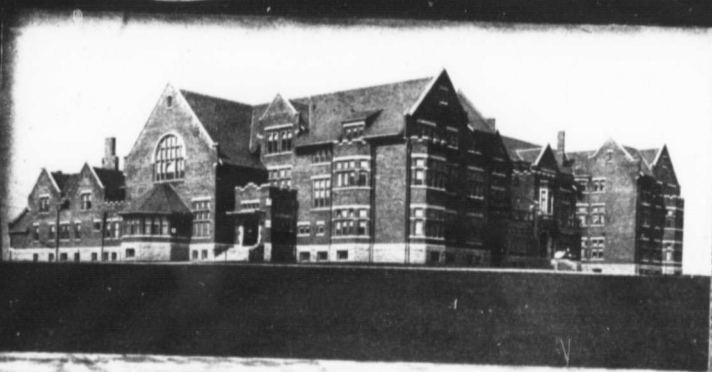


THE O.A.G. REVIEW

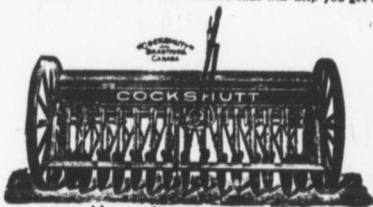
OCTOBER, 1910



BIGGER CROPS — BETTER GRAIN MORE MONEY—Is that what you want?

LIKE lots of other farmers at this time of the year, you are thinking of buying either a Disc or a Hoe Drill. Read this advertisement carefully before you decide—study the principle of this Cockshutt Disc Drill—get our Drill booklet and go into this matter thoroughly, because here is a machine that will help you get better crops,

Cock-
shutt
New
Model



15
Disc
Drill

Also made with 13 Discs

THE particular advantage which the Cockshutt Disc Drill possesses, is that it sows the grain 6 inches apart—not 7 inches, as is the usual method. Close seeding gives the grain a better chance to germinate—to sap all the nourishment of the soil. Thus the grain grows up closer and firmer—holds moisture better—resulting in a bigger yield and better grain. Close seeding does not mean that you have to sow more seed—you simply plant the same quantity of seed as you would with old style machines, but you plant with more discs. Farmers who have used this Cockshutt Disc Drill report an increase of from 2 to 5 bushels an acre; in other words, this Cockshutt Disc Drill will easily pay for itself in one season, and still leave you a nice profit over and above. Read all about the other advantages it has—then write us and get our very instructive booklet about it. The discs on this machine are 6 inches apart—not 7 inches, like old style machines. Footboard runs the whole length of the machine, which makes it optional with the driver whether he walks or rides. Footboard can also be used for carrying seed bag to the field. The frame is built of high carbon steel, the corners being reinforced by heavy malleable castings and steel corner braces. The castings pressure bar and short, self-aligning axles are rivetted to the

strong I-beam which runs the whole width of the machine. One of the great advantages of this I-beam is that it never allows the machine to sag in the centre. Axles are made of cold rolled shafting, always uniform in size and set at the correct angle to give the wheels proper pitch. The self-oiling device keeps the disc bearings in good shape a whole season. The grain flows down the closed boot right into the bottom of the furrow, and is always sown at uniform depth.



The space between the grain boots and discs gradually widens from bottom to top, preventing mud and trash stopping the discs from revolving. No matter how wet or sticky the soil, these

discs will always revolve and cut. Scrapers are provided so as to keep discs clean on each side. The feed on this Cockshutt Disc Drill is a positive force feed of great accuracy, and is driven by a short steel chain from the axle, each half of the feed being driven separately. The seed box is made of choice seasoned lumber and the cover locks automatically.

We use metal bridges between feed cups to prevent grain from clogging, so that the last seed is sown out of the box at the same rate per acre as when the grain box is full. You can't realize all the advantages and improvements of this Drill until you read full explanations in our booklet. Don't buy a Drill of any kind until you read it.

READ THIS LETTER—THEN WRITE FOR BOOKLET

Cockshutt Plow Co., Ltd., Brantford, Ontario.

Thorndale, July 20th, 1909

Gentlemen,—I have very much pleasure in recommending the 15 Single Disc Drill purchased from your agent, W. McMartin, of Thorndale. After putting in seventy acres of spring seeding with two horses, I think it the best drill I have ever seen, and the easiest to operate. I have not seen its equal, and think it has to be made yet. I cannot say too much for it.

(Signed) JOHN MORDEN

COCKSHUTT PLOW COMPANY **BRANTFORD**
LIMITED

gpc



The Bond Hardware Company, Limited

STUDENTS' HEADQUARTERS FOR

Sporting Goods

*Also Everything in Hardware. "Our prices
always right." Daily delivery to the College*

Guelph  Ontario

The Dominion Bank

Capital Paid Up	-		\$ 4,000,000.00
RESERVE FUND	-		5,400,000.00
Deposits by the Public	-		47,000,000.00
Total Assets	-		61,000,000.00

A GENERAL BANKING BUSINESS TRANSACTED.

Drafts bought and sold on all parts of the world.

SAVINGS BANK DEPARTMENT.

Special attention paid to Savings Accounts. Interest allowed on deposits of \$1.00 and upwards.

Every convenience will be afforded students for the transacting of their banking business.

A. R. SAMPSON, - Manager, - GUELPH BRANCH.

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

Farming is a Business that needs Watching

When there is no book-keeper to keep track of every payment, it is easy to pay a bill twice—and never know it. Keeping a CHECKING ACCOUNT saves that danger.

Call and let us explain how it will help you.

CAPITAL AND SURPLUS

\$6,550,000



TOTAL ASSETS

\$44,500,000

The Traders Bank of Canada

F. J. Winlow, Manager.

GUELPH,

ONTARIO.

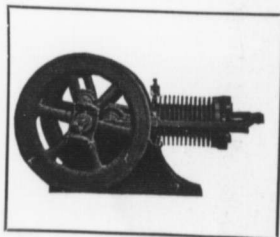
Make Up Your Mind NOW

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 STREET

GUELPH, CANADA

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

**See What Is
Under The Paint
When you Buy A
Manure Spreader**



CHOOSING a spreader that will prove a big paying investment for years to come is a serious problem. You can't judge by appearance, for all spreaders look very much alike.

The way to be sure is to get right into the details of construction. See how and of what they are made. The handsome finish of—

I H C Spreaders

Corn King

Cloverleaf

is a true index to the quality in every part—not a cloak to cover up defects in workmanship and material. See them and judge for yourself if there are any others which have—

- such a noticeable absence of troublesome, unimportant gear wheels
- so few levers
- such a perfect apron
- such wonderful range of feed under absolute and instantaneous control of the driver
- such remarkably light draft, due to roller-bearings
- such perfect distribution
- such strength in every part.

I H C spreader frames are made of hard, heavy, non-porous, resinous wood—air dried, so that the sap is retained and the wood fiber cemented together. This prevents the manure liquids from penetrating the wood—makes it impervious to manure acids.

The Cloverleaf spreader has an endless apron. The Corn King spreader is of the return apron type. All are made in several sizes ranging in capacity from 30 to 70 bushels. All can be furnished with lime hoods to spread commercial fertilizer and drilling attachments to distribute manure in rows.

Ask the I H C local dealer to show you the style and size that will just meet your needs. Investigate its construction carefully. Compare it with any other make if you wish—then decide. If you prefer write to nearest branch house for catalogue and full information—mail a postal today.

ANADIAN BRANCHES—International Harvester Company of America at Brandon, Calgary, Edmonton, Hamilton, London, Montreal, Ottawa, Regina, Saskatoon, St. John, Winnipeg, Yorkton.

INTERNATIONAL HARVESTER COMPANY OF AMERICA

Chicago

U S A



**THE
I-H-C LINE**

LOOK FOR THE I. H. C. TRADE MARK. IT IS A SIGN OF EXCELLENCE AND A GUARANTEE OF QUALITY.

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

Do You Feed Hogs ?

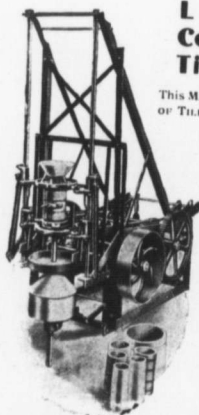
If you want to raise hogs for market in record time, why not follow the example of many successful extensive hog dealers and use

Schumacher Feed

We would like you to test what this feed will do in actual use. You will find Schumacher Feed a perfectly-balanced concentrate of Oats, Corn and Barley. Our grains are kiln-dried and finely ground, thereby increasing their digestibility. You will not find Schumacher Feed a haphazard mixture of ground grains; we have perfected this feed after years of careful study and experiment. We know the feed will give you the very best of results, but would much prefer your giving it a fair trial yourself. If this advertisement will not convince you that Schumacher Feed is a successful feed for hogs; we know that a trial shipment most surely will. Give it a trial.

Insist on getting Schumacher Feed, take no substitute, and if for any reason your dealer does not handle it, we will consider it a favor if you will kindly give us his address.

The Quaker Oats Co.
PETERBORO, ONTARIO



LONDON Cement Drain Tile Machine

This Machine MAKES ALL SIZES OF TILE from 3 ins. to 16 ins. in diameter, and from 12 in to 24 ins. long.

All Tile are packed perfectly hard. Our Patent Packer does the work.

There are large profits in the manufacture of concrete tile.

If you are interested let us give you full particulars.

We also manufacture Concrete Mixers, Concrete Block Machines, Concrete Brick Machines, Sill, Step and Window Gap Mould, Sewer Pipe Moulds, Gasoline Engines, and a full line of Concrete Machinery.

London Concrete Machinery Co., Ltd.
19 MARMORA ST., LONDON, CANADA
Largest Manufacturers of Concrete Machinery in Canada

Furniture

Grant & Armstrong have what you want, if a furniture store should have it.

Book shelves, secretaires, tables, chairs, all kinds of students library, den or large easy chairs, in leather or cloth.

Bedroom, hall, parlor, dining-room and kitchen, library, den or club—we can furnish from our stock at once. The large stock, The low prices. The quality make.

Grant & Armstrong

The Leading Furniture Dealers.

Our store is just above the Post Office.

A HIGH GRADE
ESTABLISHMENT FOR THE
PRINTING

OF CATALOGS, BOOKS and
COMMERCIAL JOB WORK



Society and College
Work a Specialty.

R. G. McLean

26-24 LOMBARD STREET,
TORONTO, - - ONTARIO

Telephone, Main 637 63.

FREE!

250 TOOTH BRUSHES.

Each Friday and Saturday during
October we will give to each student
purchasing a 25c. tube of

Rexall
TRADE MARK

Tooth Paste

a fine French Tooth Brush absolutely
free of charge. We want you to know
how far superior Rexall Tooth Paste is
to all others, hence this extraordinary
offer.

John D. McKee Phm.B.

The Rexall Store

18 Wyndham St., GUELPH.



Fine Tailoring, 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.

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

Soak It Kelly!!

That is, soak the water into the milk
THRO' THE COW

It's the one way it can be done Honestly and Squarely. Our "Woodward" Water Basins are made by us to put more profits into your pockets. They are doing it everyday for hundreds. They give the water in correct quantities at right periods.

No swilling possible. Try it.

Warning—There is only one "Woodward"

Ontario Wind Engine & Pump Co.
LIMITED

TORONTO.



**SWEATER
COATS
AND
SWEATERS**

In all Styles
and Colors

**JERSEY
HOSE
AND
ATHLETIC
SUITS**

Made in Club
Colors to order,
with special
club insignia.

Designs sub-
mitted.

Get our Cata-
logue and
Prices.

SCOTT KNITTING COMPANY

352 Queen St. W., Toronto
Phone Main 4440

ONTARIO VETERINARY COLLEGE

Temperance Street, Toronto, Canada



Established 1862

Controlled by the Provincial Government of Ontario. Affiliated with the University of Toronto. The course of study extends through three college years.

Calendar with information will be mailed free on application.

E. A. A. GRANGE, V. S., M. S.
Principal.

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

215-219 Victoria St.,

Toronto, Ont.

O. A. C. Students

Will find the biggest Book Store in Guelph on Upper Wyndham Street.



The ONLY Place

That carries the full stock of all Text Books required at the College and Macdonald Institute.

G. L. Nelles

PHONE 45

ABOVE POST OFFICE

The People's Store

Is headquarters for MEN'S HIGH-CLASS READY-TO-WEAR CLOTHING, also made to measure

CLOTHING

Have also a big assortment of Gent's Furnishings in all the up-to-the-minute styles.

We specially solicit the patronage of the O. A. College Boys and Faculty.

Prices Moderate.



Benor, Scott & Co.

29 and 31 Lower Wyndham Street, Guelph, Ontario.



R. E. Nelson

93 Wyndham St., Guelph, Ont.

FINE TAILORING

Come in and look at the feast of new fabrics in the latest creation of Fashion's loom, in all the pretty and elegant patterns in blacks and blues chevots, West of England suitings, worsteds and trouserings that we have received for the present season. Order your suit and overcoat NOW, and you'll be glad. We make our clothing in the latest style of the tailors art, at prices that are the lowest for first class work in the trade. A trial will convince you that what we say is correct. All our goods are marked in plain figures, and only one price. You should see our special blue suit to ORDER at \$25.00.

Men's Furnishings, Hats and Caps, Sweaters, Shirts, Sox, Neck Ties, Handkerchiefs, Sweater Coats, Umbrellas, Rain Coats, Underwear, House Coats, Pyjamas, Neck Scarfs and everything in men's Furnishings right down-to-date. Our special HAT at \$2.00 is a leader. Be sure and come direct to this store for Men's Goods.

Agent for Semi-Ready Specials.

R. E. NELSON

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

PETRIE'S DRUG STORE

The Place to Buy Your
TOILET ARTICLES and DRUGS

Headquarters for
PHOTOGRAPHIC SUPPLIES

FILMS

Developed and Printed neatly and
quickly.

Remember the Place, Lower Wynd-
ham Street, next door to the Spa Candy
Store.

COME IN AND SEE US.


NOT FOR A MILLION

Of course not! Yet how careless you
are in your treatment of those million
dollar eyes.

When eyes smart, pain and begin to
water, when they feel hot and heavy,
beware of

Grave Consequences

Don't Delay, Consult

A. D. SAVAGE

Guelph's only Exclusive Optician,
Corner Wyndham and Douglas Sts.,
Phone 627. GUELPH.

Central Book Store

53 WYNDHAM ST.,

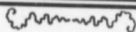
Opposite where the Street Cars cross.

The Place to Buy
TEXT BOOKS, BLANK BOOKS,
STATIONERY, PENS, INKS,
PENCILS, Etc., Etc.

See our Special O. A. C. and Mac-
donald Hall Note Paper and Envelopes.

C. ANDERSON & CO.

Phone 256.

R. B. KENNEDY**PHOTOGRAPHER**

The best place to get
a good Group Photo-
graph or a Portrait of
yourself.

PHONE 498

KELLY'S MUSIC STORE

Where You Can Buy

The Bell Piano

CANADA'S BEST

Contains all Modern Improvements, and built to last a life-time.

Sole Agents for

VICTOR GRAMOPHONES
AND RECORDS,

EDISON PHONOGRAPHS
AND RECORDS,

Violins, Guitars, Mandolins, Banjos and Band Instruments. Pianos and
Organs rented, tuned and repaired. The Latest Music and Music Books at

KELLY'S MUSIC STORE

133 UPPER WYNDHAM STREET.

G. B. RYAN & CO.

General Dry Goods Store.

GUELPH

Noted for STYLE & FINISH

In General Dry Goods,
Millinery, Ready-to-wear
Clothing, House Furnish-
ings, 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.

MEN'S CLOTHING STORE

GUELPH

A store devoted wholly to
the dress wants of mod-
ern 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 accomplish-
ment:—"Square Deal for
Every Man."

COLLEGE CLOTHES

We want the students of the O. A. C. to know that we make a specialty of High-Class Clothes for "Young Men" at Moderate Prices. We will be pleased to have you call and look over our line for **Fall and Winter 1910-11**; you will be under no obligation to buy—but we feel satisfied that we can please you both as to **Style, Fit and Price.**

We are sole agents for the "20th Century" brand of **Ready-to-Wear Clothes for Men.** If there was any better brand in Canada we would have it.

READY-TO-WEAR SUITS from \$7 to \$28.00

MADE-TO-ORDER SUITS from \$22.00 to \$45.00

O. A. C. and Macdonald Hall Pennants always in stock.

D. E. Macdonald & Bros., GUELPH'S
BIG STORE

Printing with us means more than the operation of feeding a given number of sheets into a press at the very limit of its speed. It means thoroughness, intelligence and close attention to detail, with brains wrapped in every package.

The London Advertiser

THE LONDON ADVERTISER CO. LIMITED
PRINTERS AND PUBLISHERS

PRINTING OF THE BETTER KIND.

LONG DISTANCE PHONE 175

LONDON, ONT.

"VANCOLINE"

A safe, sure cleanser for WOUNDS and SORES

Eats pus and all impurities—prevents infection and allows and helps nature to affect a speedy cure.

If any of your stock have sores, VANCOLINE will be valuable to you. Easy to apply, simply wash out the wound with VANCOLINE, and you can see it work immediately.

4-oz. bots., 20c

8-oz. bots., 40c.

1-lb. bots., 75c.

1-gal. jugs, \$4.00

"VANCO DUST"

An efficient and sure cure for all Lice and Vermin

In the form of a dusting powder in a sifting-top can, is easily applied. VANCO DUST is also a strong disinfectant, destroying all foul odors, keeping all places around the farm in perfect sanitary condition.

In 1-lb. sifting-top cans, - - - - - 20c. lb.
In 5-lb. sifting-top cans, - - - - - 15c. lb.

Made in Canada by, and at present
sold only by

CHEMICAL LABORATORIES, Limited

VAN HORNE STREET, TORONTO.

Prices F.O.B. Toronto.

Agents Wanted.

WEEDS are the Farmers' Worst Enemy

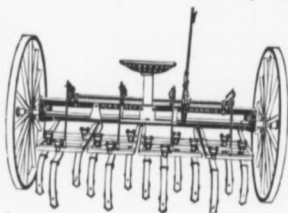
Sow thistle, quack grass and other weed pests means a loss to the Farmers of Canada of millions of dollars every year.

And there's no need of it.

The worst of these weeds can be cleaned out by persistent and systematic cultivation, and there is no implement quite so well adapted for the purpose as the

Massey-Harris Cultivator

It cultivates deep or shallow and thus gets all the weeds. Gangs are all operated by one lever, but are independent in their action — controlled by Pressure Springs.



Cultivation is maintained uniformly at any depth desired.

Has strong Angle Steel Frame and Gangs, convenient lever, reinforced steel teeth with reversible points or wide points if preferred.

MASSEY-HARRIS CO., Ltd.

Toronto Montreal Moncton Winnipeg
Regina Saskatoon Calgary

The Royal Bank of Canada

Capital Paid Up -	\$ 5,000,000.00	Reserves - - -	\$ 5,900,000.00
Deposits - - -	59,000,000.00	Total Assets -	76,000,000.00

133 Branch Offices throughout Canada and West Indies; also at London, England, and New York.

Correspondents throughout British Colonies and in all foreign countries, thus affording facilities for Students and Staff receiving or sending remittances, and doing a general banking business.

Deposits solicited.

R. L. TORRANCE,
Manager

Guelph Branch

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

exercises 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 examination for admission to the College, takes place in May of each year, at the headquarters of the several military districts.

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

H.Q. 94-5.
9-09.

A GOOD LIFE POLICY

Will compel a young man to save money. He will be glad of it when he is older. It trains him also to the habit of saving. Get particulars of a plan to suit you from

THE MANUFACTURERS LIFE

Insurance Company

TORONTO,

CANADA.

KRESO

**An Ideal Disinfectant, Germicide,
Deodorant, Antiseptic and
Parasiticide.**

For Hospitals, Veterinary and Domestic Use

Write for Descriptive Booklet.

PARKE, DAVIS & CO.

Manufacturing Chemists and Biologists,

WALKERVILLE, ONTARIO

Eastern Depot, 278 St. Paul Street, MONTREAL, QUE.



CONTENTS

VOL. XXIII.

OCTOBER, 1910.

No. 1.

	Page.
The Teaching of Agriculture in the High Schools of Ontario —P. E. Angle, B.S.A.....	1
The Automobile on the Farm—J. Williamson.....	6
Agriculture.....	10
Experimental.....	16
Horticulture.....	21
Pou'try.....	25
Editorials.....	28
College Life.....	32
Alumni.....	39
Athletics.....	41
Schools' and Teachers' Department.....	46
Locals.....	50

The O. A. C. Review is published by "The O. A. College Students' Publishing Association," O. A. College, Guelph, Canada, monthly, during the college year.

Annual subscription—Students, \$1.00; ex-students, in Canada, 50c; others, \$1.00; single copies, 15c. Advertising rates on application.

STEELE, SEEDS BRIGGS

Are Noted Everywhere for their

PURITY and RELIABILITY

Send us your name for our Splendid

*Illustrated Catalogue
for 1910*

It's full of good things for the farm
and garden. Also many valuable
introductions which are sure to inter-
est Farmers, Gardeners and Amateurs.

Steele, Briggs Seed Co.
Limited

TORONTO HAMILTON WINNIPEG

THE O. A. C. REVIEW

THE DIGNITY OF A CALLING IS ITS UTILITY

VOL. XXIII.

OCTOBER, 1910.

No. 1.

The Teaching of Agriculture in The High Schools of Ontario

P. E. ANGLE, B.S.A., SIMCOE, ONT.

"Is agriculture a College subject, or is it a High School subject? Our forefathers conducted the discussion as if it were one or the other. In these days we may answer: it is both."—Dean Davenport, Illinois College of Agriculture.

DURING the past three years Ontario has been trying an experiment in the teaching of agriculture in several of her High Schools, which are largely attended by country pupils. This course in agriculture is designed to cover a period of two years, taking up work equal to the work taken in the first year at the Ontario Agricultural College, and occupying four half days each week of the pupil's time, replacing such studies as Latin, French, German, Algebra and Geometry.

The experiment has demonstrated clearly that agriculture is teachable to pupils of high school age. All the pupils in my class last year were between twelve and fourteen years of age and to show the nature of the work I gave them and the way they grasped it, I give herewith a copy of one of the examination papers on Agriculture submitted to them last June, and answers to two of the most important questions.

SIMCOE HIGH SCHOOL.

June Examinations, 1910.
Soil Physics and Dairying.

1. (a) Define Adhesion.

(b) Define Cohesion.

(c) Water is said to have a surface film. Describe an experiment to prove this; what causes the film?

2. What is meant by capillary action of water in soils? In what direction does it act? What causes it? Of what value is it to the farmer?

3. (a) What is soil ventilation? Why is it necessary, and how is it accomplished?

4. (a) Distinguish between "Tilth" and "Tillage."

(b) How is the tillage of the soil accomplished?

5. What are the objects of cultivation?

6. What are the uses of the roller and how may it be abused?

7. How is the composition of a cow's milk effected by

(a) Period of lactation.

(b) Feed.

(c) Frequency of milking.

8. (a) A sample of milk has a temperature of 70° and a lactometer reading at 31°, find the lactometer reading at 60° temperature.

(b) A sample of milk has a tem

perature of 50° and a lactometer reading of 33°, find the lactometer reading at 60°.

9. (a) What quantity of milk is used in a test bottle for testing milk for per cent. fat, with the Babcock tester.

(b) Describe the process of testing, step by step.

(c) Explain why, when the graduated neck of the test bottle is full of butter fat the milk will contain 10% fat.

10. What are the two chief points to be observed in caring for milk or cream on the farm?

milk are: First. The immediate cooling of the milk after milking, and Second. Preventing it from coming in contact with bad flavors or odors or exposing to hot sun. In the case of cream it must be kept cool and from exposure to bad flavors or odors. The main point in caring for both is cleanliness."

The papers indicate the practical nature of the work and the answers show that those boys know some important facts regarding their daily work on the farm, which will enable them to work more intelligently and with more



The class which took the Short Course in Agriculture at the Simcoe High School in the winter of 1910 at work in the class room studying weed seeds.

Answer to question 3 by Ernest Quanberry, aged 12 years:

"Soil ventilation is allowing the oxygen of the air to act on the soil, thus increasing the amount of soluble plant food. It is necessary to make more soluble plant food, which plants feed on. It is accomplished by (1) Cultivation. (2) Earthworms. (3) Roots of plants going far down into the soil and when the plant dies the root decays, leaving a long tubular hole in the ground to assist ventilation."

Answer to question 10, by Howard Hoover, aged 14:

"The two chief points in caring for

efficiency and contentment, and which will very emphatically relate their school life to their home life instead of separating the two, as is the tendency with the ordinary High School education.

After one year's experience in teaching agriculture in the Simcoe High School I believe that the agriculture course efficiently serves those pupils who take it. I believe that every pupil in my class last year received real benefit from the work and enjoyed it. I believe that every one of those pupils will make a better farmer and citizen and that every one of them respects the

calling of agriculture more highly and takes a greater interest in it because of the work in agriculture which he took last year; and I have the testimony of the pupils themselves, and their parents to uphold me in this belief. Yet I believe that this course in agriculture is not serving the farming community and the country at large as it ought to. Not enough pupils take advantage of it. Last year only five boys took the course in agriculture in the Simcoe High School and one of these boys was a town boy who dropped out later,

some boys who were not, busy on their own or their father's farms during the autumn, but who would be free to take up some school work in the Winter time, I arranged for a short six weeks' course in agriculture to be held in the High School during January and February. This course was open to any farmer's son in Norfolk County and was thoroughly practical in every respect, including the following subjects:

1. **A Study of the Seeds** of the various farm crops, together with the value of careful selection of seed grain,



The class which took the Short Course in Agriculture at the Simcoe High School in the winter of 1910 judging horses at A. E. Yeager's, Simcoe, with the famous "Sensation" as subject.

while there were fifteen farmers' sons in the first form of the school who were not taking it. Of course last year was the first that such a course had been offered in Simcoe, and I did not expect a large class, but the experience of others who have been at the work for three years is that the number of pupils taking agriculture does not increase materially from year to year.

Seeing that not many availed themselves of the opportunity offered in the regular course in agriculture, and finding in the country many young men who were beyond high school age and

method of selecting it, and seed judging.

2. **Elements of Farm Chemistry and Bacteriology**, including a study of soil fertility, its depletion and maintenance, the value and application of fertilizers, the fertilizing effects of leguminous crops and the value of nitro culture in inoculation of clover and alfalfa seed.

3. **Soil Cultivation and Drainage**, including experiments to determine the water holding capacity of different types of soil and their power to draw water from the subsoil and the value of mulches in conserving moisture in

the soil, the taking of levels for under drains, and practical work in working out grades and methods of putting in drains true to grade.

4. **Farm Botany and Entomology**, including identification of injurious weed seeds, the Seed Control Act, identification and eradication of fungus diseases and insect pests.

5. **Stock Judging.**

6. **Milk Testing.**

In the stock judging we visited different farms in the vicinity of Simcoe where good stock was obtainable.

In the work on underdrainage we were fortunate in having enough mild weather to do some practical work in taking levels outside.

Thirty-one young men applied for this course and 25 ranging in age from 15 to 59 years attended. The interest taken in this work by the class was such that they asked for the course to be extended for one or two weeks. Such a short course has been held in several other schools, and I believe their experience has been similar to mine.

Now why such a well-attended short course and such a poorly-attended long course? The attendance at the short course indicates that the young men and the boys of our farms are eager to obtain information which will be useful to them, when the opportunity presents itself. The whole situation indicates that about all the farm boys who can do so are attending High School. Others who would attend are detained by pressure of work at home and no agricultural course will draw them to school in the autumn and spring time. The truth is that both courses are designed to meet the same needs, namely: The needs of the boy who is going to farm, and the majority of the boys who are going to farm absolutely

have not the time, and oftentimes the money, to take a long course. This is the chief reason why a larger percent age do not attend the agricultural college.

But why are not those other fifteen farm boys who are already in the High School not taking the regular course in agriculture, in that school? I'll tell you why. First. A certain number of those boys have definitely decided to take up some profession other than farming. Some of them have no farms to go back to and they do not like the prospect of working as a laborer on a farm, or on a rented farm. Secondly. The rest of those boys are undecided as to what occupation they will follow. If they take agriculture for two years and then decide to take up a calling which, according to our custom, requires a university education, they cannot matriculate for the university without spending an extra year in the High School to master the studies which they have neglected in order to take agriculture. Aye, there's the rub. They couldn't matriculate, and that is just what the farmer will tell you if you talk to him about having his son take agriculture. He will say to you, "I cannot tell whether the boy will farm or not. He is only 12 years old and he doesn't know just what he wants to do. I would like to have him farm, and if he wants to here's a farm for him, and all well and good, but I do not want to force him to farm. If he takes agriculture in the High School and then decides that he would rather take up professional work than to farm he can't matriculate for university without spending an extra year at school. On the other hand, if he takes up regular matriculation work at school and then decides to farm he can go back and farm all right. Of course he won't have the

agriculture, but then he can go to the O. A. C. and get that."

The fact is that the agricultural course in the High School appeals only to those boys who have finally decided to return to the farm, and as very few boys know when they enter High School just what they are best fitted for, or just what occupation they would rather follow very few take the agricultural course.

As I have already pointed out the short course in agriculture seems to largely meet the needs of those boys on the farms which the agricultural college does not reach. Then let us have a regular course in agriculture in the High Schools designed to meet the needs of the **farm boys in the High Schools**, and to meet them accurately enough that every one of them will take advantage of it.

In my estimation such a course would be different from the present course offered in the following points: 1st. It would occupy less of the pupil's time giving him an opportunity to take more of the other work in the school. It seems to me that it is not the wealth of agricultural knowledge imparted in the High Schools but the influence exerted which will be most beneficial. 2nd. It would provide a special matriculation examination for those pupils taking agriculture, the successful passing of which would give them entrance into the university for at least some of the courses given there. If an optional course cannot be so constructed as to reach a larger number of the farm pupils than it does now, then I believe that it would be desirable to require all

High School pupils to take a certain amount of agriculture, and if there are no subjects on the present curriculum that could be replaced, add an extra year to the course. Surely our pupils are graduating from the High Schools at an early age and surely another year could be spent there with benefit by those who desire to graduate, and then those who do not graduate, particularly those from the farms, will receive a rational and efficient education which will be useful to them in their daily work. Perhaps less pupils would graduate from the High Schools under such a system, but efficiency, and not graduation, should be the chief aim of education. It may be objected that the addition of a year to the High School course would place the boy who takes agriculture in exactly the same position as he is at the present as far as matriculation is concerned; it would take an agricultural student as long to matriculate if he chose so to do as it does at present. Yes, so it would, but it would put the boy who does not take agriculture on the same footing as the one who does; thus permitting the farm boy to take agriculture without being handicapped as far as other educational privileges are concerned.

I firmly believe in the teaching of agriculture in the High Schools, and my year's experience has strengthened that belief. The problem is to so arrange the course offered that more pupils will take advantage of it. This done, I believe that the teaching of agriculture in our High Schools will wield a mighty influence in the betterment of Ontario agriculture and agricultural life.

The Automobile on the Farm

J. WILLIAMSON, KANSAS CITY.

AN automobile! The farmer of a decade ago would have doubted the sanity of any person suggesting that he add an auto to the equipment of his place. It is but the old process of evolution at work, and the up-to-date farmers are in the van of things progressive. First it was the oxen, the log wagon and the prairie schooner; then the mongrel horse and

directions and under certain conditions, that gives them a large and growing importance, and perhaps nowhere is the auto being found of greater economic value than by the farmers themselves, the horse-raisers. It is the west, too, or more especially the central west, where the motor car is being most widely brought into service by farmer people. Only recently a New York



THE MODERN DRAY.

the farm wagon, followed by the grades and cross-breeds and the spring wagon, which in turn were superseded by the rubber-tired surrey and the still better horses, and now comes the auto.

While these latter-day developments of mechanical ingenuity properly supplement the horse, they do not supplant him, nor detract from his indisputable merits. These inventions possess advantages however, in certain

trade journal noted this, particularly indicating Kansans as the most liberal buyers, and it is said that the big country trade of the sunflower state has made Kansas City the third largest distributing point for automobiles in the United States.

There are three distinct reasons for the Kansas farmers, for example, buying automobiles; first, their prosperity enables this buying regardless of any

particular financial consideration or business motive; second, the extraordinary good roads, natural or made, and third the distances between neighbors and cities, owing to the comparatively sparse population. According to inhabitants there are probably more of these conveyances owned by the rural population of Kansas than of any other state, and in the so-called short grass section the per capita ownership of autos is likely greatest. Statistics tend to indicate this. For instance, it has been stated that Reno County has 600 cars, Barton 850, Rice 375, Pawnee 550 (one for every third family in the county), Stafford 400, Firney 225, Ford 106, Kearney 45, Hamilton 25 and Grey 30—3,206 autos to 116,336 people, or about one car to every nine families. These counties are in the southwestern part of the state in the Arkansas valley. Beyond and south of these, in the extreme corner, are five large counties, embracing a combined area of 3,282 square miles, that have no railroad facilities, where the motor car is solving the problem of transportation, and putting their people in closer, quicker touch with the world and their fellows remote or near.

The report of the Kansas State tax commission for 1909 shows twice as many automobiles in the state in that year as in the year before, and returns from the 48 counties thus far received for 1910, show a net gain of 92%. The 48 counties too have no large towns or cities. Detailed figures indicate that the year's increase in the rural districts amounted to more than 130%, compared with a gain of 70% in the cities, there being now nearly as many cars in the farmers' possession in the aggregate as in the hands of the city people. These official statistics suggest forcibly the fast growing popula-

larity of the auto among the farmers, who at first were rather backward about testing its capabilities.

An interesting fact, too, brought out by recent investigations of a prominent insurance company, which loans large sums of money in Kansas, is that the farmers of the sunflower state are not assuming debt or borrowing money to pay for cars, as city folks everywhere are said to be doing, which, incidentally, is but another indication of the sanity of the agriculturist, as well as of his plethoric pocketbook.

Along with the motor car has come a more insistent demand for better highways, and the movement for improved roads has made appreciable headway since the farmers have become devotees of the gasoline wagons. The increasing use of these has done in a half decade what fifty years of resolutions and oratory failed to accomplish. In Kansas at the present time there is in the making one of the most extensive continuous good roads yet proposed in the middle west, about two hundred and fifty miles east and west, extending on into Colorado, and which it is claimed, was begun largely through the instrumentality of the automobile owners of the section through which the road is to be run. Thus if the beneficence of the automobile extends beyond its immediate uses, its influence in affairs takes on added importance, for the value of good roads to any community, state or nation, is universally conceded.

There are few, if any, who have more or better reasons for employing these machines than the farmer. Naturally he is a mechanic; force of circumstances makes him one. He should, therefore, be able to run his car at a smaller expense than the city man, and with greater efficiency. In con-

templating the advisability of buying, the man of the farm should not be governed by statements of the cost of up-keep from the city man's experience as the farmer may eliminate much of the cost of the garage and the chauffeur.

Only the car high grade in every detail should be bought for the country and its selection should be gone about in much the same manner as if choosing a horse; that is, by fully considering the requirements to be met, for the utility of the various cars, like that of the different breeds of horses, is to a

In innumerable ways it may add to the economies and attractions of farm life. Instead of the slow, wearisome trip to town in the jolting lumber wagon, with a jaded and overworked team, or even the spring wagon or carriage and a pair of fresh roadsters, the automobile makes the journey quickly and comfortably, leaving the team available for use at home, which is extremely important, especially at certain seasons. When the farm affairs are pressing, the necessary trips may be taken with the auto after the day's work is done, and as recreation. It will



ITS USES ARE MANIFOLD.

certain extent limited. Proportions of weight to size, horse-power, methods of ignition and drive, gearing and engine construction are all essentials to be considered, but no one should so far lose his mental balance as to buy unless well able to do so. This does not necessarily imply that the cash should be in hand in every instance, but if it is believed that the purchase will give fair returns on a combination of business and pleasure, then buying would be a natural sequence.

carry milk to the creamery, take the women shopping, haul minor produce to market and bring home supplies. During harvest, when the shining hours are precious, in the emergency of a break down in the machinery, an auto will quickly make the trip to town and return with the minimum loss of time. It helps to break the isolation and loneliness of rural life by encouraging more frequent social relations between neighbors.

In thus contributing so materially to

the convenience and contentment of the farmer's family, the motor car is removing one of the chief drawbacks urged against the farm—its monotonous drudgery. Important, too, is its tendency to keep the boys on the farm where large opportunities are, for unless all signs fail, agriculture is entering an era wherein farming will be made more attractive, more remunerative and more respected. Also, by making available a larger working force on the farm, the auto has a greater significance than at first blush might appear, for it not only makes possible better cultivation by, but the farming of larger areas, hence larger production, and further, in so far as it saves time, team and man to the farm, to that extent is the auto helping to solve an

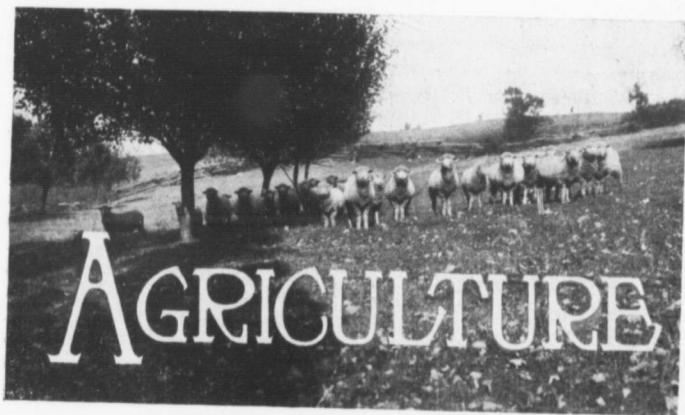
other serious rural problem, that of labor.

Quite recently the trolley cars, telephone lines, rural free mail delivery, and improved roads have ameliorated and benefited the farmers' industrial and social conditions. Enlarged prosperity has provided modern conveniences in the home, and it remains for the auto to remove the last objection to rural life. It is epoch-making in farm affairs; it promotes broader views, helps the farmers' organizations, enables closer community of interests, and should bring nearer the day of co-operative marketing. As its possibilities come to be more fully understood, the use of the motor car in rural affairs will undoubtedly increase in proportion.

HONOUR.

Say, what is honour?—'Tis the finest sense
Of justice which the human mind can frame,
Intent each lurking frailty to disclaim,
And guard the way of life from all offense
Suffered or done. When lawless violence
A kingdom doth assault, and in the scale
Of perilous war her weightiest armies fail,
Honour is hopeful elevation—whence
Glory and triumph. Yet with politic skill
Endangered states may yield to terms unjust,
Stoop their proud heads, but not unto the dust,—
A foe's most favorite purpose to fulfil:
Happy occasions oft by self-mistrust
Are forfeited; but infamy doth kill.

—Wordsworth.



The Agriculturist as a Bookkeeper

ASK any number of farmers in any locality of this grand old province of ours if they keep any kind of a tabulated set of accounts and business transactions, and you will not find five per cent. of the said agriculturists who can give you an affirmative reply. The average farmer works away from year to year growing what produce he can and marketing it from time to time without as much as even making a memoranda of the amount of money obtained for it.

Why does the farmer not keep a set of books, or at least a record of expenditures and receipts? Ask any one of them the foregoing question, and in the greater number of cases you will find that they have no good reason, but will tell you that they are too busy to bother, or that they cannot see any benefit from keeping farm accounts. The

question of time seems to be the excuse of all the farmers for not keeping a record of their business affairs. Few indeed are they who could not find time each day to set down on a ruled sheet the amount of their expenditures and also the amount of their receipts from the agricultural products sold from their farm. If every day is too much of an undertaking the farmer might, if his memory is good, make his entries once per week, but he would find it much more satisfactory to keep his accounts entered up to date daily. I venture to say that five minutes per day on the average would cover the time required to keep a simple yet serviceable and satisfactory set of books on the ordinary Ontario farm. There are very few farmers who do not spend much more time than five minutes per day at something from

which they receive far less of profit and satisfaction than would be theirs if they spent that time in keeping a record of their business transactions.

The farmer who is making the greatest financial success in the twentieth century as well as getting the most out of life in a social way is not the man who is working away with his hands sixteen hours out of the twenty four that constitutes one day, but on the other hand the successful farmer is the man who works with his hands a much shorter day and uses the remainder of the time in good solid thought on his work and also in recreation. This is the age where the man who stops to think is the man who is climbing the ladder of financial success very rapidly, and when the farmer's finances are in a satisfactory condition he is in a better shape to enjoy life and nothing will help him gain this success more than to commence keeping an account book of some kind, not necessarily complicated, but rather simple and effective.

As to book-keeping being a benefit there is no doubt whatever. Where, let me ask, would the business men in our towns and cities be if they did not keep a systematic set of books? The best of business ability would make an utter failure of I care not what business its champion undertook unless every detail of the business is looked after and a record kept by some good system of book-keeping. Oh, but you say, that is different. Not at all; the farmer is just as much the proprietor of his business as is the clothier, the manufacturer, the hardware man, or even the head of our largest departmental store, and his business demands attention in the way of book-keeping just as much in proportion to its extent as does that of any of the foregoing. Why

if there is no value in keeping books do the men engaged in all other callings keep books, and so many of them pay high salaries to employees to do nothing else? Surely this in itself is enough to convince the most skeptical. No farmer will concede that he has no business, on the other hand he is proud of his business and so he has good reason to be for no other calling under heaven yields so much profit as does agriculture if properly carried on, and no other calling of all the callings you may follow can be made yield a satisfactory profit unless a system of book-keeping is followed. Therefore if agriculture is staple enough to be profitable without its promoters keeping a record of accounts it is worthy of being termed a business and is surely worthy of being pushed forward to greater things by having all its accounts kept in a satisfactory manner.

The system of book-keeping on the farm must needs be simple and the simpler the better. An inventory of all the goods and chattels on the place should be taken first, and in the case of implements five per cent. per annum might be allowed for deterioration in value. After this is done, the farmer can keep a record of his sales and purchases both for indoors and outside in any way he sees fit. Different men have different ideas and different methods. Some keep separate books under separate headings as Feed, Live Stock, Implements, Expense, etc., and enter their transactions accordingly, while others enter everything in a simpler way, as receipts and expenditures. It really does not matter what method is used as long as everything is entered accurately and neatly. As time goes on the farmer will see where he can improve his method and will soon find that it is a source of much satisfac-

tion as well as a very profitable matter to attend to.

By itemizing his business transactions he is enabled to easily figure out his profits on his investment and to ascertain exactly what branches of his work are yielding most remunerative returns and to cease following those

branches that are not giving encouraging returns for his labors. In no other way can the farmer gain more in proportion to time and expense involved than to invest in a suitably ruled book and commence at once to practise a system of book-keeping.

W. T.

Farming For Profit, With Hogs a Sideline

F. M. CHAPMAN, B.A.

MAN began his life on a farm. The two sons of that agriculturist were farmers, one a successful breeder of livestock, the other a producer of fruits and grains. Out of this crude beginning have sprung up all the trades, industries and occupations of our modern complex business world. All these departments of human endeavor trace their origin back to the soil. How intimately they lie in connection, is only seen in times of a panic such as our neighbors experienced recently.

And mind which is ever greater than matter reverts to the freedom of the land, when the mammon of wealth-getting has spent his force. Many of our foremost men to-day pride themselves on their farms and find their real enjoyment there. Horace sang centuries ago of the glories of his Sabine farm. Old England is glorious with her tales of farm scenes. Whittier, the Quaker Poet of America, immortalized himself in his idyllic pen pictures in "Snow-bound." Indeed the farm is synonymous with music and harmony, to all

who have the spiritual insight into the real meaning of things.

The mysteries and underlying laws of plant and animal life demand a higher intelligence to comprehend than do the manipulation of stocks or the consigning of merchandise. To Wordsworth, the meanest of the flowers gave thought too deep for tears. To the born farmer, the rearing of livestock has a meaning just as deep and no creature of domestic usefulness is too insignificant for study. And in this connection the most foresighted has found questions, about the production, marketing and improvement of the hog to disturb his most serious philosophy.

The great importance of the hog, the *Sus Scrofa* of Linnaeus, in the domestic economy of the civilized world, is attested by the almost incredible number of hogs, that, annually travel the consumptive channels of the nations. Thousands of farms from Edmonton to Tampa are contributing their share in answer to the world's cry for more and cheaper meat. Each of these homesteads plays its part in the story that

is woven around that most plebian of animals, the pig. The constant strains of live hogs emptying into the packing houses of Canada and the United States—about ten millions a year into five leading American packing houses—these take their rise out in the hills, the valleys, on the plains and up the mountain slopes, wherever a farmer builds a barn or plants a tree. The infinity of a decade's production paralyses imagination. Not too lowly, therefore, is the inquiry into the doings of so important a factor in the nation's food bill.



FUTURE MATERIAL FOR THE PACKING HOUSE.

The wild hogs from which the domestic breeds have arisen are natives of Europe, Asia and Africa. In America and in Australia, they had to be introduced. History tells us that Nova Scotia got her first consignment in 1553, Florida in 1538, and Canada in the year of the foundation of that citadel city on Cape Diamond. In 1609 the English settlers of Virginia received a load of swine, and the story runs, that in eighteen years later, so great was the fecundity of the animals, that the citizens of Jamestown had to palisade the town to keep off the hungry denizens of the Virginian forests.

Three hundred years later, finds our pork barons scouring every nook and corner of broad America, with the tempting bait of \$9.00 and even \$10.00 per hundred and without material response. In these years the wild hog or razorback, whose capture was with a rifle and whose flesh was discerned with a lens, has given place, to the almost perfect porcine specimens one sees at the Ontario Winter Fair. The transformation—aye the miracle—has been brought about by men who utilized the laws of breeding, to the elimination of the undesirable and the unseemly, and to the cultivation of the flesh and the lines of beauty. Thus the farmer is a partner in creation. Therein lies the *raison d'être* of much of the livestock man's ardor and love of his work. Hair, hide and bones have been reduced and characteristics of disposition are being fixed. Thus the round Berkshire, the smooth Yorkshire and the good natured Chester are on so solid foundations that the appearance of "Sports" is at a minimum. As the tale unfolds to the farmer lad, the topic grows in interest. Let him who sees not, say that agriculture is a barren waste: that farmer, only, is a dullard who dubs himself so. Behold the mountains around him are full of wonder to him whose eyes are scaleless.

But does the fanciful crowd out the financial? Pork production, no one will deny, has been a lucrative business for the past few years. It is the long continued averages that the individual points to, and argues against hog raising. To be thoughtful, has there ever been a time when prices were so low that living returns could not be made? In that agricultural commission's report of 1881, since when such prodigious results to farm life have accrued. Mr. A. Elliott, of Essex County, said

that he would not consider himself a loser with hogs at \$5.00 per cwt., while a handsome profit accrued with \$6.00. What personal attention, love of work and care in feeding, will do is well in stanced from the care of an old English settler in Ontario County, where corn production does not enter into feeding operations like it does in the former county. Richard Squires was a born pig-feeder, and lived on a stoney, fairly fertile hillside farm. About every month he would have a pig-killing and take his dressed pork 25 miles distant to the City of Toronto, where his prices were not so good as they are to-day. He argued, and his results seemed to verify his statements, that he could make money on hogs at \$5.00 per cwt. dressed. Just how he could figure a revenue will be a bigger mystery to us than it was to his neighbors. But when we consider his minimum of losses, consequent upon a watchful eye, a good prolific strain and a successful feeding past the stunting period, we must give due credit to the pecuniary values of these abstract virtues.

To take a modern case. A well informed young farmer in the same county last year fed 24 hogs from two sows, and kept an accurate record of all feeds purchased, except a small allowance of skim milk. At seven months all the pigs had been marketed except three; one was dead, the result of an accident, and two were retained at home. The other 21 brought him a gross return of enough to warrant him in telling us that "I reckon I received just \$225.00 for 150 bushels of mangels fed." Here again, this man was a born feeder and took a decided interest in his animals; and the work was not disagreeable, no undesirable odors, nor uncouth appearance greeted the visitor. A pig is clean, give him half a chance.

"What the hog industry needs" says a writer in the Breeders' Gazette, of August 17th last, "is a more staple market. Radical fluctuations in prices exert a repressive influence on production." The world's palates follow the fashion also. Thirty years ago, the thick fat side was wanted. To-day the demand for Wiltshire sides is insistent. Bacon and eggs for breakfast, clamor the hordes in town and city. The business of catering to this still lies open to the farmer, as a sideline, if you will. He would be visionary indeed, who would predict a cessation of the industry. So that to the farmer who wants scope and abundance for his energies, enough has been said to show what real pleasures lie inherent in the art and science of livestock husbandry.

The bringing of the Yorkshire pig that leads in Ontario to-day, to its present high position has indeed been a wonder. Evolved from the white hogs of England, this breed has proven itself a decided fixed type. Liability to reversion to ancestors is almost at the vanishing point. Yet not all Yorkshires are desirable feeders; many breeders mate indiscriminately, and where the artist is absent defects will creep in. Good dispositions, prolific, easy feeding and otherwise desirable qualities are produced by breeding. Even in breeding shows less reactionary tendencies than in some animals.

Financial returns to a good farmer are not all measured in pork returns. The good breeder will be overwhelmed with orders for his stock, and a profitable field is here open to him. The temptation to sacrifice his best judgment for the sake of the glitter of the gold, though, must be overcome. Thus we see how the farmer in one line of work may receive due recognition of the goddess of wealth, and

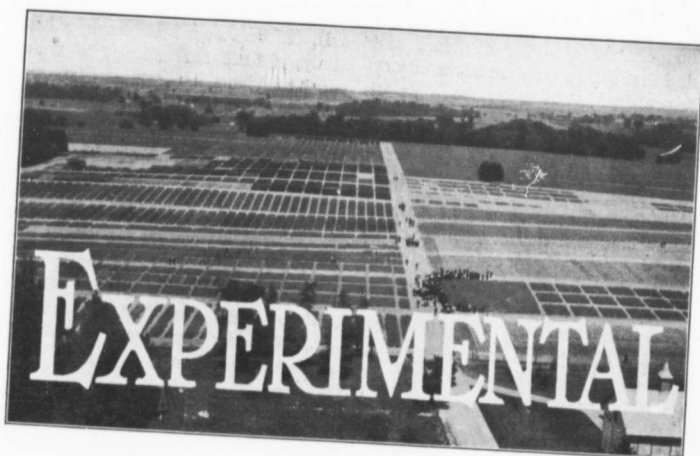
contribute at the same time to those finer sensibilities, and to the cultivation of those qualities of heart and mind that makes the man in the city or the professions stand out above his fellows. We need a Rustic Burns to tell us in these degenerate times what truly is the gold of life.

In conclusion, we may say that, while the evident end of toil and toil is to accumulate capital with which to satisfy our growing needs, yet in the satisfaction of those needs, and in the employment of our energies lies the true meaning of life. To the man's likes and dislikes a certain appeal must be made, in choosing a profession. In farm life there is some phase of the

work that will claim his interest, which fact can be said of no other pursuit. Moreover, a little work, a little study, a little reaction, all of which can be had on the farm, makes up a balanced ration for most men's mental capacities. That education would lead men away from the farm has ever been asserted and is to-day in a more or less degree. That youth, who rightly weighs in his own mind the pros and cons of national usefulness and personal enjoyment, will find that agricultural pursuits have plenty of unsolved areas for him to explore and abundant recesses in which to delve in his most enjoyable of all researches.



THE OLD HOMESTEAD.



The Rothamsted Experiments

ROTHAMSTED has become a household word wherever science is applied to agriculture. In 1834 Sir (then Mr) John Bennet Lawes succeeded to the estate of Rothamsted, Hertfordshire, and soon after began to conduct experiments with different manuring substances, first with plants in pots, and afterwards in the field. In 1840 and 1841 somewhat extensive field trials were carried out, and in 1843 the experiments were begun upon the comprehensive and systematic form which they have ever since maintained. The foundation of the Rothamsted Experimental Station is therefore usually dated from 1843.

The experiments, the most elaborate and comprehensive of the kind ever attempted in any country, have from the first been maintained entirely by the late Sir John Bennet Lawes, Bart., LL. D., who gave in trust the handsome

sum of £100,000, besides certain areas of land, to ensure to British agriculture the benefits and guidance derivable from the perpetual continuance of the Rothamsted experiments.

The Committee to whom the management of the Experimental Station is entrusted consists of representatives of the Royal Society, the Royal Agricultural Society of England, the Chemical and Linnean Societies, and the owner of Rothamsted.

From 1843 until the death of Sir John Lawes, in 1900, Sir J. H. Gilbert was associated with the conduct of the experiments, and had the direction of the laboratory; the familiar names "Lawes and Gilbert" appear on the titles of about 60 papers published between 1851 and 1900. Lawes died in 1900, and Gilbert followed him a little more than a year later, in 1901.

During the lifetime of the founders

of the Rothamsted experiments one or more chemists, besides the assistants engaged in routine work, were on the staff of the station; for many years also the late R. Warrington, F. R. S., was at work in the Rothamsted laboratory, and there conducted his long series of investigations into nitrification and the nature and composition of drainage-waters, with which his name is chiefly associated.

Since the death of Sir H. Gilbert, Mr. A. D. Hall, has been the Director of the Experimental Station, which,

variation for more than fifty years, so that all fluctuations due to season or to inequalities of the soil have been swept away from the results, and the effect of the manure upon the yield, the quality of the crop, and again upon the soil, have become manifest in a fashion unrivalled in any other series of experiments. At the same time, investigations into soils and such collateral questions as rain and drainage waters have always been pursued, while for many years feeding experiments upon cattle, sheep, and pigs



EXPERIMENTS WITH FIELD ROOTS, NORWOOD, ONT.

by the generosity of the Goldsmith's Company and other individuals, has been enabled to enlarge its staff and bring its equipment more into line with that of a modern agricultural research station.

Main Features of the Work.

The special feature of the Rothamsted Experimental Station has always been the manurial experiments upon the principal farm crops, wheat, barley, roots, clover, hay; field experiments which have been carried out without

were conducted, and led to the enunciation of some of the fundamental laws of animal nutrition.

The Soil.

The Rothamsted Estate adjoins the village of Harpenden. The land lies mostly about 400 feet above the sea. The average rainfall is about 28 inches. The surface-soil is a heavy loam, containing many flint stones; the subsoil is a pretty stiff clay, resting on chalk. The chalk is usually about 9 feet from the surface, and affords a good natural

drainage. The land does not bear a high rent. The soil is a fair one for wheat, but would not be considered as specially suited for barley; it is still less suited for turnips. The land in the district is still largely under the plough though much of it has been laid down to grass and affords fair summer grazing for bullocks and dairy cattle, but is rather too heavy for sheep.

Scope of the Manurial Experiments.

Different fields on the farm have been set apart for the study of individual crops; thus one has been devoted to wheat, one to barley, one to roots, etc. In each of these fields the crop has as a rule, been grown continuously for many years without the intervention of fallow or any other crop.

In the early years of the experiments trials were made with various miscellaneous manures, and the same plot of land did not each year receive the same manure, but since 1851 the present systematic treatment has been adopted, and the same manure applied to the same plot every year. In nearly every case farmyard manure has been annually applied to one portion of the experimental field, while another portion has been left entirely without manure. The other plots have received the various chemical constituents of manure, either singly or in mixture with each other. The substances applied have been generally—ammonium salts, nitrate of soda, rape-cake, super phosphate of lime, sulphate of potash, sulphate of magnesia, and sulphate of soda. The object has been to supply the various constituents of plant-food in their most soluble and active form, and thus obtain their greatest effect. By employing substances of known composition, it is also possible to calculate how much of each constituent has been applied to the land.

Each plot of land has, during the later systematic portion of the experiments, received each year, as a rule, the same manure. By this plan trustworthy averages of the amount of produce yielded under each condition of manuring are obtained, and also ample information as to the influence upon the produce of seasons of different character. The permanent or temporary effect of the manures is also shown.

By long-continued treatment of this kind the soil of the experimental field, which was at first practically the same throughout, has been altered, so that the different plots now represent extremely different conditions of food supply. On certain plots the crop now grows in soil specially exhausted of nitrogen, or phosphates, or alkalies, to an extent which can very rarely occur in farm practice; while in the soil of other plots abundance of these constituents has accumulated.

The work has not been confined to a determination of the amount of produce obtained from each manure; the crops have themselves been analyzed at the Rothamsted laboratory. Information has thus been obtained as to the proportion of the manure that is recovered in the increase of the crop; and also respecting the alteration in the composition of the crop brought about by the difference in the composition of the soil and the character of the season. The effect of manures upon the yield of the various crops may indeed be considered as settled by the fifty years of results that have accumulated; much however, yet remains to be investigated as to their effect upon the quality of the crops and upon the soil.

Soil and Drainage-Water Investigations.

The investigation has further ex

tended to the soil. After applying the same manure to the same land for many years, it becomes possible to learn by soil analysis what accumulation or exhaustion has taken place, and the depth to which the manure has penetrated. In one of the fields the drainage-waters are collected and examined; the nature and amount of the soluble matters lost by drainage, under various conditions of manuring, are thus indicated. The investigations relating to the soil are, from the difficulty of the subject, in a less advanced stage than those relating to the effect of manures on crops.

The chief experimental fields at Rothamsted have been treated as follows:

The Broad-balk Field contains 20 plots, each half an acre in area, on which wheat has been grown without interruption since 1843. One of the plots has been unmanured for the whole of that period, and it is interesting to note that the yield has shown but little decline during the last 40 years, for which period the average yield has been about $12\frac{1}{2}$ bushels per acre, very nearly the average wheat crop of the world. The other plots show the effect of varying the amount and nature of the nitrogen supply, of variations in the mineral constituents and in the time of year at which the fertilizers are put on. Where proper fertilizers are supplied there is very little evidence that the yield is declining because of the continuous growth of wheat upon the same land.

The Hoos Field has been growing barley since 1852. There again the plots are arranged to show the effect of variations in the amount and nature of the nitrogen supplied and the variations in the supply of mineral fertilizers. The most noticeable effect is the

importance of phosphoric acid to the yield of the barley and the deferred maturity of the crop on the plots from which this constituent is omitted. In the same field are a number of plots on which attempts are made to grow leguminous crops—clover, beans, alfalfa, etc., continuously, but unlike other crops it is found that this class of plant cannot be grown repeatedly on the same land with any success.

The Park Field is in permanent grass, and is cut for hay every year. Here the effect of fertilizers is seen not only in the yield, but in the rotation that has been effected in the class of plants occupying the land. Where nitrogen is dominant in the fertilizers the bulk of the herbage consists of grasses, the clovers being crowded out; where the fertilizers consist of phosphoric acid and potash the leguminous plants become dominant.

On the Barn Field various fodder roots have been grown since 1843, Mangel Wurzel having occupied the land every year since 1876. It is on this field that the value of potash fertilizers is most apparent, both in the yield of the crop and in its freedom from fungoid disease.

In the Agdele Field alongside, instead of the same crop grown continuously, the Norfolk four course rotation of turnips, barley, clover and wheat is followed. The results on this field show the value of clover in fertilizing the land for the growth of subsequent crops. From these plots also conclusions may be drawn as to the degree of fertility which can be maintained under practical farming conditions without the introduction of any extraneous fertilizers.

The Little Hoos Field is set aside for experiments on the duration of the effect of the chief commercial fertili

zers and the comparative returns from them during the four years following their application.

These are the chief experimental fields to be seen at the station, but a number of subsidiary experiments are always in progress, and the work of the station at the present time chiefly consists in investigations for which the above plots supply the necessary material rather than in any consideration of the yields themselves, the broad results of which were determined 30 years ago. For an account of the work, the original papers issued from Rothamsted should be consulted; they appear in the publications of the Royal Society, the Chemical Society, the Journal of the Royal Agricultural Society and the Journal of Agricultural Science. A summary is contained in the "Book of the Rothamsted Experiments," published by J. Murray in 1905, and in the lectures delivered in America by Sir J. H. Gilbert, which were published by the United States Department of Agriculture in 1895.

Scientific Character of the Trials.

It will be seen from the above sketch

that the object of the investigations has been primarily scientific. It has not been the aim to demonstrate directly the most economical manuring for each crop. None of the experiments have been designed with a view to a money profit; on very few of them would there be any profit if conducted on a large scale. The whole investigation, therefore, might stand condemned by the so-called "practical" man as a mere scientific amusement, from which he has nothing to learn. He, indeed, may learn little, but if so it is because he lacks the elementary knowledge which is necessary for an appreciation of the results.

The mode of investigation adopted is, however, one which must add largely to our true knowledge of crops, manures, and soil. This knowledge will be turned to practical account in a number of ways by a skilful farmer; but to provide him with practical rules has not been the immediate object of the investigation. To have aimed directly at practical results would have cramped the whole inquiry, and defeated its highest purpose.

In what a kingly fashion man doth dwell:
He hath but to prefer
His want, and Nature, like a servitor,
Maketh him answer with some miracle.

—Alice Cary.



Ontario and the Apple

J. W. CROW, B.S.A., PROFESSOR OF POMOLOGY, O. A. C.

"SAM, go out in the orchard and rake hay till noon, will you?" Sam was a new man and had been on the farm only a week. He wasn't slow, as a rule, but now he hesitated and looked at "the boss" quizzically.

"Orchard?" he said, "I didn't know there was one on the place."

"Oh," explained the farmer, "I mean that five-acre field out back of the barn. There used to be an orchard there but it didn't pay and we cut it down. We always speak of that field as 'the orchard' yet."

We need not concern ourselves with the specific names applied by the farmer to each of his various fields, but inasmuch as the fate of the hay growing orchard is typical of the fate of many orchards in this fair province it behooves us to enquire briefly into the wherefores of the case.

First of all, may I ask if the reader is aware that acres and acres of orchard trees have been actually offered up in smoke right here in Ontario because they "didn't pay?" May I state, too, that there are in this province to

day hundreds, yes, thousands of acres of trees that might better be dug up and burned so far as their present condition is concerned. I wish simply to make it plain that large numbers of orchards in this province are at the present time unprofitable. Lest I should be misunderstood as recommending the wholesale destruction of unprofitable trees, let me hasten to add that among the most profitable fruit tree plantations in the entire province (not excepting peaches) are some of these once-neglected apple orchards. How many peach growers in Ontario, or any other country, can show **strictly net** returns better than one hundred dollars per acre per year **over a series of years?** How many apple growers in the far famed West can show better **average** returns? The thing is being done to day in our own province, but most of us don't know it and many would refuse to believe it if we were told. And it is being done, not by new plantations, but by orchards forty and fifty years of age that **never saw a spray pump** until less than ten years ago. There are dozens of splendid orchards

still standing idle and any man with the necessary "sand" and a little capital can make lots in Prince Rupert and fruit growing in British Columbia look wasteful in comparison. "But," you say, "do you really mean to tell us that the apple business in Ontario is not progressing?" Now, don't run out and tell the county constable, "Get the shot-gun, that wooden man up there at the Agricultural College says fruit growing in Ontario is going to the bad, etc." I am referring to apples only and I am quite convinced that if accurate figures were available they would

increased. For verification of these statements ask the Dominion Fruit Inspectors and the buyers. Practically the entire commercial output passes through their hands and they can be relied on for an authoritative opinion. The buyers will tell you that the good apples simply cannot be had at any price. Those who cater to the better class of trade state that they can pay \$4.00 per barrel f.o.b. for strictly first class Northern Spies in carloads, but they are compelled to go to New York State or Nova Scotia for them because they are not available in Ontario.



"NEGLECTED."

bear out the truth of the following statements: Taking into consideration all those counties of Ontario which formerly produced apples in commercial quantity:—

1. The percentage of No. 1 fruit has decreased in the last fifteen years.
2. The percentage of wormy, scabby and otherwise defective apples has increased.
3. There is a smaller number of barrels of strictly No. 1 apples packed in this province to-day than there was fifteen or even ten years ago.

All of this is true in spite of the fact that the actual acreage of orchard has

In the face of these facts (if you will permit me to call them such) shall we conclude that apple growing as an industry is progressing or otherwise? Progress is undoubtedly being made in certain localities but, speaking in the broad, general sense, the progressive areas are small in size and can by no means be pointed out as disproving the general statement that the apple industry of this province has declined.

On one point at least, we are all agreed; if conditions are as represented above **something must be done**. Before recommending remedial measures, however, let us look at some of the causes

which have led to this state of affairs. Probably we shall not, in some cases, find it necessary to do more than simply "remove the cause," although that operation in itself may be no easy task.

1. The general increase of fungus and insect pests is particularly noticeable. When apples were first grown in this Province there were no pests, and fruit developed perfectly without the necessity of any special care on the part of the fruit grower. Some of the new localities in the far west are in this condition at present. Can it be said of us today, however, that we have failed to profit by the experience of other countries, or even by the results secured by some of our own number? No man in his senses will deny that control of codling worm and apple spot is perfectly practicable. But in spite of the development of special machinery and materials for the purpose, we have allowed these two pests to develop at such a rate that in many splendid localities fully eighty per cent. of our apples are disfigured by them.

2. Under the rather general term "Wintry Injury" are grouped a number of troubles which seem to grow directly out of the severity of our winter season. It was, of course, necessary to determine by experiment the climatic range of varieties and recent test winters have shown us plainly what may be expected from planting certain kinds too far north. The counties of Waterloo and Wellington contain scarcely an orchard of winter apples, whereas in former days hundreds of barrels of Baldwins, Greenings, Kings and Spies were shipped out. Spy is considerably harder than the other sorts mentioned, but Kings, Greenings and Baldwins are planted in this district under very imminent risk of serious injury if not entire loss. But how has the lesson of

1903-04 been regarded? Some growers, I find, are again turning their attention to apples and are planning to plant **these very kinds**. And there are many other sections where the lesson has been similarly overlooked. Let our northerly districts go more into fall apples. They are, as a class, hardier; they bear earlier and more abundantly, and if properly handled sell equally as well, if not better than the winter



CAUSED BY "WINTER INJURY."

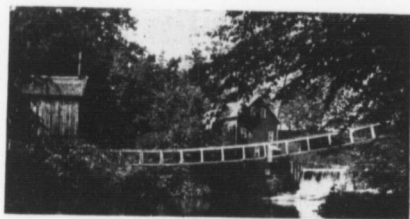
varieties. Thousands of trees have been lost to the Province from winter killing. Let us then select sorts adapted to the climate in which they are to be grown.

3. Shortsighted policy on the part of sellers and buyers. I cannot be accused of trying to put my finger on any one man when I say there have been far too many frauds and far too many crooked deals in our apple selling history. Too many of our buyers have

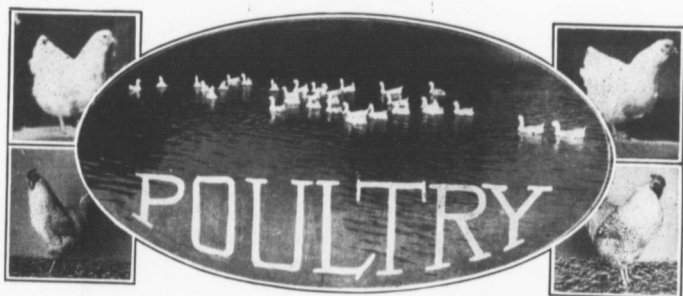
been speculators and too few of them have been reputable, reliable men with good business connections. Is common honesty such a scarce article after all? It is far from my mind to attach a hard name to the trade, but anyone who has looked into the question will have realized that our facilities for marketing have been inadequate. Our local buyers are not by any means responsible for all the trouble. A good deal of it can be traced to imperfections in the marketing scheme on the other side of the Atlantic. And a good deal of it lies, too, at the door of the farmer himself. There never was an apple "operator" so everlastingly crooked but some farmer could be found every bit as sinuous and, in all probability, "more so." Interpreted, this means: the farmer who asks more than a fair

market price for his goods is causing someone to lose money, and he thereby directly lessens the demand for the article he has for sale. The dealer who offers less than a fair price to the producer or who attempts in any way to gain an undue advantage is operating directly to discourage the producer. If the practice is persisted in, the producer is driven out of business, and **the dealer's occupation is gone.** This is exactly what has happened in Ontario. Farmers have not received the **encouragement of profitable prices** and have simply quit the business. Dealers are going into other lines or are transferring their operations to other countries. A number of former buyers are going into apple growing, realizing that good fruit is scarce and saleable at profitable prices.

(TO BE CONTINUED.)



RURAL ENGINEERING, "SUSPENSION BRIDGE."



Utility Poultry

GEORGE A. ROBERTSON, B.S.A., ST. CATHARINES.

TO many who raise chickens the words "utility stock" carry a very indefinite meaning. One of the first inquiries I had this spring for eggs for incubation purposes came from a man who said very decidedly that he did not want eggs from utility stock, but eggs from exhibition birds. Did he mean what he said? I think not. Breeders too often in describing their season's matings describe all the choice matings and then bunch up a lot of off-typed, ill-shaped, undersized, sickly specimens and call them utility stock; if these are utility stock, what are the better matings?

Utility poultry is that which can be used as a revenue producer, but is now usually made to cover those breeds which can be used for profitable meat production and profitable egg production or a dual purpose fowl, and we might take as examples the different varieties of Wyandottes, Plymouth Rocks, Orpingtons, etc.

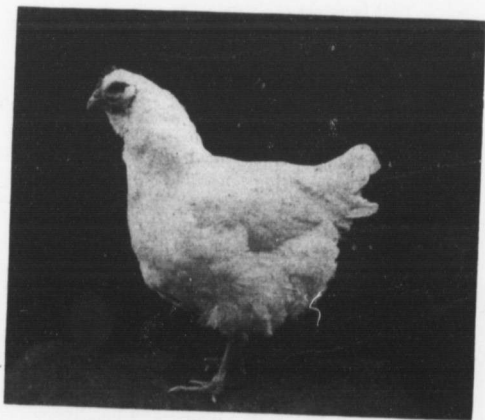
To say that all specimens of these so called utility breeds are utility poultry is saying what is decidedly mis-

leading. How often have I been asked Is there any money in poultry? How much could I make out of a hundred hens in a year? Certainly there is money in poultry; what one can make in poultry a hundred can lose. It depends on the man; it depends on the hen, too. There is a story told of a man who started by setting some eggs under a hen; the chicks hatched and did not do well, so he called in a neighbor. The first question was, What do you feed them? Feed them, why I thought the mother would have enough milk for them when they were that age. The average person who keeps poultry does not know what he keeps them for or if he did there would be many more profitable poultry farms. I have seen persons who undertook to raise broilers for market. They would have a flock of well bred hens, which they would force to lay early in February when eggs were worth forty cents a dozen; would buy an incubator for thirty dollars, brooder for fifteen, build a brooder house, fill the incubator ten dozen eggs at forty cents a dozen,

burn three gallons of coal oil in three weeks, hatch six chickens and three of them die in less than ten days. What is the profit?

Some years ago during the slack season on the farm, like many others, I got the incubator craze; had at first about 75 per cent. hatches, and year after year the hatches got poorer and poorer, and the number of eggs set was out of all proportion to the chickens hatched; one spring the chicks dropped off so rapidly that to save my

ers, laying larger brownish thick shelled eggs of uniform size and color. Setting each hen's eggs separately and toe-punching the chickens as they were hatched, I was enabled to tell what each hen could do. How No. 1, which, as a pullet, laid from 20 to 27 eggs each month from 10 January, when I started trapping, until June 1st, when I got too busy to keep records; laid eggs which gave me over 90 per cent. hatches, and from the few eggs I had set I had forty-five chicks reach



UTILITY WHITE PLYMOUTH ROCK HEN

self I put a few of the healthiest hens in a pen and hen-hatched the eggs; so encouraging was the work that the following year I bought a choice male and mated him to three of the best, healthiest, largest show specimens I had, and hatched by hens entirely, using Buff Orpingtons for incubating purposes. These breeding hens were selected also, because some few years before I had installed trap nests to weed out the poor layers, and as pullets these hens were good winter lay

maturity when brought them off the range in the fall. How No. 2, which laid almost equally as well, and eggs hatched fairly well, had only about fifteen come off the range; while hen No. 3, which also laid well, had only about 30 per cent. of the eggs to hatch, and when the chicks were hatched and toe-punched and perhaps all put with the same broody hen to mother then the chicks from hen No. 3 were perhaps trodden on by the mother, chicks from hen No. 2 occasionally, while chicks

from hen No. 1 were hatched to live and always keep away out of the road and no careless mother could set a foot to kill one of her chicks.

The next season's hatching was equally as interesting as the chicks from hen No. 1 laid eggs smaller in size, color and shape to the mother and had that power of hatching good strong chicks, the eggs laid by chicks from hen No. 2 were only fair in hatching qualities, while the one or two surviving chicks from hen No. 3 laid few eggs and almost all infertile.

I will not draw any conclusions from these experiments. I have time and again set ten eggs under a hen in January and February and got nine good strong chicks, more than some neighbors would get from 120 eggs in an incubator at that time of year.

What is utility stock? It means more to me than I can say in the space allotted to me. It is the hen that is full-breasted with good quality of meat completely covering the breast bone, with no inclination to put on inside fat in the posterior part with over-feeding of fattening grains, even in advancing old age. Hen No. 3 and her chicks did. Hen No. 1, which is now over six years old does not. (A cut of hen No. 1 appears in this article.) The valuable hen is not the hen which wins first at a Madison Square show and sells for \$1,000, it is the hen which will produce a flock of producers which will make meat and egg production profitable. The man that makes a success at poultry is the man who knows how to handle these hens. I will not touch of feeding and housing, except to say that my chicks

start on whole wheat, skim milk or butter milk, and get free range. I never feed mash or hot foods to my breeders; free range when growing, green food when shut in during the winter with perhaps green bone or meat scrap, lots of straw to scratch in, fresh air and a dry pen, use the trap nests, a good hen is always a profitable hen. A poor pullet usually lays less each year, and if from stock which is inclined to put on inside fat will lay infertile eggs at two years old, and many at one year old. The eggs often being thin shelled and causing the flock to start egg-eating, if not handled carefully. As a preventive for poultry ailments I would say breed only the healthy and most desirable specimens.

Then when the average poultry man becomes sufficiently educated, and we all meet at some future meeting of the American Poultry Association to revise the "American Standard of Perfection," and a resolution be brought forward asking to include a well-meated breast bone as a standard qualification for all of the general purpose breeds it is to be hoped it will not again be voted down.

The hen is the machine which converts the grain and other food into eggs and meat. If for eggs she must lay well and lay hatchable eggs and be prepotent in the egg-laying habit. If for meat production she must also lay hatchable eggs which will develop into hardy, quick maturing birds with well fleshed breasts, and of the proper type. This is to my mind what we mean by utility stock, and no breed, variety or strain can boast of an over-supply.

THE O. A. C. REVIEW

REVIEW STAFF.

S. H. GANDIER, Editor-in-Chief.

E. B. PALMER, Associate Editor.

W. TOOLE, Agriculture.

F. C. McRAE, Athletics.

I. B. HENDERSON, Experimental.

G. McROSTIE, Alumni.

F. M. CLEMENT, Horticulture.

S. H. HOPKINS, Locals.

M. C. HERNER, Poultry.

J. M. McILQUHAM, College Life.

W. H. WRIGHT, Artist

W. W. EMERSON, Business Manager.

E. A. WEIR, Assistant Business Manager.

Editorial

At this season of the year when colleges are re-opening their doors to the ceaseless stream of students, when another year of anticipated effort and enjoyment faces us, when our resolutions for greater achievement are still firm and unshaken, many of us in the excitement of the moment fail to thoroughly analyze ourselves before making the plunge. A business man will "count the costs" before launching out into any new business venture. The same principle holds good when entering upon a year at college. The costs of a college course, however, are not confined to finances. There are the physical, the mental, and the moral costs which must be met. Many a failure has resulted because a student has not reckoned with one or more of these. Ill-health through over study has proved the "Waterloo" of

Foreword

some men. An underestimate of the difficulty of the course has flooded others. Some students have literally "gone to the Devil" after they entered college, but we are pleased to state that this last class is quite unknown at O. A. College. Humanity has ever been lured by the mysterious and the uncertain. That's why a great percentage of students rush into the college year without properly weighing up the situation; and then many of these same students wake up sooner or later in the term finding to their cost that they have entirely ignored certain requisites to success. 'Tis true we learn by experience, but 'tis also true that we largely make our own experience. Is there such a thing as chance? Many dispute it. Circumstance, however, is a factor in everybody's life, and the man who can check, mould, and weave circumstance to his will, is the man

who is bound to succeed. Let none of us therefore be one of those who will be forced to look back upon the college year of 1910-11 with regret. "Count the costs" now and a successful year will surely reward your efforts.

The work of the District Representatives of Ontario is becoming more pronounced and more effective from year to year. It is now emerging from the experi-

mental stage, and is beginning to shape itself along more definite lines. It will probably be some time, however, before a perfect grasp of the situation will be accomplished. Each Representative at present is largely "working out his own salvation." His chief aim is to adapt himself to the needs of the locality in which he is situated. He cannot plan his work entirely after the system followed by some other man, but there are many problems which are of mutual interest.

Having realized this fact, the Review purposes publishing a series of articles upon various phases of the Representatives' work, and written by the Representatives themselves. We aim in this way to bring together some definite ideas which may prove of service to those already in the field, and also those who intend to become "agricultural teachers" in Ontario and elsewhere. The first article of the series appears in this issue and discusses that phase of the problem which deals with the actual "teaching" in the High Schools. In this article P. E. Angle, B.S.A., of Simcoe, gives us the benefit of his first year's experience at Simcoe Collegiate. In the November Review, Mr. MacVanel, B.S.A., of Picton, will discuss Farmers' Clubs.

The Review invites all Representa-

tives to freely discuss through its columns, any matter connected with their work. Material which might be sent in from time to time will be published in that issue immediately following.

Some students worry because they cannot remember everything they read. Very foolish worry.

Reading and the Mind It is not REMEMBERING things read that makes an abler

man. The important question is WHAT and HOW do you think as you read? Reading to the mind is like eating to the body. You cannot remember the beefsteak of week before last—and that does not matter. What matters is DIGESTION, the making of good, new blood as the result of eating meat. When your mind eats a book, it is not remembering the book that matters, but the making of new thoughts; the increase of mental power. Many men overeat mentally as well as physically. To swallow down a lot of books for the mere sake of swallowing is as foolish as swallowing down a lot of food with the idea that it will make you stronger. Only what you DIGEST adds to your strength, whether it be books digested in the brain or meat digested in the stomach.

You should eat slowly with the mind as well as with the teeth. You should think your way through a book, as you chew your way through a steak. It is not what the AUTHOR thought and wrote that is important to you. It is what he MAKES YOU think as you read him. The falling apple made Newton think of the law of gravitation. The dancing lid of the teakettle made another think of the steam engine. Very likely Newton soon forgot that apple, but it is not the remembering

that counts; so do not worry because you read a book and do not remember it. You might forget every word of it and still be a much abler man for having read it.

Let us glance for a moment at a few lines from Carlyle and see what thought they develop—

"Give us, oh, give us, the man who sings at his work! He will do more in the same time, he will do it better, he will persevere longer.

Wondrous is the strength of cheerfulness; altogether past calculation the powers of endurance. Efforts to be permanently useful must be uniformly joyous—a spirit all sunshine, graceful from very gladness, beautiful because bright."

You may not remember these lines to-morrow. What of it? The question is, what thoughts, if any, do Carlyle's words stir up in YOUR OWN MIND? Do you accept the statement as it is made or do you question its soundness, or confirm it with your own thought? Does it occur to you that it is all very well to say, "Give us the man who sings at his work," but it is first necessary to get the employer to give work at which a man can sing. Stoking in the hold of a ship under terrific heat, or digging ditches under the mid-day sun is not work conducive to song. A man with a sick wife and half-fed children may do hard and honest work but he will do it without singing. Singing is a fine thing, but the kind of work that LETS a man sing is finer.

And it is not true that "efforts to be permanently useful must be permanently joyous," for the slaves that built the permanently useful roads (under the lash) in the old days were not "joyous."

By all means "Give us, oh, give us, the man who sings at his work," but first of all give us, oh, give us, a civili-

zation in which work shall mean happiness and the DESIRE TO SING.

A problem which presents itself to the mind of almost every junior is

Regarding Options

"What course of study shall I follow in my senior year?"

To which option are my capabilities best adapted?" For a few this problem never existed. These few have entered their freshman year fully decided with regard to their entire college course. Not infrequently does it happen, however, that students of this number acquire a taste for some branch of agriculture other than that to which they originally intended to give particular study. It is true then, that the majority of students find themselves at some time during the first three years of the course, in a state of indecision, which each must terminate for himself or with the aid of some other person whose advice is of value. This is perhaps one of the most critical points in the career of every student, not so much in his career as a student as in his entire life. Every one of us who possesses a vestige of ambition, has occasional visions of future success either in the actual tilling of the soil, in research work, or in that most difficult of callings, "imparting to others the knowledge which we have gained." These visions are more or less vague, unfinished, undefined, yet none the less real. That these dreams may be realized even in part, we must follow up that work to which we are best adapted, that work which we feel will be rewarded with success, that work towards which we have a natural bent, work which in the course of accomplishment, will afford us pleasure; for after all contentedness in one's occupation, trade or profession, is one of the great

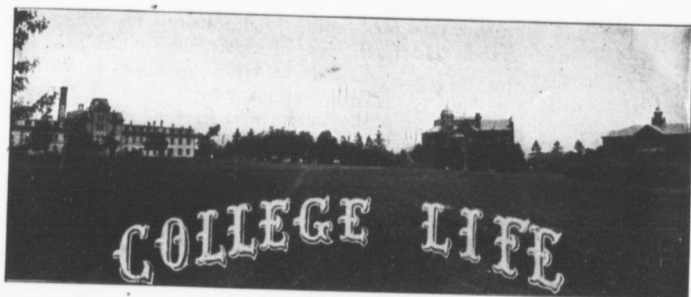
est boons of life. It is essential then that each student must give this problem serious, careful and deliberate thought.

The characteristics of a man's own nature together with his experience previous to entering the college, determine largely the option to which he devotes his energies. Not always will the man from a dairying district make a special study of dairying, nor will every student from the orchards and vineyards of Niagara seek success in the improvement and production of Canadian fruits. He frequently finds something else which proves more attractive. He may become absorbed in the wonders of insect and plant life; his powers of observation are keen and alert for detail. That man becomes a biologist. Another becomes interested in the composition of materials and the various effects which they exert one upon another. That man specializes in chemistry. A third student, probably because he has been raised upon his father's fruit farm or because he has heard of the wonderful fruit lands of British Columbia and the millions to be reaped therefrom, learns all that the Horticultural Option has to teach. A fourth student is fond of animals, of farming in a general way, and on a large scale. To him the Agricultural Option is most attractive.

But there is a fifth student to whom no one particular thing appeals more than another. A few months ago a certain student had fully decided to take the Biology Option. To-day that student is enrolled in the agricultural class. He belongs to that class of students who have difficulty in coming to

a final decision. He had no main base which would justify his decision in favor of a particular option. He was wise in finally choosing agriculture. We believe that this is the option for students who have no leaning toward any particular practical or scientific work. Let us state our reasons for making this assertion. The Agricultural Option is not specific; it deals with the broad, general principles of all agriculture. Some may claim this as an argument against its choice. They argue that this is the age of specialists, that a broad, general education is not desirable. We agree that it is the age of specialists in almost all trades and professions. Agriculture, however, is one of the few exceptions, which prove the rule. 'Tis true we need botanists, horticulturists, entomologists and other specialists, but it is equally true that the agricultural situation of to-day is crying for men of a broad and liberal education, men who know something of all the sciences and all the practices which are included in that very broad term, "Agriculture"; men who are in themselves, "the whole works" rather than those who operate only one machine of the agricultural factory.

We do not make these assertions in order to prejudice students in favor of the Agricultural Option. We simply state that for the student who is undecided with regard to his choice of options, agriculture offers a wide and varied range of work. If subsequently some specific phase of agriculture appeals to him, he can then with safety to the success of his career, concentrate his energies in that direction.



IT has been truly said that "absence makes the heart grow fonder," for what better proof would one ask for this statement, than to see the eager way in which the students assemble in our College halls on opening day. After the short five months' vacation. From all points of the compass they come, big, bronzed and hearty, drawn together by the desire for learning and comradeship, all ready and eager for another season of work and play.

The five months' absence of the students offers but little relaxation to the members of the faculty. A few take advantage of this period to continue their own studies, and thus better fit themselves for their work. During the past summer, Mr. H. H. LeDrew, our Lecturer in Economics, spent several months in England, Denmark, Sweden and Holland, studying the question of co-operation. Mr. H. L. Fulmer attended the summer session of the University of Chicago, pursuing a course in advanced chemistry intending to finally secure the degree of Ph. D. Later in the summer Dr. Creelman paid an extended trip to Western Canada, studying at first hand the conditions that are presented there.

The majority of the faculty, however, spent the summer in the usual way, at work in the office or laboratory carrying on experimental and investigation work. The June excursions to the College are becoming more popular each year, and the services of the professors are in much demand at these gatherings, giving addresses, answering questions and disseminating knowledge generally.

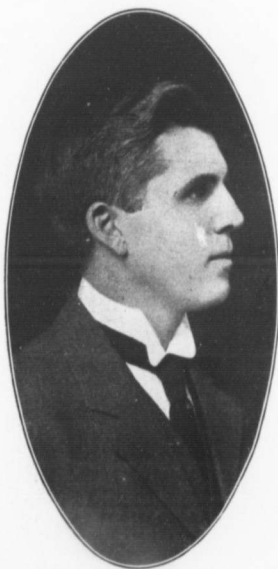
Much more work than usual has been accomplished by the Physical Department in the way of drainage survey work. Prof. Day has had this season ten men under his direction, making drainage surveys in different parts of the province. This work is becoming increasingly popular with the farmers of Ontario, and is bound to become more so, as the people become more alive to the values of under drainage.

Changes in Staff.

Each summer season is usually marked by a number of changes in the College staff, and the past season of 1910 has been no exception to this rule.

Mr. J. Buchanan, after fourteen years' connection with the Experiment

al Department, has resigned to take the position of Superintendent of Parks for Calgary.



J. BUCHANAN, B.S.A.

Mr. Buchanan was born at Hensall, Huron County, and there the first eighteen years of his life were spent. In 1892 he entered the O. A. College and received his diploma two years later. For the five years following he held a position on the office staff of the Experimental Department of the College. In 1899 he graduated with the degree of B. S. A., but illness compelled him to leave Guelph, and the next year and one-half was spent in the West. In 1901 much improved in health he returned to the O. A. College and again joined the office staff of the Experimental Department. In 1904 he was made Demonstrator in Field Husbandry, and a few years later Lec-

turer. Last year he received the position of Associate Professor of Field Husbandry.

Personally, Mr. Buchanan was quiet and reserved. He was very exact in his work, and had much ability as an artist. He was a very conscientious lecturer, as all who studied under him can testify.

In his new field of work in the West, Professor Buchanan will have more scope for his natural tastes, which had always leaned to Horticulture rather than to field crop work. The Review wishes him every success in his new labors.

Mr. Buchanan's successor as Lecturer in Field Husbandry is Mr. W. J. Squirrell, B.S.A. Mr. Squirrell has for ten years been connected with the Department of Field Husbandry, and during that time, previous to his new appointment, has held the positions of Assistant Experimentalist, and Specialist in Plant Breeding.

He has also had considerable experience outside the department—Farmers' Institute work, judging at exhibitions, and conducting the seed judging part of short courses held throughout Ontario. In 1909 he visited some of the most important College and Experimental Stations in Europe.

In Mr. Squirrell we have a man excellently prepared for the work he undertakes as Lecturer in Field Husbandry.

Mr. E. A. Slater, B.S.A., has resigned his position in the Chemical Department. Mr. Slater is returning to the land of his birth to take charge of the chemistry work in a college situated at Allahabad, North India.

To fill the vacancies on the staff of the Chemical Department two new ap-

pointments have been made in the persons of Messrs. G. E. Smith and G. P. McKay.

Mr. G. E. Smith comes to us from the faculty of Applied Science of Toronto University. The Torontonensis, 1910, has the following with reference to Mr. Smith:—

"Smith, George Ennis. Smith was born in Black County, England. After primary preparation, he was sent to Dudley Grammar School, where for over twenty years by a succession of eight brothers the Smiths have been prominent in class-room and athletic field. Smith Tertius made good progress, gained two foundation scholarships besides several other prizes, and by the enthusiasm and determination he has always displayed in sports soon won his position on the senior school teams. On leaving school he was attached to a firm of manufacturing chemists and was engaged in that business for nine years. He came to Canada in 1904. Not satisfied with his knowledge of Applied Chemistry he threw in his lot with 1910 and by placing a premium on work, has thus far gained honors."

The Review extends a hearty welcome to Mr. Smith in his new work here as Demonstrator in Chemistry.

Mr. G. P. McKay, who has been appointed Fellow in Chemistry, is a son of Chancellor McKay, of McMaster University. He is a graduate from the

1910 Arts' class with a science specialty. Mr. McKay has taken a very creditable course, and has always been prominent in athletics, having been a member of the senior teams in rugby and hockey. Mr. McKay should prove a valuable addition to the Chemical staff and we wish him every success in his work here.



W. SQUIRRELL, B.S.A.

On the Physical Department, Mr. R. W. Reek, B.S.A., a graduate of Class '10, has been appointed Demonstrator in Drainage. Mr. Reek's training has specially fitted him for this work, and his appointment should be highly satisfactory to both the faculty and the student body.



College Organizations

The older students know and appreciate fully the value of the different College organizations, but to the Freshmen we wish to give a word of advice. To be an "all-round man" you must take advantage of every opportunity to improve yourself mentally, morally and physically. To this end

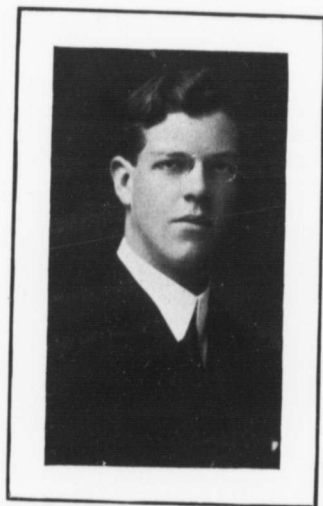
tained only by such students as take part in all the College organizations'

The O. A. C. Literary Society.

A Literary Society at an Agricultural College? It does seem slightly strange, for the word "literary" seems to imply something quite different from what you would expect of any society at such a place. But if that word does not seem most accurate for the organization, we at least know that it is the "nearest" one that can be discovered to describe its work and activities.

The "Union Lit." then, can best be defined as the College Society which fills the double task as a developer of public speaking ability, and as a social bond among the members. This fall term will probably see it even more active than previously; in addition to the numerous debates that give practice to all, there is the Oratorical Contest so soon to occur. For all who desire to compete in this—especially to the First Year men who are so planning—we would suggest immediate preparation while studies are light and plenty of rehearsal in the subordinate societies is possible. And, in the social way the "Lit." is desirous, as ever, of providing those pleasant "At Homes" that add so much greatly needed recreation to the extra vigorous course of study that we undergo.

The success of these two purposes depends upon every member of the Literary Society; every individual can aid to some extent, no matter what part he or she may have, and hence the active and hearty support of all is necessary. Do not fail to join the society and help it all you can.



A. SLATER, B.S.A.

there exists a number of student organizations, all of which are calculated to aid in your symmetrical development. These organizations are open to each one of you, but the extent to which you take advantage of them lies entirely with yourself. But remember, "The full value of the College course is ob

The Philharmonic Society.

The musical organizations of the College consisting of a Choral Club, a Chapel Choir, an Orchestra and a Brass Band, are grouped together and form The Philharmonic Society.



G. E. SMITH,
Demonstrator in Chemistry.

The Choral Club consists of students of Macdonald Hall and the College. Practices are held weekly during the fall term in preparation for the annual concert of the society. A cordial welcome is extended to all students to enroll and enjoy the season's work.

The Chapel Choir has about twenty five members and assists the musical part of the service on Sunday after noons throughout the College year. Practices are held weekly.

The College Orchestra is composed entirely of students, and there is every indication that it will be larger and more finished this year than ever before. In addition to the string and reed instruments we are this year adding a number of brass instruments, which should serve to produce a fuller and more balanced tone.

The Brass Band. This is our latest venture, but is none the less welcome nor certain of success. There are already twenty men, all of whom with one or two exceptions, have played in other bands. We shall be glad to welcome additional players.

In addition to the actual musical part of the society's work, the dramatic interests are provided for. A special committee will select available material and produce a play on the evening of the annual concert.

Throughout the year there will be a series of informal gatherings for the purpose of singing College songs, and it is hoped that a Male Glee Club can be formed, with the idea of presenting a show of some kind during the spring term.

The Y. M. C. A.

The College Young Men's Christian Association is an undenominational organization composed entirely of students. While the Athletic Association seeks to develop the physical side, and the Literary and Musical Societies the mental and social side of life, the Y. M. C. A. seeks to develop the spiritual and moral side of our natures, and thus all working in harmony have as an ideal "the all-round man."

The Y. M. C. A. devotes itself pre-eminently to the best interests of the students. Its constant aim is to build character, to make for all that is best in citizenship, to furnish the most

worthy advantages and environment which young men imperatively need for material success, to develop a high sense of obligation to the moral and religious things in life, and to furnish young men with an opportunity for service.

The Bible Study and Mission Study classes will be conducted as usual this term, and a cordial invitation is extended to each student to identify himself with some one of these.

By becoming a member of the Y. M. C. A. and taking an active interest in its work, you will identify yourself with a world-wide organization and an organization of no mean strength, for the College Y. M. C. A. movement is one of the greatest religious forces in the modern world.

The O. A. College Students' Publishing Association.

It was felt that though the O. A. College Review was strictly speaking, the property of the students, yet there existed a gap between the two which could be closed only by a re-organization of Review affairs; hence the O. A. College Students' Publishing Association was given birth in the winter term of 1909-10.

At present the chief work of the association consists in the publishing of The Review, but it is not intended that its energies shall be confined to this project. This is the only College organization which has "business" as its prime object. It runs its business on modern business principles. Hundreds of dollars are handled annually by The Review alone. At present the financial condition of the association is excellent; but it has visions of greater future prosperity. It plans such additional ventures as "the sale of text

books and stationery," and "the purchase and operation of its own press." Anyone who is acquainted with the business end of The Review's work can easily explain to you the possibility of successfully accomplishing these aims.

[See Constitution, Article II. Object of Association.]

The association cannot develop or succeed, however, unless it receives from the students the support which it



G. P. McKAY, B.A.
Fellow in Chemistry.

deserves. It needs the co-operation and interest of all students from the Seniors to the Freshmen, for upon certain members of every class devolves sooner or later in their College course, the guidance of the association's affairs. But the association deserves your support for other reasons aside from the fact that it is a College organization.

No man who has at any time been a member of The Review staff regrets his efforts in the interests of our magazine. True it is that a certain amount of time is sacrificed, but the experience received, whether from a business or literary standpoint, repays many times over the sacrifice of time.

The Constitution of this new organization may be found in the Y. M. C. A. handbooks for this year. Every student is requested to read it over so as to obtain some knowledge of the purpose, aims, and business detail of the

association. Its members will then be in a position to transact its business with a greater degree of intelligence which alone can produce true success.

Officers of the association are willing at any time to discuss matters which are in any way connected with the organization's business. We want all students to feel that with them to an extent rests the association's success, that its business is their business. The Executive can do its best in your interests only when it feels that you are interested in its efforts.



MEMORIES OF VACATION.

Alumni

To our Old Boys:

The success of our paper as a whole; and of the Alumni Department in particular, depends largely on the Old Boys. The Alumni Department is for the purpose of keeping in touch with the Old Boys and to enable them to keep in touch with each other. It is impossible for the Editor of this department to keep in touch with you all without your co-operation. In view of this fact, we ask the Old Boys to let us hear from them from time to time. We would also like to have any photographs of the Old Boys or their home surroundings, these will be promptly returned if so desired. If the Old Boys will kindly follow these suggestions it will help us greatly in our efforts to make the Alumni Department a success.

W. D. Albright, of London, Ont., entered College in the year '08, taking the two years' course and leaving in the year '03 with his associate diploma. After leaving College he went to Ontario county, serving in the capacity of herdsman for F. W. Hodson, then Dominion Live Stock Commissioner. This position, however, could not long hold Mr. Albright, who had literary aspirations. After spending five months on Mr. Hodson's farm, Mr. Albright left for Sussex, N. B., to assume the position of Editor of the "Maritime Farmer." He held this position until the year '05, when he came to London as associate Editor of the "Farmers' Advocate." Later, upon the failure of the former managing Editor's health, Mr.

Albright succeeded to his position, which position he now ably fills. Mr. Albright was married about two years ago to a Miss E. B. Lossing, of London, Ont. His instruction in Public Speaking while attending the O. A. College evidently stood him in good stead as he is now president of the "Baconian Club," an unique institution organized nearly twenty years ago. It is a combined literary and debating society and has as its members men from nearly all professions. Its primary object is to develop the art of public speaking. We all wish Mr. Albright every success in his work with the society as well as in his work as Managing Editor of one of our very best farming publications.

Mr. Herbert Weeks, of Alliance, Ont., was an associate of a number of years ago. While "Herb" was at College he made things "hum" in the line of study, always managing to come out "away up" when examination time came. When he left the College he went home to tackle the problem of successful farming. Although "Herb" was always courageous he has not yet ventured his life on the treacherous sea of matrimony.

Matthew Winters, more commonly known as "Mattie," was another associate of the old O. A. College. After leaving the College he went home to his farm near Grafton, Ont. Here he has spent most of his time since then working out the many problems confronting the farmer of the present. "Mattie" is thinking of again entering

the College and taking the Senior years.

Mr. A. E. Wark, an associate of '04, lives at his home near Wanstead, Lambton county. He is particularly interested in corn-breeding, and is doing good work in improving the corn in his section. He has been running a separating station for Lambton Creamery, but is going to discontinue this and take up dairy farming exclusively.

Mr. Bourke Fanshie came to the College in '04, leaving in '05, with his associate diploma. He lives with his father on their big home farm in Lambton county. This year they have been doing big things in the hay line, as they took off eighty acres of hay.

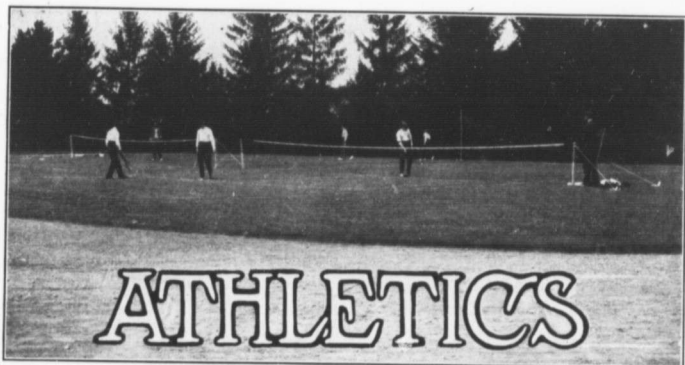
B. G. Palmer entered College with the '09 class, leaving in '07 with his associate diploma. After leaving College he went to his home farm near Norwich, Ont., where he has been putting into practice the teachings of the O. A. College. "B. G." is a dairy farmer and is especially interested in Ayrshire cattle, of which breed he has some good specimens. He is, however, still interested in the scientific side of farming, and is secretary of the Farmers' Institute at Norwich.

A. Mason, B.S.A., is a graduate of the old O. A. College. After graduating Mr. Mason secured a position on the Experimental Department of the College. This position he still holds.

"Art." came to the conclusion lately that single blessedness was not all that it is supposed to be so he wisely decided to change his state and join the ranks of the benedicts. The happy event took place on Wednesday, August 31st, when he was united in the bonds of matrimony to Miss A. M. Springer, eldest daughter of Mr. S. Springer, bursar of the College. The ceremony took place at the residence of the bride's father. After partaking of a sumptuous repast the bride and groom left for the scenes of the groom's childhood. We all wish Mr. and Mrs. Mason all success and happiness in their future life.

D. Roblin is another of our associates who is making good on the farm. After leaving college "Dave" went to his home near Dorland, in Lennox County. He is now married and owns a large farm. Although Dave is busy with his farm duties, the young men of the neighborhood will not let him keep out of sports. He still keeps up his baseball practice and pitches for the local baseball nine.

The marriage took place at 1 o'clock July 27th, at "Woodbourne Place," Vandecar, the beautiful home of Mr. and Mrs. Thomas Kneale, of their youngest daughter, Miss Margaret Goldie, to Mr. I. Franklin Metcalf, B.S.A., of Collingwood, eldest son of Mr. and Mrs. W. H. Metcalf, of Burford.—Collingwood Bulletin.



Some Hints in Training

R. J. BEMIS, BUFFALO.

MANY people claim that runners are naturally born to run rather than that ability on the track is developed. It is true that staying power and endurance are predominant in some men, yet there is no young man existing who cannot run one, five or even ten miles, just as he might walk a similar distance, provided he does not overtax the powers of his system by forcing the pace. It must be born in mind that to acquire excellence in running, as in anything else, one must devote a good deal of time and attention to training, preparation and development. It is usual for a young fellow to enter into open competition with, perhaps, only a couple of weeks' preparation, and getting defeated, he is often entirely discouraged and "quits." He thinks no more of racing till, by and by, his enthusiasm being again worked up through the medium of an attractive set of games,

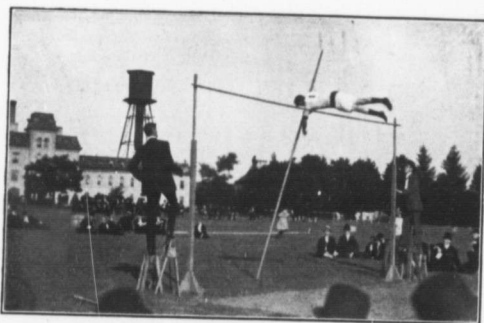
he again enters and is defeated, and again relapses into retirement. This is a great mistake. All of course can not excel, but every young man can learn to run well and fast if he has patience and perseverance, and, in addition, takes sufficient training to develop his latent ability and pays moderate attention to the laws of both mental and physical health. Regarding distance running and those best adapted to it, although experts have gone so far as to say that a man must be of a certain style of physique, height, weight, temperament, etc., no rule can be laid down in this instance. It is as natural to run as it is to walk; therefore we are all runners just as we are all walkers.

When it is decided to go into open competition and try one's luck on the cinder track, an elementary course of training, extending over a period of at least three months, must be gone

through. It is to be hoped that a man has not gone into dissipation before beginning to train. Dissipation is the enemy of life and the ruin of athletics. The enjoyment of an occasional cigar, a little spirits and so on, may not be particularly detrimental to racing. It is the abuse of these things which does the mischief. Smoking mildly indulged in, is not as injurious as many people imagine, but it is better by far to discontinue smoking entirely when going into training. It should be discontinued gradually and by no means suddenly. The person stopping all at

comes round. Of drinking the same may be said as of smoking. If a man is using up a great deal of vitality, a little stimulant may be necessary. For instance, brandy and eggs now and then will be found beneficial. Lager beer is very detrimental to the wind and bad for the stomach. A man who has developed a desire or love for drink and cannot shake the habit, is a forlorn hope. Regarding drink, "one man's meat is another man's poison." A little drink during training period may benefit some and ruin others.

A man cannot be too careful on the



"GOOD FORM IN VAULTING."

once will feel ill at ease, vexed and generally out of sorts. These unpleasant feelings must be guarded against by a gradual breaking off. Cigarettes above all should be avoided by athletes. They are a slow poison and look mean, cheap and effeminate. If a man craves a cigar after meals, the only way to overcome the habit is to light a cigar, take a dozen whiffs or so, and then throw it away. Finally discontinue it entirely. Athletes should also limit their desire to smoke when out of training. Otherwise they will experience all the more difficulty in discarding the habit when the athletic season again

point of diet. It is more than ridiculous for some men to attempt running with their poor stomachs overloaded with liberal quantities of coffee (a deadly enemy to the stomach), milk (which has a tendency to affect the wind), pudding, pie and ice cream (which softens the system and ruins the stomach), soup, ice water and lemonade. If a man does not shut down on his cigars, cigarettes, soup, pie, ice cream and liquors, etc., he may as well let athletics alone. A little fruit, such as strawberries and oranges, will kill thirst if taken with meals. The word training has a meaning, and

when a man says he is in training, he should remember that training means preparation.

A little rub-down before a man goes on the track is beneficial. It helps circulation and warms the man up, and one should be in as good fettle when out for a "breather" as when actually racing. When the man has gone through his work a light shower should be taken, but too much bathing tends to weaken a man. The athlete's bathing should amount to his immersing himself in the water, plunging through the shower as it were, and not standing under it as many do.

Accustom your nerves to bear the strain of the coming contest, which is always greater on the forenoon of the day of the races. Get your mind off it. In the race, never let the mind persuade you. A man must train his will power to predominate in racing, and must never give in or stop till nature gives out. Most races last but a few minutes, and a man may as well run himself "clean out" as stop when he feels tired. A one-time champion was once asked how he felt in a race. He answered, "In a mile race, I feel the pace at 440 yards, I am tired at the half mile, dead to the world at three-quarters, but got to go to the last lap."

Training for long distance running, as in every branch of athletics, must be begun slowly. The first step should be to get off the superfluous flesh so as to fit the system to the strain of training. Due attention should also be paid to purging or removing undesirable refuse from the stomach through the medium of some mild medicine. In training for a mile, a man should seldom go over three-quarters of the distance in private. Once in ten days is enough to go the entire distance. No definite rule as to the actual distance

to be run in training can be laid down because a spare man will not bear as much training as a stout man, and a man at twenty-five years of age will require more work to bring him round than a young athlete. Development of speed for the mile run, and, in fact, for all distances, must not be forgotten. A good miler must, in a way, get to run as fast as if he were training for a sprint, and ought to run 50, 75 or 100 yards at full speed daily, and should run 440 yards at top speed at least once a month. Learn to run fast in the last lap and gauge your speed so that you will have reached the maximum about fifty yards from the tape. A man should be careful about getting stale, but on this point it is sufficient to say that as long as a man's appetite is good he may rest assured he is not stale. In training for distances over one mile the same rule holds good regarding the distances to be run in training. For instance, in the case of a five-mile run, it is seldom necessary to run beyond three miles in training. Of course the full distance must be run now and again, but the athlete must be careful not to overdo it. To a great extent a man must consult his own judgment as to the amount of work he can bear, and should also note the amount of work experienced men take.

With regard to the other lines of outdoor athletics, the following suggestions may be found useful.

Running Broad Jump—In this game the take off is the main point to be guarded. Unless a jumper secures a good take off the jump is worthless. If the joint is not properly reached all is wrong. It is necessary, therefore, to mark a starting point for the run which will fetch him to the jumping line exactly. This is a matter easily ac-

complished with the aid of a friend. Have him stand at the joist and note where the foot strikes; should it strike six inches or two short of the line, then feet farther back. The jumper must run with all the speed at his command, without hesitation, and must be confident that the take off will be properly met. Plenty of practice will be required to get the necessary confidence. The knees should be quickly raised as high as possible when the jump is made; additional impetus is thus given. Care should be taken not to shorten the stride while running. The natural stride should prevail until the last two paces, when, if possible, it should be lengthened by a few inches. The result of this lengthening of the stride is to throw the body up, which means a few more inches gained in distance. Long striders are generally the best jumpers. Short striders, unless they have great speed, seldom excel at the game. The jumper should constantly practice at sprinting. Hopping about five hundred times a day is an excellent method of strengthening the jumping leg. Cover about nine inches with each hop about seventy-five consecutive times, rest a few minutes, then repeat the same thing till the desired number of times is reached. During a competition, while awaiting his turn, the athlete should carefully protect his legs from the cold air and exposure, keeping them thoroughly warm. It is impossible to jump well with cold and stiffened limbs.

Pole Vaulting—This is a game which requires a strong pair of arms as well as strong legs. As in the broad jump, a starting mark should be used, but the run need not be more than seventy or eighty feet. Speed is also an important factor in this game. Two of the

commonest faults to be found with the pole vaulter are, first, the take off foot is brought too close to the point of the pole in the ground; this prevents attaining the swing necessary to carry the jumper over; second, the arms are not used in raising the body, which should be done immediately on leaving the ground. Both these faults can easily be remedied, but either is fatal. When clearing the bar, the body should be turned so as to face the bar when the ground is reached.

In taking hold of the pole, the upper hand should be at a point about twelve inches below the height to be cleared, the lower hand from two feet to two feet six inches below the upper. The vaulter should grasp the pole as he would a rope in climbing, the thumbs pointing upward. The arms can be strengthened by all-round work on the horizontal bar. As in the broad jump, speed and strength should be developed in the jumping leg by the hop method and sprints.

Throwing Fifty-Six Pound Hammer

—An athlete desirous of becoming proficient at this game, need have no hesitation in commencing through fear of having to undergo an exceptionally irritable or trying ordeal. He has merely to observe the simple rules requisite to perfect health, and within these limits his diet may be as varied as he desires. As a matter of course he must be abstemious in smoking, but an exhaustive gymnastic course will be found unnecessary. Plenty of walking and his practice with the hammer supply all the exercise he needs.

The main point to learn in throwing the hammer is to get as much impetus as possible upon the body by rapidly spinning round, the arms being perfect

ly rigid with the hammer grasped in the hands. When the greatest impetus is obtained, the hammer is let go, an extra push being given at the last moment by a jerk of the whole body. No actual arm work is called for, the strain falling mainly on the back and loins. The hammer is swung round, when once the thrower has begun his spin at right angles to the body, and in a vertical position, and the arm and handle thus act as one and the same lever. A very slight grasp of mechanical principles will show that the hammer head is as it were attached to the circumference of a revolving circle, the motive power being supplied by the spinning body at the centre. At the moment of delivery the centrifugal force causes the hammer to fly off in a straight line. It follows that the hammer will fly furthest when the greatest momentum can be produced. It is therefore obvious that where run is allowed, the heaviest man, provided he can acquire enough skill to revolve rapidly without falling over, must inevitably be able to throw the hammer farthest.

Shot Putting—From time to time various theories have been advanced as to the relative merits of big and small men in putting the shot, but the differ-

ent degrees of excellence can never be accurately estimated by inches or feet. Exceptional strength and height are not such indispensable aids as elasticity and quickness of muscle, and as these qualities are more frequently combined with moderate stature, the pre-eminence of a medium sized man is not surprising.

The main point in putting the shot is, getting one's "weight on," that is to say, to employ mere arm work as little as possible, getting the impetus for propulsion from a rapid spring and half turn of the body. The putter stands at the back of the circle, holds the weight in his right hand (if he is right handed), and balances his body on his right leg. After having acquired his balance and limbered the muscles of his arm by stretching it to its full extent, he takes a quick hop to the centre of the circle; then with a sharp spring, the right half of the body is brought sharply to the front, and arm and body shoot out in unison with the concentrated effort of the entire muscular system. A careful study of the most scientific performers must be made to render a written account intelligible to the novice, who should then be careful to use a light shot until he has thoroughly mastered the requisite motions.

And hath in it the more of heavenly light,
 So it, the fairer body doth procure
 To habit in, and it more fairly dight,
 With cheerful grace and amiable sight,
 For, of the soul, the body form doth take,
 For soul is form, and doth the body make.

—Spencer.

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.

Summer School for Teachers, July, 1910.



The attendance at the Summer School this year was one hundred and twenty. This is the largest summer class held since the commencement of the work in the summer of 1904. The session was marked not only by an increased attendance, but also by an enthusiasm and interest even greater than that of former years. Amongst all the teachers there appeared to be awakened resolve to bring something of the newer teachings of art, manual training, nature study, etc., to the children in their schools. This interest, enthusiasm and resolve augurs well for progress in many centres of influence throughout Ontario.

The work was carried out by the College with the support and direction of the Department of Education. No tuition fees were charged except to teachers non-resident in Ontario; for such, a fee of \$10.00 was charged. For the four weeks' board in Macdonald Hall, a charge of \$15.00 was made.

Staff of Instruction.

In carrying out the different courses twenty-three members of the College staff shared in the work of instruction.

In Household Science:—

Dr. Annie Ross—Home Nursing.
Miss E. Allan—Laundry.
Miss M. McLennan—Cookery.

In Industrial Arts:—

Prof. Evans—*Director*, Metal Work, etc.
Miss M. Long—Art and Constructive Work.
Mr. E. W. Kendall—Woodwork and Mechanical Drawing.

In Nature Study and Elementary Agriculture:—

Prof. McCready—*Director*, Methods, etc.
Mr. E. A. Howes—School Gardening.

Mr. J. W. Eastham—Plant Studies.
Mr. Wm. Hunt—Plant Propagation
Prof. Hutt—Landscape Gardening.
Prof. Crow—Fruits and Vegetables.
Prof. Dean and Miss L. Rose—Dairying.

Prof. E. Day and Mr. R. W. Wade—Farm Animals.

Prof. Graham—Poultry.
Mr. R. R. Graham—Physics.
Prof. Harcourt—Chemistry.
Mr. D. Jones—Bacteriology.
Prof. C. A. Zavitz and Mr. W. Squirell—Field Husbandry.
Dr. Bethune and Mr. T. D. Jarvis—Insect Studies.
Miss M. Moffat—Stars.

The general arrangement of the work was much the same as in 1909. Instruction was given in five distinct courses, and a teacher was allowed to take only one of these. In the **Household Science Course** there were eighteen students; in **Woodworking and Mechanical Drawing** there were fifteen; in **Art and Constructive Work**, twenty-seven; in **Elementary Agriculture and Horticulture**, ten, and in **Nature Study**, fifty.

Practically all parts of the Province were represented in the classes, with Toronto especially well represented again. There were three students from the United States and one from Manitoba. One pleasing feature of the summer classes is the increasing number of teachers who come back to continue their work in some special line or to take up work in another branch of study. No less than ten of the class were taking their third term and seventeen were back for their second summer. There were twenty-nine men in all the classes, a larger representation of male teachers than is usual.

The work covered in the courses in Art, Constructive Work and Woodworking leads to the certificate in **Elementary Industrial Arts**, issued by the Department of Education; for the courses in Nature Study and Agriculture the certificate in **Elementary Agriculture and Horticulture** is awarded.

Students in Attendance.

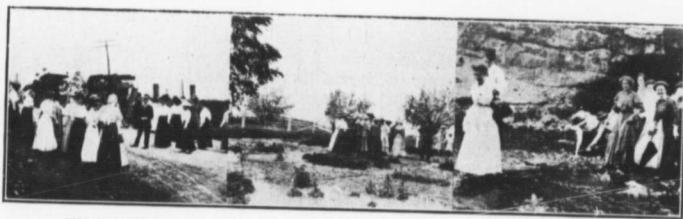
In Domestic Science—Misses M. K. Dixon, Hamilton; F. F. Fox, Stratford; E. Hare, Aylmer West; F. A. Lindsay, Eastwood; B. M. Thomas and M. Thomas, Lindsay; F. C. Thompson, Canfield; R. I. Wilson, West Toronto; M. A. Burke, Passiac, N. Y.; B. Baillie, E. Blackmore, A. M. DeLaporte, I. Hamilton, E. M. Lailey, G. M. Robb, B. A. Wilcox, L. A. Wilcox and M. B. Will, Toronto.

In Art and Constructive Work—Misses M. Chapman, Campbellville; M. Copeland, Kirkton; E. Duncan, Brantford; N. Feeney, Madoc; E. I. Hedley, Canfield; M. E. Jamieson, Lynn Valley; A. E. Kelly, Woodstock; E. Teeter, Smithville; T. McKillop, Eagle; S. P. Code, Trowbridge; A. B. Macdonald, Picton; A. J. Tweddle, Strathroy; G. E. Lounsbury and S. Wessel, St. Catharines; J. D. Thompson, Tillsonburg; L. Waterman, Bensfort; A. M. Mackay, B. Corbett and A. M. Burke, Belleville; H. Barnby, Caledon East; G. E. Burford, West Toronto; E. Bruce and A. M. Lanskill, Toronto; Messrs. J. Corrigan, Elmira; R. A. Langford, Warkworth; J. T. Curtis, Seaforth; A. E. Ness, Port Dalhousie.

In Woodworking, Mechanical Drawing, etc.—Messrs. A. Moir, London; C. T. Yeo, Galt; W. F. Darroch, Toronto; E. Slaughter, Collingwood; W. T. Ferguson, Smith's Falls; H. L. Ingram, Belleville; D. D. Smith and D. N. Cornell, Cornwall; L. G. Lorrinan, Thorold; J. Whidden, Goderich; T. J. Later, Listowel; J. E. Chambers, W. M. Flumerfelt, W. G. Ward and F. J. Phelan, Guelph.

In Elementary Agriculture and Horticulture—Misses L. Clyde, Chatham; M. A. Eberhardt, St. Catharines; M. M. Reid, Erin; N. A. M. Banting, L. A. Fawcett, E. Fuller, A. A. Malcolm, M. D. Moffatt, M. Robb and E. G. Winn, Toronto.

In Nature Study—Misses E. M. Allingham, Corunna; M. Argue, Stittsville; R. Black, Trenton; L. Carrow, Brantford; M. E. Dark, Brussels; M. C. Davidson, H. Fee and E. M. McCalla, St. Catharines; M. E. Davies, Adrian, Elgin Co.; A. Delamore, Newcastle; M. L. Farquharson, Chatham; N. M. Fenton, Hamilton; M. M. Fox, Smithville; H. Freebey, Maryland, U. S.; A. C. Hare, Aylmer West; E. Hicks, Belleville; A. L. and A. V. Heuston, Thorn dale; M. G. King, Virginia, U. S.; M. I. Klinck, Stouffville; L. V. McEwan, Osnabruck Centre; M. A. Martin, Fergus; I. L. Robertson, Strathroy; E. J. Rogers, Wardsville; V. J. Roschman, Berlin; L. Rush, Cannifton, Hastings Co.; R. A. Tate, Bobcaygeon; M. Truman, Glenarm, Victoria Co.; M. Doherty, Erin; M. Wilson, Huntley, Carleton Co.; E. Lawson and H. Peck, Streetsville; N. Hansuld, Tavistock; A. V. Beattie, J. E. Calder, E. M. Cook, D. F. Eldon, E. Guillet, M. McIlwain, M. S. Russell, R. Sanders and K. Sturgeon, Toronto; Mrs. K. Mitchell, Brantford; Messrs. G. P. Britton, Colborne; I. Hammond, Elmira; A. J. Kaufman, Kurtzville, Perth Co.; A. R. Merrill, Campbellford; H. W. Watson, Winnipeg; T. Dowler and R. Ballantyne, Bracebridge.



EN ROUTE

MARDEN

ELORA

Class Outings.

The Summer Class Saturday outings are always enjoyable. While they offer in some measure, relaxation from the hard week's work, they are not devoid of profitable instruction and sightseeing. There were two excursions this year. On July 16th a party of about thirty students, under the direction of Messrs. McCready and Kendall, visited Niagara Falls, and on the 23rd about eighty of the class journeyed by tally-ho and carry-all to Elora, visiting the Marden School Gardens *en route*. At Niagara the class had the pleasure of seeing about Queenston Heights and the village of Queenston, under the guidance of Mr. McGeachie, curator of the park, who pointed out the points of interest and explained very clearly the happenings of the battle. Under Mr. Moore, Landscape Gardener to the Park Commissioners, and Mr. Dalton, the

sexton of Lundy's Lane burial ground, a visit was also paid to the battlefield of Lundy's Lane. In Mr. Dalton's vivid recital, the stirring events of the war of 1812-13 were revealed to our teachers in many new lights.

At Marden, Mr. Buchanan, the teacher in charge, gave an interesting talk in the school garden, dealing with the subject of school gardening in its many practical and pedagogical phases.

News Note.—Mrs. D. W. Stewart, of Renfrew, is desirous of exchanging herbarium specimens with other plant collectors. This offers an opportunity to some of those who commenced this work at Guelph to add some representative plants of the Ottawa valley to their collections.

Progress of School Gardening in Ontario.

From reports received from teachers who attended the Normal Teachers' Class in the spring of 1909, there are good signs of a widespread interest in the subject of school gardening.

The following report carrying on gardens in accordance with the regulations under which grants are awarded to teachers and schools:

- Miss Annie M. Boal..... S. S. No. 16, N. Dumfries, Waterloo, Glenmorris P. O.
- " Jessie Eakins..... S. S. No. 15, Burford, Brant, Fairfield Plains P. O.
- " Laura Fuller..... S. S. No. 1, Ellice, Perth, Stratford P. O.
- " Maggie G. Hamilton.. S. S. No. 12, Windham, Norfolk, Brandy Creek P. O.
- " Jean Schleihauf..... S. S. No. 6, Chatham, Kent, Eberts P. O.
- " Gertrude Sprague... S. S. No. 1, Elma, Perth, Trowbridge P. O.
- " Bessie Van Every... S. S. No. 23, Waterloo, Waterloo P. O.
- " Florence E. Wegenast. S. S. No. 11, Malahide, Elgin, Aylmer (W) P. O.
- " Lily E. Wilson..... S. S. No. 4, East Whitby, Oshawa P. O.
- " Mary Watson..... U. S. S. Nos. 3 and 10, Plantaganet, Prescott, Pendleton P. O.

Others are carrying on the work, but on a smaller scale than that required for securing special grants:

- Miss May S. Cody..... S. S. No. 8, Beverley, Wentworth, Ryckman's Corners P. O.
- " Lucy Kenny..... S. S. No. 9, Oxford, Kent, Muirkirk P. O.
- " Eleanor Perrott..... West Essa, Simcoe, West Essa P. O.
- " Edna M. Root..... S. S. No. 1, Augusta, Grenville, Prescott P. O.
- " Elfleda Roy..... S. S. No. 6, Downie, Perth, Avonton P. O.
- " Violet M. Savage.... S. S. No. 1, Oxford, Kent, Clearville P. O.
- " Edna D. Twiss..... S. D. 1744, Floata, Sask., Hanson P. O.



Higher Education.

Ef yew was me, what wud yew dew,
Ef yew sent yer boy to skule,
And the gol durned colt returns yer
luv

By turning out a fule.
He come to home in the early fall
Es stuck up es that rail,
An' made more noise with that College
call
Than that calf without 'er tail.

He puts on gloves to milk ther cows,
An' cleans his teeth at night;
An' wears a collar when he ploughs,
That's mostly allus white.

I ses to him ther other night,
"Ulysses, feed ther hogs."
He ses, "Excuse of me I pray,
I cannot spoil these togs,"
"But if yer wait a minit, pa, I'll send
the mater down,
She's used ter handling of the goo—"
An' then I knocked him down.

I pulled that white rag off his neck,
An said, "Excuse me, son,
I see I've got a colt to brek,"
An, then I gave 'im one.
Ther polar plexus is his name
Fer where I put my fist."
An, then I ses, "Pick up that goo,
An' mind an' call it grist."

"I'll give yer a post mortem course,
In the good old-fashioned way,
An' when yer graduates, I'll bet
Ye'll call them colloids clay."

—P. L.

Barrett (sick in hospital) — Don't
you think I ought to go to a warmer
climate, Doctor?

Doctor Stewart — Good gracious,
man! That's just what I'm trying to
save you from.

Caesar (to third year)—The best
way to rid a house of bed bugs is to
fumigate, clear the rooms, lock the
doors and turn them out one at a time.

In Physics Classroom.

Professor Day—What is a vacuum?
Eager Freshman—Vacuum? Why,
the Vacuum is where the Pope lives.

Our tall, dark-haired friend, Dougall, from sunny South Africa, hired with a farmer in Wellington county this summer, and thus described his experiment to an acquaintance:

"Well, you know you have the most

of most exasperating work, and is still a total mystery to me. When I got to the field I found that both those con-founded horses were too stent as neither of them could be backed be-tween the shafts of the plow, so I abandoned the idea altogether. After I had been with the farmer for a day or two he began to develop a most irri-table disposition, and when I attempted to fill a scraper with a shovel one day



extraordinary ideas of farming in this country. I thought all the work was done by these low foreigners. Why! I, a white man and a gentleman, was actually requested to pitch manure. I did the beastly job under protest, and I found that it had its compensations. It gave me a glorious appetite. I remember I was sent out to plow one day with a team of horses, the harnessing of which took me two solid hours

he was most unwarrantably sarcastic. However, my chief objection was his habit of calling me at most unheard of hours during the night. Why! The last morning I was roused at 4 a.m.; and you know my rooted objection to early rising. It was the last straw. I dressed and packed my grip and, informing the farmer that I was leaving to find somewhere else to stay the night, I came away."

The Evolution of an Entomologist.

I am an entomologist; I did not start to be one; there was a time I'd not have known one had I chanced to see one. I would have been a gardener—alas, my hopes were blighted, for bugs and flies and worms and things came to me uninvited. Last spring I set a garden out, such dainty beds and patches. Said I: "Twill be a gladsome sight, provided my seed hatches." (Now hatch may not be quite the word, but rhyme is such a fetter to synonym I have to yield, though sprout would suit me better.)

I am an entomologist; of insects once so wary I'm deep in entomology that's quite involuntary; upon my few potato stalks are cross-barred bugs and striped with appetites omnivorous and greed that's truly biped. I hear them call across the field to feathered bugs and furry: "There's lots of green stuff over here, so hurry, hurry, hurry!" And then there comes the bug parade from all the fields surrounding; I hear the locusts' rusty legs across the green sward sounding; I see the worms come trundling in, the lord bug, and the lady; they get beneath some luscious leaf, and in seclusion shady they eat my peas and spinach up, bugs robust and bugs pallid; they make my cabbage into slaw and string beans into salad.

I am an entomologist; I have red bugs and white ones; bugs young and old and middle-aged, and heavy bugs and light ones. I have them lean, I have them stout, dry-land bugs and aquatic, and bugs that leap from leaf to leaf—I have bugs acrobatic; I've bugs that crawl and bugs that fly, bugs of each kind and venue; potato bugs, tomato bugs, and bugs for every menu; I've some that dig in earth for roots, and some that feed on topses; I've bugs that pick the early fruits and bugs

for all my croses. And so I've lost my interest in garden stuffs and "sasses"; I'm listing all my bugs and things and sorting them in classes.

I am an entomologist; my heart I will not harden; I gather every kind of bugs and feed them in my garden; I roam the byways of my plot with lustrous eyes and eager; what if the cabbage are nil and foliage is meager! I see a new bug and I know I've scored another capture; so I behold it with delight and watch it eat with rapture; a stranger worm goes wriggling past, I watch its pathway finish, to learn if it likes corn or peas or beans or squash or spinach. I've learned the names of them by heart; I know their moods and tempers; I feed them daily a la carte regardless of expenses. And so from humble gardening, from toil's remorseless prison I tread the scientific clouds—pray note how I have risen. I may not as a huckster shine—(greenstuffs, I beg your pardon)—but, oh, the world of bugs is mine! Pray come into my garden—J. W. Foley, Saturday Evening Post.



Harding (seeing Searson about to start on third plateful)—You ought to be ashamed to eat so much, Teddy. I didn't think it was in you.

Teddy—It isn't yet, but it jolly soon will be.

**After Union Debate.**

Phillips (who has budding moustache)—Have you any criticism of my speech to offer, Miss B.

Fair Mac. Maiden—Well, really, I like your politics no better than your moustache.

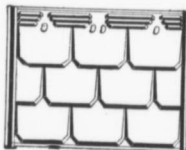
Phillips—No matter, Miss B., you are not likely to come in contact very much with either.



The Roofing for all Roofs

You just ask the man who
has watched burning brands besiege an
"Eastlake" shingled roof. He knows the reasons why

"EASTLAKE" METALLIC SHINGLES



are called the only right roofing for factory, house, office or barn.

And an "Eastlake" roof is permanent—just as weathertight 25 years after as the day it was laid. Actual wearing tests have proven it—you know exactly, when you roof with "Eastlake."

Eighteen years ago many of the buildings at the Ontario Agricultural College were roofed with "Eastlake" shingles. To-day they are in perfect condition. What better proof could you have of "Eastlake" superiority?

Better write to-day for our free illustrated booklet "Eastlake Metallic Shingles." It gives the facts you should know—roofing information that means money to you.

Other Reasons for "Metallic"

"METALLIC" CEILINGS AND WALLS are more than mere decoration. They are a positive insurance against fire. For the home, office or store, "Metallic" Ceilings and Walls are handsome, clean—far cleaner than plaster, better than selected timber, and far more durable than any other material for this purpose.

REMEMBER THE "METALLIC" LIST—Rock-Faced Brick and Stone Siding, Sheet Steel Pressed Brick, Metallic Cornices and Skylights, Ventilators and Finials, Conductor Pipe, Pressed Zinc Ornaments, etc.

MANUFACTURERS

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

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

"Can I have some water to christen my doll," said little Dorothy.

"No dear," replied her mother, "you mustn't make fun of such things."

"Then I want some wax to waxinate her, she's old enough to have some thing done."

First Sunday in Term.

Kay—Come on to church.

Freshman (loftily)—Couldn't, I'm an atheist.

Kay (horror-struck)—What! Don't you believe in the Bible?

Freshman—Well, I believe in most of it. For instance, I believe that Noah built the Ark and packed it with animals, but when I read that the Children of Israel carried that big, unwieldy thing for forty years in the wilderness, there my faith goes all to pieces.

The Pages of this Journal are printed on



Reliance
Coated
Book



Manufactured under a special formula
exclusively for

THE
BUNTIN, REID CO.

— of —

TORONTO, ONTARIO

— by —

The Canada Coating Mills

— of —

GEORGETOWN, ONTARIO

"Lots of People" like to insure in mutual life companies because in such companies they get the best results, and because the largest, strongest and best life companies in the world are, like the

MUTUAL LIFE OF CANADA

purely mutual. The sound financial standing of this Company is beyond question, as is also its ability to write policies on every safe and desirable plan on terms favorable and just to applicants.

GEORGE CHAPMAN, District Manager,

Office 8 Douglas Street,

GUELPH, ONT.

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



A \$3,000 Stock Book Free

Contains 183 Large Engravings.

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

MAILED FREE. POSTAGE PREPAID.

Write for it at once and answer the following questions:

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

Match 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 Canadian Route to the West

When you travel to Winnipeg, Western Canada or the Pacific Coast, be sure your ticket reads via the route that will insure you the most comfortable trip. The following reasons prove the superiority of the

Canadian Pacific Railway

1. The only through line; coaches, tourist and standard sleepers daily to Winnipeg and Vancouver.
2. The shortest and fastest route; unexcelled equipment.
3. The avoidance of customs and transfer troubles.

ASK ANY AGENT
FOR PARTICULARS



ASK ANY AGENT
FOR PARTICULARS

If's.

If you are a Freshman, don't give up—
it isn't all your fault.

If you are a Sophomore, eat Grape-nuts
—it's a brain food.

If you are a Junior, stay away from the
Mac—the girls have enough to make
them homesick already.

If you are a Senior—you may as well
die now as later. No one will miss
you.

If you are none of these—seek the tall
timber!

If you think that you are indispensible
—quit thinking, your imagination has
played you a scurvy trick.



Dugald—Do you believe ignorance is
bliss?

Miss G-n.—I don't know. You seem
happy enough.

A Freshman's First Letter Home.

Dear Father,—I am grieved to rite
you for munny so soon, but it takes a
awful lot hear, especially to bye books
and join Y. M. C. A.'s, etc., which I
know you wud approve of. Also I
wish to be excuzed from taking Gram
mor and Conquisition as I have alreddy
gone thru a curse of Grammor at
Skule.

Please don't forget the munny!

Your loving son, BOB.

Professor Dean states that it has
been found by experiment that cows
give more milk if music is played in
their hearing at milking time. In view
of this important discovery it is offi
cially announced that the College band
will perform twice daily, at the College
dairy barn in future. Look out for
curdy milk, boys!

THE CENTURY CREAM VAT

Is something entirely new—send for description and prices.

THE "SUCCESS" COMBINED CHURN and BUTTER WORKER

Known everywhere to be the best.

THE GLAUS BUTTER PRINTER

In use in all the best creameries in Canada and the U. S.

MILK BOTTLING MACHINERY; BOTTLES, WASHERS

And everything for the milk depot.

CHEESE FACTORY, CREAMERY, and DAIRY MACHINERY.

We are the largest manufacturers of these lines in Canada, and carry
a complete stock. Write for catalogues and prices.

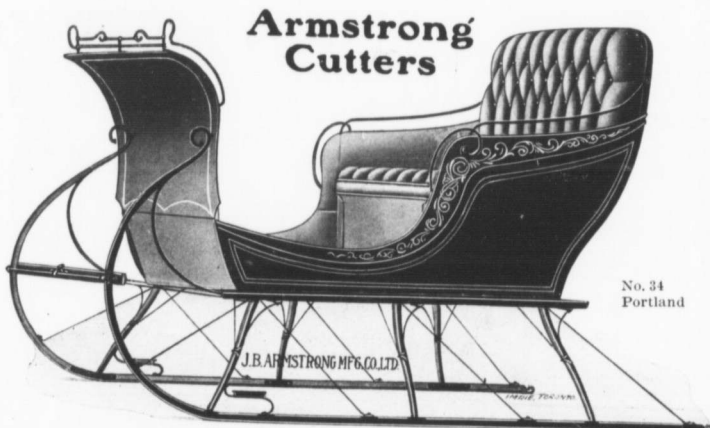
C. RICHARDSON & CO.

ST. MARYS,

ONTARIO.

Branches at Winnipeg, Calgary and Vancouver.

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



Our Cutter line embraces the very latest and best features in Cutter construction, both for styles and strength in construction. These features assist the agent to effect quick sales, and for the user satisfactory service.

J. B. ARMSTRONG MFG. CO., Limited, GUELPH, ONT.

Sporting Goods For O. A. C. Students

"RUGBY"

For years we have supplied O. A. C. students with the best sporting and athletic goods obtainable in Canada. For the Rugby season we are showing an extra fine line of Clothing, Pads and Boots.

Our 1910 RUGBY Boot at \$3.50 is the greatest value ever offered. "Yale" cleats, solid toe—-toe will not spread over sole—extra light.

Send for special Rugby Catalog.

O.A.C. PENNANTS AND CUSHIONS

Every student needs College Pennants and Cushions. We have the largest assortment in Canada.

SEAL PENNANT, size 15x34 inches, with the official college seal, price, \$1.00

SEAL CUSHION, size 24x24 inches, with the official college seal, price, \$2.00

PLAID PENNANTS, in official college colors, size 11x32 inches, price, 50c.
size 7x18 inches, price, 25c

Special Monogram Pennant, size 11x30 inches, price, 75c.

Send for our complete Catalog of Athletic and Sporting Goods.

Harold A. Wilson Company, Limited,

297-299 Yonge St., Toronto.

College Athletic Outfitter

Tennis Balls

Tennis
Rackets

O.A.C. Seal
Pendants



Rugby Outfits

Gymnasium
Outfits

Sweaters

Sweater
Coats

J. Brotherton, 550 YONGE STREET, Toronto, Ont.

Send for Catalogue

Official Calendar of the DEPARTMENT OF EDUCATION for the year 1910 :: :: :: ::

October:

1. Municipal Council declares by resolution for forming Municipal Board of Education. (On or before 1st October). Trustees to report to Inspector amount expended for Text Books (Before 1st October). Notice by Trustees of cities, towns, incorporated villages and township Boards to Municipal Clerks to hold Trustee elections on same day as Municipal elections, due. (On or before 1st October).
3. Night School open (Session 1910-1911). (Begin on 1st October).
15. Trustees' Report on purchases for Public School Libraries, to Inspectors, due. (On or before 15th October).

November:

1. Inspectors' Report on Rural Library grants, due. (Not later than 1st November). Inspectors' application for Legislative aid for Free Text Books to Rural Schools. (Not later than 1st November).

December:

1. Last day for appointment of School Auditors by Public and Separate School Trustees. (On or before 1st December). Township Clerk to furnish to the School Inspector information of average assessment, etc., of each School Section. (On or before 1st December). Legislative grant payable to Trustees of Rural Public and Separate Schools in Districts, second instalment. (On or before 1st December).

13. Returning Officers named by resolution of Public School Board. (Before 2nd Wednesday in December). Last day for Public and Separate School Trustees to fix places for nomination of Trustees. (Before second Wednesday in December).
14. Local assessment to be paid Separate School Trustees. (Not later than 14th December).
15. County Council to pay \$500 to High School and Continuation School where Agricultural Department is established. (On or before 15th December). Municipal Councils to pay Municipal grants to High School Boards. (On or before 15th December).
22. High Schools, first term, and Public and Separate Schools close. (End 22nd December).
25. Christmas Day (Sunday).
26. New Schools, alterations of School boundaries and consolidated Schools go into operation or take effect. (Not to take effect before 25th December).
28. Annual meetings of supporters of Public and Separate Schools. (Last Wednesday in December, or day following if a holiday).
31. High School Treasurers to receive all moneys collected for permanent improvements. (On or before 31st December). Protestant Separate School Trustees to transmit to County Inspectors names and attendance during the last preceding six months. (On or before 31st December). Auditors' Reports of cities, towns and incorporated villages to be published by Trustees. (At end of year).

Students Wants

Gymnasium Shoes, Football Boots, Slippers and Rubbers.

The most complete and largest stock of Fine Fall and Winter Footwear in the city.

Neill, the Shoe Man

THE GUELPH OIL CLOTHING COMPANY, Limited,

Manufacturers Oiled Clothing, Tarpaulins, Tents, Awnings, Stack and Binder Covers.

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.

JAMES H. SMITH

Opposite Traders Bank.
Molasses Taffy, Walnut Cream and Maple Cream. Best in the City.
Fresh Everyday.

LUNCHES SERVED

ERNST M. SHILDRICK,
Teacher of Singing.
Pupil of Van der Linde of New York.
Studio, Opera House Block.
Phone, Studio 625.
Phone, Residence 697.

The largest and best equipped Studio in Guelph. We are at your service for

FIRST-CLASS PHOTOGRAPHS

J. W. ROGERS
119 Wyndham St., Guelph. Phone 565.

Wultz—I am not such a fool as I look.

Miss A.—You have much to be thankful for.

R. H. McPHERSON,
BARBER,

Hair Cut, 20c.; Shave 15c. Close 8 p.m.

145 Upper Wyndham St., GUELPH

FREDERICK SMITH,
PLUMBER, STEAM
AND GAS FITTER,

Sanitary Appliances. Estimates Furnished.
GUELPH.

THE BURGESS STUDIO

High-Class Portraits.

SPECIAL RATES TO STUDENTS

Regal Shoes
For Men.

Sorosis Shoes
For Women.

W. J. THURSTON,
Sole Agent,
THE NEW SHOE STORE,
39 Wyndham Street.

COLLEGE STORE

CANDIES, CIGARETTES,
TOBACCO, Etc., Etc., Etc.
CORNER OF CAMPUS.

KING EDWARD BARBER SHOP

Headquarters for a first-class shave and hair cut or shoe shine.

CHAS. BOLLEN, - Proprietor.

SUEY WAH!

Hoop la! Come to the Big Laundry. Expert workmen. Hand work only. College calls made Monday, Wednesday, and Friday.

16 Wilson St., GUELPH.

LOOK! LOOK!

Suits Pressed	-	-	-	50c
Suits Cleaned and Pressed	-	-	-	75c
Pants Pressed	-	-	-	15c
Velvet Collars	-	-	75c to	\$1.25
Dry Cleaning	-	-	-	\$1.25

Work done by practical tailors.
CHAS. A. KUTT, 49 QUEBEC ST.

TRY
R. S. Cull & Co.

the New Clothiers and Haberdashers
for Your Next Suit and Overcoat,

35 Lower Wyndham St.

McHugh Bros.
TOBACCONISTS

Dealers in High-Class Tobaccos,
Cigars, Cigarettes, Pipes, Pouches and
all Smokers' Articles.

Get a **BARON PIPE FILLER**—the
latest novelty for Smokers. Handy
and saves tobacco. 25c each. To be
had only at

28 LOWER WYNDHAM ST.



Parties intending remodeling
stables will do well and save
money by writing for informa-
tion on my new idea on

**Stalls and
Stanchions**

Get my prices direct to you.
Freight paid on Stanchions,
Stalls and Water Bowls. My
1910 Stanchions are better
than ever. Ask for my free
offer; it will pay you. Write
and see

A. M. RUSH
Review St., Preston, Ont.

OUR
GROCERIES

Are always Fresh, Wholesome
and Strickly First Class.

**JACKSON
& SON**

17 Lower Wyndham Telephone 112

**BROADFOOT'S
RED CROSS
PHARMACY,**



Phone 381 - St. George's Square

MRS E. MARRIOTT, FLORIST.

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

Phone 378. 61 Wyndham St., opp. P.O.

FOR FIRST-CLASS WORK TRY

**Lee Wing's
Hand Laundry**

57 Quebec St., Opp. Chalmers Church

Latest machinery — no frayed or
cracked edges to your linen when we
do your work.

We call for and Deliver Promptly.

WE MANUFACTURE

PEEP SIGHTS

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

H. Occomore & Co.

GUELPH, ONT.

Springhill Ayrshires

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

Robt. Hunter & Sons

SNOWDRIFT, PEOPLES'
MAPLE LEAF

Three Well-Known Brands of Flour,
Ask for them and be sure you get them.

THE JAMES GOLDIE CO.

LIMITED

GUELPH, ONTARIO.

Telephone 99.

PRINTING

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

Kelso Printing Co.

St. George's Square,

Phone 218.

Opp. Post Office

"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 to-day. We also handle cylinder, engine
and machine oils, Lie sodium phosphate engine
supplies, etc. Speciality departments, Crystal
Separator Oil, Waxine Floor Oil. Correspond-
ence invited.

The Electric Boiler Compound Co., Limited
Guelph, Ontario.

PRINGLE

THE JEWELER

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

The Clothes

made by SCOTT, the Tailor, are not
surpassed in Guelph, and Guelph is as
good as any of them.

J. A. Scott

26 Wyndham Street

FOR PARTICULAR MEN

We like to make clothes for the particular
man. Anyone can suit the fellow who is easily
satisfied, but it takes good workmanship, hon-
est materials and the best of tailoring experi-
ence and ability to suit the really careful
dresser. Ask the particular man what he thinks
of the last suit or overcoat we made for him.
It is likely he will tell you they are the best
he ever had, even for double the price. Suits
and overcoats \$18.00 to \$30.00.

R. J. STEWART,

Opp. Knox Church, 19 and 21 Quebec Street,
Phone 456.

**OUR BUSINESS
IS MEN'S WEAR**

Young Men, come here for up-to-date Cloth-
ing, Hats, Caps, and Furnishings.

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

Cummings' Oak Hall Store

HEADQUARTERS FOR

HARDWARE

AND SPORTING GOODS

AT LOWEST PRICES.

G. A. Richardson

Upper Wyndham St., GUELPH.

WANTED!

First-class Fertilizer salesman, one having good connections, in your district.

Address reply to
**LESAGE PACKING &
 FERTILIZER COMPANY,
 LTD.**
 102 Nazareth Street, MONTREAL



**AGRICULTURAL COLLEGES
 REFERENCES**

At Guelph, Truro, St. Anne de Bellevue,
 Winnipeg, and the trade generally.

**Horse Owners! Use
 GOMBAULT'S
 Caustic
 Balsam**



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 burn.
 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.
TUB LAWRENCE-WILLIAMS CO., Toronto, Ont.



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

**Shoe Boils, Capped
 Hock, Bursitis
 are hard to cure, yet**

ABSORBINE



will remove them and leave no blemish. Does not blister or remove the hair. Cures any puff or swelling. Horse can be worked. \$2.00 per bottle, delivered. Look 6 D free. **ABSORBINE, JR.** (mankind, \$1.00 bottle.) For Boils, Bruises, Old Sores, Swellings, Gout, Varicose Veins, Vascularities, Allays Pain.
W. F. YOUNG, P.O.F., 177 Temple St., Springfield, Mass.
 LUMANS Ltd., Montreal, Canadian Agents.

Wolseley, Sask., March 28, 1907.

Dear Sir,—Have been using Absorbine for three months, and I have great faith in it. I first tried it on a colt that had got his leg cut in a barb-wire fence. It healed up and began to swell. I applied Absorbine and it removed the swelling in twelve days.

Yours truly,

F. O'NEILL.

PRINTING

Finest Commercial and
 Society Printing

Prompt Service
 Best Workmanship
 Wide Range of Stock Carried.

The Wallace Printing Co
 47 Cork Street, GUELPH, ONT.

LEE LEE & COMPANY

Opera House Block

HAND LAUNDRY

Goods called for on Monday, and returned on Wednesday. We guarantee best work in Guelph.


Extracts from Bramhill's Diary.

Sept. 5.—Shall not sleep in tent an other summer. Lost 4 ozs. in weight last night by fleas. Millions of 'em Shall rub myself with coal-oil this evening.

Sept. 6.—Too cold to shave this morn ing. Besides, Hopkins, the silly ass, stepped on the remnant of our mirror and it is now necessary to shut one eye to see anything in it.

Sept. 7.—Cold snap continues. At tempted to keep awake last night to swipe one of Hopkins' blankets, but woke up and discovered him in posses sion of one of mine.

Wish I was back in Room 14.



Everything in Jewelry.
Repairing a Specialty.

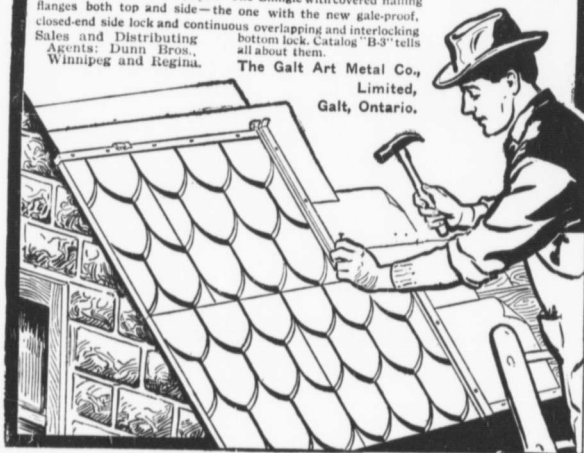
E. F. Nicholson
OPTICIAN
Upper Wyndham St.

"Galt" Shingles

Simplest and Quickest to apply yet invented. Perfectly Square, True and Easy-fitting. The bold Gothic Tile pattern presents a handsome and architectural appearance—un-
 marred by conspicuous joints. The Shingle with covered nailing
 flanges both top and side—the one with the new gale-proof,
 closed-end side lock and continuous overlapping and interlocking
 bottom lock. Catalog "B-3" tells
 all about them.

Sales and Distributing
 Agents: Dunn Bros.,
 Winnipeg and Regina.

The Galt Art Metal Co.,
 Limited,
 Galt, Ontario.



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

Guelph & Ontario Investment & Savings Society

(Incorporated A. D. 1876)

Highest current rate of interest paid on Deposits. $4\frac{1}{2}$ per cent. paid on five year Debentures, and 4 per cent. for shorter terms. Our Debentures are issued in any sum from \$100.00 up.

Both Deposits and Debentures are legal investments for Trust Funds.

Office hours, 10 a.m. to 4 p.m.

J. E. McELDERRY,
Managing Director.

Office—Cor. Wyndham and Cork Sts.,
GUELPH, ONTARIO.



GREENING'S Cow Ties



- ☞ Are the Lightest, Strongest and Best.
- ☞ Made in Five Sizes.
- ☞ Six Kinds.
- ☞ Ask your Hardware Man for "Greening's" and take no other.

Guelph Radial Ry. Co.

TIME TABLE.

Cars leave the college landing for the city at about 20 minutes intervals, as follows:

a.m.		
6:25	8:35	10:45
6:45	8:55	11:05
7:05	9:20	11:30
7:30	9:40	11:50
7:50	10:00	12:15
8:10	10:25	
p.m.		
12:35	4:15	8:05
12:55	4:35	8:25
1:15	5:00	8:45
1:40	5:25	9:10
2:00	5:50	9:30
2:20	6:15	9:50
2:45	6:40	
3:05	7:00	10:15
3:30	7:20	10:35
3:50	7:45	

Returning, cars leave St. George's Square 10 minutes later.

"THE SPA"

**GUELPH'S NEWEST and BEST
CONFECTIONARY and
LUNCH ROOM**

Special Lunches put up for Students to take to their rooms.

Ice Cream and Fruit sold all the year round.

Our special Saturday sales of candies of our own make appeal to everyone. We want every student to try our specials.

Students invited to use our store while waiting for the street cars.

SPA CANDY STORE

WYNDHAM AND MACDONALD STS.

W. A. HAIGHT, Manager.

**Lamps, Razors
Pocket Knives
and
Sporting Goods**

**McMILLAN BROS.**

PHONE 31 20 WYNDHAM ST.

Diamond and Shield**O. A. C. Pins****Leather Fobs**

25 Cents Each

SAVAGE & CO.

Jewellers

WATERS BROTHERS

Students' Supplies



Phone 350

41 Wyndham St.,
GUELPH.

BOTANICAL, ENTOMOLOGICAL, NATURE STUDY, EXPERIMENTAL and MANUAL TRAINING, DRAWING MATERIALS and OUTFITS, NOTE BOOKS, FILLERS, INKS, PENCILS, FOUNTAIN PENS.

Special Prices for Quantities.



THE FAVORITE

and the best value
for the money
of them all
is

TOLTON'S No. 1 DOUBLE ROOT CUTTER

POINTS OF MERIT:

1. To change from pulping to slicing is but the work of a moment.
2. There are two separate wheels one for pulping and the other for slicing.
3. The united force of both wheels is always used in doing the work in either capacity.
4. The hopper is between the wheels, and does not choke.

The Only Double Root Cutter Manufactured Fitted with Roller Bearings, Steel Shafting and all that is latest and best in principle, material and construction.

Send for Descriptive Circular and Prices.

Tolton Bros., Limited
GUELPH, ONTARIO.

Windmills!



Towers girded
every five feet
apart and double
braced.

Grain Grinders.

Pumps.

Tanks.

Gas and Gasoline

Engines.

Concrete Mixers.

Write for
Catalogues.

Goold, Shapely & Muir Co.
BRANTFORD, CANADA. Limited

OURS IS A SANITARY LAUNDRY

Disease germs find no resting place here.

Cleanliness in every detail is a rule rigidly enforced.

Every precaution is taken to insure our patrons the very best service in our power.

Our drivers are at the O. A. C. Monday, Wednesday and Friday mornings.

Guelph Steam Laundry
Phone 95 D. M. HUNTER, Mng'r.

The Store of Quality

The Freshest Fruits

No matter what you may want in the Fruit line, or in anything else to Eat, if in season, we will have it for you.

Special College Delivery.

BENSON BROS.

WE HAVE A VERY COMPLETE STOCK OF

Entomological and *Botanical* *Supplies*

For Students At Students' Prices

Alex. Stewart

CHEMIST

NEXT TO POST OFFICE

PURITY FLOUR

"MAKES MORE BREAD
AND BETTER BREAD"

"ASK FOR IT"



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

RIVER SERIES

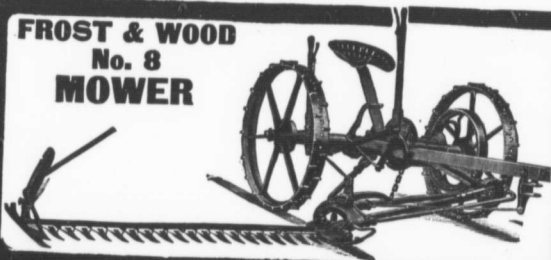
Practically non-corrosive—Ask your Stationer, or write to

The BENSON-JOHNSTON CO., Ltd
CANADIAN AGENTS

HAMILTON, ONTARIO.

For Advertising Space in these Columns, apply O. A. C. Review, Guelph, Ont.

**FROST & WOOD
No. 8
MOWER**



**HAY-MAKERS
THEY WORK WELL
TOGETHER**

An ideal combination for getting in your crop of grass. Our No. 8 Mower with its strong, substantial build, its accurate, clean-cutting power and ease of operation, is a real money-saver and profit-earner for thousands of farmers at every point in the Dominion. It is strong, durable, needs few repairs, works day in and day out, proving the stalwart honesty and mechanical excellence put into every gear and wheel, knife and shaft, cutter-bar and pitman.

But there's the other tool—can't get along without that—the Tiger Hay-Rake.

It's all steel, except tooth-rail and shafts, which makes it proof against hard work, rain and exposure. A Tiger Rake is exceptionally durable. It does such clean work, too. The spring teeth have just enough elasticity, and are curved so as to pick up grass easily and evenly. It's an easy rake to handle for horse and driver. It can be dumped by foot or hand. The fall of the teeth after dumping is eased by a strong spring that prevents much of that disagreeable jar so evident in cheap rakes.

We can't tell you here the scores of good points about these hay-makers. Send for our catalog "It" and "Farmer's Ready Reckoner." Both books are free, and answer your questions. Ask our local agent to show you our farm implements. He'll gladly do it.

The Frost & Wood Co., Ltd.
Smith's Falls, . . . Canada.

TIGER RAKE





*Come in and have a
Dish of Ice Cream.*

*Our Sodas are Deli-
cious. We make them
in every Flavor.*



*Our Stock of Choc-
olates is Complete.*

The Kandy Kitchen

Lower Wyndham Street

Guelph, Ont.

PERMANENT COLORS

One reason why Milton Pressed Brick hold their color so well is because they contain no artificial coloring matter.

Milton Brick

have the natural color of the pure shale from which they are made. This is why buildings faced with Milton Pressed Brick seventeen years ago are as fresh and bright as if put up last summer.

Four pleasing shades—red, flash-red, flash-buff and brown—and many handsome tints.

We will send you samples and quote prices.

Milton Pressed Brick Co., LIMITED,
Milton, Ont.

TORONTO OFFICE—JANES BUILDING.



The Farmers' Advocate and Home Magazine

1866

1910

LONDON, ONT.

THE BEST AGRICULTURAL JOURNAL IN AMERICA
WITH INVALUABLE HOUSEHOLD DEPARTMENT.

WEEKLY

\$1.50 per year

Agents Wanted



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

THE ONTARIO PROVINCIAL
WINTER FAIR
 GUELPH, ONT.
DECEMBER 5TH TO 9TH, 1910
 Large Prizes and Classes for
**Beef Cattle, Dairy Cattle,
 Sheep, Swine, Poultry,
 Seeds, Judging Competi-
 tion and a
 HORSE SHOW**
 Entries Close November 10th.
 Single Fare Rates on the Railways.
\$16,000.00 in Prizes
 For Prize List Apply to the Secretary
JOHN BRIGHT, A. P. WESTERVELT,
 President, Myrtle Sta. Secretary Toronto.

New Books By Canadian Authors

THE SECOND CHANCE

By Nellie L. McClung, author of "Sowing Seeds in Danny"; Cloth, \$1.25

Everyone who has read "Sowing Seeds in Danny," the book which made the author famous, will want to read this book, which is even better than the author's first volume. "Sowing Seeds in Danny," and "The Second Chance," are books which touch the heart strings.

THE FRONTIERSMAN

By H. A. Cody; Cloth, \$1.25

Mr. Cody is a writer worthy successor to Ralph Connor. This stirring story of life in the Yukon is one which will be read with avidity by the numerous admirers of the books of that famous writer.

"The Frontiersman" is bound to be a tremendous success.

THE STORY OF YUKU

By Dorothy Deans Tate; Cloth, \$1.25

A very clever book by a new writer.

One of the sweetest and daintiest stories of the year, the scene of which is laid in Japan. The book has a haunting flavor which remains with one long after reading.

THE TRAIL OF '98

By Robert W. Service, author of "Songs of a Sourdough," and "Ballads of a Cheechaco," Cloth, \$1.25

The first novel by this famous Canadian writer. A story which throbs with life—real life—the vivid, terrible and strenuous life of the Yukon in the days of the famous Stampede of '98. No one knows the Yukon like Robert W. Service, and in this book he pictures with a startling vividness the atmosphere of three days.

This will undoubtedly be the leading Canadian novel of this year.

THE STAMPEDER

By S. A. White; Cloth, illustrated, \$1.25

A rattling story of the Yukon, written with a dash which absorbs the reader's attention from the beginning. Full of the atmosphere of the great North.

William Briggs Publisher and
 Bookseller

29-37 Richmond Street West
 Toronto - - Ontario

WINDSOR DAIRY SALT



The wise housewife knows the importance of always keeping a good supply of Windsor Dairy Salt on hand.

She knows that Windsor Salt makes the best

butter—and she is not satisfied to make any other.

Windsor Dairy Salt is both a money-maker and a money-saver.

It makes money for farmers and dairymen because it makes butter that brings the best prices.

It saves money for them because, being absolutely pure, it requires less to properly salt the butter.

39

Start Right

In a stylish "T. & D." suit, or overcoat, or both. Ready-to-wear, \$10.00 to \$25.00; made-to-measure, \$17.00 to \$30.00.

You'll find "T. & D." a thoroughly dependable place to buy good clothes and men's furnishings.

THORNTON & DOUGLAS, Ltd.

Clothing Manufacturers,
LOWER WYNDHAM ST.

(The College Man's Shop).

31,795 ASPINWALL

Potato Planters made and sold up to August 1st, 1910, by

ASPINWALL MANUFACTURING CO.,
112 Sabin Street, Jackson, Michigan.
Canadian Factory, Guelph, Ontario.

WORLD'S OLDEST AND LARGEST MAKERS OF POTATO MACHINERY.

Write us for our new 1911 catalog.

JUST TWO KINDS OF

Cream Separators

THE

De Laval

AND THE OTHERS

Simply stated, there are JUST TWO KINDS of Centrifugal Cream Separators, the improved DE LAVAL of today and the dozen other "copies," "imitations," "substitutes," "just-as-good" and "near" separators, some a little cheaper made and more inferior than the others but all merely utilizing one or another of the expired DE LAVAL patents and cast-off types of construction of ten to twenty and thirty years ago.

If you want the BEST, that will save its cost over any of the others every year and last five or ten times as long, you can but choose the DE LAVAL. If for any reason you want something different, shut your eyes, buy the cheapest, and get your own separator experience quickest.

That's really the whole Cream Separator story told in the fewest words possible.

The De Laval Separator Co.

178-177 William Street,
MONTREAL.

14 and 16 Princess Street,
WINNIPEG.
