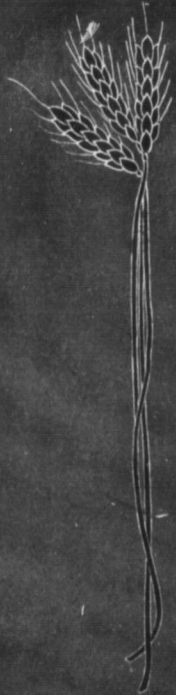
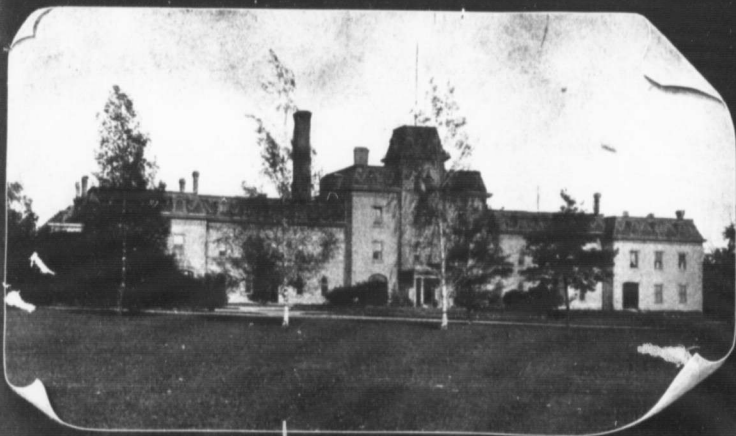


VOLUME XXII.



NUMBER 5.



THE O·A·G· REVIEW

February

1910

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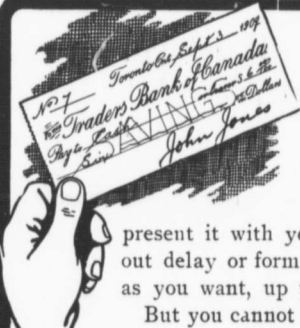
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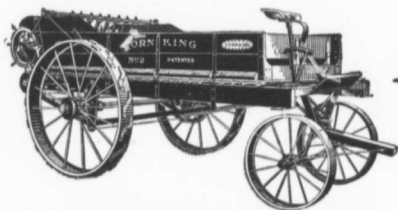
OFFICIAL CALENDAR

FEBRUARY:

2. First meeting of High School Boards and Union Boards of Education. [H. S. Act, sec. 22 (1)]. [B. E. Act, sec. 16].
Rural Boards of Trustees may appoint Truant Officer if Township Council neglects to. [Truancy Act, sec. 7 (5)].
15. Public Library Board to submit estimate to Municipal Council of several sums required.

MARCH:

1. Inspectors' Annual Reports to Departments, due. (On or before 1st March).
School Boards in unorganized Townships to appoint Assessors. [P. S. Act, sec. 34 (1)].
Financial Statements of Teachers' Associations to Department, due.
Separate School supporters to notify Municipal Clerks. [S. S. Act, sec. 42 (1)].
24. High Schools, second term, and Public and Separate Schools close [H. S. Act, sec. 51; P. S. Act, sec. 7; Sep. Sch. Act, sec. 81]. (Thursday before Easter Sunday.)
25. Good Friday.
28. Easter Monday.
29. Annual Meeting of the Ontario Educational Association at Toronto. (During Easter Vacation).
31. Night Schools close (Session 1909-1910). Reg. 16. (Close 31st March).



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Call on the International local agent—see him about a spreader for your own use. He will cheerfully give you catalogues and complete information; or, if you prefer, write nearest branch house for further information.

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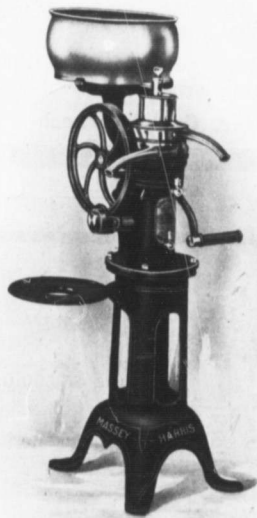
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THE O. A. C. REVIEW is published by the Students of the Ontario Agricultural College, Guelph, Canada, monthly during the College year.

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THE O. A. C. REVIEW

THE DIGNITY OF A CALLING IS ITS UTILITY.

VOL. XXII.

FEBRUARY, 1910.

No. 5.

The Poultry Industry in Maine

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

[The poultry work at the University of Maine as here outlined by Mr. Brown, is largely the result of his own efforts since accepting, some two years ago, the position of Assistant Professor of Poultry, and is an example of the success which our graduates almost invariably experience.—Editor.]

THIRTY years ago the settled portions of the state of Maine were devoted to general agriculture but of late years quite a marked tendency towards specialization has become apparent. To-day we find dairying, potato growing, poultry keeping, fruit growing, and vegetable gardening first among the agricultural pursuits. Maine has long been looked upon as a great dairy state, not only from the quality of her herds but mainly from the large amount of dairy produce shipped to the southern New England markets. Arrostock County is a veritable Ireland, but the potato bug and rot are not unknown. The poultry crop stands close in value to the potato crop and it is very probable that this year's census will place it decidedly ahead. Maine state apples are the best produced in New England, the people are awakening to better methods of packing and marketing them.

The aggregate value of the above crops is perhaps not so large as in some other states because only a comparatively small amount of land in the state has been brought under cultiva-

tion. Lumbering is and has been the greatest industry in the state. Vast forests still lie to the north and east of the Penobscot river and to the north of Moosehead and Rangeley lakes. The sections of the state, being tilled, lie chiefly in the southern part and along the coast, the larger river valleys and the main lines of the rail roads.

Maine has a very healthful and invigorating climate, not exceedingly warm in summer, cold but not severe in winter. The prevailing winds come from the west and northwest. These are cold but are greatly tempered along the coast by the presence of the Gulf stream.

Poultry is kept and thrive well all over the state, laying better in summer than fowls farther south, as it is not so warm; laying well in winter since the quite general adoption of the Maine State curtain front laying house. The spring is usually late and quite short but the young stock grows well throughout the summer. Much poultry is grown along the coast and a large part of the produce is shipped to Boston by boat. In summer the

demand for poultry produce within the state is large. Maine is New England's summer home and thousands of people have their cottages along the coast and on the shores of the inland lakes.

Maine is proud of her transportation facilities although rates are rather high. It costs ninety cents to ship by express a forty-nine dozen case of eggs from Bangor to Boston a distance of 250 miles. Many large farms take advantage of the fact that eggs laid in central Maine to-day can be in Boston in time for breakfast to-morrow morning.

The value of the poultry products in the state of Maine for the year 1909 was about five million dollars. The aggregate number of birds kept is not as large as in many other states, but the close proximity of the Boston and other New England markets, and the vast influx of so many summer visitors aid materially in keeping up the prices. When prices drop in Boston in summer there is a good demand at home.

Schedule of prices of eggs and poultry in Maine.

Eggs.

Nov., Dec., Jan.	45-55c. a doz.
Jan., Feb.	40-45c. a doz.
March, April	30-40c. a doz.
May, June	25-30c. a doz.
July, August	30-35c. a doz.
Sept., Oct.	35-40c. a doz.

Poultry.

Broilers	20-40c. a lb.
Roasters	20-25c. a lb.
Fowl	18-22c. a lb.
Turkeys	25-35c. a lb.
Ducks and Geese.....	20-35c. a lb.

Farm Poultry.

The condition of poultry on the average Maine farm is good. It is above the average, not only in the quality of

the stock but in the ways and means of taking care of that stock. The number of birds kept per farm is large, many farms having from 100 to 250, some as high as four or five hundred.

Barred Plymouth Rock stock prevails. Much of the famous Go-Well strain has been distributed throughout the state through the medium of the Experiment Station and the Go-Well Farm. The males of this strain have been largely used for crossing purposes. Remarkable returns are secured in some instances from these crosses. The better breeders do not allow their flocks to mix up haphazard but keep the blood lines pure. One man down on the coast keeps pure bred White Wyandottes and Barred Rocks. One year he crosses Rocks on Wyandottes, the next year Wyandottes on Rocks. The cockerels from this cross are killed and marketed either as broilers or roasters. The pullets are forced for winter egg production. They are never bred from and are killed off the following July and August to give place to new stock.

Good housing conditions prevail for the most part on the farms in Maine. The influence of the Experiment Station bulletins is seen in the large number of curtain front laying houses that are being built. The dry mash system of feeding is also used to a great extent.

Specialized Poultry Culture.

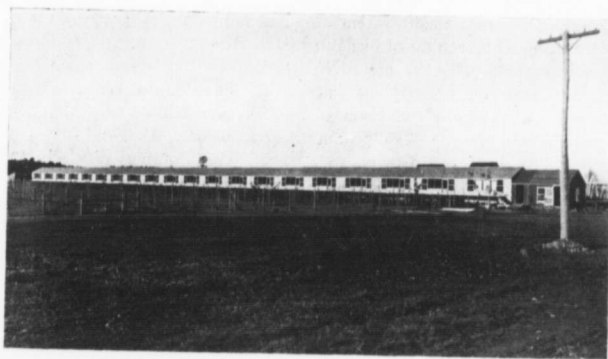
Quite a number of large poultry farms are being successfully operated in the state of Maine. There are a great many smaller farms that are growing slowly but steadily in the way they ought to grow. The idea seems to be abroad that to be successful in poultry keeping one must go into it gradually, first combining poultry with some other pursuit as truck gardening,

potato growing, small fruits, etc. Many poultrymen buy land with sufficient timber on it to build their own houses.

There are certain sections of Maine that resemble the little Compton and Tiverton districts of Rhode Island. Down on the coast in the vicinity of Waldoboro and St. George the average farmer keeps anywhere from 300 to 1,500 hens, keeps them in colony houses as they do in Rhode Island, and has the same peculiar antipathy against artificial methods of hatching and rearing.

the Go-Well Poultry Company, Mr. E. H. Homestead, manager, and is being conducted on the same lines as were used under the late management.

The Pittsfield Poultry Farm, located at Pittsfield, is the largest poultry farm in the state. It has housing capacity for 4,000 head of laying stock and several hundred head of exhibition stock. The main features of this plant are the two laying houses each 400 feet long, the Mammoth Hall in cubator of 12,000 egg capacity, and the Hall brooder system of 10,000 chick capacity. The Pittsfield Poultry Farm



A 400-FOOT LAYING HOUSE AT THE GO-WELL POULTRY FARM.

Among the noted poultry farms in Maine are the following: The Go-Well Poultry Farm, the Pittsfield Poultry Farm, the Randall Poultry Farm, and the Ferguson Poultry Farm. The Go-Well Poultry Farm, located at Orono, is one of the famous poultry farms in the United States. It was started by the late Professor Gowell, some six or seven years ago and soon became known as the home of the famous Go-Well strain of Barred Plymouth Rocks. The farm is now being successfully operated by

has an immense sale of eggs for hatching, day old chicks, and exhibition stock.

The Randall and Ferguson plants are both located at Belfast. They are strictly commercial plants and each has capacity for about 1,800 head of laying stock. The Hall brooding system has been installed on the Ferguson plant within the past year.

Fancy Poultry in Maine.

Two thousand birds of good quality were shown at the last Maine State Show, held in Portland, December,

1909. Four other thriving poultry shows are held in different parts of the state. Some well-known fanciers reside in Maine, and the Maine State Poultry Association has a large and increasing membership.

The Poultry Work of the Main Experiment Station.

Since 1898, the Maine State Experiment Station has been actively engaged in the investigation of poultry problems. The work done has been chiefly along the lines of breeding for egg production, but other features as well have been worked out, such as the curtain front idea in laying house construction, the dry mash system of hopper feeding, the keeping of birds in large versus small flocks, etc. No other station in the country has acquired such a valuable collection of data on pedigree work in egg production. The late Professor Gowell was for nine years in charge of the work. Since his decease it has been taken up by Drs. Pearl and Surface of the Biological department of the Experiment Station.

Breeding for egg production has become deeply scientific, and new theories are being evolved. The old ceteris paribus system of breeding from the best simply on the basis of production has been discarded. It has proven that the heavy producers do not always produce daughters that lay like themselves. Analysis of the records has shown, however, that there are certain high producing individuals, not necessarily 200-egg hens, but hens laying from 160 to 180 eggs a year, which have the power of not only laying eggs that will hatch, but eggs that will hatch daughters that will live and lay eggs in like numbers to their mothers. The work at the present time is concerned with the placing of these indivi-

duals at the head of a line and line breeding. It has been found that it is just as necessary to use line-bred males as line-bred females to get results.

The Poultry Work of the College of Agriculture.

There are two distinct poultry departments at the University of Maine. One—the poultry department of the Experiment Station, the other the poultry department of the College of Agriculture. The former is used solely for experimental, the latter for instructional purposes.

The following courses in Poultry Husbandry are offered by the Poultry Department of the College of Agriculture.

1. The Poultry Work in the regular four years' course for B. S. degree in Agriculture.
2. The Poultry Work in the two years' school course.
3. The three months' course.
4. The three weeks' short course.
5. The Poultry Institute.

Equipment.

The poultry department of the College of Agriculture of the University of Maine has a complete poultry plant and excellent class room facilities. The poultry plant was especially planned for instructional purposes and all equipment is new and up-to-date. The incubator building is a large two and a half story brick and frame structure with two large incubator rooms, egg room, oil room and office on the first floor and laboratory on the second. The brooder house joins the incubator building and both are heated with hot water. Other buildings are the crate and pen fattening house with killing room attached; feed house; long laying house of twelve pens; and fifteen moveable colony houses of different

types. Fifteen leading breeds and varieties of fowls, ducks and geese are kept for purposes of instruction and demonstration. The whole plant represents an equipment equal to any institution of its kind in this country, while in the vicinity are several large commercial poultry plants, from which many valuable lessons may be learned.

What can be done to help the small farmer to market his products? The cry of the hour is better market facilities, not necessarily better markets. Co-operation no doubt is the solution; the question is how to co-operate and on whom shall the responsibility fall. Possibly the Government may step in. It is to be hoped it may, but politics must be kept out.



POULTRY PLANT COLLEGE OF AGRICULTURE, UNIVERSITY OF MAINE.

The Poultry Outlook in Maine.

Bright though the outlook may be in the Poultry Industry in Maine, there is need of improvement in some lines. The large plants are placing on the market an excellent quality of poultry and eggs, but the small producers are not. The large farms deal much more directly with the consumer, the smaller farms are somewhat handicapped in that they have to deal through the commission men. There are great losses in eggs and poultry, not absolute losses, but the difference between the price paid by the consumer and the price paid to the producer is too great; it is a loss to the farmer. Much poultry is shipped alive to the Boston market, especially in summer. Losses by shrinkage, not uncommonly run up to fifteen and eighteen per cent.

Such is the present status of the poultry industry in Maine. The standard of breeding stock, of housing, of feeding is high. The foundation is laid. Eggs are being produced in large numbers, poultry is being grown; but the quality of the articles marketed is lower than it ought to be. Much of the poultry marketed as broilers at eighteen and twenty cents a pound ought to be grown to roaster size; the roasters should be fattened and killed, dressed, graded and neatly packed at home.

The state is awakening more than ever to its possibilities in the poultry line. Organization has been begun, and it will be only a few years till the Maine State Brand of eggs and poultry will be known and prized all over New England.

The Poultry Business

BY PROFESSOR W. R. GRAHAM, O. A. COLLEGE.

THE writer in this short article shall endeavor to give a brief history of the poultry business and some of the methods adopted at various times, beginning with the first "Hen Fever" in America at about 1850.

The average hen probably weighs about five pounds and yields a profit of say one dollar per annum, which is a low estimate when she has reasonable care. If she weighed as much as a cow or a horse and yielded a profit in proportion to her weight the history of the "Hen Fever" would have begun before 1850.

A sea captain or captains landed in New England with some very remarkable chickens. They were very large and tall, in fact could with ease, so it is said, eat off the top of an ordinary barrel, they were wonderful layers of big brown eggs—printer's ink did the rest. Those who managed to get a few birds in the early days certainly made some easy money with eggs at ten dollars per setting, and individual birds selling as high as fifty or more dollars each. Buyers came from the South, the North and the West; poultry shows were held and the Cochin China, also known by several other names, became a famous fowl. New breeds were added and the business grew moderately for some time.

Early in the eighties the demand in large centres for new-laid eggs and fresh-killed poultry practically was the beginning of the commercial poultry farm on what might be called the intensive plan. Incubator manufacturers were beginning to see a future to

the business, and the catalogues in some instances told you how to "get rich quick." These were the years of the "broiler fever," hot houses for laying eggs, daily menus for laying hens and growing chicks; the longer and more elaborate the bill of fare, the better it pleased the people, because success with poultry in those days was thought to be in these famous mashes, etc.

A few years later and the business man left the office to show the farmer and the mechanic how to make money out of chickens. The business we were told needed business methods, and we had the shoe factory system and numerous other systems of how to grow many chickens to the square inch pro pounded. Poultry farms failed, the business by many was condemned as being a myth, etc.

The beginning of the new century introduced the fact that poultry on the farm amounted to something, in fact was equal to the wheat crop, and hence those engaged in agricultural education slowly began to awaken to the fact that here was a branch of farming sadly neglected. We have now a number of experiment stations working out the problems of "poultry on the farm" as well as "poultry farm problems."

The failures of the early days may be easily accounted for in the simple words "a lack of common sense." Poultry essentially demands fresh air, dryness and light; these few facts, coupled with non-exposure to direct drafts are the essential points of a poultry house. You may get them any way you like. If they are present, the house is a success, but to be successful

for the masses, the house must be self adjusting, no doors, windows, or cotton screens to move; these are good if properly used, but the average person does not stop to think, hence we have the introduction of a low down, open front house, which, for this latitude, approaches the "fool proof" idea.

It is only of recent years that the general poultry keeper has learned that land requires a rotation of crops, that to raise chickens year after year in large numbers on a small area is to invite disease. Chicks grow best with least cost in catch crops in the orchard, the corn field, and the pasture. Under these conditions it takes no more pounds of grain to produce a pound of chicken flesh than it costs the farmer to produce a pound of pork.

The feeding problem is becoming more simple as the years go by. Perhaps in the past we used forcing foods that produced more eggs for a short period. The use of these is usually followed by the short lives of the laying hens, poor hatching eggs, unthrifty

chicks, which simply means an extra expenditure of money in renewing the flock.

The renewing of the flock at a reasonable cost is the general topic of discussion now. Personally I believe this problem will soon be solved when we exercise common sense methods of feeding, housing and rearing. All the common grains grown are good poultry foods, as are also hay and roots. Stuffing laying hens with rich concentrated meat foods, perhaps peppers, Johnny cakes, etc., may increase the yield for a time, but the results in the end are not always desirable.

In conclusion the outlook for the business as a branch of farming never was better. Prices of the products are very high, and I can see no reason why the average farmer should not keep a hundred good hens, which should mean a hundred and fifty dollars clear profit. I believe the time is not far distant when flocks of from five hundred to one thousand birds will be common upon the farms of Ontario.

SNOWFALL.

Down drops the snow, the fleecy hooding snow,
On town and wood and haggard, wind-blown space,
And hushes the storms, and all weird winds that blow
Upon the world's dead face.

Like the great rest that cometh after pain,
The calm that follows storm, the great surcease,
This folding slumber comforts wood and plain
In one white mantling peace.

—Wilfred Campbell.

Poultry Pathology: Its Place in the Curriculum

BY GEORGE BYRON MORSE, M.D., DEPT. OF AGRICULTURE, WASHINGTON, D. C.

ONE'S answer to a question depends upon the view point.

At a Civil Service examination, to the question "What does a perfectly equipped power house need?" a dubious but resourceful candidate answered, "Nothing." His viewpoint was different from that of the examiner. "What position shall the study of disease occupy in the Poultry Husbandry course?" is answered by the writer thus: "A prominent, if not **the most prominent place.**"

Poultry Husbandry should include three groups of studies: Zootechny, Economics and Hygiene. Although naming it third in the list I do not hesitate to affirm that in the most subtle manner Poultry Hygiene assumes first place in the operations of a poultryman.

Men do not like to admit it, nevertheless, even by their actions they acknowledge that death hangs like a pall over everything that has life. Darwin and others have given us to understand that there is at the present time going on amongst all living things a tremendous struggle for existence, and that in this struggle it is the fittest that survive. That is to say, as stated above, death is on everything that lives and those living things appear to contend most successfully against death that are able to mass the largest defence against drought, dearth, disease and dangers. The plant appears to do it and yet it has no mind; the animals appear to do it largely by what we term instinct; men generally with their intelligence, appear to conduct this

struggle for their animals, though often, as we say empirically.

It is in this way that farmers and their good wives, mostly the latter, have been raising chickens. The Agricultural Colleges have said, "We will teach them the science of breeding poultry and they will do it better." Finding eggs profitable, farmers tried to save what they could and market them. The schools have said, "We will teach them egg production, how to feed and breed for eggs." The farmers' wives have fussed over sick chickens, worried over the outbreak of roup that was decimating the flock and diminishing the pin money. Why should not the Agricultural Colleges and Poultry Institutes say, "Let us help you ward off disease." Ah, I hear some one say, "That is done." Not very much, as yet. Unfortunately a large part of the little that is done in this direction is of an empirical kind. What is needed is an intelligent gathering of data concerning the cause of disease and the application to disease of methods of treatment formulated from an equally intelligent gathering of data concerning the results of diet, use of drugs, preventive measures, etc.

As stated above, the poultryman is, consciously or unconsciously, in all his endeavors, working to ward off disease and prevent death. Why not give him such a training that all these endeavors shall be characterized by knowledge? Suppose you are starting a poultry farm. Is it a question of locating the farm? You do not settle that question from consideration of alimentation or

breeding, but from the standpoint of hygiene. Those who have investigated this subject tell you that the farm must slope toward the South, thus giving drainage and sun effects. Is it a question of soil? Again, Hygiene puts the test of drainage. Is it a question of size? Hygiene requires to know how many fowls you propose to keep, and after you have settled all questions of room for houses and growing feed, you must still decide if there is land enough for free range and a possibility of keeping soil contamination down to the lowest point.

Now that Hygiene has located and measured the farm, it becomes a question of erecting the plant. Is it a question of placing the buildings? Hygiene will place them on high and sloping ground. Is it a question of style of house? Hygiene will warn you that the house with an open, south front and the other sides air-tight may get you slightly fewer eggs but it will also give you birds that are harder and possessed of greater resistance to disease. And when you come to stock your farm, not what *is*, but what *will be* the great deciding factor after Chairs of Hygiene have been exerting their beneficent and life-preserving sway over college trained poultrymen. Health. You may be in the market to purchase color, size, shape, egg records or what not, but the primary question will be, "What kind of a bill of health can this dealer show for his stock?" You will want to investigate and find out if he burns white-diarrhoea chicks by the bushel basket full and sells what do not die. You will want to know if his flock is infected with tuberculosis, whether or not gape disease is prevalent. You will argue that disease

comes, gratuitously, quickly enough without going to work to buy it in a high-priced market.

Alimentation. Why, to be sure that is a question for the doctors. Do not we all run to our physician to find out what we ought to eat even though we do go back home and eat what we please and then call him in to treat our dyspepsia? Why do you refuse food to the newly hatched chick for forty eight hours? Because you know that Nature has provided generously for that length of time and that feeding before that time will in all probability kill the chick. Why does the poultryman make all the different changes of food mixtures from time to time? While there may be the question of rapid attainment of broiler size or something of that sort, still, back of it all there is a constant recognition of health necessities and he must needs concoct an ailment that shall at once be conducive to rapid development and in perfect accord with the requirements of health, otherwise he will burn or bury a lot of his birds and waste the balance of his time in raising a flock of thin, scrawny, disgusting-looking birds that will spend their time making unceasing overtures to every disease germ that may happen on the place. But, I am told that the poultryman does not need the doctor for this, he has found it all out for himself. The latter statement may be true. The poultryman has learned it by experience. However, that only proves my point that involuntarily the poultryman places Hygiene first. But then, all disease, all death is not due to dyspepsia or to defective alimentation. Yet many speak as though all you had to do in disease is to change the diet. Here is where you need the pathologist to dif

ferentiate between faulty incubation, defective brooding, bad feeding, disease producing organisms, to say nothing of atmospheric changes as causes of disease and death.

Poultry Husbandry means poultry farming and divides itself into Zoo techny, Economics and Hygiene.

Poultry Zootechny is that branch of poultry husbandry that has for its object the study of alimentation and reproduction, or, to use an expression that means less and yet is truer to the actual condition of things, the practice of feeding and breeding.

Poultry Economics is that branch of poultry husbandry that is occupied with the commercial aspect of poultry farming, particularly the marketing of poultry and eggs.

Poultry Hygiene is that branch of poultry husbandry that concerns itself with the maintenance of the health of poultry.

Which, now, of these three branches of poultry husbandry is most important? Please do not think me immodest when I tell you that I consider the last named, Hygiene, by far the most important. It is natural for the specialist in each one of these lines to feel that his work is the work. For him it is. A good many years ago, in Minneapolis, Minnesota, at a large Home Missionary Convention, a lady stood, with babe in arms, telling the wise Secretary of the Association, the needs on her husband's mission field out on the frontier line of the great Northwest. Standing near, awaiting his turn to speak for his field, stood a young minister from a more easterly station. When he had his opportunity, he burst out with, "Why, that woman speaks as though her husband thought his church was the biggest thing there is." The

Secretary quickly responded, "That is the reason he is a success. When you feel that way about your field, you, too, will be a success." So you see, I do not altogether blame the poultry breeder for thinking that his work is the whole of it. When such conceit is held in proper balance it is a potent element in success. But, as I said, that's for himself. There is even reasonable ground for the man engaged wholly in the commercial line of poultry husbandry to feel that his work is the center toward which all other branches converge. For him it is so. But for poultry and poultry husbandry, for Zootechny and Economics, for the men engaged in feeding and breeding, for the men engaged in buying and selling, it is otherwise.

A small boy in one of the public schools was asked by the teacher why, when he had no home, Paine wrote "Home, Sweet Home." The answer came quickly, "Please, Miss, because there's nothing so sweet to you as the thing you want and haven't got." If one studies the catalogues of the many different Agricultural Colleges he will be struck with the marked absence of poultry Hygiene or poultry Pathology from the curriculum. But its absence is not the reason that I believe it is the most important or the most to be sought after. Pardon the expression, but I believe poultry Hygiene is the most important because it is.

Hygiene when operating in its widest yet legitimate scope is practically coextensive with Biology. This involves every phase and condition of the living organism; it also includes all those subtle relationships of the physical sciences with what we sometimes call the science of life. Biology started out to be the science of the living or

ganism in its normal condition; it was soon apparent, however, that Pathology, the science of disease, must be given a place in its classification. Then it came to be recognized that in the study of disease not only must we include Therapeutics or the science and art of treatment of disease but a most prominent place had to be allotted to Hygiene the study of the laws of health and its preservation. Any one who has attempted to specialize in Hygiene has found himself face to face with every division of Biology, even classification. In human medicine we have long noted the "diseases of civilization" and the peculiar exemption of uncivilized peoples from the same. Again, there has been recognition of the awful susceptibility of the Negro and Indian races to diseases to which the Anglo-Saxon by centuries of exposure, has acquired a certain amount of immunity. The same is true in poultry husbandry. Who would not prefer to purchase his stock from a flock of "rangers" rather than invest in the third or fourth generation of "back yard" or "town-lot" poultry. Most observant poultrymen can tell you the differences that exist among their Asiatic, Mediterranean and American breeds as to susceptibility to disease in chickhood and adult life. One of the strong points claimed for certain breeds that are just now being largely exploited is the dominating influence of their disease-resisting powers. I referred to the points of contact between the physical sciences and Biology. A man may be, as the result of close observation, an apparently successful feeder, but he cannot be an intelligent feeder to-day unless he possesses some knowledge of the chemistry of digestion and the chemistry of foods.

Permit me to quote from a very recent and most interesting article.

"The animal body is the most complicated and wonderful piece of machinery in the world. It is the only engine which generates its own power, disposes of its waste products and automatically renews its parts. Within the compass of the human frame is an elaborate hydraulic system having not only a double acting frame force pump but also a suction pump for the purpose of producing a negative pressure in the veins and to assist the return circulation. The nervous system may be likened to the telephone system of a great city for it has all the local call stations and also a central station, which we call the brain, which is so complicated that, elaborate as are the switchboards in our great exchanges, they are simplicity itself compared with the brain. The digestive system forms the furnace in which the fuel is received for the generation of power, while the skin, kidneys and lungs make up a complicated apparatus for getting rid of the waste products of combustion."—(Bristow, Algernon T., M.D.; *The Unity of the Medical Sciences. Journal of the American Medical Association*, vol lii., No. II., p. 844, opening paragraph, March 13, 1909, Chicago.)

It is this piece of machinery that the poultry husbandman is operating when he is feeding for eggs or breeding to Standard. It is this machine from which the commercial poultryman is planning to turn out a supply of attractive and toothsome table fowl to catch the eye and tickle the palate of the Canadian epicure. Hygiene proposes to keep this machine in order, oil all its parts, keep it in repair, tell you how in the best possible manner to obtain a new one, lacking all the defects of

the old one, possessing features that will place it far away and ahead of the old. It is, in reality, Hygiene that will tell you that your machine is sure to snap and go to pieces if you work it too hard and can explain to you the rationale of the breakdown. Pat could not understand why, when he had trained his horse to live on one straw a day, it should die. Poultry Pathology as a branch of poultry Hygiene will tell you why your 250-egg hen dies before she reaches that fascinating number. It is poultry Pathology that explains to you that the 200-egg hen is a monstrosity, an abnormality, and as such is far more susceptible to disease than the average hen of much lower egg laying ability. Not only is this hen peculiarly subject to disease but all the hens that have, as we might say, formed stepping stones up to this much sought after product of breeding and commercial enterprise are likewise markedly susceptible to disease because of the abnormal regime to which they have been exposed.

An enterprising poultrywoman brought to the writer a dead hen for autopsy. Examination revealed an hypertrophied ovary, marked congestion, and, at the same time, extreme thinness of the walls of the egg tube. Through this latter an egg had ruptured into the abdominal cavity. There were no other lesions. To my inquiry concerning the use of "forcing" foods, she replied, "I am breeding and feeding my White Leghorns for eggs; I obtain forty cents per dozen all the year round; I could sell one hundred dozen as easily as I now sell fifty dozen. I can afford to lose one of these hens every few months (that had been the record) and keep on forcing." Here was poultry husbandry with Hygiene in the

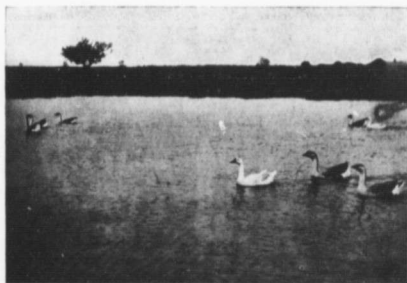
background, that is to say, breeding and feeding and marketing and defying Hygiene. It is true, there was a strong appreciation of Hygiene for its general purpose; that woman desired to guard against an attack on her flock by an infectious disease, and she wisely brought the dead bird to a Pathologist for investigation. But when it came to a question of the Pathology of egg production she discarded it altogether, or rather, allowed the commercial element to overbalance. A splendid business capacity suggested that it was better to lose four birds a year from diseased ovaries and oviducts due to excessive functioning than to lose the large egg production with its generous receipts by cutting out the forcing foods. As stated above, for her poultry Economics was the chief thing. And Hygiene, in the person of the writer, as a Pathologist, agreed with her. But Hygiene, incarnate in the Poultry Pathologist of an Agricultural College must furnish to poultrymen, who are breeding, feeding and marketing, such data as has just this minute reached me through the mail, in the form of Bulletin 166 of the Maine Agricultural Experiment Station. On page 83 of this bulletin, Doctors Pearl and Surface, in their summary, state, "The daughters of '200-egg' hens were in this experiment very much inferior to their mothers in average egg production."

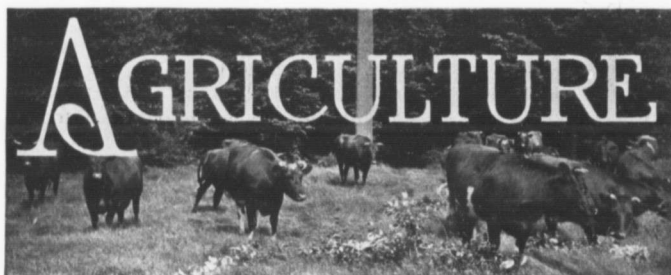
Even though Hygiene may not yet be given a distinctly separate place in the curriculum of poultry studies, still Pathology, as a chief division of that subject might be allowed to dominate the teaching. Let me show you what I mean. In the schools at present, Anatomy and Physiology are taught, but, I think I can safely say, largely with reference to alimentation and reproduc-

tion, especially as bearing upon commercial poultry. Let it be taught also with reference to disease. Study the anatomy and physiology of the nose, mouth and throat as being the seat respectively of ocular, nasal, oral and pharyngeal roup. Study the windpipe of chicks as being the seat of gape disease so as to understand why one gape worm might be the cause of death and also to appreciate the difficulties attendant upon some of the proposed instrumental measures recommended for the cure of the disease. By the way, if you study the anatomy of the nose of chickens you will not waste much time following the direction, that I have lately seen, to insert an ordinary medicine dropper in the nostril and inject peroxide of hydrogen. Learn the anatomy and physiology of the air sacs so that you may realize better the dangers connected with the air sac mite. Learn all you can about the caeca, their structure and function, and then remember that they are the usual seat of intestinal coccidiosis. Study the cloaca in order that you may be familiar with

the locality which you should some times carefully investigate and explore with a well-vaselined finger in a search for an obstructing egg or faecal concretion.

No more important industry exists to-day than poultry. Its position among the industries is growing in recognition. The colleges must come to honor it as it deserves. The writer believes that a whole four-year course of studies in an Agricultural College could be built up around poultry. It would be a masterly move on the part of the instructors in poultry husbandry to map out such a course and thus prove to young men and women that in fitting themselves to intelligently run a poultry farm they would be securing a broad training involving not only a fundamental general science course but also a technical agricultural education that would include every phase of farm life, thus enabling the graduate poultryman to meet every requirement for the well-being, that is to say, health of his flock.





The Ex-Student and the Horse He Drives

BY H. BARTON, B.S.A.

TODAY the Province of Ontario alone has in horses an asset of one hundred million dollars, and yet if some one were to ask what type of horse the Canadian farmer works the answers in all probability would vary as much as do the horses. To average the answers, and in that way average the horses, might not reflect a great deal of credit on the average farmer as a horseman.

It is true that in certain sections we find splendid farm horses. It is also true that today ex-students of Guelph

are often found in those sections and own some of the best horse farms in the country, but it is a regrettable fact that so many ex-students of agricultural colleges fail to apply their knowledge in the case of the horse on their own farms. We may well be surprised to find college men with the same old drudges, when we know the opportunity that has been theirs, and in many cases how easy it would be for them to make an object lesson to the rest of the farmers in their own community. There is some excuse for the young



FIRST AND SECOND CROSSES OF CLYDESDALE BLOOD.

man who has not had the advantage of a college education and who in many instances has had very little threshed out for him by any one else. Very few men are naturally horsemen, so that their own slow experience affords them little direction. We can hardly expect intelligent breeding from men who have not had a chance to know even the distinguishing characteristics of the common breeds; to say nothing of breeding and judging. To sections with enterprising breeders these remarks will not apply, but very many farmers are not so favorably situated.

team. Let him by example demonstrate what the policy for improvement in his community should be; others will soon follow in the same channel.

Undoubtedly in the case of the average farmer the eye is the shortest road to the brain. This fact is being appreciated more and more in the advancement of agricultural education, as for example in the United States the establishment of a system of extension work consisting largely of public demonstrations and object lessons.

The possibilities for horse improvement are great. In sections where we



SECOND AND THIRD CROSSES OF CLYDESDALE BLOOD.

All graduates of Agricultural Colleges certainly are not competent horse judges. On the contrary, very few are, but they all at least have had some drill on the principles of breeding, feeding and such like, and some explanation of the methods that have proved most successful. Therefore we do not expect to find them grouping along blindly; they ought to have knowledge enough and interest enough to appreciate the best in horses. Through the farm horse the ex-student has an opportunity to do something for his community and his college. There is splendid advertisement in a fine farm

find the best horses today we invariably find that there has been a leader in this line of work. Some one has demonstrated what splendid results can be obtained in a remarkably short time where reasonably good stallions have been made use of and where breeding has taken a definite direction. The horses shown in the illustration would all make creditable pure-breds, and yet the original stock, the female parents of the first cross, were quite ordinary mares with no Clydesdale blood. In sections where no definite course has been mapped and where horses have been mated according to various no



THIRD CROSS OF CLYDESDALE BLOOD, AT TWO YEARS OLD. (YOUNG HACKNEY IN REAR.)

tions, for in nearly all cases there are no ideals, the result is a corresponding variation with no possible progress.

The practice of community breeding has proved successful in some parts of the United States, and for that matter we might say in our own country, although we have not had the same organized effort. With our present numbers of breeds in nearly all classes of live stock there seems reason to believe that some such arrangement would bring certain and rapid results, and especially with horses. There are many communities with suitable foundation stock for grading with some particular breed, naturally the one best suited and most popular. As a result of this system interest and effort will be concentrated, a definite policy made possible, the obtaining of high class stallions more likely, and with results the establishing of a market centre. In nearly every community we should be able to find an ex-student of an Agricultural College.

Intelligent breeding alone, however, as we all should know, will not bring results. Careful management, judicious feeding and sensible driving are prime requisites to make the most of

improved blood. The College course includes lectures on general management and feeding, specific detail can not be given; therefore much must be left to the student himself; he must draw his own conclusions for application in his own particular case. Too often it would seem as though his interest in horses were not sufficient to either conclude or apply. Unfortunately at College there is not much opportunity for the student to learn anything about driving, a very great factor in the development and appearance of the average farm horse; the explanation of difference between teams, on the same farm is very often found in the teamsters. The little things come through interest and judgment in each particular case and certainly count for a great deal. These each man must work out for himself, but while at College he has a chance to notice in this connection many things which cannot be given in the lecture room.

Ex-students are now among the strongest propellers in various branches of advanced agriculture. Horse improvement is not one of the specialties, yet it ranks as one of the most inviting.

Experimental

Profit in Poultry

THE following experiment, conducted by Professor Graham, at the O. A. College, gives ample proof that the average farmer can make poultry raising, on a small scale, a very profitable side line.

Twenty-six Wyandotte pullets and two cockerels were chosen as representing the utility breeds. They were fed and cared for in the ordinary manner, a strict account of the outlay and income being recorded.

Feeding.—During the winter, grain was fed in deep straw litter in the morning and usually in the evening. About twice a week during the winter some wet mash was given at night in place of the whole grain. Clover hay was always available from a rack in one corner of the pen, as was also grit and oyster shell. Roots were given once or twice a week during the winter when we could get them; probably a bushel would be all this pen had. Cooked meat was fed a few times at noon, as was also cut green bone. For most of the year a hopper of beef scrap was constantly available. This was closed whenever meat or bone was fed or when milk was given to drink as was done during the hot summer months.

The feed consisted mostly of wheat and corn with some oats. The mashes were made of bran, shorts, oat chop and corn chop. In some instances barley or buckwheat chop was used or we used what we had, only that we tried

to have at least some bran and middlings in all mixtures.

Feed consumed and value according to local markets.

Feed.	Value.
Corn, 256 lbs. at \$1.60 per cwt...	\$ 4 10
Wheat, 563 lbs. at \$1.00 per bu. . .	9 39
Mash, 220 lbs. at \$1.50 per cwt..	3 30
Mixed Grains,	
Corn	
Wheat, 347 lbs. at \$2 per cwt..	6 94
Oats	
Meat food, 117 lbs. at \$3 per cwt.	3 51
Milk, 700 lbs. at 20c per cwt....	1 40
Roots, hay, oyster shell, etc.,	
(estimated).....	1 00

Total cost.....\$29 64

Mixed grain was fed during the summer when wheat was worth \$1.30 per bushel, hence the charge of two cents per pound.

Eggs laid and value according to local market:

Nov., 17 eggs, at 30c per doz...	\$ 43
Dec., 95 eggs, at 36c per doz....	2 85
Jan., 358 eggs, at 36c per doz...	10 74
Feb., 280 eggs, at 30c per doz...	7 00
March, 320 eggs, at 24c per doz..	6 40
April, 377 eggs, at 18c per doz..	5 51
May, 311 eggs, at 18c per doz..	4 67
June, 377 eggs, at 18 per doz....	5 51
July, 304 eggs, at 24c per doz..	6 08
Aug., 266 eggs, at 24c per doz..	5 32
Sept., 194 eggs, at 24c per doz...	3 98
Oct., 154 eggs, at 30c per doz...	3 85

Total.....\$62 34

There yet remains at least one item that must be considered, that is the number of birds that have died. In this particular pen the death rate has been very high—a total of five birds. Of the five, three died in nest laying, one in May, one in June, and one in August. In this house we used trap nests and the birds may have suffered from being left in the nest too long during very warm days. To me the most interesting part of this experiment is the cause of the deaths. When we examine the egg record we find that the deaths occurred among the birds that were slow in starting to lay, two of them not laying until after the middle of March. To the ordinary poultryman this result would have been more or less expected, as he is aware that where pullets have all they want to eat during the winter, a few non-producers will get over-fat as indicated by the large development of fluff. Such birds should be sold to market as they seldom make fair layers. One bird laid but 19 eggs before she died, and 56 was the most laid by any of the others. I believe these hens ate too much meat and beef scrap. We wanted them to have the opportunity to eat all they would—the results were satisfactory, as far as the producers are

concerned, but the pullets that failed to lay during the winter were very fat. Many of the heaviest layers were rather too thin. A feeder with but one flock has to sacrifice a few for the many at times.

There are practically 24 months of feeding for one bird lost by the deaths of the five hens, hence our feed bill for the twelve months represents practically the feed of 25 birds for the year.

The value of the five birds lost should be charged against the pen. Whether one should charge in this particular instance the labor, rent of land and house is debatable.

Financial Statements.

Cost of Foods.....	\$29 64
Loss of 5 Hens at 50c....	2 50
Value of Eggs.....	\$62 34
Gain.....	\$30 20

A further analysis show the following:—

Grain consumed per bird, 55.5 lbs.; grain cost per bird, 94.12 cents; annual food cost per bird, 19.64 cents; average number of eggs laid per bird, 122 eggs; four birds laid more than 200 eggs, nine birds laid less than 100 eggs; average profit per hen, \$1.20.

No charge has been made for labor and no credit for manure.

Moisture in Dairy Products

BY PROFESSOR H. H. DEAN.

WATER plays a very important part in all branches of the dairy. Milk, the basis of all manufactured dairy goods, contains about 87½ per cent. of water, and hereby we receive a hint as

to its importance in dairy operations. As a food product, however, there is a marked difference between the water butter, or that in "soaked curd cheese," and the natural water of milk or that contained in normal cheese.

The water of the former is extraneous, unnatural and of no more food value than the water from a well or spring, which in fact it is, while that in the latter has dissolved in it valuable food compounds and life-giving extracts, some of which elude the search of the most skilful chemist.

On account of this distinction most of the countries consuming dairy products have laws fixing the amount of extraneous water which shall be allowed in dairy foods. For example, nearly all countries have a maximum of sixteen per cent. water which may be incorporated in butter, this being considered the limit of moisture which pure butter may contain. Owing to the importance of the question, many devices have been put on the market to determine the percentage of moisture in butter and other manufactured dairy articles. Recently, a number of short methods have been devised which are more or less accurate and may be used by the ordinary butter or cheesemaker. The one which has given us the best all-round satisfaction is a small oven heated with steam. As steam is found in every creamery and cheesery, and the oven not expensive, we see no reason why every butter and cheese maker might not know the percentage of moisture in the goods which he turns out, if he would go to a little extra trouble and expense.

Good butter may carry from twelve to fifteen per cent. of moisture, and so far as our work in the College Creamery is concerned, we find that our butter will come within this range without resorting to any of the methods commonly advised for increasing the moisture in butter, and which, so far as our investigations have gone, mean a deterioration in quality of the

butter whenever those extraordinary methods are adopted.

Moisture in Curd and Cheese.

During the past three years we have been giving considerable attention to the question of moisture in curd and cheese. We have been advocating the somewhat heterodox plan of trying to retain as much moisture as possible in Canadian Cheddar Cheese, while those of the orthodox school seem to advise getting rid of all the moisture possible.

Our reasons for advising the retention of as much moisture as possible in our cheese, consistent with good quality, are:

1. The more moisture that can be retained in the cheese the less milk will be required to make a pound of cheese, and hence the more profitable to milk producers and cheese manufacturers. The increased amount of milk required to make a pound of cheese now is nearly one pound as compared with that required twenty years ago. We can all remember when "one pound for ten" was the rule, whereas at present it is nearly "one pound for eleven"; i. e., it now takes on the average, nearly eleven pounds of milk to make a pound of cheese.

2. The British consumer will be better pleased if we send him a "meatier" cheese, which means a cheese softer in texture, which condition is largely influenced by the moisture in the cheese. There is no injustice in leaving more moisture in our cheese than it now contains, because, as we have previously shown, the natural water of cheese has dissolved in it—sugar (lactose), albumen (a muscle forming material), ash (mineral or bone forming substances) and also some casein, which is the chief constituent of what is commonly known as curd—all valuable food products.

Recently at an English dairy show an English and a Scotch judge of cheese could not agree on the placing of the first prize on Cheddar cheese.

The Scotch judge was for giving the prize to a very solid, close cheese, which the English judge said was not at all the cheese best suited for the English trade. We, in Canada, have this Scotch, hard cheese notion implanted to some extent by speculative buyers, but in our judgment we shall have to get away from this, or we shall lose our cheese export trade, which, by the way, is slipping away from us at the rate of about one million dollars annually.

Coming to the results of our own experiments we find that curds at the time of the removal of the whey (dipping) should contain from 50 to 52 per cent. moisture; the green cheese from 35 to 36 per cent.; and the ripe cheese about 35 per cent.

Comparing these results with those obtained from 33 samples of curd and 45 samples of green cheese sent in to us during the season of 1909 by the Cheese Dairy Instructors of Western Ontario, we find that our curds aver-

age about nine per cent. more moisture at the time of dipping and our green cheese about one per cent. more.

The average percentage of moisture in the Western Ontario factory curd samples was 41.445, while those at the College averaged 50.836. The green cheese samples from the factories averaged 33.898 per cent. moisture, while those of the College contained an average of 35.005.

We were unable to get samples from the ripe cheese at the factories, as many follow the practice of shipping about once a week and do not keep the cheese for longer than about two weeks.

All the evidence, however, points to the fact that Canadian cheesemakers might save themselves a great deal of labor stirring curds; might make a pound of cheese out of a less number of pounds of milk, thus making the business more profitable for their patrons and for themselves; and also turn out a cheese that would suit the British consumer better, if they would retain more moisture in their cheese and waste less of valuable food products in the whey tanks.

FOUNDATIONS.

We are what nature made us: soon or late,
Life's art that fadeth passeth slow away,
With iron eatings of our sordid day,
Leaving behind those influences, innate,
Immutable, divine. As round some great,
Rude, craggy isle, the loud surf's ravening fray
Shatters all life in spume of thundered spray,
Leaving huge cliffs, scarred, grim, in naked state:

So life and all its idols hath its hour,
Its fleet, ephemeral dream, its passing show,
Its pomp of fevered hopes that come and go;
Then stripped of vanity and folly's power,
Like some wide water bared to moon and star,
We know ourselves in truth for what we are. —Wilfred Campbell.



Horticulture

What Ontario Offers the Young Man in Horticulture

Life and Profits in the Peach Belt

BY W. C. McCALLA.

Where whose wisely wills and acts
may dwell

As king and lawgiver, in broad-acred
state,

With beauty, art, taste, culture, books,
to make

His hour of leisure richer than a life
Of fourscore to the barons of old time."

—Whittier.

CANADA, as has often been said, is a land of opportunity. Her great extent of territory, her wealth of natural resources and her rapidly expanding business activities offer to the young man of energy and intelligence, a bewildering variety of attractive openings. Even when his choice has been narrowed down to Agriculture, there is still an immense field before him. Agricultural Colleges and Schools, Experimental Stations, and business concerns requiring ex-

pert agriculturists, all bid against the call of the land for the young man's services.

While all these positions are important and must be filled, it seems to me that the chief function and the chief glory of agricultural education, is to train men to be good farmers, to send the great majority of students back to the land with some knowledge of science, with minds trained to grapple with the ever-changing problems that arise, and with abiding respect and enthusiasm for their work.

For the farmer's son the natural thing is to go back to the old farm. Opportunity often lies close at hand, and with opened eyes he may now see it, and not yearn for distant fields that may not be as green as they look. For one who has no such tie, the wide country lies open before him. Where shall he go? Happily for the future of our country, a fair measure of suc-

cess awaits intelligent effort in almost any direction he may turn. No Canadian would wish to disparage any part of this great Dominion. I simply call attention to a greatly-favored district, and to a business which should appeal especially to college-trained men. I refer to Fruit Growing in the Niagara Peninsula. "Life and Profits in the Peach Belt" was the title suggested by the Horticultural Editor for this little article, but who could cover the subject in a few hundred words? Let me try to give just a few suggestive touches.

It is a great country in which to live, surrounded by the richest variety of trees, plants and growing crops to be found in Canada. Our southern position, the benign influence of the lakes to north and south, together with suitable soil, make the lower plane of the Niagara Peninsula the safest place in Canada to grow tender fruit. In deed I believe I am within the facts when I say that nowhere in North America can peaches and other tender fruits be grown with less risk of winter killing, or of injury by spring frosts than here, where a total failure of the peach crop is practically unknown.

The country is thickly settled, fine houses are abundant and yearly becoming more so. Practically all farms are connected by telephone with each other and with surrounding towns and cities, making it easy to conduct the business of the farm and adding to the social life of the family. Numerous trolley lines, railroads and steamships make it easy to get about. The ladies can leave home in the morning, spend a few hours shopping or visiting in Toronto or Buffalo and get back before dark. We at St. Catharines, when some special treat is on, can go to Buffalo in the evening, attend lecture, con-

cert or theatre and return the same night. The Grimsby people can go to Hamilton in the same way. It is a journey of only a few hours to Montreal, Ottawa, New York or Chicago. Being thus in the centre of the most thickly populated part of America, within easy reach of many great cities, means much in a social and intellectual as well as in a business way. There is here little of the isolation too common in farming communities.

The business of fruit growing is no experiment here. It is already a great industry and a great future is assured. Our volume of business is already large enough to command the respect and special attention of the transportation companies. The cars are going through in shorter time and the service is generally better. This not only puts our fruit on the market in good condition, insuring better prices, but greatly extends our markets. We are finding out that, properly picked and packed, our most tender fruits, such as peaches, strawberries and cherries, can be placed in the western towns and cities in good condition. Our peaches have been carried to England in perfect safety, and there may be a great future in that trade. The expansion of our markets has encouraged larger plantings, and soon the district will be producing thousands of cars where hundreds are now grown, and the growing population and wealth of Canada will take care of the increasing production.

Then our local towns and cities take large quantities of fruits and vegetables at good prices. We have also many canning factories in the district using immense supplies of all kinds of produce. These local markets are of great advantage to the growers. They enable us to vary our crops and methods of handling them, as our taste or cir-

circumstances dictate. For example—if we cannot get the labor to pack all our peaches we can haul in crates to the factory, usually at a good price. They also enable us, by means of intercropping, to make a profit from our orchard lands while the trees are coming into bearing. I have an apple orchard planted in the spring of 1907. Each year we have grown vegetables between the rows, leaving ample space around the trees, so as not to retard their growth. For the three years the gross returns per acre of orchard land have been as follows:

soils, locations, methods of growing and handling, etc., has been accumulated, and is available to the new-comer if he cares to use it. He is not given the cold shoulder, but is encouraged and aided in many ways. The growing spirit of co-operation among fruit growers has perhaps attained its highest Canadian development here in the Niagara Peninsula. Our spraying equipment and supplies, our packages, fertilizers and many other things are bought co-operatively at a great saving. A company can ship fruit, look after business and open up new mar-



HOME AND PLANTATION OF W. C. McCALLA, ST. CATHARINES.

1907—Potatoes.....	\$125 00
1908—Factory beets, carrots, mangles.....	78 40
1909—Tomatoes.....	160 25

This is an average of \$124 per acre for each of the three years, an amount that paid all expenses of orchard and intercrop and left a substantial net profit. These are ordinary farm crops. Had strawberries or other plants requiring more labor been used, the returns would have been much larger.

Fruit has been grown in this district for such a length of time that a great mass of knowledge as to varieties,

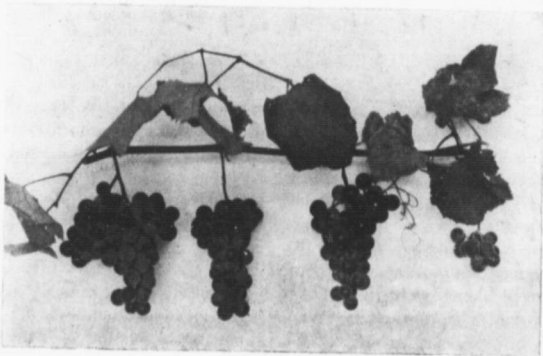
kets in a way that even the larger growers could hardly do alone. Through co-operation the standard of orchard culture has been raised, better fruit is being produced, more careful packing done, and the grower is getting a larger proportion of the wealth he produces. Much remains to be done along these lines, but the outlook is very hopeful.

As might be expected land values here are advancing. Having heard of some of the big prices paid for fruit farms, you may think they are high enough or too high already, but these are isolated cases, depending on special

conditions or individual fancy. Good fruit land and lots of it can be obtained at reasonable prices, and the young man who buys suitable land, plants it to orchards and cares for them, will have a property becoming more valuable year by year. At the end of say ten years, his financial position is likely to be better and his prospects for the future more hopeful than if he had been earning a generous salary with some business house or scientific institution. I speak of what I know from observation and from experience. Nine years ago I bought the farm on which I now live. The first year, owing largely to a peach orchard on the place, it paid working and living expenses. This year our gross sales will be over three times those of the first year, although only about one-quarter of the farm is in fruit of bearing age, and another quarter in hay and grain that will all be fed on the place. But land that has been brought into such condition that

it has produced 46 bushels of wheat and 800 bushels of tomatoes per acre can be depended on to do its duty when it seems desirable to plant it to orchards. Fruit growing here is on such a safe basis, and good orcharding has such a cumulative effect that I look forward to the next nine years with confident expectation of much greater things.

This branch of agriculture should appeal especially to college-trained men, calling as it does for scientific knowledge, skill of a high order, intensive methods and progressiveness. There is no danger of reaching that tragic point where further advancement is impossible. Fruit growing in the Niagara district will take the best a man has, and give in return a growing cash income, a farm home yearly in creasing in beauty, productiveness and value, and a life in close touch with the best thought and culture of his generation.



THE O. A. C. REVIEW

REVIEW STAFF.

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C. M. LEARMONTH, Agriculture.

P. E. LIGHT, College Life.

W. R. REEK, Experimental.

S. ROGERS, Staff Photographer.

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A. C. BAKER, Cartoonist.

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H. A. DORRANCE, Alumni.

MISS FLAVELLE, Ass't Macdonald.

W. DAWSON, Locals.

MISS ROSS, Locals.

O. C. WHITE, Business Manager.

W. W. Emerson, Assistant Business Manager.

Editorial

We are influenced little in our College life by the laws governing fashionable society. Society is peculiar in that it makes slaves of its followers. This is a strange slavery since those who are devoted to the cause of society appear to be willing devotees. Many, no doubt, are called by duty to the service of society, whilst others are attracted by the glitter and tinsel which is a reflection of their own natures. Society is heartless, and to the average Canadian, empty. Though beautiful on the surface, there is hidden beneath this mask intrigue and selfishness.

These facts, as before stated, touch very lightly the lives of O. A. College students. We are a body of men which both by heredity and necessity shall earn a livelihood "by the sweat of

our brow"; but when we leave these halls the majority of us will take a place in the social life of the farming community which we should fill both to the advantage of ourselves and to that of the people among which we shall be placed. This means that we should exercise due reason in the planning of our social problems here at College.

An examination of accounts for the past several years in connection with our annual *Conversazione* reveals facts which leads a thinking student to wonder what will be the outcome. The Junior Class of each year has as a rule tried to outdo the previous class in making this event of greater brilliance than ever. This necessitates greater funds, and when any certain class has "gone the limit" in obtaining finance, the following class finds itself in a

dilemma. Some fixed rule in this connection is advisable to prevent any one class from using methods which might appear rather too arbitrary.

Then again there is the question of dress, which, properly speaking, is perhaps a question of individual taste. However, in some of our universities this matter has attracted the attention of the governing bodies, and as a result laws have been enforced to prevent extremes in this particular. There are those here who have extreme views upon both sides of the question. Some would have dress suits abolished entirely, whilst others would make it compulsory to appear at all our social functions in evening dress. The first view is suicidal and would tend to exterminate all ideas of ordinary social proprieties. The second view is absolute folly and altogether out of keeping with our lives both past and future. An intermediate view is more to the point, the "laissez faire" doctrine being the only reasonable course to pursue. We are not the sons of aristocrats, neither are we the scum of the country. Agriculturists are the great working class of the nation, the backbone of the Empire. Let us not therefore attempt to soar to the "butterfly world," neither descend to a plane of which we shall not be proud; but rather let us exercise our reason in all things and in social matters as in others.

In the March issue will appear a department new to our readers, and one which we believe will add both to the pleasure of our subscribers and to the value of our magazine as an up-to-date agricultural medium. The staff has been prompted to make this addition to the columns of

the Review for various reasons, chief among which are the following—first, the growing importance of the poultry industry in Ontario deserves recognition and a poultry department in the Review is advisable in order to keep pace with the progress now being made in this phase of agriculture; secondly, the demands of the Poultry Club of the O. A. College during the past few months for representation in the College organ have become so pressing that in all fairness to an organization of its strength we feel compelled to acknowledge these demands and the work the Club is doing in the interests of many of our students.

The O. A. College Poultry Club deserves special mention in connection with the inauguration of a poultry department. This club is a comparatively recent organization, but during its short period of existence it has outstripped in the race of development some of the older clubs. In October, 1908, this club was first formed by a number of students enthusiastic in the study and investigation of poultry. The names of Lewis, '10, Herner and McAleer, '11, are prominent in the early history of the club. At the end of its first year a membership numbering forty-five was reached. Since its formation, weekly meetings have been held at which practical poultry problems have been discussed; demonstrations in judging fancy utility and dressed poultry have been given and a series of lectures on the breeding, feeding, care, and management of fowl has been of great interest.

The club has fitted up a room at the poultry department where its meetings are held, and here the leading poultry papers are kept on file. A library containing the most up-to-date books on poultry has been begun. Here

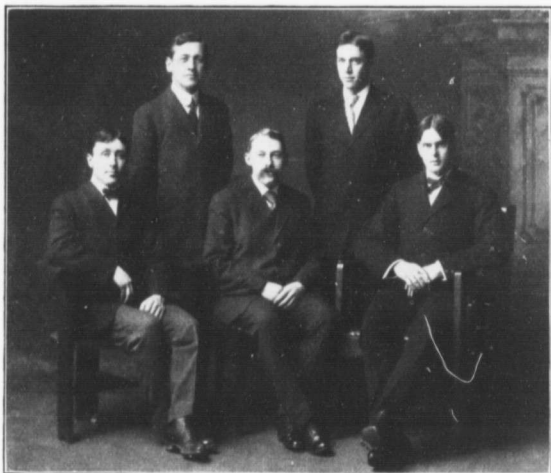
also a poultry museum has been established showing preserved specimens of different poultry diseases, samples of numerous brands of beef scrap, bone meal, etc., and other things interesting to poultrymen.

In 1910 the membership is expected to reach the one hundred mark. The club is enlarging its plans of operation and purposes to increase interest through the medium of illustrated lectures, judging competitions, and by making extensive additions to its museum and library.

These facts would lead one to be

lieve that among the organizations at the O. A. College there is none more alive to its opportunities than is the Poultry Club.

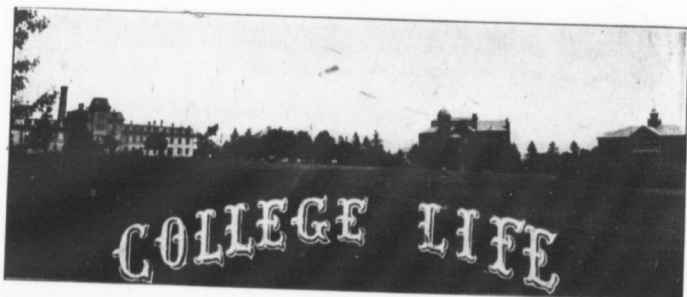
After considering thoroughly the poultry situation, the Review has deemed it a wise step to add to its columns a "Department of Poultry," which will first appear in the March issue. M. C. Herner, '11, has been selected as editor of the new department, and we feel confident that with a man of Mr. Herner's experience directing its course, the "Department of Poultry" will prove a decided success.



FIRST EXECUTIVE OF THE O. A. COLLEGE POULTRY CLUB.

H. A. McALEER, J. M. LEWIS,
Second Vice-President. First Vice-President.

M. C. HERNER, PROFESSOR W. R. GRAHAM, MR. DORRANCE,
President. Hon. President. Sec.-Treas.



The winds, as at their hour of birth,
 Leaning upon the ridged sea,
 Breathed low around the rolling earth
 With mellow preludes, 'We are free.'
 —Tennyson.

THE voice of nature has expressed in these thoughts the unuttered sentiment of every healthy minded Canadian, whether the Dominion be the country of his birth, or the country of his adoption.

It requires no analyst of human life to unravel the tangled skein of those peculiar virtues which have been the forces responsible for the progress of the Canadian people in this present century. If we take a retrospection of the past thirty years of this country's growth and development, we will find prominent among the promoters of industry, men who have come into the full recognition of the possession of the greatest of birthrights—freedom. The consciousness of this, coupled with the will to do, and the ability to do it, is the secret of our country's greatness.

This is a somewhat long introduction to a word or two which we deem to be in season. Yet because we seek, by the preceding paragraph, to give you

confidence in your ability to do as we ask, there is no need for apology.

You have no right to withhold your services from the College of your adoption, any more than you will be justified in neglecting to play your part as a Canadian citizen in the years to come. We feel that there are men within these historic walls who are not lending themselves to the interests of their Alma Mater. Men with the will to do, and the ability, who won't. Not because they do not desire to give as well as to receive, but because they lack confidence. Why? Freedom is theirs in thought, in action, and in choice. Again we ask, why? Because they have not tried. Because they feel that a precedent has been established in Literary, Athletic and Social circles of this institution, and cannot therefore be improved on by themselves.

The right to improve on what has already been accomplished is yours—provided you possess the ability—and you possess it. Not only is it your right but it is your duty. Your fathers, many of them earning their livelihood by the sweat of their brow, support this institution. You, therefore, have a double duty to perform—to see that this College is worthy of their support,

and that you yourselves are worthy of the institution.

We, therefore, urge you to place your services at the disposal of the different societies, to find the weak places and strengthen them, to express your reasonable opinions, and to give your time to the application of your ideas, should they be accepted.

Do not leave the work for the other man. It is a kindness for which you will suffer. He will benefit by developing still further his social and literary talents, whilst your abilities, of a similar character, will die a natural death. Men must either develop or degenerate.

Our Short Course Friends.

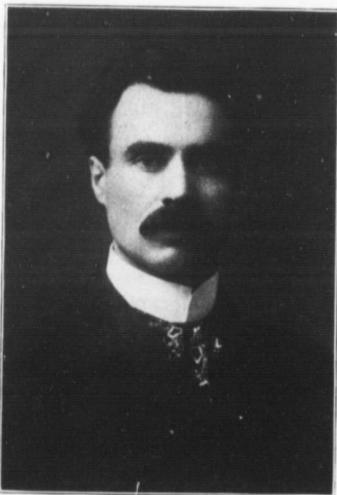
We do not refer to the Normal Students of Ontario as our heading may suggest to you, but to those of the farming community of this Province, who recognize the profit of the short courses in stock, seed, and poultry judging, as prescribed in the College calendar.

In what manner can the dreary winter months be better spent by the progressive farmer? In what other way can he keep himself master of the farming situation as it presents itself to him in this present day. We all know that agriculture is in an evolutionary stage. Scientific farming has come to the fore front, and the enemies of the "moss back agriculturist," such as bad seed, unchecked insect pests, etc., are being conquered, and in many cases, obliterated. The advances made are, however, but as a speck on the horizon of a brighter day. We, therefore, urge greater interest in this very important branch of agricultural education, and look forward to the day which is soon to come, when every farmer in Ontario shall have come into a full recognition of the benefits to be derived from an agricultural education.

Y. M. C. A.

With many regrets we announce the resignation of our Normal Bible Class leader, Professor J. B. Reynolds, who, for the past five years has so acceptably labored in that capacity.

Since coming to this institution sixteen years ago, with the exception of two years, Professor Reynolds has taken an active part in the Y. M. C. A. Previous to 1903, group Bible classes



PROFESSOR REYNOLDS.

were unknown at the O. A. College, there being but one general class, under his leadership. In that year a number of classes were organized in the residence which were conducted wholly by the students. In 1905 the leaders of those classes thought that if they could secure the assistance of a competent Bible student, with ability and experience, who could discuss the lesson with them previous to the class

hour they would be better prepared to make the Bible study hour more interesting and profitable, and a stronger influence in elevating and maintaining the moral tone of the College.

In the interests of these desires, Professor Reynolds was induced to undertake the leadership of a Normal Class and for the past five years has rendered invaluable service in that most difficult capacity.

On behalf of the students and ex-students of the O. A. College, we extend to him our sincere gratitude for his unselfish assistance.

This term we are very fortunate in securing as his successor Mr. J. W. Crow, B.S.A. Though, perhaps, lacking the maturity and experience of his predecessor, yet having been so recently a student at the College, and during that time president of the Association for one year, Mr. Crow is in a position to understand the student situation and will therefore be of inestimable assistance in every branch of our work. We feel confident that he will "make good" and we wish him a very successful term. This he will surely have, if the Bible students of the College will give him their earnest support. We feel that Mr. Crow has a difficult position to fill. The students can do much toward making him feel familiar with his position. Therefore, we urge those whose interests are centered on Bible study to lend Mr. Crow their hearty and unserved support.

Jean Valjean.

Perhaps the most interesting and instructive lecture it has ever been the privilege of our students to listen to was that given by Dr. Cleaver of Toronto, on "The Life of Jean Valjean."

Dr. Cleaver possesses a rare sense of

humor and knows where and how to make use of it. He is a fluent speaker and has a well modulated voice under perfect control. Needless to say the recital of this beautiful story, coupled with the peculiar adaptability of Dr. Cleaver as its interpreter, won the attention of his audience at once and silence reigned supreme throughout.

Most of us know the story of Jean Valjean, but if you were not present at Massey Hall on Wednesday, Jan. 12th, you do not know Jean Valjean himself. If you were so unfortunate as to miss this lecture, you have our sympathy. We trust that you will avail yourself of the opportunity should it occur again.

At this juncture we might urge better attendance at these evening entertainments, so generously provided by President Creelman. They are an education in themselves, and should be given the best attendance possible.

Epidemics.

Owing to the scarlet fever scare now prevalent in the city, we would like to call the students' attention to a few words of caution.

"I treat more people for imagination than for disease." These are the words of a well known London doctor. There are people in this world who believe they have every ailment from toothache to tuberculosis. These are extremists. On the other hand we find men with whom the doctor does not come in contact, until he visits the home to sign a medical certificate relating to the death of the gentleman in question. There are doubtless men of both kinds in this institution. Let the first man die in peace; the world doesn't need him.

For the safety of his classmates, however, we offer a few words of ad

vice to the gentleman who believes himself to be sick-proof. Whether you are aware of the fact or not, you may be a travelling agent for such contagious diseases as scarlet fever, diphtheria, etc. Therefore in the interests of the health of the students at this College, it is your duty to dissolve partnership with any germs of sickness, even if you have to resort to the cyanide bottle.

A healthy person rarely contracts

Poultry.

By Mr. Brown-Cochin.

I always like to visit the Ontario Agricultural College Poultry Department. It affords a great deal of interest to me in my moments of ease. Besides, it costs me nothing per annum. You will, therefore, agree with me when I say that it is an interesting and instructive way to spend a few "hours" when one hasn't the "money" to spend.



"JERRY."

disease. See, then, that your rooms are well ventilated. It is not enough to have your window open by day, but at night also. Do not stay in your room after lectures are over in the afternoon. You have two hours before supper, spend them in recreation. You will be able to study better at night and will also be doing your part to keep the College in a sanitary condition.

I understand nothing of poultry, except that the hens lay the eggs and the he-hens take the credit for the "fowl" deed.

I saw fowls (Cochins and Incheape Rocks, I believe) at the poultry department last month that would, I imagine, terrify any ordinary fox who tried to steal them, and I saw bantams so small that they might have been included in sparrow pie without any

body suspecting it. (At least, that is what Mr. Jerry told me.)

I was taking a considerable amount of interest in a cage full of "Bluff Orpingtons," when a tall, solemn-looking gentleman spilled half a pail of what I took to be Scotch oatmeal on my left pant leg. Naturally I began to remonstrate with him for so doing. I was sorry the next minute, for the poor fellow was almost stone deaf in both ears. Said I, "What on earth did you spill that stuff on my legs for?" He raised one hand to his ear, and in an awestruck voice, exclaimed, "Beg pardon! Beg pardon!" I repeated my words in a louder voice. Judge my surprise when he answered, "What do we fill their legs with stuffing for? Why, to keep them on their feed."

However, I found in this gentleman a very congenial companion, and on his invitation, I went with him to see the rest of the poultry.

"Come along and see the exhibits," he said. "I don't believe you are enjoying yourself a bit. See what wonderful things the breeders are doing; perfecting species until their mothers won't know 'em. What's the good of fowls that only lay eggs, and stuff pillows, and help to fill your aching voids, and so on? See those game cocks, now. We're making boxers of 'em for the heavy-weight class, and we're getting feather-weights out of the game bantam class. That beats cock fighting, don't it?" Suddenly my

very solemn friend exclaimed, "Hello, Maria!" I glared at him; for that was my wife's name. But I perceived that he was addressing a Black Spanish hen who was busy with a powder puff. I had never understood how the beautiful Spanish hens got their lovely complexions when on exhibition. Now that I saw it at last it seemed the most natural thing in the world, and I was not in the least surprised to hear the bird reply, "Oh, don't bother me, it's sickening. Here I am expected to keep a good complexion for four days right off, but I can't make it stop on my nose. A pretty sight I'm beginning to look, Henry!" That Spanish hen looked straight in my face. Now my name is Henry, and I felt so uncomfortable that I began to run and finally found myself among the geese. My friend of the pastoral visage was still with me, and we again entered into conversation. "We're getting on very well with some more Black Spanish which we are working up by successive stages into nigger minstrels for the lake shore resorts. The sands will be so good for them—excellent thing sand for fowls—and we calculate to produce a complete troupe from each setting of eggs, so that with a few good setting hens every popular lake side resort could be supplied in a short time. We are also developing Black Spanish into gentlemen"—but I waited to hear no more and took the next car for the city.





Our Coming Indoor Meet

BY GEO. P. NIXON, PHYSICAL DIRECTOR

THE coming few months will undoubtedly create extraordinary interest among the students in connection with our gymnasium work, as the indoor meet is rapidly drawing near. It should be the aim and ambition of every student to capture the much coveted honor of winning the championship, not only for the glory he may bring upon himself as an athlete, but for the physical benefit he will derive in the building of a strong healthy constitution, and manly physique, which will be the result of his faithful training.

Too much stress cannot be laid upon the necessity of training for this important event, especially when we consider how, in so many ways, the body may be strengthened, the muscles become more supple and the mind quickened.

It is reasonable to believe that the student who does not give a portion of each day to a systematic source of exercise cannot expect to achieve much success in this coming contest, nor

benefit to any great extent along physical lines.

Muscles that are used become strong and healthy, muscles that are not used become weak and flabby, consequently this must have a marked influence upon the condition of the mind.

Throughout the body two important processes, waste and repair, constantly go on. At every breath, at each raising of an arm and at each internal action of the body, heart, lungs, etc., some tissue is destroyed and must be removed and replaced by new tissue.

The majority of ailments are caused by some hindrance or failure of one of these processes.

Activity of every part of the mechanism of our bodies is the keynote of life. Let some stoppage of the construction and rebuilding processes take place, however insignificant, and pain and sickness follow.

Exercise stimulates the circulation of the blood and drives the impurities of the body to the surface of the skin,

where they may be removed by judicious bathing.

As there is yet sufficient time for a large number of students to prepare for the coming indoor meet, it is to be hoped that the interest of all may be aroused and that this year may surpass all athletic expectations.

The events which the committee have in charge will be similar to those given at previous meets, such as rope climb, pole vault, high jump, shot put, potato race, swimming race, etc. All these splendid exercises call into action almost every muscle in the body, and tend to bring about a symmetrical development.

A word may be said regarding the gymnastic team, which will soon be selected to represent the College at our annual athletic concert to be held in March.

In order to make this concert a grand success, we should endeavor, in so far as possible, to develop the team to the highest standard, and this can only be accomplished by the united efforts of the students in working diligently and doing all in their power to further the interests of gymnasium work, and finally viewing with each other for a place on "the gymn team."

Hockey.

At date of writing we are nearing the close of the hockey season. And shall we mourn defeat? Certainly we cannot claim victory so far; but yet those defeats have emphasized most emphatically the need of training men here for this sport instead of depending on the incoming years to produce them. It has been emphasized again and again the great need of a covered rink if we are to make a fair showing in this line of sport. Surely there is some one in the student body who has

this work at heart and who is willing to come forward and give a portion of his time to the working out of a scheme by means of which this ambition may be realized.

Guelph at O. A. C.

The first Intermediate hockey match of the season was played on the Royal City rink with Guelph. Both teams showed a want of practice, but still at times did good work, and gave a fair exhibition of the game. The College had the better of the play from start to finish and would have won but for the heavy penalties handed out by referee Booth to all who did not play hockey.

Both teams were light, but speedy, and should make a good showing in the O. H. A. another year when they have had more experience. The final score was 11-8 in favor of Guelph. The following men represented the College—Goal, Orchard; point, McRae; cover point Milner; right wing, McElroy; left wing, Learmonth; center, MacDonald; rover, French.

O. A. C. at Milton.

The game at Milton was an easy victory for the home team. A small rink, poorly lighted, and a heavy home team were too strong a combination for our line. The score shows fairly well the comparative strength of the two teams on that ice, but on a larger rink the College should be able to make a much better showing. The same team as mentioned above represented the College.

O. A. C. at Preston.

This was perhaps the best exhibition of hockey up to date this season. Both teams played hard, and very few players were penalized. The half time score was 3-2 in favor of the

College, but in the second half the greater weight of the home team began to tell on the College seven with the result that eight goals were notched against us, while we were able to take but two, making a final score of 10-5 in favor of Preston. A large number of enthusiasts accompanied the boys and all report a good time. The same team as mentioned above again represented the College.

Preston at O. A. C.

This game was a decided disappointment to the College. Victory should have been ours, but again hard luck seemed to follow us. With five minutes to play the score stood 9-7 in

favor of the College, but Preston breaking away tallied three more, while the home team were unable to make a count.

As an exhibition of hockey this game was a decided gratification to the supporters, the speed, clean play and good team work at times calling forth bursts of enthusiasm. Every man on the team deserves a great deal of credit for the manner in which he worked for the honor of O. A. C., but especial credit is due to French and MacDonald, who are as strong a combination in their positions as has been seen here this season. The line up was the same as mentioned above except that McElroy was replaced by Maden.



ON THE COLLEGE RINK.

Alumni

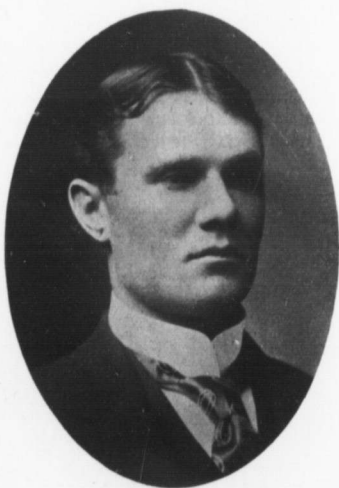
A Failure.

HE was called "Mac" in those days, and though he was an ex student in '86 he kept up his connection with the College for years. A chap with a fund of originality was "Mac," and his death in the early '90's removed one of the best of his time. Original research was his pet diversion and nature's wastes a constant source of worry to him. The laboratory in those days was more of a museum than a scientific institution, but here "Mac" dug diligently into the hidden world of things and evolved smells and queer deductions. By analysis, reading and reasoning, he became convinced that the digestive economy of the animal kingdom was too prodigal; it wasted its substance in riotous living, at least in criminal gluttony. The difference in the composition of foods and fertilizers was very slight; it amounted simply to a rearrangement of elements, the system taking only a small fee for its trouble. After trying in vain for official recognition in the Experimental Department, he decided to test his theory on himself. He figured out carefully just what the system required for its functions, and from the laboratory bottles took the necessary elements of nutrition. A sympathetic baker in the city compounded the mixture into cakes and "Mac" fore swore prunes and dogmeat in the dining-room and asked the world to get ready to applaud.

Science has not been enriched by the details of this experiment, but old

timers smile sadly now at the mention of "Purgative Bill." P. A. T.

Andrew Goodchild took his first year at the O. A. C. in '97 and '98. After missing one year, he returned



ANDREW GOODCHILD.

and completing the course for his Associate Diploma, returned to the farm at Craigeith, Ont. Since that time he has been endeavoring to follow general agriculture along scientific principles. His special lines have been fruit growing and the raising of pure bred Hereford cattle.

H. G. Bell, late of the Department of Agronomy, of the Ames Agricultural College, has received the appointment

as Professor of Agronomy in the State College at Orono, Maine, at the handsome salary of \$2,800 per year.

Geo. E. Saunders visited the College recently. Saunders is Chief Inspector of the Entomological Department of the State of Illinois. Saunders has made good in his work, and has gathered around him as assistant inspectors three of his old class mates, C. B. Twigg, B.S.A., H. S. Hudson, B.S.A. and W. E. Middleton.

Armed with his B. S. A., Adam N.

in a new country. The coal business presenting an excellent opportunity he in 1907 started as a coal merchant. Mr. Davis now has a prosperous business, and is taking an active part in the building up of the newer portions of the Province.

A. Leitch, B.S.A., '05, who for some time has been managing the W. T. McLean farm at Don, Ont., has been appointed Assistant Professor of Animal Husbandry at Ames, Iowa.

W. C. Owen, B.S.A., graduated in '08,



A BUMPER POTATO CROP ON THE CULP FARM, JORDAN HARBOR, ONT.

Davis left the O. A. C. in 1898 to begin his battle in life. The following year he took a position in the Freight Department of the C. P. R. Shortly after this he left the C. P. R. and accepted a similar position with the Canada Atlantic Railway. After spending six years in railroad work he became smitten with the prospecting fever and went to Cobalt in the hope of staking a valuable claim. Cobalt proving a suitable location, he settled there, and in the fall of '05 took a life partner to share the joys and sorrows of living

and returned to the College to take the Dairy Course in the winter of '09. He has lately been appointed Assistant Professor of Dairying at the Manitoba Agricultural College.

After completing the Associate Course in the spring of '08, Wilfrid L. Haight went to the vicinity of London, engaging in the dairy business as a cheese-maker. This profession, however, did not appeal to him as he expected, as the longing for a life among horses and cattle on the farm proved

too strong to allow sufficient interest in dairying, and he decided to leave that and become a practical and scientific farmer. Feeling that he did not have sufficient practical knowledge for the successful carrying on of this project, he returned home in the fall of '08, and engaged with his uncle in Lennox County, where he is still employed. Haight has charge of a stock of some sixty head, and is buttermaker for the farm. We trust that he will gain the necessary experience and that

Treichler to Miss Mary Theresa Gertrude Flack was celebrated at the home of the bride's parents, Sanborn, N. Y., on January 1st, in the presence of about seventy-five relatives and friends. The bride was attended by Miss Dora McKee, while Mr. F. C. Nunnick, of O. A. College, supported the groom. After the wedding the happy couple left for a short wedding tour, visiting Rochester and New York before taking up their residence at Sanborn. The Review extends to Mr.



POULTRY ON THE CULP FARM.

a new home will soon be started, with Wilfrid at its head.

Since leaving the College in '06, after completing his two-years' course, M. W. Treichler, more commonly known as "Treich," has sojourned in a state of bachelorhood on his father's farm, at Sanborn, N. Y. Treichler has made a specialty and a success of fruit and vegetable growing. Not being content, however, with the responsibility connected with the business of fruit farming, he has decided to add another, namely: the responsibility of wedded life.

The marriage of Mr. Mervyn W.

and Mrs. Treichler heartiest good wishes for future prosperity and happiness.

After receiving his Associate diploma in the spring of '09, S. H. Culp decided that farm life had greater attractions for him than continuing his College course. Having made this decision he returned to his father's farm near Jordan Harbor, where in company with his brother, he is managing the homestead. At present Messrs. Culp are engaged in mixed farming paying most attention to the production of butter, bacon hogs and eggs,

but gradually working into small fruits. That they are producing the proper kind of goods is evidenced by the fact that they were successful in winning several prizes at local fairs the past autumn. Sammy has not for gotten how to run and, as he says he is keeping in practice, we may expect to hear something of him as an athlete as well as a farmer.

G. B. Curran, B. S. A., '08, who has since graduating been connected with "Farm Crops," at Winnipeg, has resigned his position and returned east.

After spending four years in the halls of the O. A. College, W. S. Jacobs graduated with the class of '07, and at once went to Arkansas. Here he became connected with the State University as Assistant Agriculturist of the State Experiment Station and Assistant Professor of Agronomy. Jacobs has done excellent work for the State of Arkansas and, as he says, we expect in a few years "to witness this despised state arising from the ashes of oblivion and shining forth in all the glory of her environment." In spite of all predictions to the contrary Jacobs has made and is making a success in his profession, and we hope that long it may continue.

From the Globe of January 4th, 1910, we take the following which refers to one well known in connection with this institution:

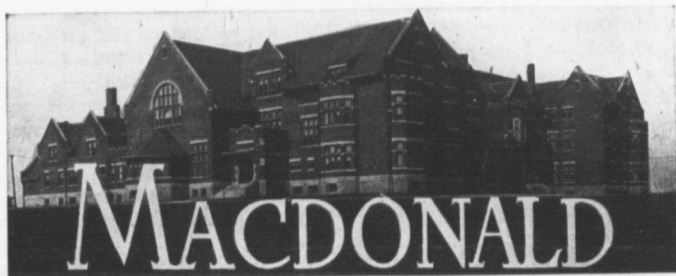
Dr. J. W. Robertson, C. M. G., Principal of Macdonald College, McGill University, has severed his connection with that institution to devote

the greater part of his time to the service of the Commission for the Conservation of Natural Resources, to which he was recently appointed.

Dr. Robertson will leave this week for Switzerland, France, and Denmark, to study at first hand the rural economy of those older countries where not able progress has been made through agricultural education and co-operation.

After visiting Europe he will come back to Canada for a few months in the summer, and after a visit to Newfoundland will go on to Australasia, South Africa, and India. During this itinerary, which will consume about a year, Dr. Robertson will take every opportunity to set forth the advantages of Canada as his long experience as Commissioner of Agriculture for the Dominion has revealed them to him.

Professor W. L. Carlyle, a native of Ontario, a graduate of the Ontario Agricultural College and formerly Professor of Agriculture and Animal Husbandry at the Wisconsin and Colorado Agricultural Colleges, has recently received the appointment of director of the Experimental Station of Moscow, Idaho. Professor Carlyle is widely known as an enthusiast in his profession, and a first-class judge of live stock. He received an emergency call to undertake the superintendence of the live stock department of the Alaska-Yukon-Pacific Exposition last year, and performed the duties of the position to the satisfaction of all concerned. The best wishes of his many friends will follow him in his new position.



China as it was Presented at the Convention

BY SYBILLA HADWEN.

SEVERAL speakers spoke on the subject of the present-day situation in China and of its needs.

All emphasized the fact that China is a nation of students, and is ruled by them because of their numbers and their organizations, and also emphasized the fact that if we get these students of China to Jesus Christ, Jesus Christ will be King of China.

But in order to reach the higher classes we must do this through the Chinese themselves; they will not take it from either Americans or Canadians. What we must therefore endeavor to do is to reach the students and then get these students to work amongst their own people. Many of them are already doing this. In Pekin University there is now a band of 100 volunteers and also many in Shantung University, and in other places, who are now working for Christ as pastors and missionaries. We must not neglect our opportunities, and one which comes to us, but which some have neglected and overlooked, is that which comes with the large and increasing number of students amongst us, who

have come from Oriental and non-Christian lands. These students are to furnish a vastly disproportionate share of the future leaders of their respective nations. They come among us as strangers and are peculiarly susceptible to the offices of friendship. They are at the most plastic period of life; and who can estimate the great good which could be accomplished by our carrying on amongst them a campaign of real friendship, remembering that the highest office of friendship is to help our friends in the deepest things of life. These foreign students are in a position to do more than some missionaries to extend the domain of Christ among their own countrymen. But we must also bear in mind that if we are to improve these opportunities, the type of Christianity in our Colleges must be worth propagation, and we must develop a character of Christlike sympathy and love, so that we may win the hearts of these people by kindness, as well as to persuade their minds by truth. There is some thing strongly inconsistent in studying and planning to make Christ known

and obeyed in distant lands and not to be concerned about extending His sway among those within our walls and among those before our College gates. And we cannot value too highly the influence of a consecrated Christian life; for how can we expect to get others to accept the Living Christ if we have not already done so ourselves, and if we do not illustrate what we believe in our daily life.

One of the best speeches of the convention was given by a Chinaman, which was especially interesting, as it threw light on the attitude of the educated Chinese Christian toward the mission movement.

A fellow worker of Mr. Wong's, a Mr. Rhut, spoke highly of his work in China and his personal character.

The main theme of his address was the importance of the student body in China. He said: "If the West is to be evangelized it must be done by its own people. If we do not help our own people, who will? The student has more influence in China than in any other nation. There he is the backbone, the heart and soul of the country and his rank is also higher. First, it is therefore necessary to evangelize the students and they will be the means of conveying it to the whole nation.

"The students are the hardest to approach on account of their higher education. To reach these we must have strong Christian students and then set the native students to work for their own people."

Emphasis was also laid by several other speakers on the present-day situation of China. That China is open to-day, as it never was before, is the result of the many changes which have been affected in the land by the intro-

duction of western utilities and inventions. This leaves the land open to the traveller by means of the immense systems of railroads, by steamers, launches, etc. Then, too, China itself is eager and ready for education and all through the country there is a thirst for what they call Western learning.

In concluding I would like to say a word about one thing which we all noticed at the convention, in connection with China. It was the number of volunteers who will sail to China in the next twelve months in spite of the fact that so many missionaries and other Christians have given up their lives there for the cause; and in many cases they are going gladly to the worst places, and to fill some of the posts left vacant by the death of the last volunteer. We seemed to hear nothing but "China, China," and when Mr. Mott asked the volunteers to give their reasons for this preference, some answers were, "Because of China's great need"; "because of the urgency of the situation"; "because we feel there are more and larger opportunities there than elsewhere." One was going because he could not stay away and another because he still heard the voices of his Chinese class begging him to return to teach them. The significant fact of this, the last night of the convention, was that immediately following the death roll of those who had given their lives for the cause, read by Mr. Mott, which was heaviest in China, the greater number of volunteers signified their desire to go there and work in the immediate future. We left the convention with the word China ringing in our ears, and, indeed, we seemed to hear it for many days after.

Among Ourselves

The short course in the fall term are certainly to be congratulated on their originality, which never showed to better advantage than in the minstrel show which they presented just before the holidays.

The expectant audience was seated on the floor with the exception of the lucky first arrivals, who were enthroned on chairs. Then behind the scenes strange and melancholy sounds arose, which presently resolved themselves into "Old Black Joe," and the curtain rose (only 10 minutes late), and revealed as black a collection of minstrels as has ever been seen in Canada or the United States, only an occasional white eye lid or ear suggesting a strain of Ayrrian blood.

The interlocutor was a slim, fair patrician looking youth, which made one wonder what reverses in the family fortunes had reduced him to cracking jokes, ancient and modern, with purple coated end men.

Some of the classical songs of the evening were, "Oysters, Clams," "Hear dem Bells," "He goes to Church on Sunday," accompanied by a much applauded and encored clog dance. The comb music would have been very beautiful if it could have been heard—which unfortunately was not, and some unfeeling people remarked, "Twere better thus." In spite of protests on the part of the audience the curtain went down at 9:30 to the appropriate refrain of "I'm Going to Go."

After this a dance followed in which both entertainers and entertained

joined, and when race distinction seemed to be forgotten. After several false alarms two flash lights were taken of the minstrels.

Soon after this the curtain across the alcove was pulled aside, disclosing a refreshment table which would have done credit to the Kandy Kitchen caterer, but which was also the result of home talent. Then there followed a display of what the negro waiter really should be as the members of the dusky race flew around, laden with sandwiches and coffee.

After this dancing was resumed till the inconsiderate electrician put the lights out at 10:30.

The beginning of this New Year of 1910 has seen several decided changes in the staff of Macdonald Institute.

We were all sorry when a few weeks before Christmas we heard that Miss Ferguson, one of our Domestic Science teachers, had resigned her position in Macdonald Institute for a like position in Berlin. Miss Ferguson will be missed by all very much, not only because she was such an excellent teacher but because of her kindness and sympathy to all the members of her classes. Her thoughtfulness and help to those in difficulty will not soon be forgotten and her patience in class and out of class is one of her strong characteristics. Although Miss Ferguson has left us she has taken a position which will be, perhaps, better for herself, and it is the wish of all her Macdonald girls that in her new sphere of work she

may be ever prosperous and successful.

Beside the leaving of Miss Ferguson we have another loss to our faculty by the resignation of Miss Macmillan from the head of the house practice department. Miss Macmillan, who has been on the staff of Macdonald Institute for a year, has throughout her year been a very conscientious and successful teacher. Her zeal in her work and her desire to arouse the interest of the girls in their work was not in vain, and her resigning of that position has been keenly regretted. Miss Macmillan has, however, gone to Macdonald Institute at St. Anne's. Although her work there will be quite different from what it was here we all hope that she will be very successful in all she undertakes.

To fill the two vacancies left by Miss Ferguson and Miss Macmillan we have two new teachers, Miss MacLennan, who is a graduate of Macdonald Institute of 1907, has succeeded Miss Ferguson, and Miss Maddock, a graduate of the Housekeepers' of 1909, has taken the position vacated by Miss Macmillan. These two new members of the staff we wish to cordially welcome to Macdonald Institute, and we hope that each will find her work here a pleasure as well as a duty and responsibility.

On account of the increasing number of cases of scarlet fever in town the "At Home," which was to have been given Friday evening, January 14th, was cancelled. The disappointment was very keen, especially that of the new girls who had looked forward to their first "prom" for many days. In order to cheer them up a baby party was held that evening and as soon as the announcement was made the girls entered heartily into the scheme and all were soon busy at costumes. At

6:15 the party gathered in the dining room and some of the sweetest little tots imaginable (all Mac girls), with their dainty maids, appeared for supper. The dining room was anything but quiet and orderly. After supper the evening was spent in dancing, games or anything to amuse the children. The wee tots retired, not at a very early hour, tired but happy, and after all we think that their first prom was quite a success.

Y. W. C. A.

Dr. Ross, our faculty delegate to the Rochester convention, addressed the first meeting of the year of the Y. W. C. A. She chose as her topic, "General Impressions of the Convention." She spoke of the first meeting which was one of self-examination, and one never to be forgotten. She dwelt upon the moral elevation of the convention which broadened the outlook and left a lasting impression on those present at the meetings.

The following Sunday evening the meeting was addressed by our other two delegates, and also by two of the O. A. College delegates. Dr. Ross presided at the meeting, and after a few introductory remarks, called upon Mr. Dawson. Mr. Dawson's subject was, "The Aim of the Student Volunteer Movement." If any had been in doubt before as to what the aim of the movement is they had it well set forth by Mr. Dawson. Miss Smellie spoke on the watchword of the convention—"The World for Christ, and in this Generation." A generation is forty years. It is a great undertaking, but one that is worth while. The beautiful hymn,

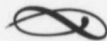
"Jesus calls us o'er the tumult
Of our life's wild, restless sea."

Was sweetly sung by Miss Freeland, accompanied on the piano by Mrs. Fuller, and on the violin by Miss Ross and Miss Flavelle. Miss Hadwen spoke of the great need for volunteers to go to China. Although there have been more deaths in missionary circles in China than in any other foreign land the response to the call has not been lessened at all. Mr. Austin urged everyone to attend the mission study and Bible study classes to be held in our own College.

Most of us know very little about either subject, and as we have most competent leaders in both departments it is the earnest wish of the Y. W. C. A. that every girl may take advantage of the opportunity offered her. The Y. W. C. A. is the only religious organization at Macdonald and there is no reason why every girl should not devote a little of her time at least, to this work. Perhaps everyone cannot speak or sing or play at the meetings, but everyone can come to the meetings and try to help in some way to keep up the interest. The interest should be first in the cause itself and secondly in the Y. W. C. A. as a College organization. Everyone should come to College with the intention of being an all-round student. Dr. Ross is taking up the study of missions on Sunday mornings in her sitting room, from 9 to 10 o'clock. The Bible study class will be conducted by

Miss Tennant on Thursday evenings at 7 o'clock.

A social event which always attracts a large crowd is the indoor base ball game in the gymnasium, and the gathering on January 17th was no exception to the rule. The cream of society from Macdonald Hall added much to the splendor of the occasion as mural decorations—that means wall flowers. The company was divided into two opposing factions and the excitement at times was intense, abetted as it was by the rivalry of the captains, Pickles Edwards, and Dutch Smyth. The game was at all times hotly contested, the final score being only 32-1, the score being in favor of the side having the greatest number of runs. Pickles made a hit in the pitcher's box, but it was only the first rafter. Young Belton was catcher and managed to catch at least two of the balls thrown, amid great applause from the rooters. Shorty Kendall, Dimp Marsales and Slim Pringle caused a sensation by all appearing on 3rd base at once, shaking hands with great gusto, being much surprised to find each other at the bargain sale—the sale of a base. About the middle of the game Tommy Hadwen got four balls and was given a walk. Prixie Smellie was removed from the game for using back chat to the umpire. Annie Ross, M.D., officiated as umpire, her decisions being in partial.



Much Ado About Nothing

All that is necessary for the enjoyment of sausages at breakfast is confidence.

Callor to landlady of student's board ing house—How many steady boarders have you?

Landlady—Well, really, I couldn't say just how many are steady.

Senior—I bet you can't guess how I saw a short course girl spell "water."

Junior—W-a-t-t-e-r.

Sr.—No.

Jr.—W-u-t-e-r.

Sr.—No.

Jr.—W-a-t-a-r.

Sr.—No.

Jr.—I give up. How did she?

Sr.—W-a-t-e-r.

This is another illustration of the natural shrewdness of the Senior.

New girl (after dropping her key at the dinner table)—Oh where has my young key gone.

Old girl (excitedly)—Did you say Keegan?

Miss W. (inquiring as to waitress' duties)—Do you put the bread on the table for breakfast the night before?

Miss H.—Why, no, of course not.

Miss W.—I always thought they did.

New girl (to Dr. Ross and Miss Allan)—They say that the teachers are all awfully strict here.

Do some of the men part their hair in the middle so as to be well balanced?

Heard on Opening Day.

Have you been over to see the bureau, yet?

Miss H. (after the rink)—I'm awfully sorry I didn't have a skate with you, but you know just as soon as I'd come in some boy would ask me and I had every skate taken.

Miss M.—Will the band please play "Popularity"! !

Ideals After.

A girl's ideal at seventeen

Must have fine eyes;

Likewise a bold and striking mien,

And faultless ties.

But later on her fancies roam

To one who'll bring his wages home.

A man's ideal at seventeen

Must be a sprite;

A dainty, fluffy, elfin queen

Of sheer delight.

But later on he sort of feels

He wants a girl who can cook meals.

Shortly after a case of fever had been reported at the College, a committee of seven men appeared at the Hall for a meeting. The Hall door was opened half an inch, a note thrust quickly out and the men retraced their steps to the College. The Mac. girls are being well protected (?)

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.



RICHWOOD SCHOOL, OXFORD CO.—THIS SCHOOL HAD FORTY PUPILS TAKING UP THE UNION GARDEN WORK IN 1909.

The Schools' Division of the Ontario Agricultural and Experimental Union.—The first annual report of the Schools' Division shows some interesting facts regarding this branch of what might be called College Extension Work in the Schools of the Province. Over 6,000 children in 117 schools were supplied with seeds at one cent a package; 22 schools were supplied with material free for carrying out simple experiments in Agriculture and Horticulture in the school grounds or adjoining fields. Nearly 200 teachers had pupils in their classes who were, as it were, junior members of the Experimental Union; 57 schools have reported on the work. In nearly every case the work has commended itself to the teachers, and will be continued during 1910. Teachers who may be interested in the work and planning to take it up with their pupils should apply to Mr. S. B. McCreedy, O. A. C., Guelph, for particulars.

The following report will be found interesting and suggestive. Miss McArthur estimates that thirty out of the forty children undertaking the work made a success of it.

"Last Friday we held a 'School Fair,' the first one ever held in Richwood. The children made tickets and sold them at 5 cents each, and realized \$4.70 from the sale of them. They made prize cards, and I asked different people in the section to be judges of the flowers and vegetables which the children had raised. There were no prizes given, but I promised every child who made an entry a bulb to raise for winter flowering. All those who had anything to show from their gardens brought what they had, and those who had nothing seemed quite disappointed. The children all entered into it very enthusiastically, and also seemed to enthuse their parents, for there were only a few

families where the mother, at least, did not come. Two of the trustees came and a few other men, not to mention all the older boys of the neighborhood. The teacher of the next section had a half-holiday, and she came and brought nearly all her pupils.

In addition to the flowers and vegetables, we had exhibits of writing, map-drawing, pencil drawing and water-color work, and had them judged.

In the front entry we had a Nature Study Exhibit, which consisted of our collections of Insects, Caterpillars, Cocoons, Forest Fruits, Grasses, Grains, Leaves, and Flowers pressed and mounted by the Fifth Class boys.

After the judging was over the children ran races, and we finished up by having lunch in picnic style on the grass under the trees.

The visitors expressed themselves as being well-pleased with the afternoon's enjoyment.

I know it was a help in our school work. It kept the children interested all the time they were getting it up, and now, that it is over, they have all gone back to work with a will. We never have any trouble over discipline for there seems to be a good spirit among the children.

We still have our window-plants, some of them being the slips I got at Guelph last summer. We have been feeding them on Nitrate of Soda lately.

I would like to have a school garden but do not see my way clear yet. One of the trustees is quite interested in it. . . ."—J. E. McArthur.

A Bird Census in Grey County.—The following notes taken from an article in the October number of the *Ottawa Naturalist* may be of interest to teachers in Grey and adjoining counties. They are based on observation made by Mr. W. E. Saunders, of London, Ont., at Durham, on June 20th, 21st, and 22nd, 1909.

"The total number of the various sparrows observed is as follows, arranged in order of abundance:—

Vesper	130	Indigo	38	Junco	18
Chipping	80	White Throated ...	36	Chewink	12
Song	75	Savannah	21	Purple Finch	8
Goldfinch	38	Swamp	18	Rose-breasted Gros- beak	4

The following warblers were noted in the numbers given, the order being that of abundance as before:—

Black Throated Green.....	25	Chestnut Sided.....	7
Black and White.....	18	Ovenbird	7
Yellow	14	Redstart	7
Canada	13	Blackburnian	5
Water Thrush	11	Mourning.....	5
Black Throated Blue.....	10	Nashville	5
Maryland Yellow Throat.....	7		

Distribution of Nature Study Articles from the *Ottawa Naturalist*.—The Nature Study Department of the Macdonald Institute has a number of sets of reprints of nature study articles issued a few years ago in the *Ottawa Naturalist*, which will be sent to teachers free on application. They comprise articles on Birds, Insects, Trees, School Gardens, etc.

News Items.—There comes from Mr. G. J. McCormac, Inspector of Schools for the eastern part of Prince Edward Island, word of the changes that time has brought to the personnel of the P. E. I. section of the spring class of '06. Miss Dorsey is teaching in the Normal School connected with Prince of Wales College, Charlottetown. Miss Lockhart is married to Mr. Bennet,

Vice-Principal of West Kent St. School, Charlottetown. Miss Byrne is in a convent in Montreal. Miss James is married to Mr. Miller, Presbyterian minister at Alberton. Mr. McCormac is in his twelfth year of inspectoral work.

II.—HOME ECONOMICS.

In the January number the **Macdonald Institute House Practice Card, No. 31**, was printed, showing the method of conducting the work in House Practice here, as well as suggesting to teachers a school lesson that might be taken up with their pupils in the matter of home laundry work.

Below is printed Card No. 11, outlining the method of cleaning a sink trap. It is hoped that this also may be found suggestive for a Friday after noon's lesson on Sanitation or Good Housekeeping. With a practical knowledge of such matters our coming housekeepers would be the better equipped for not only saving plumbers' bills, but saving her household's health as well:

No. 11.

MACDONALD INSTITUTE, O. A. C.

House-Practice Card.

CLEANING OUT A SINK.

APPARATUS

An empty garbage pail, an old small sieve, the trap-brush, and a monkey-wrench; an old pot and quarter cup of washing soda.

PROCEDURE

- 1.—Put the soda into the pot, add two quarts of water, and boil.
- 2.—Set the pail under the trap, and unscrew the cap at the bottom of the S-trap.
- 3.—Remove any obstruction which may be there, and brush out both sides of the trap pipe with trap brush.
- 4.—Pour the soda solution down the sink, then put on the screw-cap.
- 5.—Put the sieve in the sink, empty the contents of the pail through it, then empty the contents of the sieve into the stove.
- 6.—Plug the sink, fill it with water, and wash the sieve, garbage-pail and trap-brush. Then let the water away to flush the trap. While it is running away examine the trap to make sure it is not leaking at the screw.
- 7.—See that the sink is left clean, and put everything away.

Student..... Date.....

Get Apparatus in Room.....

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

Hang Wet Cloths in.....

Actual Time Occupied in the Work.....

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

III.—INDUSTRIAL ARTS.

Industrial Training in the Public Schools.—The efforts of the Department of Education of Ontario to provide special teachers for the introduction of Elementary Industrial Arts into the public schools of our towns and cities find a well-stated justification in the following statement of Ex-President Roosevelt. It was addressed to the President of the National (United States) Society for the Promotion of Industrial Education.

“For at least a generation we have been waking to the knowledge that there must be additional education beyond that provided in the public school as it is managed today. Our school system has hitherto been well nigh wholly lacking on the side of industrial training, of the training which fits a man for the shop and the farm. This is a most serious lack, for no one can look at the peoples of mankind as they stand at present without realizing that industrial training is one of the most potent factors in national development. We of the United States must develop a system under which each individual citizen shall be trained so as to be effective individually as an economic unit, and fit to be organized with his fellows, so that he and they can work in efficient fashion together. This question is vital to our future progress, and public attention should be focussed upon it. Surely it is eminently in accord with the principles of our democratic life that we should furnish the highest average in industrial training for the ordinary skilled workman. But it is a curious thing that in industrial training we have tended to devote our energies to producing high grade men at the top rather than in the ranks. Our engineering schools, for instance, compare favorably with the best in Europe, whereas we have done almost nothing to equip the private soldiers of the industrial army—mechanic, the metalworker, the carpenter. Indeed, too often our schools train away from the shop and the forge; and this fact, together with the abandonment of the old apprentice system, has resulted in such an absence of facilities for providing trained journeymen that in many of our trades most of the recruits among the workmen are foreigners. Surely this means that there must be some systematic method provided for training young men in the trades, and that this must be co-ordinated with the public school system. No industrial school can turn out a finished journeyman; but it can furnish the material out of which a finished journeyman can be made, just as an engineering school furnishes the training which enables its graduates speedily to be come engineers.”

News Items.—Mr. F. H. Hoffman, Spring Course, '09, is Principal of the School at Yarker, and has added Brush Drawing to the curriculum and con templates in the near future the introduction of colour work.

Miss Juanita Thomson, of the same class, has accepted a position on the staff of the Board of Education, Toronto. Miss Thomson indulges in Art Metal Work as recreation.



A Sad Downfall.

Our count, he wore his breeches tight;
 Of that he didn't think
 When he put on his new spring skates
 To circle round the rink,
 His first adventure—'twill be his last;
 He'll put on skates no more;
 He tried to kick the roof all in,
 And sat down on the—ice—!

When Germany dropped, the girls all
 laughed,

It was an awful fall—
 And when they had their backs all
 turned

He backed up 'gainst the wall;
 He called his chum, took off his skates,
 And giving him the wink,
 Said: Jim, lend me that long-tailed
 coat;

I've got to leave this rink.

Mr. Le Drew (in Economics)—
 How much wheat can a man carry on
 his back?

C. Rogers—Depends whether he is
 boarding in or out.

Sentimental.

The rose that blushes like the morn
 Bedecks the valleys low;
 And so dost thou, sweet infant corn,
 On McIlquham's big toe.

But on the rose there grows a thorn
 That breeds disastrous woe;
 And so dost thou, fast growing corn,
 On McIlquham's big toe.—J. J.



Extracts from a Freshman's Note Book

My reasons for insecck study is be
 cause I find in them a sorce of color
 pleasure.

Moist weather forms dezeases of in
 secs.

The pacific gravity of solids that sink
 weigh, sink and find out how much
 water it explaced.



Customs Officer (on train)—Open
 that valise, please!

Vansickle—I don't like to, it isn't
 mine.



**No Building
Material Like
This--
"METALLIC"**



"Many a dollar is lost by putting off until tomorrow. Send for catalog to-day."

The Philosopher of Metal Town.

is easy and quick to lay or erect, saving expensive labor, and lasts a lifetime without continual repairs. Lightning, rain, wind or snow has no effect on "Metallic"—it is WEATHER, FIRE AND RUSTPROOF, the best material for all buildings.

Look over this list— all made from the finest quality sheet steel.

"Eastlake" Metallic Shingles

On buildings for 25 years, and still in perfect condition.

"Metallic" Ceilings and Walls

A handsome, sanitary decoration—lasts a life time.

"Metallic" Rock Faced Siding

In brick or stone design for houses.

"Manitoba" Steel Siding

The best for large buildings, elevators, mills, storehouses, etc.

Corrugated Iron—Galvanized or Painted

For implement sheds or barns, fireproof and durable.

Our Granary Linings

will prevent loss of grain by rats and mice. Write for information.

You should read our interesting free booklet "EASTLAKE METALLIC SHINGLES," and our new catalogue No. 70. Send for them to-day. Just put your name and address on a post card and mail to us.

N. B.—The farm buildings at the Ontario Agricultural College are roofed with "EASTLAKE" Steel Shingles—some laid 18 years ago. When visiting the College, note their excellent condition—absolutely weathertight, a proof of their durability.

Agents wanted in some sections. Write for particulars.

MANUFACTURERS



2023

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

A Freshman's Essay on Clothes.

Clothing is an article which every body should ware. The least of this is worn by savages or natives, which is a piece of cloth or a few leaves or feathers around the waist. In cold countries same as Eskimos, the people ware more clothes than we do, count of the icy cold out there. They can skate all the year round, 'cept bout one thaw there is in summer. If they walked about like natives they would catch cold directly and die of bronchitis. We put clothes on which are nearly like our bodies, some have caps and coats, but women and girls ware hats and frocks to tell who they are.

Baldwin—Got a wireless to-day.

Toole—That so? What was it?

Baldwin—Oh! Just a postal card.

Sunny Jim (suffering from sore throat)—Say doctor, have you discovered what's the matter with me?

Doctor—Oh, yes! Yours is a case of aggravated pericapillar oethinal-toemia.

Sunny—Indeed! That's just what it feels like.

Extracts from Xmas Examination Papers.

One of most reliable tests for water is hydrochloric acid. Add a little Hcl to water to be tested, and if it gives a blue discoloration, water is pure.

A carbohydrate is hydrogen and oxygen mixed in proportions to form water.

Carbohydrates are classified as oxygen, hydrogen, halogen and sulphides.

Tuberculosis in cattle is the most popular disease in Ontario.

An ideal farmer is one who comes to college, learns the art of bluffing, tells lies and takes his B. S. A. degree.

Slater's Attempt to Give O. A. C. Yell at Rochester.

Boyle's law and Charles'
Are fundamental both
Mendeleeff; what's the diff
You find it all in Newth.
A-rippity, a-rappaty,
A-rippity, rappaty re
We're out of shop,
Was ere such luck,
Toronto—'Varsity.—(J. A.)

Spencer (meeting Professor Edwards in hall)—Are those micrococci in that basket?

Professor—No.

Spicogellimi?

No.

Saceromisae cervisae?.

No.

Generatorsphorgelirimillinollinieccian organisms?

No.

Then, what are they please?

Oh! just grapes.

Who is the man that sits and drinks
Hot gravy by the quart,
Whilst at his left a sallow youth
Chews hot potatoes, till in truth
His face is like a wart?

Don't ask me who that fat man is,
To tell his name is not my biz.
But he is Bill. He is, he is,
As sure as I am "sallow phiz."

I do hate to be personal, but, if the student who sat in the chair in the Kandy Kitchen, where a young lady had left a dish of sugar candy to cool, will return the saucer, he will save himself further trouble.

Hefler—Professor Graham, what is the difference between a poultry and a bird?

FURS

Do you trap or buy Furs? I am Canada's largest dealer, I pay highest prices. Your shipmen's solicited. I pay mail and express charges; remit Sheepskins, etc. Quotations and shipping tags sent free.

JOHN HALLAM, TORONTO

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,
Breslau, Ont.

SUEY WAH,

LAUNDRY

Best work for College Boys. Call at rooms, Monday and Wednesday.

16 Wilson St., Guelph, Ont.

PHOTOGRAPHS

at special rates to students.

W. J. WINTER, Upper Wyndham.

HACKNEY'S

The Old Tobacco and Pipe Shop.

Established 1884.

Next door to Royal Bank.

"Eclipsed by None."

WALKER'S ELECTRIC BOILER COMPOUND

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

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

The Electric Boiler Compound Co. Ltd.

Guelph, Ontario.

Galt Shingles

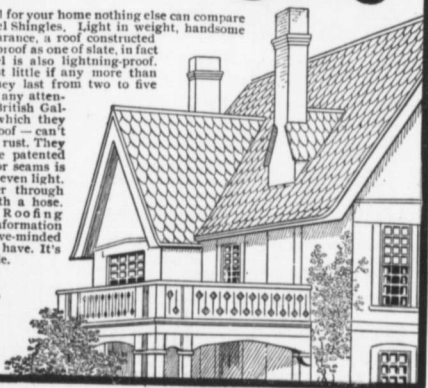
As a roofing material for your home nothing else can compare with "GALT" Steel Shingles. Light in weight, handsome and dignified in appearance, a roof constructed of them is just as fire-proof as one of slate, in fact more so because steel is also lightning-proof. "GALT" Shingles cost little if any more than wood shingles and they last from two to five times as long without any attention whatever. The British Galvanized Steel from which they are made is wear-proof - can't burn, crack, curl up or rust. They last indefinitely. The patented construction of locks or seams is so tight as to exclude even light. You can't force water through "GALT" Shingles with a hose. Our new booklet "Roofing Economy" contains information that every progressive-minded property owner should have. It's free to interested people.

THE GALT ART METAL CO.,
Limited

GALT, ONTARIO.

Winnipeg, Dunn Bros.

16



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

FOURTH YEAR MAN NOTICE!

You don't need to chase all over town begging other people's stenographers to typewrite your thesis.

BRING it to us and get five of your colleagues to do the same with theirs, so that you can take advantage of our exceptionally low club rate on groups of five or more orders.

WE make a business of typewriting and have the facilities to do the best work neatly and promptly.

PUBLIC STENOGRAPHERS

Jos. Curzon, Manager. Phone 654

108 WYNDHAM ST., across from Nelles' Book Store

RENNIE'S SEEDS

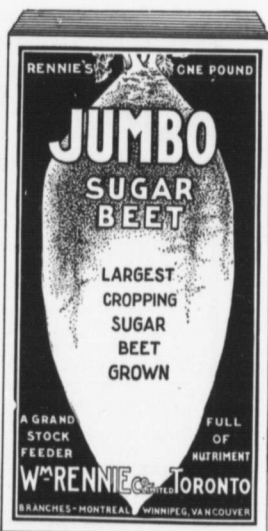
THE FINEST IN THE LAND

Flower Seeds	Spring Bulbs
Vegetable Seeds	Plants
Seed Grain	Shrubs
Field Root Seeds	Fruits
Clover Seeds	Garden Tools
Grass Seeds	Garden Implements
Tree Seeds	Garden Requisites
Bird Seeds	Poultry Supplies
Feeding Stuffs	Incubators
Agricultural Books	Grinding Mills
Fertilizers	Insecticides
Bibby's Cream Equivalent	

CATALOGUES FREE

WM. RENNIE CO. LIMITED Toronto

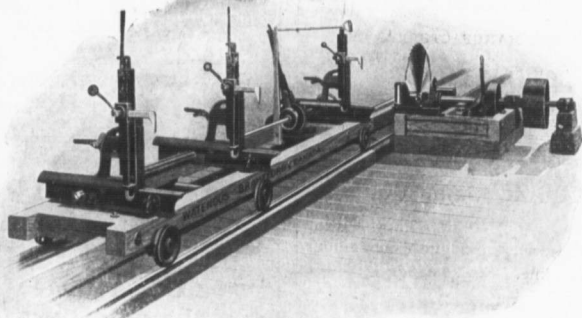
ALSO MONTREAL, WINNIPEG, VANCOUVER.



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WATEROUS PORTABLE SAWMILLS

LIGHT, COMPACT, DURABLE.



IN SIZES TO CUT 2,000 TO 8,000 FEET PER DAY.

Our Portable Saw Mill Catalogue, No. 100, fully illustrating and describing these mills sent on request. Write for it.

Waterous Engine Works Co., Ltd., Brantford, Ont.



BOOKS



.. Are Essential for Progress ..

Reading of the right books makes success more possible
The man who knows is the man who goes to the top

WE HAVE A LARGE AND VARIED STOCK OF BOOKS
— AND CAN MEET YOUR REQUIREMENTS —

We have special facilities for procuring books not in stock
promptly and at prices which will always give satisfaction

Books for the library a specialty Write us for lists of books
— issued on the subjects in which you are interested —

WILLIAM BRIGGS, Publisher and 29-37 Richmond St. West,
—Bookseller— TORONTO, ONTARIO

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

City Dairy Requirements

WE ARE MANUFACTURERS OF

MILK BOTTLE FILLERS
MILK BOTTLE WASHERS
MILK BOTTLE CRATES
PASTEURIZERS and COOLERS

Our Illustrated Catalogue explains our
 full line. Sent on request.

W. A. DRUMMOND & CO.

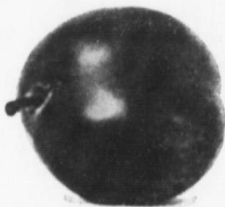
173 King Street East,

TORONTO, - - ONT.

The Fonthill Nurseries

Established 1837.

Over 850 acres.



O. A. C. STUDENTS and GRADUATES
 make good salesmen for High-Class Nursery
 Stock.

Send for our proposition. It will interest
 you.

Our lines are complete and include a large
 list of **NEW SPECIALTIES** for **SEASON**
1910.

Send for catalogue.

STONE & WELLINGTON
 TORONTO.

Binder Twine

CO - OPERATION

**8,000 Farmer
 Shareholders**

If Stars and Stripes outrun this farmer's
 binder twine co-operative bicycle, or corral us
 as they have everything in sight in the
 United States, the game's up. We are the
 last that's left of all the family. Uncle Sam
 would then control the binder twine market
 of this continent. He is a good citizen when
 he comes as a settler into our Northwest,
 not, however, as a co-operative smasher.
 The Canadian farmers will do well to ob-
 serve the motto, "what we have we'll hold,"
 in the interests of our homes and children,
 while in this great Dominion we have one
 of the grandest countries God ever gave to
 any people. Surely it's worth taking care
 of. The man that fights well for his own,
 if occasion requires, can stand safely with
 the enemy in the gate. It will pay you to be
 everlastingly loyal to the Grain Growers'
 Associations, the Dominion Grange and this
 Farmers' Binder Twine Company.



Farmers'
Binder Twine Co.,
Limited

BRANTFORD - CANADA
Joseph Stratford, General Man.

We want farmer agents in every locality

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

John de Roo (sadly)—I'll work no more at the O. A. C.

Harvey—Why! On account of something the President said to you?

John—No! No! I'm discharged.



Peart (trembling)—Say doctor, am I sick?



Vansickle (in restaurant at Roches-
ter)—Three oyster cocktails,—three
coffees,—two cocoas,—and one dozen
rockaways,—please.

Waitress (astounded)—For you?

Cooper (reading in class)—When I had formed this determination, I found myself near the door of my Uncle's house, and I at once resolved to lose no time in making myself acquainted with it.



Clark recently sent two dollars in answer to an advertisement of a sure method of getting rid of superfluous fat. And did he get the information he wanted? Sure; he got a reply by return mail, telling him to sell it to the chemical department.



NOTICE THE TEETH

In considering the purchase of a Spring-Tooth Cultivator notice the Teeth very carefully. They are one of the most important parts of this kind of an implement. It depends upon the Teeth as to how well it does its work. See that they are of proper length, proper shape and temper; that the points are reversible, for that means double value to you. Next see that the Frame is simple and strongly built of steel and malleable iron so that it will stand the strain and wear well. Ask our agent about a

FROST & WOOD "CHAMPION" SPRING TOOTH CULTIVATOR

and you will see a machine that embodies all these good points. He will tell you that the Teeth are tempered in oil and tested; that they are made of Crucible Spring Steel, and the reversible points are an especial advantage as when one becomes worn by hard, stony ground it can instantly be reversed, and you have a new sharp point. Teeth can be spread or taken off, when used for corn or root crop cultivation. It is an implement that gives perfect satisfaction, because it does perfect work and stands rough wear. Our Free Catalog gives more good points. Write for it, or get it from our nearest agent.

The FROST & WOOD CO., (Ltd.), Smith's Falls, Can.

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

Gems from Baldwin's Speech.

As a boy, teach him to observe the habits of animals, plants and girls.

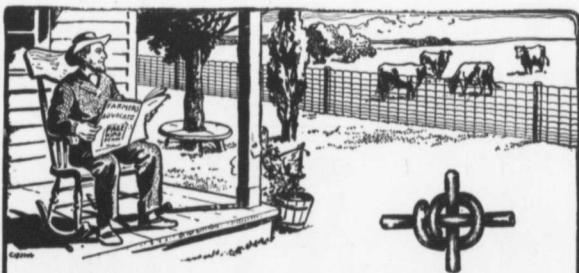
Encourage him to bring a playmate to his home and keep his eye open for a wife.

Let the boy get married and give him a horse and rig.

O. C. White has proven conclusively that underdrainage is of exceptional value to "peanuts."

J. R. Dent—Rusty, you're a man of sin.

Rusty—Is that so? Let's slide home, it's all down hill.



14,000 MILES of Page Fence in Canada—and every rod a satisfaction and a money-saver to the owner, and good for years.
73,000 Page Gates in Canada—double-braced truss frames, that cannot sag; galvanized so rust can't touch them; need no repairs; good for a life-time.

1910 Fence Better than Ever

You can get more for your money than you ever could in buying fence for any purpose—lawn or farm. Our free Booklet shows you how and why. Just ask our nearest place for your copy.

501 **THE PAGE WIRE FENCE CO., LIMITED**
 WALKERVILLE TORONTO MONTREAL ST. JOHN WINNIPEG VICTORIA

"PAGE FENCES WEAR BEST"

Here we are again

Ready for season '09 and '10, with a full range of the best lines of Footwear. We have the Heavy Tan Shoes that are so popular with the College Boys. Try us, The New Shoe Man.

J. D. McARTHUR

The Store around the corner, Market Square.

Springhill Ayrshires

Are strengthened annually by importations direct from Scotland of the very best milking strains. Calves and animals, all ages, and both sexes always for sale.

ROBT. HUNTER & SONS

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

Make the Hens Scratch For It

PURINA SCRATCH FEED keeps the hens laying all winter, because they have to scratch for it.

It gives them exercise, which brings good circulation.

It gives them a nourishing food—composed of twelve different kinds of grains and seeds, con-

taining eleven per cent. of protein and three per cent. of fat.

PURINA SCRATCH FEED is the standard every-day grain ration and litter feed used by hundreds of poultry fanciers and farmers.

Make your hens show a profit this winter. Make them scratch for

PURINA SCRATCH FEED

PRICES AND FREE SAMPLE ON REQUEST.

The Tillson Company, Limited, Tillsonburg, Ont.



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.

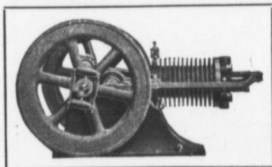
The total cost of the course, including board, uniform, instructional material, and all extras, is about \$800.

The annual competitive examinations for admission to the College, takes place 1/2 May of each year, at the headquarters of the several military districts.

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

H.Q. 94—5 9—09.

Make Up Your Mind Now



THAT YOU ARE GOING TO BUY A

Gilson "Goes-like-sixty" Engine

For the certainty of having a correct engine; for the assurance of quality, when cheap engines are the rule; for serviceability, convenience; FOR REAL ECONOMY.

If your dealer offers you something else, there's probably more in it for him than for you. No one will offer you a better engine than ours. The Gilson Engine is worth every dollar we ask—and more. That is the reason the Gilson Engine is better value than any other. You will find cheaper engines and dearer engines but none really equal in value.

Send for Catalogue showing all styles and sizes and valuable pamphlet by Prof. Ocock, University of Wisconsin, "How to choose a Gas Engine."

GILSON MFG. CO., Limited, 120 York St., Guelph, Can.



College Students

Will find this to be Guelph's Most Convenient Store

It's a mighty handy store to reach. Just jump on a car at the College, and you will be taken right to our very door, and when once you're here, you'll agree with us when we say, "This is Guelph's Best Store."

That isn't merely false pride or bombast. It's the reputation we've earned by years of "fair and square" methods. You'll find our stocks to be surprisingly complete, delightfully attractive, undeniably low in price; we're ready to supply your every need in a manner that will be thoroughly to your satisfaction.

The Fair Macdonald Girl as well as her Brother Student will find this The Store of Certain Satisfaction.

D. E. Macdonald & Bros

FINE TAILORING **O. A. C.** **FINE FURS** 

We would like the boys to visit our store—UPPER WYNDHAM STREET. Civility being part of our business, and business to us is a pleasure, you are not called on to buy, but should you require anything in our line you will surely get value at THE GOLDEN FLEECE. Style and endurance is what we aim at in Fine Tailoring, and we rarely miss the mark.



KELEHER & HENDLEY

MODEL MERCHANT TAILORS

Fine Furs.

Fur-lined Coats a Specialty.

The Guelph Mercury

As an Advertising Medium has few equals. It thoroughly covers its own district—one of the best agricultural and stock sections in the Province of Ontario. It has a weekly circulation equal to all other weekly papers in the County of Wellington.

∴ THE JOB DEPARTMENT ∴

Is up-to-date and can turn out the best work on the shortest notice.

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



**This Is
The Salt**

That Helps Me To Make Prize Butter

And I can tell you, Salt plays a very important part in butter making.

Give me good cows and Windsor Butter Salt, and I will win the prize every time.

At the big fairs for years, practically all of the prize winning butter makers have used it.

Royal City Mineral Water Works

Manufacturer of

HIGH-CLASS CARBONATED BEVERAGES

247 BROCK ROAD.

Phones—Works 582A
Residence 582B

A. REINHART
Proprietor.

FREDERICK SMITH,

**PLUMBER, STEAM
AND GAS FITTER,**

Sanitary Appliances. Estimates Furnished.

GUELPH.

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 ONE CENT**

INTERNATIONAL STOCK FOOD, THREE 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 ONE 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**The Manufacturers Life**

has some extremely advantageous plans of insurance to offer young men—plans which, by the way, are not offered by any other Company in Canada. They are worth looking into.

Apply to W. E. BROLEY, Elora**HEAD OFFICE: TORONTO, CANADA**

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

Rusty (reading in class)—You can't touch Petch and hope to remain unde filed.



Sorley (in Botony)—Mr. Howitt, is the biggest end of these seeds the largest?



Ryrie (in Botony)—Mr. Howitt, that chart is too small to make drawings from.

Mr. H.—Well! I'll try and make a larger diagrammatical scratch on the board for you.



Dawson, returning home late, after evening session at convention, found the door of house locked. Having no key, he began pounding heavily—when suddenly a gentle voice from above rang out—Phone for help, mother, there is (a strange man?) at the door.

Art Materials

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
on request



The Geo. M. Hendry Co.

LIMITED

20 Temperance St.

Toronto, Ont.

THE WHITE HOUSE

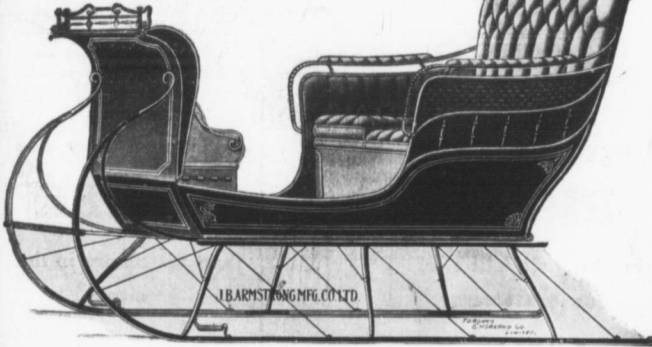
LADIES' FINE SHOES AT \$2.50

In our Ladies' Shoe Department we have shoes at one price only, \$2.50. These are quite the equal of shoes sold at \$3.00 and \$3.50 elsewhere. They come in all Leathers, and only the very newest styles.

JAMES RAMSEY

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

ARMSTRONG CUTTERS



NO. 20½—SOLID COMFORT.

A big, roomy, family Portland Sleigh, but we make also Trap and Surrey Sleighs. Catalogue describing fully these and our many other styles free for the asking.

Does your Local Agent handle "ARMSTRONG'S." If not, write us direct.

J. B. Armstrong Mfg. Co., Guelph, Canada

G. B. RYAN & CO., Guelph

General Dry Goods Store

Noted for **STYLE & FINISH**

In General Dry Goods, Millinery, Ready-to-wear Clothing, House Furnishings, and Ladies' Shoes

Character and Exclusiveness are the Two Great Features of Our Merchandise



Buying Offices in London, Paris and Glasgow, keep us right in line with the very newest fashions and fabrics.

G. B. RYAN & CO., Guelph

MEN'S CLOTHING STORE

A store devoted wholly to the dress wants of modern men.

Ready-to-wear Clothing, Special Order Clothing, Furnishings of all kinds; always in keeping with gentlemanly ideas of good form.



Our advertisement our aim and our accomplishment:—"Square Deal for Every Man."



Our goods are always

RISING

in the estimation of
our customers



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STUDENTS: see our complete stock of warm house slippers and stylish evening pumps.

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If you want quality buy Christie's. We have a large assortment.

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OUR STEEL TANKS ARE SUPERIOR
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ABSORBINE



will clean them off permanently, and
you work the horse same time. Does
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ABSORBINE, JR., for mankind.
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and quite a number are now using it
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Is head-quarters for MEN'S HIGH-CLASS
READY-TO-WEAR CLOTHING, also made
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Have also a big assortment of Gents'
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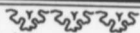
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Text Books, Exercise Books, Foolscap
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That carries the full stock of all
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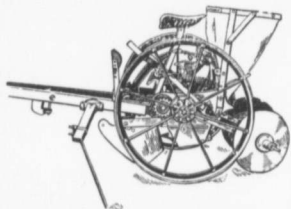
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Automatic. Requires no human aid other than the driver.

No change of pickers necessary for different size of seed or different distance of planting.

Booklet on Potato Culture mailed free.

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Manufacturers of

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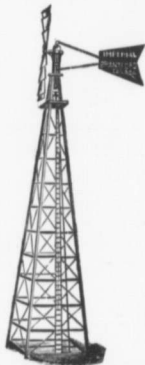
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Windmills!



Towers girded every five feet apart and double braced.

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Write for Catalogues.

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They are the kind of clothes that make a man feel like "getting busy"—like radiating cheerfulness and energy.

They look right and they live up to their looks—they have been built that way, from their all-wool materials to the sewing on of their last button.

From \$8.50 to \$25, at the Men's Store,

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Mutual Life of Canada

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ITS EXPENSE RATE TO INCOME IS THE **Lowest of all Canadian Companies**

Every Dollar accumulated by this Company, from whatever source, is the sole property of its policy-holders, and is under the direct control of the Board elected by the policy-holders to manage the Company and direct the affairs in the sole interests and for the sole benefit of policy-holders, who alone

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AT LOWEST PRICES.

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LIVERY AND SALE BARN

For up-to-date rubber-tired light outfits, hack, carriage, Talla Ho, Phone 41 or Call at 26 Douglas Street. Just around the corner from Post Office.

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Successors to P. Spragge.

Horse Owners! Use

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**Caustic
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A Safe Speedy and Positive Cure

The Safest, Best **BLISTER** ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. **SUPERSEDES ALL CAUTERY OR FIRING.** Impossible to produce scar or blemish.

Every bottle sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

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We execute the finest grades of printing, plain or in colors, promptly.

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Opp. Post Office.

CLASSY MEN should wear classy clothes, but they will never mistake the obtrusive fake clothing that is too often seen on the street for the real thing. **CLASS IN DRESS** for men means **REFINEMENT**, the other kind bear the earmark of vulgarity. Don't be deceived but come here and be correctly dressed.

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**OUR BUSINESS
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Young Men, come here for up-to-date Clothing. Hats, Caps, and Furnishings.

Oak Hall Clothing is sold in 2,000 stores in Canada. Come on in!

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GROCERIES

Are always Fresh, Wholesome
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If you want a pen point that flows freely, and lasts two to four times longer than any other. Try

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Practically non-corrosive—Ask your Stationer, or write to

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For use on home-made draining levels, as designed by Professor W. H. Day.

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Finest Society and Commercial Printing.
Prompt Service,
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Entomological Supplies,
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We have two choice August and September, 1908 bulls on hand, also some just dropped. Females any desired age. Young pigs of both sexes; good ones ready to ship. We will be pleased to correspond or meet with intending purchasers and others, and let them examine our herd.

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Violets, Valley, Roses, Carnations, always in stock.

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High-class goods, moderate prices, and courteous treatment.

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Very Best Service.

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IMPORTED
Clydesdale Stallions

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Your choice at moderate prices.

For particulars apply to

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ROCKLAND, ONTARIO, CANADA

BREEDERS OF

SCOTCH SHORTHORNS
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W. C EDWARDS & CO.
LIMITED, Proprietors

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This year's importation is by far the best bunch we ever landed, among them the Toronto and Ottawa winners.

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Choice stock for sale; best breeding correct dairy type and prize winners at reasonable prices.

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RED CROSS
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High-Class Portraits.

SPECIAL RATES TO STUDENTS

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SUITS PRESSED	50c
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Work done by practical tailors.

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Equal to New, on short notice.

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Telephone 14. Over Dominion Bank.**KING EDWARD BARBER SHOP**Headquarters for a first-class
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Only expert workmen employed. Work done
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ERNEST A. HALES,

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Sells the Best Meats
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Open all Day.

R. H. McPHERSON,
BARBER,Hair Cut, 15c; Sat., 5c Extra. Shave 15c. Close
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The New Flower StoreCome in and see our stock of Chrysanthemums,
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Cut Flowers a Specialty.

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HAND LAUNDRYGoods called for on Monday, and returned on
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No. waiting.**GUTHRIE & GUTHRIE,**

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Oshawa Metal Ceilings Fit for the finest building. Cost little enough. Reduce fire-risks. Two thousand designs for stores, halls, warehouses, churches, residences, etc. Write for handsomely illustrated book showing exclusive Pedlar designs.

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The H.P. SPRAMOTOR

can be arranged for vineyards, row crops, strawberries, or grain crops. The nozzles will not clog

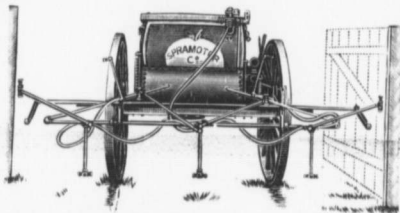
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does all the work, except holding the pole, with the

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It can be operated by either horse or hand. Has 8 nozzles at 175 lbs. pressure, which practically smoke the tree with spray. All automatic. The number of nozzles can be arranged to suit size of trees. The largest tree may be sprayed. Same price for 1 or 2 horses.



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You might just as well have the very best on the market. Scientific feeders who aim for the biggest and best results heartily endorse these four:—

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The above four represent the most perfect mixture of food ingredients for their respective purposes. Finely ground and properly balanced. The grinding alone adds greatly to the digestibility.

Every sack carries an analysis tag, showing the percentages of Protein, Fat and Fibre guaranteed.

Ask your dealer for these feeds and you are sure to get quality. Accept no substitute—the best is always the most economical and satisfactory in the end.



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INVITE INSPECTION OF THEIR PERMANENT EXHIBITION OF AGRICULTURAL IMPLEMENTS AT THE ONTARIO AGRICULTURAL COLLEGE, GUELPH, ONT. ASK TO SEE IT.

Manufacturers of Ploughs, Rollers, Harrows, Manure Spreaders, Turnip Drills, Scufflers, Wheelbarrows, Pulpers, Pneumatic Ensilage and Straw Cutters, Wagons, Sleighs, Drag and Wheel Scrapers, Side Scrapers, Root Planters, Cement Mixers, Stone Boats, Beet Pullers, Trucks, Stable Fittings, etc.

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MADE IN CANADA AND GUARANTEED GOOD.

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This new system of Poultry Keeping is becoming better known by those interested in the Poultry Business. We have tried the system for some time and are perfectly satisfied that all Mr. Philo claims in his book can be accomplished. We hatched 510 ch'cks with his "Cycle Hatcher" last spring and raised 453 to maturity in his fireless brooder and brooder coops. We matured pullets of eighteen different varieties that began to lay at the age of from four and one-half to five months. Our pullets are doing fine in the Economy Coops out in the snow in my back yard, with thermometer at 10 degrees below zero. I have had no trouble whatever with disease or lice. Stock is all healthy.

Send for the "PHILO SYSTEM" Book, which explains all about the system; Price, \$1.00. We also keep the Cycle Hatcher in stock; Price, \$6.50 each.

Send for descriptive circular.

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Cream Separator

**Let the other fellow make
the mistake**

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