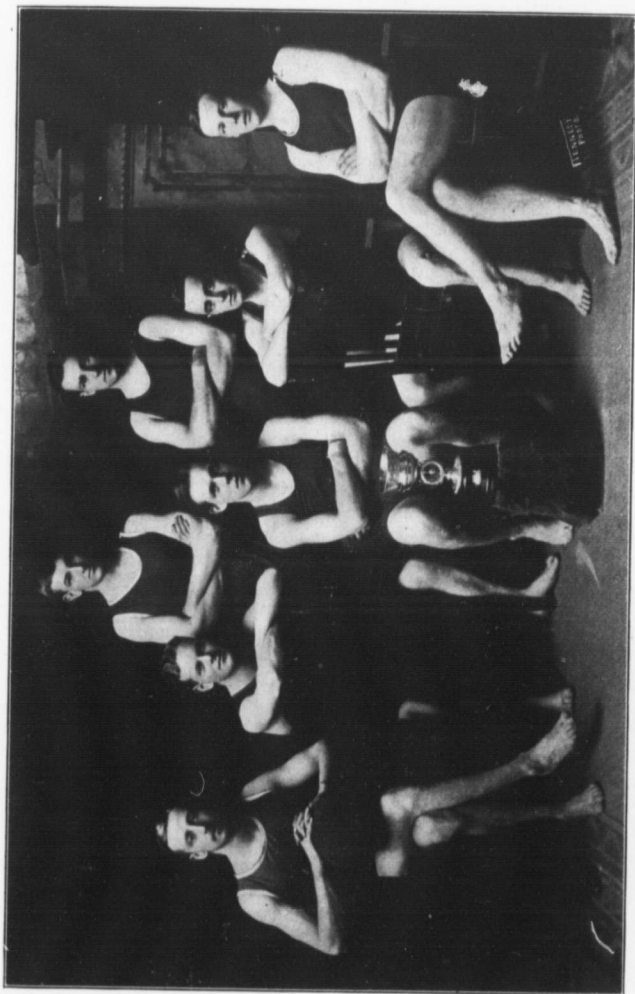
Life has two sovereign moments;

One when we settle down

To some life-worthy purpose,—

One when we grasp the crown.

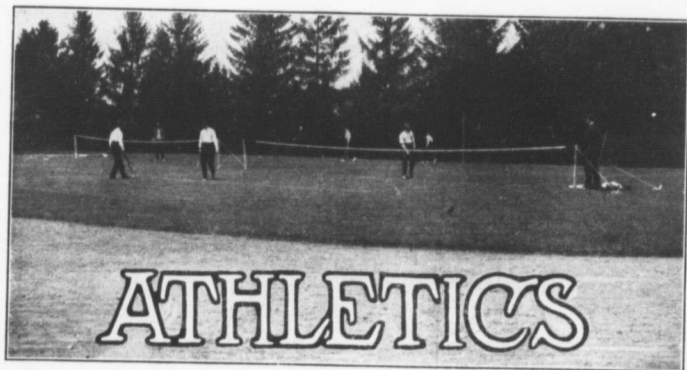
—*Mathew Richley Knight.*



O. A. COLLEGE WATER POLO TEAM—CHAMPIONS OF ONTARIO WATER POLO LEAGUE, 1910.

Back Row—H. Wearne (Spare), E. L. Davis (R. Forward).

Front Row—C. L. S. Palmer (Goal), S. Rogers (L. Forward), H. L. Keegan, Mgr.
(R. Back), F. L. Barrett (L. Back), J. F. Harries, Capt. (Rover).



Indoor Meet

A LARGE crowd of students and visitors, in attendance at the annual In-door Meet on Wednesday, March the sixteenth, manifests quite clearly the great interest taken in in-door work here, and the committee must indeed feel highly gratified to see the meet go off so smoothly and in a manner so highly satisfactory to all.

The afternoon opened with the swimming events in the gym. basement. For some years this branch of sport was neglected, but now it is again gradually asserting its place. Every year brings out new men, some of them very fast, and this year we have established a record in the fifty-yard swim that is likely to stand for some time. In this event Davies deducted four seconds from the old record, setting the mark at thirty-two. Rebsch was a close second. The diving also was good, but the most enthusiasm was shown in the inter-year relay, which was won by the Freshmen, the Sophomores being a close second.

The events upstairs were all keenly contested, as may be judged from the

fact that in five events it required the breaking of records to get first place. In the running high jump, Cooper established a new record at five feet three inches. In the rope climb, Fay and Pate were a tie for first place in twelve seconds, being one and a half seconds below the old mark. In the fence vault, Shaw crowded out Pope only when they had reached six feet four and a quarter inches. In the evening three events; three standing jumps, the pole vault and the rope vault, were run off. In two of these records were broken, Pate in the rope vault winning at eleven feet nine and a half inches, and A. A. Toole at nine feet six inches in the pole vault. This latter event is always a popular one with the spectators, and this year, under the electric lights, was especially so.

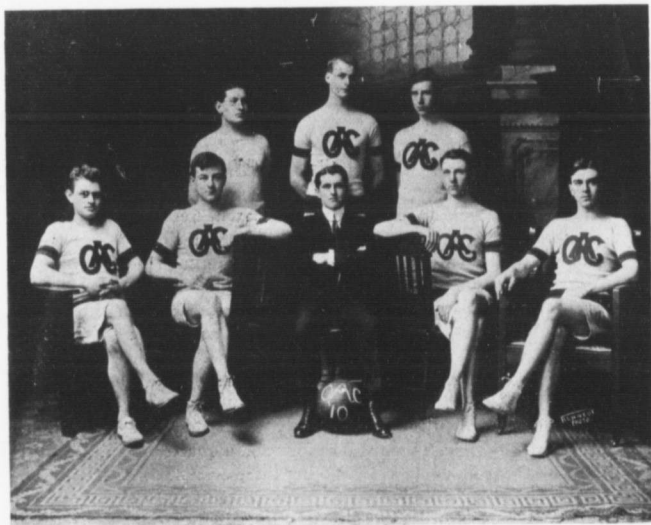
The following is a list of the events, with the respective winners. Pole vault, Toole, Pope, Shaw; rope vault, Pate, Toole, Fay; fence vault, Shaw, Pope, Clement; standing broad jump, Pope, Shaw, Dougall; standing, hop, step and

jump, Pope, Shaw, Toole; three standing jumps, Pope, Shaw, Toole; running high jump, Cooper, Pope, Dougall; standing high jump, Shaw, Pope, Toole; high dive, Toole, Shaw, Baldwin; shot put, McRostie, Moore, Toole; clinning contest, Ward, O. C. White, Cook; rope climb, Fay, Pate, Evans; potato race, E. W. White, Cooper, Pate; hitch and kick, Cooper, Gardiner,

The grand champion was J. C. Pope of the First Year, with 27 points. Shaw was next, with 23.

O. A. C. at Paris.

O. A. College advertised as "Guelph Seniors" was a new inducement to win held out to the members of the basketball team when they visited Paris Y. M. C. A. on March the fourteenth. But



O. A. COLLEGE BASKETBALL TEAM, 1910

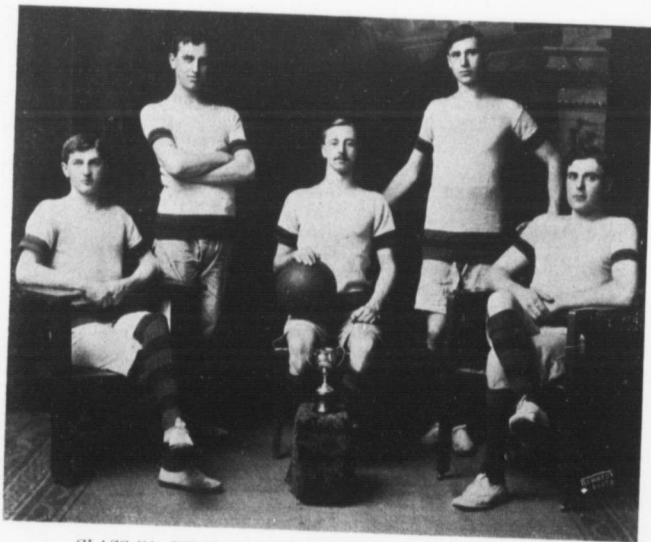
Back Row—E. F. Neff (Forward), G. J. Culham (Centre), A. W. Baker (L. Forward).
Front Row—R. M. Reed (L. Forward), S. Kennedy (L. Guard), P. E. French (Manager), C. M. Learmonth (Capt.) (R. Forward), E. W. White (R. Guard).

Hopkins; inter-year relay, Second Year, First Year, Third Year; long dive, Mendoza, Reid, Wright; 50 yards dash (water), Davies, Rebsch, Hextall; fancy diving, Wearne, Hextall, Jarvis; under water swim, Davies, Bell-Irving, Mendoza; rescue contest, Wearne, Barrett, Bell-Irving; inter-year swim, First Year, Second Year.

they lived up to the ideal and established a reputation of which even the Guelph Seniors might be proud. In a gym. about as long as the home gym. is wide and as narrow in proportion, they administered a defeat to the Paris champions that was decisive in every way. O. A. College obtained a lead at the start and never once did the

home team come up to it. And was the game fast and rough? Yes it was both, from start to finish; fast, because both teams were out to win, and rough because of exceptionally close checking. This is the first defeat for Paris on their own floor. Score 43-32. The following men represented the College: Kennedy, White, Cullham, Baker, Learmonth.

up by all the years, which made the games very exciting. The season began with a win by the Sophomores over the Freshmen by 33 to 12. A few days later the Sophomores again demonstrated their capacity by forcing the Seniors to second place in a game characterized by its roughness. The next game was the closest of the season, the Juniors winning from the Freshmen by



CLASS '11—FIRST WINNERS OF THE IRVINE TROPHY.

Back Row—R. G. Thomson (L. Forward), A. W. Baker (R. Forward).

Front Row—C. Main (R. Guard), C. L. S. Palmer (Manager) (Centre), W. Toole (L. Guard).

Inter-Year Basketball.

To say that great interest was taken in basketball would be putting it mildly, for great interest is always taken; but this year, coupled with the usual year spirit and rivalry, was the incentive to win and hold for the year the new challenge cup. Consequently the best that could be produced was put

only 5 points. The Third and Fourth Years settled their little difference very mildly, the Seniors accepting their defeat with the best grace possible. But the next game was a different story, it now being the Seniors turn to enjoy victory, the Freshmen this time being the victims.

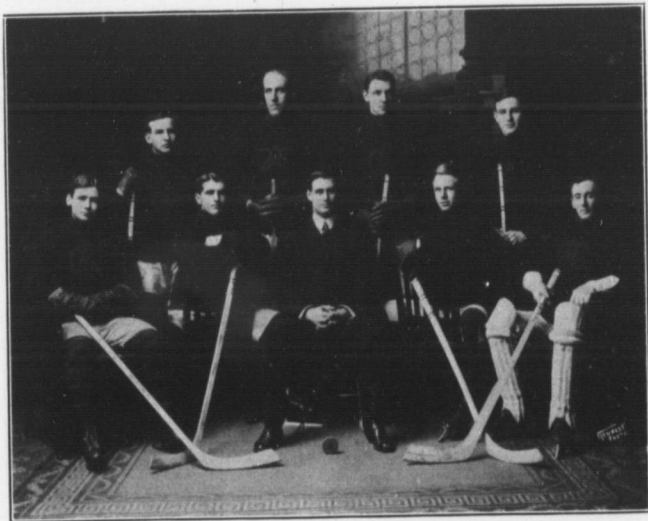
And now for the finals. The Juniors

and Sophomores had come through the season without a defeat, and the winners of tonight's game are to hold the challenge cup. At 4:35 the gym. was packed with supporters, who anxiously awaited the sound of the referee's whistle. And they did not have to wait long, for in a very few minutes the struggle was on. In the first half the teams played about equal and the

Junior guards prevented them piling up a very large score. Following are the total scores: First Year, 46 points; Second Year, 81 points; Third Year, 89 points; Fourth Year, 65 points.

Inter-Year Baseball.

The great American game has not yet reached its highest standard with in-doors, but every year the interest in



O. A. COLLEGE HOCKEY TEAM, 1910.

Back Row—H. McElroy (R. Wing), D. E. MacRae (Point), C. M. Learmonth (R. Wing), G. C. MacDonald (Centre).
Front Row—G. Madden (L. Wing), P. E. French (Rover), F. M. Clement (Manager), W. B. Milner (Cover), J. Orchard (Goal).

sult was ever in doubt, but in the second half the Juniors quickly obtained a lead which it was impossible for their opponents to overcome, although spurred to their utmost by the popular "Boom-chick-a-boom" of their supporters. The combination and team work of the Second Year was excellent and it was with much difficulty that the

creases and calls to the gym. men who would otherwise lounge in their rooms. It is a game that everybody can play—a little, and consequently not much trouble is experienced in making up the teams.

This year, as last, the Dairy students entered their nine, and in the first game of the season won quite handily from

the First Year. But a few days later the Freshmen showed that they were worthy of a higher place by forcing the Seniors to the bottom. This game put the First Year in the running for first place, the Dairy students having been beaten by the Juniors a few days before. But their supremacy was short lived, as in the next game they lost to the Juniors. This left only the two upper classes in the running for first place, the Juniors with a clean sheet, and the Seniors with only one black mark. A win for the Juniors meant the championship landed. But that was not to be; as in the next game the Seniors administered a defeat that admitted of no argument, 18 to 7.

This was the last of the scheduled games, but one more was necessary to decide the winners. In the game that followed the Seniors again showed an interested student body that they could "play ball" in a manner that was worthy of the championship. The following are the runs scored by the different teams: Dairy, 22 runs; First Year, 45 runs; Second Year, 11 runs; Third Year, 69 runs; Fourth Year, 51 runs. The Fourth Year won one game by default, which accounts for them having less runs than the Juniors.

The New Executive.

As a whole athletics at the College are on a much firmer basis now than they were at this time a year ago. Two football teams played out a full schedule; the hockey team were able to complete their series, a number of basketball games were played with outside teams, and besides, the water polo team was financed quite successfully. Much credit is due the retiring Executive for this, and the careful and business-like manner in which they managed the other different branches. The new Executive are well chosen, and should, with the co-operation of the student body, be able to put Athletics on a still stronger basis. The Executive:

Honorary President—Prof. W. R. Graham.

Honorary Vice-President—E. W. Kendall.

President—H. A. McAleer.

Vice-President—E. W. White.

Treasurer—J. H. Fay.

Secretary—G. Madden.

Managers—

Football—J. B. Fairbairn.

Assistant Football—G. P. McRostie.

Basketball—L. McEwen.

Baseball—E. A. Weir.

Aquatics—W. H. Wright.

Hockey—F. M. Clement.



Alumni

ONE of the most enterprising and up-to-date farmers in Eastern Ontario is Clark Hamilton, one of our Old Boys. Located near Dundela, in one of the finest sections of that part of the Province, he, in company with his brother W. D., also an O. A. C. ex-student, is very extensively engaged in dairying. By extreme care and judicious selection the Messrs. Hamilton have succeeded in developing one of the finest and most profitable herds of Holstein Friesian cattle in Eastern Ontario. Although dairying occupies their first attention, they also devote some of their energies to horse raising, having been successful exhibitors in harness classes on various occasions. Since engaging in practical agriculture Mr. Hamilton has been a valued contributor to the agricultural press, and is at the present time engaged as a special contributor on leading farm topics to one of our foremost agricultural journals.

J. Walter Jones, B. S. A., '09, has secured a position as teacher in the Agricultural and Normal Institute at Hanp ton, Va. At the head of this department is Mr. C. K. Graham.

Our genial friends, F. M. Logan and R. J. Deachman, are doing some real estate stunts as shown by, the following:

"Logan and Deachman, the real estate men, in view of their successful excursions into other branches of business and art, through their legitimate business of agriculture, have engaged Yu Li Bing, who paints laundry signs and raises other people's chickens, to provide them with a sign which

will read in all oriental and occidental language thus: Logan & Deachman, real estate brokers, short story writers, farms bought and sold, fiction a specialty, money to loan, a few corking good yarns always on tap, trust funds taken (dam) good care of, sermons prepared for amateur preachers, deals put through adroitly and no questions asked, strictly fresh eggs, cups read for crossing the hand with silver, home-grown onions and garlic, cash for hides, Hindoos catered to, agents for the Ki Yi Yum laundry, terms cash and lots of it." Kerry's effusion on reading the above sign:

I knew them in the east. Ah, princely pair!

So tall, so graceful? eloquent and fair,
Filled with ambition's upward lifting hope,

And always smelling with sweet-scented soap.

I knew them when they trod the campus green,

Admired and loved by each Macdonald queen?

Enviied by those, who lacked their beauty rare,

Their voices deep and intellectual stare.

I knew them when at first they faced the world,

And in its horrid maw their challenge hurled;

Then charged the misty future with a roar,

Like angry billows beating on the shore.

The scene has changed from east to west and lo!

I see the talking board above their show,

Telling how filthy lucre's beckoning hand hath drawn

This noble pair to wealth's great gilded dawn.

Alas! for youth's great hope and prospects broad

Their minds have turned to real estate,—just sod.

—KERRY O'BYRNE.

Cupid has again been busy in the ranks of our Old Boys. This time leading R. S. Hamer, B. S. A., '07, to the altar to unite "for better or for worse," his fortunes with those of Miss Mary Isabella Hope, one of Perth's most popular young ladies and daughter of Mr. P. Hope, of that place. Mr. Hamer took up his abode in Perth as District Representative to the Department of Agriculture immediately after graduating in 1907. Three years of a bachelor's life apparently convinced him that "man was not made to live alone," and acting accordingly he took the all important step from the ranks of the bachelor to the benedict, on March 24th, 1910. The ceremony was solemnized in the presence of the immediate relatives of the bride and groom, bridesmaid and groomsman, being dispensed with. After the ceremony the happy couple left for New York and other points to spend their honeymoon and with them went the best wishes of a host of Perth friends for a happy future. On their return they will reside on Wilson street, in Perth, and the O. A. C. Review extends congratulations and best wishes for a prosperous and happy wedded life.

D. Andrew, an associate of '09, has returned to his home near Lucknow,

Ont. Here he is, as he says, combining theory with practice in general agriculture, particularly along the lines of high-grade stock and seeds. Having a well-timbered farm he has put in an evaporator with a view to adding pure maple syrup to the other high-class products of the farm.

William Craig, of the class of 1878, is now at Auburn, Maine. He is very extensively engaged in apple growing and is one of the most enthusiastic supporters of the New England Apple Show, which held its 1909 show in Boston.

J. F. Monroe, B. S. A., '09, is at St. Anne de Bellevue, in the Horticultural Department of Macdonald College. Prominent among the fruit growers of Quebec is Peter Reid, '86. Mr. Reid confines his attention to the growing of first grade apples at Chateauguay. He is Secretary of the Quebec Pomological Society.

Dr. A. Leyman, who has been Government Agricultural Chemist, at Bangalore, Mysore India, having served the required term has been pensioned by the British Government, and has returned to Canada. His services have been secured by the Alberta Government and he has been appointed Professor of Chemistry in the new University of Alberta, at Strathcona.

Rev. John R. MacCrimmon, M. A., B. D., was inducted into the pastorate of the Presbyterian Church, at Williamsburg. Mr. MacCrimmon is an ex-student of the O. A. C. College. After completing his course here he went to the Presbyterian College, Montreal, and attended for one session, then went to Queen's, Kingston, graduating in Arts, in 1906. The following year he studied Theology at the Presbyterian College, Montreal, and took his M. A. from McGill University, and

his B. D. from Queen's the same year. During his summer vacation he did mission work in the Northwest. Following his ordination in St. Andrew's Church, Kingston, a year ago, he took a charge in Alberta.

W. C. McKillican, Alberta Representative Dominion Seed Branch, has been busily engaged in conducting Seed Fairs, which have been held all over the province during this present winter. These fairs were largely attended and the general interest has been much keener than in any previous season. The genial smile, characteristic of Mac is even broader than formally, resulting we suppose from the success he has achieved in his work and from the fact that he is now established in a home of his own in the City of Calgary.

On leaving the College in '06, G. B. Jamieson went west, and going across the border because interested in grain growing in North Dakota. After spending two years there in single blessedness, he returned home and took back as his life companion Miss Alice McQueen, of Kirkwall, Ont., and is now located at Hannah, N. D. Jamieson has been very successful and now has a working interest in 480 acres of land. The principal crop is wheat, although other crops are grown as well. We hope for his continued prosperity.

Another of the real Old Boys that we are pleased to note is William Glass, who entered the College in 1877, just a short time previous to the appointment of President Mills to the Institution. After spending three and one-half years at the College, he was appointed by the Ontario Government to go to Quebec and oversee an importation of cattle for the College. Shortly after this he was caught in the whirl, and it was westward ho! for him. Going to Brandon he secured a home

stead some forty miles south and obtaining the necessary outfit went to his farm and remained there until 1905. In this year Mr. Glass decided on trying a warmer climate and moved to Southern Alberta, locating near Summer view, where he is busily engaged in producing some of the wheat that has made that district famous.

W. W. Waddell, B. S. A., one of the Dairy Specialists of the '09 class, has secured a good position with the Blue Valley Creamery Co., at their branch at Indianapolis, Ind. He is superintendent of manufacturing and also head of the Procurement Department. This firm is one of the largest of its kind, having four branches in various parts of the Central and Western States. The capacity of the Indianapolis branch is 60,000 pounds daily.

The parties mentioned in the following paragraph, taken from the St. John N. B. Telegraph refer to ex-students of the O. A. College, and Macdonald Institute, Mr. Clark being a graduate of '06, and Miss Toole a member of the first Inter-Provincial Nature Study class, a representative from New Brunswick:

"Ottawa, March 30.—A very quiet and pretty wedding took place this afternoon at the home of Mr. and Mrs. B. W. Sherwood, No. 406 Elgin street, when their sister, Miss W. A. Toole, was united in marriage to J. A. Clark, B. S. A., superintendent of the Government Experimental Farm at Charlottetown (P. E. I.) Rev. A. A. Cameron, D. D., officiated.

"The rooms were beautifully decorated with palms, ferns, carnations and lilies of the valley. At 2 p.m. the bridal party entered to the melodious strains of Lohengrin's Wedding March, excellently rendered by Miss Marion Gross. The bride was given away by her bro

ther-in-law, B. W. Sherwood. Miss Irene W. Clark, of Charlottetown, sister of the groom, was bridesmaid. Both ladies were neatly attired in traveling suits of navy blue chiffon broadcloth with hats to correspond, and they carried elaborate bouquets of white and pink roses.

"The groom was assisted by Rev. Lemuel Ackland, of Newton Theological Seminary, Massachusetts. The bride was the recipient of many useful and handsome presents, among which were a beautiful natural mahogany cased piano, from the groom; an elegant silver service, from Mr. and Mrs. Sherwood; cutlery, from the department of railways and canals; a hammered brass jardiniere, from the officers and teachers of the First Baptist Sabbath School; a perculator from the choir of that church; various pieces of cut glass and a number of checks.

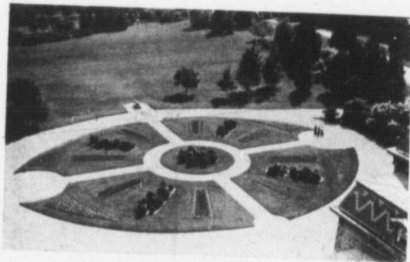
"After dainty refreshments had been served, the party left on the 3:15 train for an extended wedding trip. They will be at home at Ravenwood, Char-

lottetown, (P. E. I.), after June 1 next.

To our Old Boys.

The object of these columns is to furnish from month to month some information, to the large body of ex-students, of the welfare and whereabouts of as many of their College associates as knowledge of them permits. You are interested in this information and we ask you to remember that in all probability some of your chums of the good old days would like to have an idea as to what you are doing. If your innate modesty will not permit you to write about yourself send us an account of the progress and weal of some other ex-student whom you may know.

We beg to acknowledge the receipt of information of this nature from some of the ex-students, whose interest in their College magazine has not waned since leaving the College Halls. Let these pages be a medium of communication between our Old Boys, so that each number will enable you to here over again some of the good old days that for you are past.



THE OVAL.



Eyes to See

BESSIE LAING, KIRKWOOD.

LEST some people should think this is not a very practical paper since it will certainly add nothing to anyone's scientific knowledge, I am going to enter an apology for it right away, or rather I am going to argue with anyone who may find fault with it on the above grounds. All sciences and arts have failed in what should be the supreme object, if they do not teach people to live better and be happier, and it is the aim of this paper to contribute, however humbly, towards the latter.

We live in a practical age and a busy age. No station in life seems exempt from the all-pervading atmosphere of bustle and hustle and worry. It is not a comfortable, happy or natural atmosphere, as worn out bodies and nerves can testify. We are so busy trying to keep our place in the whirl that we are in danger of growing utterly blind to many things which would, did we but see them, glorify for us even the common days. Did you never find Wordsworth's sonnet echoed in your own heart.

The world is too much with us, late
and soon,
Getting and spending we lay waste our
powers;
Little we see in Nature that is ours;
We have given our hearts away, a sore
did boon!

The sea that bares her bosom to the
moon,
The winds that will be howling at all
hours
And are up-gathered now, like sleeping
flowers,
For this, for everything we are out of
tune!
It moves us not—Great God! I'd rather
be
A Pagan suckled in a creed outworn—
So might I, standing on this pleasant
lea,
Have glimpses that would make me
less forlorn.

There is hope for humanity yet while
even the craving still remains to get
back to a simpler, freer life in company
with nature's incomparable beauties.

Witness the signs of our own times. Books of country life, of animals, birds and flowers, have a host of eager readers, and many gain from them a sort of second hand knowledge of the wonder and beauty of the world. Nature study finds a place on the curriculum of our schools and colleges. Clubs are formed for the same object. More and more city people every year join in the summer rush to country and lakeside resort, where they may, for a few weeks at least, draw the breath of a real and not an artificial world. They rave over the beauties they see with adjectives more forcible than appropriate, and we country people smile and feel so superior, for it is all so "common" to us. God forgive us, the choicest gifts are our daily portion, yet we are blind because of their very lavishness.

"Where'er we walk, by hill or plain,
Is there no mystery on the land?"

The willow bordered water, ruffled
By fluttering birds that dip and
wink;
The cattle in the rushes muffled,
Or lazy-eyed upon the brink.

O! when—a scroll of stars—the night
(By God withdrawn) is rolled away,
The silent sun on eastern height
Breaking the great seal of day.

Ought we not to pray "Open thou
mine eyes that I may see the wonder
and the glory of common things."

Sometimes our eyes are opened by losing our unvalued treasures for a time. I have a friend who, during all the early years of her life, kept house for her brother on the farm. She well comed escape from it as from durance vile. The life was intolerable to her. She went to find a broader sphere in a big American city, and though she is the last person you would accuse of

being sentimental, how she pines for the country to-day. She is successful in her profession, city life has used her well, yet she comes on her holidays and fairly worships the once unnoticed beauty of her country home.

We country people cannot be always looking at the stars and the cloud of facts. We do not differ from the rest of the world in being rushed with work. The very time which is holidays for the rest of the world is perhaps our busiest season. But we really do not have to work with our heads quite so much as with our hands, and if we seek it we can always find some moment in which to observe the wonderful changing panorama of the world outdoors. How many precious pictures we can store all the spring and summer season, like hoarded gold for the dark days that will come. For they are so fleeting. One morning I look from my bedroom window and the early sunbeams lying level on the young grass and bursting foliage reveal a new beauty in the landscape. In all directions the brown fences are smothered in billows of foamy whiteness, the wild plums are in bloom! Two or three days and a rough wind scatters the whirling petals; they are gone for another year.

A few mornings later the orchard takes up the running, and I think the most prosaic and practical human being could not but long for the pen of a poet in apple blossom time. The world is so clean and fresh, the sky so blue, the birds and bees so happy and the sweetness, the fragrance, the rosininess of those flower decked trees! Seems to me I've heard that the Japanese, who of all people understand best how to sweeten life with beauty, proclaim a national holiday in blossom time. A week at most and the orchard is sober

again, but any summer morning may bring a surprise scarcely less rapturous. There is clover time when the air is resonant with the hum of myriad bees tangled in the sweet bloom. There may dawn for you, as did for me this year, a rare morning when a field of timothy blossomed beneath my window, a perfect lake of surging purple spears. Then the grain begins to turn and every color effect of green and gold creeps into my morning picture. One often sought for spot is where a wedge of golden wheat cleaves the centre of a sombre pine woods. The wheat is harvested but there still remains the stately ranks of Indian corn, long, graceful, shining leaves, and nodding tassels, whispering, whispering, whispering in the morning silences.

"If you're western born, you know how the corn
Makes you feel when you hear it singing."

I don't think I loiter in my dressing and yet I see all these things from my window during the process, and don't you think they add to the happiness of my day? Do you think I could be as happy if I looked from a city window on the chimneys and clothes-lines of the neighboring backyards, on a row of ugly brick houses all so exactly alike that the eyes ache and the brain whirls, or on a board fence, advertising in flaming colors the latest theatrical hit or a choice brand of cigars? Yet some girls actually weary of the monotony of the country.

But on the loveliest morning we have to descend from the heights and go about our ordinary toil. Let us lift our eyes from our work occasionally and rest both eyes and spirit with some beautiful object. Here let me enter a plea

for back-door landscapes. Don't be satisfied to have the front lawn a place of beauty and the backdoor yard unkempt and graceless. The family must use the back door a good deal and there should be something there to enjoy. Quick-growing vines and tall plants, morning glories, nasturtiums or wild cucumbers, sun-flowers, holly hocks and golden glow will make even ugly objects beautiful. If you can, have some fragrant plant near the door. This year we passed the Mignonette and sweet peas every time we went down cellar and how the delicate perfumes refreshed us. We planted tall nasturtiums around the kitchen window and fastened the shooting plants to the wall with wire staples. To-day the vines are six and eight feet high, with leaves like saucers, and a glory of bright blossoms. We have sometimes had them thus until mid October, enjoying them dozens of times every day.

Nature has lessons to teach us as well as bounty to bestow; lessons of order, of cleanliness, of economy; lessons of what constitutes real beauty. Almost unsensibly the close observer finds the influence of her teaching on her work and on her life. More love of the good, more tenderness of heart, more contentment with one's lot since whatever one's station, this harvest of quiet eyes may be gathered without money and without price.

Be quiet, take things as they come,

Each hour will draw some new surprise,

With blessing let the days go home;
Thou shalt have thanks from evening skies.

Lastly, this possession of "eyes to see" should not be a selfish gift. Train yourself to write and tell accurately and pleasingly what you see. Then you

will be able to give endless pleasure to other people. Here is someone exiled from the dear homeland. Write and describe how a favorite, familiar scene looks to your eyes, seeing it for the absent one. Another friend, a passionate nature lover, is forced by circumstances to toil in city offices. Fill your next letter with pictures—word pictures of the beauties of your country home. These things will be as a cup of cold water to a thirsty soul. I've tried them and I know how they are appreciated. Thus you may be training yourself for greater opportunities. Should it be your good fortune to travel, you will be able to share your experience with your less favored friends. I have two cousins, both travellers. One has been round the world, yet he can tell you nothing of great interest. His descriptions are so halting, so vague and indefinite that you gain little

more from him than you would from an atlas. The other man when going away made the resolution that he would be a veritable "eyes to see" for all his friends at home. Each week there comes a letter varying from twenty to fifty pages, in which every scene which he thinks will be of interest is pictured vividly in itself, and with the personal touch given by his own thoughts and impressions. We have read many accounts of travel, many stories of life in other lands, but nothing has ever made it half so real to us as the descriptions by a friend whom we know well and who is seeing it for us. Could you know the uplift his letters have been, how they have broadened the horizon of many lives, you would recognize the wonderful good as well as the very great pleasure of possessing such "eyes to see."



MASSEY HALL AND CAMPUS.

Among Ourselves

Halley's Comet.

If, about May 20th, you should feel an unusually strong breeze—probably we'll be glad enough of strong breezes by that time—you will know that it is merely Halley's comet wandering past the earth at the rate of 4,000,000 miles a day, and, as its tail is 32,000,000 miles long, I suppose it would amble by for a week or so afterwards, charged with a full assortment of deadly gases, warranted to settle humanity for all time if it is wafted over towards the earth. However, as, at the nearest point, it will be 15,000,000 miles away, I don't think there is any cause for immediate alarm. This gives us an example of what a remarkably long sighted race of people we are, that we are able to see anything at this distance, although we can't see the street car around the corner, but that's probably the fault of the street car.

I say it can be seen, but I cannot personally vouch for this, although I have caught numberless colds hanging out of the south windows for some nights past, in my wild endeavors to see it.

The other night, the company of Royal Astronomers, who live in our alley, thought we had it spotted. To be sure, it wasn't in the place the newspapers said it would be, but we thought probably that was a mistake on the part of the newspapers, for this thing was certainly on the horizon, very bright, and moving in the approved way of all well brought up comets. It seemed to be heading straight for the earth, and for Macdon

ald Hall in particular. It kept coming straight on, and, considering the deadly gases in its tail, we felt a little nervous. We wished we had been better girls and kinder to our little sisters, and we resolved to go to church next Sunday if it were 40 below zero, but we would learn no more foods till we saw if we were to be spared to display our knowledge on the examination. As we reached this decision the "comet" suddenly changed its course and bore down upon the C. P. R. station, with much blowing of whistles and ringing of bells, and we realized that we had been craning our necks after the headlight of the train from the west, and I suppose the headlight looked up and winked at the real comet, and they both laughed at us.

Short Course Supper.

As an exemplification of the good will of the short course girls of last term, we were agreeably surprised, on the evening of the 17th of March, by having an appetizing delicacy for supper in the form of ice cream and water ices in the colors of the day.

Each girl received a shamrock leaf favor as a reminder of St. Patrick's day. Printed on the leaf were the words, "Macdonald Hall, March 17th, 1910."

This little treat came as a great surprise to all the girls, as our former friends had entertained us by giving a "Minstrel show," and we naturally expected something of that nature. The girls therefore displayed their originality in their treat, by directing our attention to the aim of their course, that

of presenting a delicacy which would appeal to our appetites.

On behalf of the long course girls, Mrs. Fuller very feelingly thanked the students for their kindness in so effectively reaching our hearts.

Initiation.

There was a sound of revelry by night, but in this case the revelry spent itself in subdued whisperings behind closed doors, and furtive escapes along the corridors in a vain endeavor to hide mysterious white draperies. This all in preparation for the great initiation of the freshies of the spring term. Promptly at seven-thirty, the shivering freshies were greeted at the gym door by the spirits of former Macdonald students, and escorted to their places, accompanied by the mournful strains of the Dead March in Saul, played on the gym piano, by a distinctly material spirit, and the way lighted by the dim radiance of a tallow dip. As the race was called and each freshie answered to her name, to reach the final scene of her doom, she had to tread the long (?) dark journey of the river Styx, peopled with grim spectres. Reaching at last the High Tribunal, such terrible punishments as eating onions, molasses, dancing jigs, and giving the various College yells, awaited her, but to each and all of these, the freshies submitted most gracefully. No one was forgotten. The junior normals were most impartial and showed great discrimination in suiting the treatment to the peculiar circumstances of the case. Any attempt, on the part of the victim, to misrepresent was foiled by an appeal to Unega.

The orgies ended with a magnificent selection given by the College German Band.

The Walking Club.

One of the organizations of the athletics at Macdonald Hall, is the Walking Club. Since spring has come its members have been looking forward to some enjoyable tramps in the picturesque country surrounding Guelph. The first of these expeditions was made last Saturday morning. About 6 a.m., rustlings and footsteps were heard throughout the empty corridors. Soon noises were heard from the regions of the kitchen, where light nourishment was served, and then, if Mr. Sun had been up, he might have seen a happy procession of young maidens, armed with baskets and boxes and headed by three portly members of the staff, marching to the road to meet the first car of the morning. Before the busy inhabitants of the city were yet awake, that car had carried those Macdonald early birds far away to Riverside Park. Having unloaded the car of its interesting baskets, the party wended their way into the woods. There a tour of inspection followed. One of the first discoveries made was a sleepy looking bear, a part of the zoo, who took a great fancy to some lettuce sandwiches. As he directed all his attention on the menu and neglected the young ladies, they sought amusement elsewhere. The next source of interest was a group of deer in an inclosure. The little creatures looked surprised at receiving such early visitors. A spring was next discovered, and, after the party had refreshed their thirst from the "rustic" tin mug, they moved on through the beautiful surroundings to the river. The sun had now reached a considerable height and the sparkling water, in harmony with the happy faces, was a pretty scene. A brisk walk was taken, up the side of the river, to increase the current of the

circulatory system, for it was slightly cool. This did not fulfil its mission, so a race was proposed. With Dr. Ross for starter and Miss Greist for time keeper, the event was pulled off, the winner being Miss Flavelle. Owing to a certain feeling of want, they returned to the water-fall where the baskets had been stored, and prepared for break fast. Everyone did ample justice to the sumptuous repast, according to the degree of their appetites. Soon the few remains were stored away and, as the hour was growing late, the Walking Club bid farewell to the spot which

had afforded them so much pleasure and retraced their footsteps. A few were loathe to leave those rustic wood land seats. Some indulged in a swing, others examined the zoo, but, when the buzz of the car was heard, the party rushed to the road. On the way home, Conductor Smyth ably performed her duties, and soon Macdonald Hall was reached. Everyone was unanimous in the opinion that the first trip had been a success, and it is sincerely hoped that the Walking Club may have many delightful repetitions of this tramp.

KNOWLEDGE.

What is more large than knowledge and more sweet;
 Knowledge of thoughts and deeds of rights and wrongs,
 Of passions and of beauties and of songs;
 Knowledge of life; to feel its great heart beat
 Through all the soul upon her crystal seat;
 To see, to feel, and evermore to know;
 To till the old world's wisdom till it grow
 A garden for the wandering of our feet.
 Oh, for a life of leisure and broad hours,
 To think and dream, to put away small things,
 This world's perpetual leaguer of dull noughts;
 To wander like the bee among the flowers
 Till old age find us weary, feet and wings
 Grown heavy with the gold of many thoughts.

—*Archibald Lampman.*

Much Ado About Nothing

Much Ado About Nothing.

Deep wisdom—swelled head.

Playing tricks—he's dead.

—The Senior.

Maiden left him—hopes fled.

Heart broken—he's dead.

—The Junior.

Went skating—'tis said,

Ice hit him on the head—he's dead.

—The Sophomore.

Milk famine—not fed.

Starvation—he's dead.

—The Freshman.



Lives of Freshmen all remind us,

Things are green when in their
prime,

All they lack is growth and culture,

They'll come out all right some
time.



Perhaps to mansions in the sky,

More folks would read their titles
clear,

If 'twere not that it takes such work

To simply pay the board down here.

Miss H—I put my watch under my
pillow at night.

Miss F.—I don't need to, I have
plenty of ticking without it.



One of the girls was studying physi-
ology. The day before, she had been
examining foods, and on being asked
what the heart was made of, she an-
swered "cellulose."



Boy (one Friday night)—I remem-
ber when we used to ring door bells
and then run away.

Girl (as it was after ten o'clock)—
And now you ring them and stay.



From the Household Economics
Paper—Darkness causes death and this
is not economical. Never run into debt
not if you can find anything else to run
into.



Spring.

Blaze, O skies of fire!

On the broad world shine!

Poet, strike your lyre—

Liar, bait your line.



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.

I.—ELEMENTARY AGRICULTURE AND NATURE STUDY.

School Gardens in Ontario.

The Editor would be pleased to receive photographs of other school gardens in Ontario. He plans to reproduce as many of them as possible in the Bulletin.



MARDEN SCHOOL GARDEN, 1909. WELLINGTON COUNTY.
P. H. Buchanan, Teacher.

Marden School is about four miles from Guelph, on the Elora Road. The garden has been in operation now three years. Mr. Buchanan, the teacher in charge, is the holder of a certificate in Elementary Agriculture and Horticulture, he having attended the Macdonald Institute for the three months' Spring Course in 1905. The garden adjoins the school grounds and comprises one-half acre of land. It has been well fenced and drained. One-half of the ground is used for the children's individual plots, and the remainder for demonstration plots in grains, forest trees, etc. The trustees of the school, as well as Mr. J. J. Craig, the Inspector, warmly support Mr. Buchanan in this work.

Nearly every class that has attended Macdonald Institute, has visited Marden and carried away pleasant memories of the hospitality of Mr. and Mrs. Buchanan, and the people of the section.

The picture shows the teachers of the summer class of 1909 inspecting the work under Mr. Buchanan's guidance.

SCHOOL GARDEN EXPERIMENTS WITH POTATOES.

In the teachers' school garden at Macdonald Institute last year, four experimental plots were used to compare different methods or features of planting potatoes. The results obtained are tabulated below; and while they are not offered as determining exactly the problems raised, teachers may find in them suggestions for similar lines of work. The Editor will be pleased to hear from teachers who undertake such, whether their answers confirm or refute the findings offered here:

Experiment 1.—To compare the yields of potato "seed" of different sizes. (Four hills of each weight were planted in a 5-ft. x 10-ft. plot.)

Weight of Seed.	No. of Potatoes.	Weights.	Total Weight.
2 ozs.	17 small 13 large	6 ozs.) 30 ozs.)	36 ozs.
4 ozs.	21 small 21 large	8 ozs.) 41½ ozs.)	49½ ozs.
8 ozs.	12 small 19 large	5½ ozs.) 52 ozs.)	57½ ozs.

Experiment 2.—To find the result of planting pieces of potatoes of different weights, cut with one eye each:

Size of Sets.	Product.	Weights.	Total.
¼ oz.	3 small 4 large	¼ oz.) 3¼ ozs.)	3½ ozs.
½ oz.	5 small 7 large	½ oz.) 16½ ozs.)	17 ozs.
2 ozs.	8 small 16 large	½ oz.) 33½ ozs.)	34 ozs.



A SCHOOL GARDEN EXPERIMENT WITH POTATOES.

Experiment 3.—To compare the yields of pieces of the same weight, cut with different numbers of eyes.

Size of Piece.	No. of Potatoes.	Weight.
1 oz.—One eye.	1 small; 12 large.	35¾ ozs.
1 oz.—Three eyes.	6 small; 11 large.	35¾ ozs.
1 oz.—Five eyes.	3 small; 13 large.	41 ozs.

Experiment 4.—To find if cutting up the potatoes into different numbers of pieces makes a difference in the yield.

Size of Seed.	Yield.
2 ozs.—One piece.....	27¾ ozs.
2 ozs.—Two pieces.....	31½ ozs.
2 ozs.—Four pieces.....	31½ ozs.

EXPERIMENT WITH PLANTS.

The following record of an experiment carried out by one of the teacher students may prove suggestive to teachers whose pupils are practically interested in the growing of plants:

PROBLEM:—My Problem was to determine the amount of water in plants:
(1) the loosely held water; (2) the firmly held water.

WHAT WAS DONE: A.—I cut a quantity of green timothy, such as is used for hay, and weighed it. Then I dried it in the air and sun, and then weighed it again.
B.—I cut a quantity of green timothy, such as is used for hay, and weighed it. Then I subjected it to an oven heat of about 110 degrees C. to 120 degrees C. for a number of hours and then weighed it again.

WHAT WAS SEEN: A.—Weight of green timothy..... 16.2 grams.
Weight of dry timothy..... 5.1 grams.
Loss of weight..... 11.1 grams.
Percentage loss of weight, $11.1 \times 100 \div 16.2 = 68.52$
B.—Weight of green timothy..... 16.5 grams.
Weight of dry timothy..... 4.3 grams.
Loss of weight..... 12.2 grams.
Percentage loss of weight, $12.2 \times 100 \div 16.5 = 73.61$

WHAT WAS LEARNED: 1.—About 68.52 per cent. of this grass is water. That is, water that is loosely held and can be driven off by means of the sun and air.
2.—About 73.61 per cent. of water can be driven off by means of heat of about 110 degrees C.

ELEMENTARY INDUSTRIAL ARTS.

A PLEA FOR MANUAL TRAINING.

Psychologists and physiologists have found that many of what were thought to be purely mental processes are related to muscular movements; hence the vital importance of games and industrial training in the schools.

The hands are the instruments of the mind, and the mind reflects itself in the product of the hands. The muscles which move them are paramount both in creating the mind of man and in giving expression to his thoughts. The training of these muscles therefore must necessarily occupy a position of supreme importance in any system of education. It is to fulfil this great physiological purpose that handwork is being introduced into the urban schools. There is also another reason for its introduction into the curriculum. Canada is entering upon a strongly constructive age, an age of building up provincial and national institutions—public buildings, colleges, railways, etc.—this kind of training is essential to form the type of mind to meet the demands of the future. Why then limit the benefits to be derived from such training to schools located in towns and villages. The country schools need to be pro-

vided with the means of imparting such training just as much as the city schools do; but the presentation of the subject should be from the agricultural standpoint. It would be a mistake to extend to the rural schools the same industrial work which is practicable and desirable in the town schools. Instead of devoting all the time to woodworking exercises, the children might well be instructed how to cut and set window glass, fix locks and keys, mix paint and whitewash, and how to apply them, temper tools and how to sharpen them, make chicken coops, grit hoppers, harness pegs, single and double trees, etc., and so give a more direct application of handwork to environment and emphasize the practical side of the work; thus presenting the work in a form that will appeal to and interest rural people who are not disposed to discriminate values in, to them, a useless form of training and at the same time awakening through doing simple things the aesthetic side of their nature.

Thought which does not find its expression in action is idle and barren. The statement rests on solid physiological ground that action, not thought, is the end of life, and was it not Goethe who said, "In the beginning was the deed."

The most colossal improvement which recent years have seen in secondary education lies in the introduction of the Manual Training Schools; not because they will give us a people more handy and practical for domestic life, and better skilled in trades, but because they will give us citizens with an entirely intelligent fibre. Laboratory work and shop work engender a habit of observation, a knowledge of the difference between accuracy and vagueness, and an insight into nature's complexity, and into the inadequacy of all abstract verbal accounts of real phenomena, which once wrought into the mind, remains there as lifelong possessions. They confer precision; because if you are doing a thing, you must do it definitely right or definitely wrong. They give honesty; for, when you express yourself by making things, and not by using words, it becomes impossible to dissimulate your vagueness or ignorance by ambiguity. They beget a habit of self-reliance; they keep the interest and attention always cheerfully engaged, and reduce the teacher's disciplinary functions to a minimum. Of the various systems of Manual Training, so far as woodwork is concerned, the Swedish Sloyd system, if I may have an opinion on such matters, seems to me by far the best, psychologically considered. Manual Training methods, fortunately, are being slowly but surely introduced into all our large cities. But, there is still an immense distance to traverse before they shall have gained the extension which they are destined ultimately to possess.—Professor James, "Talks to Teachers."



MACDONALD CONSOLIDATED SCHOOL, GUELPH, ESTABLISHED, 1904.

Manual Training, Domestic Science and School Gardening are taught in this school. The first two years of High School work are taken also. The Staff consists of: Mr. E. A. Howes, Principal, Fourth Class and School Gardening; Miss Minnie Whyte, Continuation Class; Miss Netta Nixon, Domestic Science; Miss Anna Rose, Manual Training; Miss Jean Austin, Second and Third Classes; Mrs. Helen Neelands, Primary Classes.



(Overheard from Vansickle's room)
—Three of a kind, no good—full house here.

◇ ◇
A man I am, crossed with adversity
and waiting for the psychological mo-
ment.—McTaggart.

◇ ◇
I am always in haste, but never in a
hurry.—Davies-Colley.

◇ ◇
Rusty—Lend me a dollar and I will
be everlastingly indebted to you.

Professor—Faith! and I know you
will and for that very reason you'll not
get it.

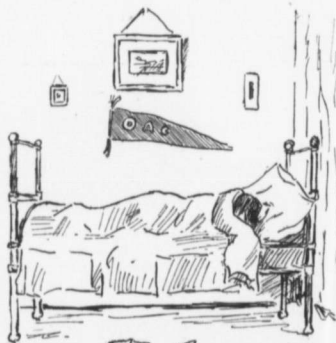
◇ ◇
Beware of the fury of a patient man.
—G. T. Johnston.

◇ ◇
Darling—The absent-minded hero of
class '13 came home one wet night not
long ago, very carefully put his um-
brella to bed; and then hung himself
over a chair to dry.

Gerow—I hear Satan died an igno-
minous death in the pavilion not long
ago.

Weir—Well! well! Here is 50 cents,
I'm always sorry for orphans.

◇ ◇
The membership of the Y. M. C. A.
was exceedingly enlarged the day the
Mac girls returned.—Strange but true.



8:20 AM

Le Drew—What is a dollar?

Mendoza—D— desirable.

Sorley—A mighty fine thing to have.



8 25 AM

Orchard, '13—I came from a farm, where my father has 19 cows, 11 horses and a Jackass—the last of which he sent to the O. A. College.

It is as good to be out of the world, as out of the fashion.—Baron Knapp.

LeDrew—It is surprising how few Americans hold land in New York; most of the landowners have a skie on their names.

Webster and McKay beware of this.

A. B. Shaw—Gee! This brown sugar is yellow.

Axioms.

1. All boarding houses are the same bearding houses.
2. Boarders in the same boarding house and on the same floor are equal to one another in the matter of price, but not in the matter of outlook.
3. A single room is that which has no parks and no magnitude.
4. A landlady of a boarding house is a parallelogram; an oblong, angular figure which cannot be described but is equal to anything.
5. All other rooms being taken, a single room is said to be a double room.

None but the fair deserveth the fair.
—Thompson.



8 30 AM

Caesar (to third year)—These little red ants are the worst. Wonder why did Spry blush.

**a \$3,000
Stock Book
Free**

Contains 183 Large Engravings.

This book cost us over \$3,000 to produce. The cover is a beautiful live stock picture, lithographed in colors. The book contains 160 pages, size 6½x9½, gives history, description and illustration of the various breeds of horses, cattle, sheep, hogs and poultry. Many stockmen say they would not take five dollars for their copy if they could not get another. The finely illustrated veterinary department will save you hundreds of dollars, as it treats of all the ordinary diseases to which stock are subject and tells you how to cure them.

MAILED FREE. POSTAGE PREPAID.

Write for it at once and answer the following questions:

1st—Name the paper you saw this offer in.
2nd How many head of stock do you own?

"English As She Is Spoke."

"Wossatchoogot?"

"Afnoonnoos, Lassdition."

"Enthinkinnut?"

"Naw, nothinint 'cept lasspeech
ros-efelts' lottarot."

"Donsayso, wosswetherpredick
shuns?"

"Lesrain, Donbeleeveho."

"Fun thing thiswether neverkintell,
wassgunado."

"Thasright."

Rettie—Why don't you hold up your
head in the world as I do?

Tipper—See that field of grain; the
well-filled heads hang down, while
those only that are empty stand up.

Buchanan (clearing throat with a
growl at table)—Thompson, here get
under the table with that bone.

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

ADDRESS AT ONCE.

International Stock Food Co.

TORONTO, CANADA,

Sole Manufacturers of

INTERNATIONAL STOCK FOOD

THREE FEEDS FOR 1 CENT

INTERNATIONAL STOCK FOOD, 3 FEEDS FOR ONE CENT, is a purely vegetable **MEDICINAL** preparation composed of roots, herbs, seeds, barks, etc. It is equally good and very profitable to use with horses, colts, cattle, cows, calves, hogs, pigs, sheep or lambs, because it purifies the blood, tones up and permanently strengthens the entire system, keeps them healthy and generally aids digestion and assimilation, so that each animal obtains more nutrition from the grain eaten. In this way it will save you grain and **MAKE YOU LARGE CASH PROFITS**. You don't spend money when you feed **International Stock Food**. You save money because the **GRAIN SAVED** will pay much more than the cost of the **International Stock Food**. Refuse all substitutes and get paying results by using only the genuine **International Stock Food**.

THREE FEEDS FOR 1 CENT

Dan Patch Mailed Free

When you write for Stock Book mentioned above ask for a picture of Dan Patch 1:55, and it will be included free of charge.

International Stock Food Co.

TORONTO, CANADA.

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FOR

O. A. C. Students

1st—\$10.00

2nd— 7.00

3rd— 5.00

4th— 3.00

For the Students who get
the most subscriptions for

Canadian Farm

during vacation—April 15
to September 15.

The only condition being that each student
trying for these prizes must be a subscriber at
student rates.

These prizes are exclusive of regular commis-
sions.

For further particulars address,

D. C. NIXEN,
Circulation Manager.

CANADIAN FARM

TORONTO, ONT.



"Mr. Farmer, if some steel shingles are as leaky as the guarantee behind them, they're not worth the cost of labor in laying them. Stick to 'The Eastlake.'"

The Philosopher of Metal Town.

**You can build cheaper than ever before
—you can make your farm buildings
weather proof for all time with——**

“Metallic”

Lumber is of inferior quality now-a-days. Why pay high prices for it when you can cover your buildings with “Metallic”? Galvanized sheet steel is the most desirable building material known, and “Metallic” is the heaviest and toughest made. By actual test “Metallic” has proved itself the best material for roofing and siding. Roofs covered with “Eastlake” Metallic Shingles 25 years ago are in perfect condition to-day—absolutely lightning, wind, rain, snow and rust proof. Look over this list, check the items that interest you, clip list and mail, with your name and address to us. We will give you valuable information that will save you money.

“EASTLAKE” METALLIC SHINGLES—for all buildings.

“METALLIC” ROCK FACED STONE OR BRICK SIDING—makes an artistic house.

“METALLIC” CEILINGS AND WALLS—most sanitary interior decoration.

“MANITOBA” STEEL SIDING—for grain elevators.

CORRUGATED IRON—for barns, implement sheds and stock buildings.

“METALLIC” GRANARY LINING—entirely “Metallic,” easy to lay. Prevents loss of grain by rats and mice.

Eighteen years ago many of the buildings at the Ontario Agricultural College were roofed with “Eastlake” Shingles. They are absolutely weather proof—in perfect condition to-day. What better proof could you have of “Eastlake” superiority?

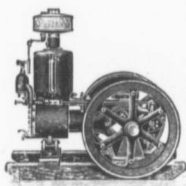
On receipt of your name we will mail you our interesting illustrated booklets “Eastlake Metallic Shingles” and “Interior Decoration in Metal.” Write to-day.

MANUFACTURERS

The **Metallic Roofing Co.**
Limited
TORONTO & WINNIPEG

2083

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THAT OUR
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Gasoline
Engine

IS SO POPULAR?

- 1st. It is so extremely simple. Know all about it in a few minutes.
- 2nd. Easy to start and operate. A boy can handle it.
- 3rd. No pipes always in the way. So compact and strong.

Other reasons, but enough said.

**POWER IS GUARANTEED
ALL ENGINES.**

Last of all, our prices meet any competition with other reliable manufacturers.

ONT. WIND ENGINE & PUMP CO.
Limited,
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Our large and complete stock of Art Supplies are selected specially for school and college use. The quality is the best, and the prices are within the reach of every class of student.

Color Boxes, A1 - 25c. each
Crayons—Crayograph, 10c. pkg.

Complete Catalogue mailed
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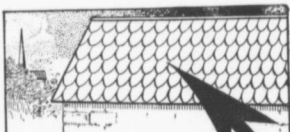
The Geo. M. Hendry Co.

LIMITED

20 Temperance St.

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Note the Gale-proof, Closed-end Sidelock and the continuous overlapping and interlocking bottom lock which are found only in the new

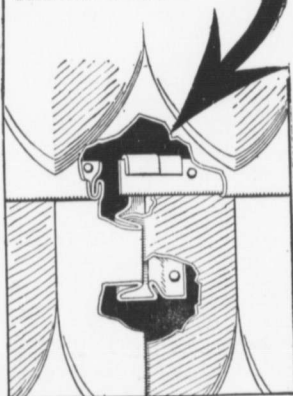
"GALT" SHINGLES

This ingenious and yet simple and easy-fitting construction makes a "Galt" Shingle roof absolutely weather-tight. It prevents wind from driving rain or snow up and out of the top end of side lock, as so often happens with ordinary metal shingles. There is not even the smallest opening—this cannot be truthfully claimed for any other steel shingle.

The material is the Best British Galvanized Steel embossed in a bold Gothic Tile pattern—"a thing of beauty and of joy forever." Catalog "B-3" gives complete details of this newest and best shingle.

THIS IS THE SHEET METAL AGE

The Galt Art Metal Co., Ltd.,
Galt, Ont.
Sales and Distributing Agents:
Dunn Bros., Winnipeg and Regina



D.—Say, Tom, what was all that noise in your room last night?

Tom—Oh, nothing at all. Young Culver sat on my false teeth and they bit him.



Wade Toole (before exams.)—Say, boys! my head developed suddenly.

Boarding House Geometry.

(By a youth with a third-story front room.)



I. B. H.—I have taken girls home from everywhere but Knox.

Steckley—They know you there, eh?

SPRING BROOK STOCK FARM.

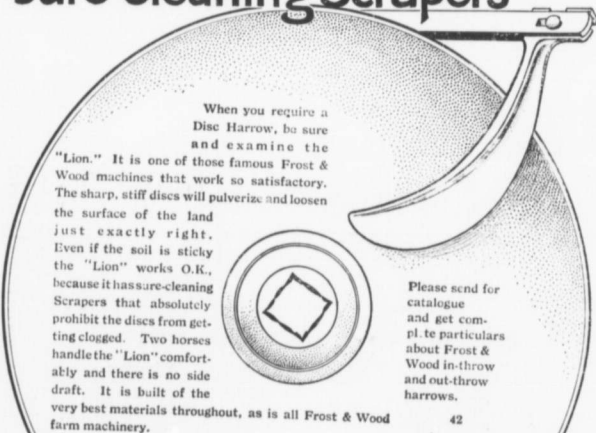
High Class Holsteins of Exceptional Breeding and Quality, Tamworth Swine of best imp. British blood, Barred Plymouth Rock Cockerels from extra laying strain. Quality and production stands foremost at Spring Brook. A call solicited. Farm ten miles west of O. A. C. Main line G. T. R. Telephone connection
A. C. HALLMAN,
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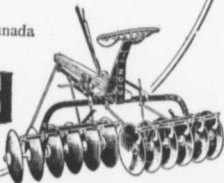
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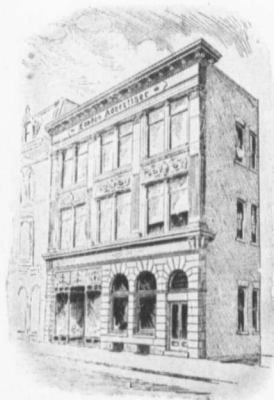
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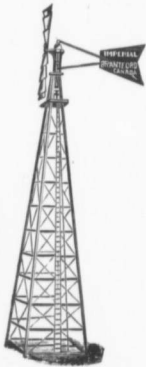
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Attachable to any gasoline engine of 2 horse-power.

Absolutely guaranteed. Automatic in operation. Easy to operate. Simple. All parts accessible. The finest material, workmanship, and highest possible grade throughout.

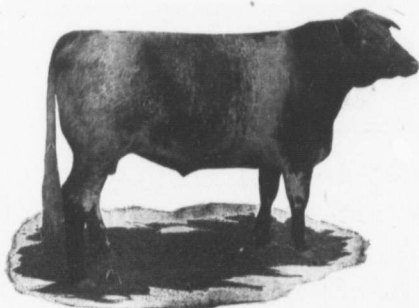
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Whether you are an extensive feeder or not, care must be taken in your selection of feeding stuffs, if you wish your herd kept in good condition and profitable to you.

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N.B.—Send for our Booklet, "New Idea Furnaces." It tells what you ought to know about heating systems.

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Every Farmer knows that the DeLaval Cream Separators are in a class by themselves as the best separators

☞ But many have the mistaken idea, which would - be - competitors help to magnify, that they are "expensive" and that something "cheaper" will do in their stead.

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