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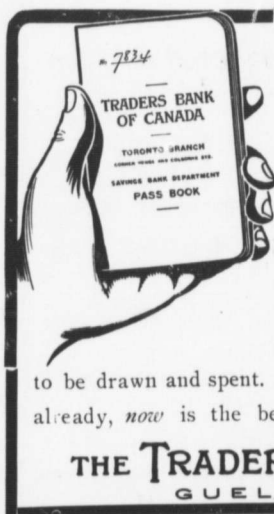
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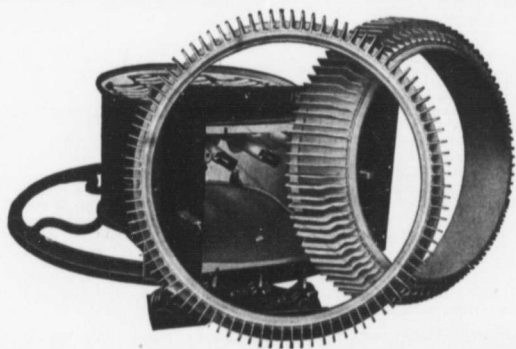
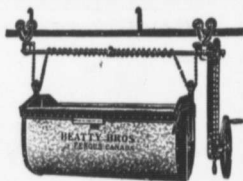
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CONTENTS

VOL. XXII.

DECEMBER, 1909.

NUMBER 3

	Page.
The O. A. College—A Brief History— By W. J. Squirrell, B.S.A.	103
Christmas Greetings—By Professor Reynolds.....	107
Some Impressions of Student Life at Oxford— By G. H. Unwin, B.S.A.....	111
Sculpture—By D. H. Jones, B.S.A.....	116
An Easterner's Impressions of the West—By Professor Hutt..	120
Forestry in Southern Ontario—By E. J. Zavitz, B.A.....	129
The Bacteriology of Vinegar Making—By Professor Edwards	128
Organized Experimental Work With Field Crops in Ontario— By J. Buchanan, B.S.A.....	131
Agriculture.....	138
Horticulture.....	142
Agronomy.....	146
Editorials.....	153
College Life.....	155
Athletics.....	161
Alumni.....	163
Macdonald.....	168
Teachers' Department.....	178
Locals.....	182

SUBSCRIPTIONS

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

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THE O. A. C. REVIEW

THE DIGNITY OF A CALLING IS ITS UTILITY.

VOL. XXII.

DECEMBER, 1909.

No. 3

The O. A. College--A Brief History

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

THE thirty-five years' existence of the College has been crowded so full of events, that a short article such as this can give but the very briefest outline of its history.

The want of an agricultural education began to make itself felt, through out the Province, between the years 1840 and 1850. The Canadian Agricultural Reader (1845) and Prof. Hind's text-book (1850) were early expressions of this movement. In 1860, Egeron Ryerson, Superintendent of Education, advised the teaching of agriculture in some of the schools; some years later, he published an agricultural text book. The first definite steps toward founding an Agricultural College were taken in 1869 by Sir John Carling, Commissioner of Agriculture. During the year 1872 a committee of some of the most prominent farmers in the Province was appointed to select a site for the new institution. In 1873, acting on the recommendation of this committee, the Government bought the 550 acre farm of F. W. Stone, Guelph. The farm was situated one mile southeast of the city. The name given to the new institution was "The Ontario School

of Agriculture and Experimental Farm," and its motto was "Practice with Science."

Students were admitted the first year under the following conditions; the student to work five hours per day in the outside departments, and for his labor to receive instruction, lodging, board and washing, and a bonus of \$50.00, if, at the end of the year, he successfully passed the prescribed examinations.

The following is a list of the officers at the opening of the College, May 1st, 1874:

H. McCandless, Principal.
Rev. W. F. Clark, Rector.
Jas. McNair, Farm Foreman.
Jas Stirton, Stockman.
Thos. Farnham, Gardener.
Jas. McIntosh, Carpenter.
Mrs. Petrie, Housekeeper.
Thos. Walton, Engineer.

Twenty-eight students enrolled for the first year, eighteen lodging in the School, the remainder, as the School could not accommodate them, at the homes of the officers. The buildings in connection with the institution at the beginning were not many and con

sisted of the main building, which was originally the F. W. Stone farm house, and of the farm barns. The school building was then what is now the central part of the main building, but at that time it was only two stories high; the barns occupied the space that is now covered by the chemical laboratory, gymnasium, horticultural building, library and the reservoir.

The first building operations in connection with the school were additions to the main building, the southeastern front being constructed in 1875, and the northwestern front in 1877.

Mr. Johnson resigned in 1879, and Mr. Jas. Mills, M.A., of Brantford, was made Principal. It was during this year that the name was changed to the Ontario Agricultural College, and its



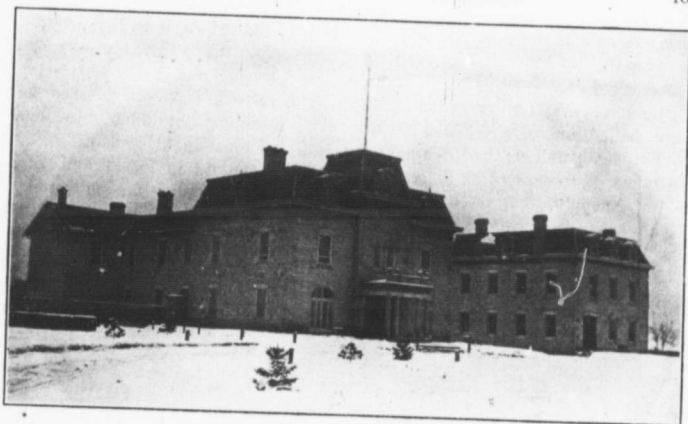
THE COLLEGE IN 1874.

Owing to trouble with the students, Principal McCandless resigned in July, 1874, and Chas. Roberts, of England, was appointed his successor. Principal Roberts, on account of ill health, held office but a very short time, being succeeded in 1875 by Mr. Wm. Johnson. To Mr. Johnson belongs the credit of putting the institution on a working basis, and despite the many difficulties with which he had to contend, the school, during his principalship, made steady progress.

first administrative officer given the title of President.

A year later saw further additions made to the main building, and with the exception of the addition of 1907, the building was the same at the end of 1880, as it is to-day. During 1880 and until 1887 this building was used not only as the students' residence, but in it were contained all the class-rooms, laboratories, library and reading-room.

The first farmers' excursions were held in 1881 and have since been a



THE COLLEGE IN 1878.

yearly occurrence. The next year the campus was laid out, and appeared then very much the same as it does at the present time.

The farm buildings were destroyed by fire in 1885. Three years later the institution had once more to suffer the loss of its barns through fire. With the exception of the chemical laboratory, burned in 1895, these two fires were the only serious ones in the history of the College.

County studentships were first granted in 1887, and have only very recently been abolished. A college advisory board, to assist in the management of the institution, was appointed during this year. The next year Prof. Wm. Brown, who was the first officer appointed to the position of Professor of Agriculture, resigned to accept a similar position in Australia. The College became affiliated with Toronto University, and the first graduates, five in number, received their degrees. This year the first number of the O. A. C. Review was printed, but it was not

until 1893 that the paper issued a Christmas number.

The gymnasium and horticultural buildings were erected during 1891. At this time all the lectures in botany, entomology and other kindred subjects were given in the horticultural class-room. Two years later the first special course in dairying was held, and during the summer of the same year a short course in general agriculture was given for school teachers. 1894 saw the establishment of what was very much needed, a poultry department. A year later the first entrance examinations in connection with the College were held, and the first year class divided into A and B divisions. It was this year that the Guelph Radial Railway built their line to the College, but the loop-line was not completed until some years later.

The gradual increase in the number of buildings, the adding of new departments and the employment of a larger teaching staff all pointed to the one conclusion—a larger student attend

ance. Such was the case; we find that in 1895 the total number of students had reached 250.

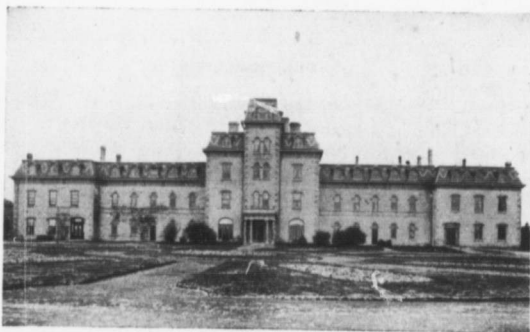
The next year two artesian wells were drilled and a new waterworks system was installed; the College need no longer to depend on the city for its water supply.

The institution suffered a very great loss in the death of Prof. Panton in 1898. Prof. Panton had been Professor of Natural Science for over twenty years, and was one of the most able

history limited itself to the period occupied by the years 1901, 1902 and 1903. During this period were erected the Livestock Pavilion, Massey Library, Botanical building, Macdonald Hall and Macdonald Institute.

Short courses in Grain and Stock Judging and Poultry Raising were held in 1902 for the first time. Three new departments were added the next year, Nature Study, Home Economics and Manual Training.

Dr. Mills, in 1904, after a most able



THE COLLEGE AT THE PRESENT TIME.

and best beloved men who has ever been on the College staff. Some years later another great loss was sustained by the untimely death of Dr. Muldrew, Dean of Macdonald Institute.

Keeping in touch with the more recent advancements made in Agriculture, a model cold storage building was erected in 1900. The total student attendance for this year was 742, an average gain of nearly one hundred per year during the past five years.

While in the past new buildings had been added from time to time, the golden age of building in the College

administration of over 25 years, resigned his position as President to become one of the Dominion Railway Commissioners. He was succeeded in February of the same year by Mr. G. C. Creelman, B.S.A., M.S. In this year two more departments were added, the departments of Agronomy and Entomology, and the next year the department of Forestry.

The Mechanical building, one of the finest buildings on the campus, was built in 1906. Shortly after this a large addition was made to the Chemical Laboratory, and a new water tower

and coal shed were built. A department of Economics was founded in 1907, and also a Flour Testing Department in connection with the department of Chemistry.

The winning, by the students, three years in succession, 1905-'07, of the Livestock Trophy, emblem of the College championship of America, has added greatly to the fame of the institution.

In recent years, the establishment of an electric lighting plant, the laying of cement sidewalks and the installing of a telephone system connecting the various buildings, has done much to modernize the institution.

During a period of 35 years, there has been a great number of changes in the staff of both the College and Ex-

periment Station; to even enumerate these would take up more space than is permissible. The records show that a teaching staff of three in 1874 had grown to over fifty in number in 1908, and the total student attendance for the latter year had reached 1,225.

The College has been greatly benefited by having associated with it the Experimental Union, the Farmers' Institutes and other strong organizations, all of which have had the same object in view—the betterment of agriculture.

The College to-day stands higher in the estimation of the people of Ontario than it ever stood before, and its students, ex-students and officers believe that its influence for good in the agricultural welfare of the Province will continue to grow as the years roll on.

Christmas Greeting

BY PROFESSOR REYNOLDS.

“**P**EACE on earth, good will to men,” is the first and best of all Christmas greetings. In this Christmas number I purpose to show as well as I can in a limited space and with a limited understanding of the subject, the personality of the one about whose life that announcement was made. Christological creeds have so thrust Christ back into heaven, and so obscured his image from human gaze, that there is need at the present moment of a re-incarnation, whereby we plain men may see the stupendous meaning of the “sinless years that breathed beneath the Syrian blue.”

This is not a sermon, but an appreciation of a human character.

The hero of fiction or history challenges our admiration by doing great things of a spectacular sort. He wins a great battle, like Nelson, or rescues some damsel in distress, like the knight errant of chivalry, or rises from poverty and obscurity to competence and distinction, like Sir Thomas Lipton. Such a hero is engaged all his life-long in self-development, self-expression, self-realization. And this is the modern idea of achievement—self-realization. But the hero of the gospels makes no such opportunities for him

self. His battles are fought, not on the high seas with the world watching in anxious expectancy, but in the wilder-ness of Judea, his only spectators the wild beasts; or by the bedside of one sick unto death. He rescues no innocent maiden from knightly captors, but only an impure woman from the grasp of religious bigots. He achieved no competence or wide distinction in his life, but lived in poverty and died deserted and disgraced. He thought not of self-expression and self-realiza-

tion, but was concerned only to perform the mission for which he believed he was born into the world. to such service by a tender sympathy for the unfortunate, a sympathy that shows itself in every relation of life. "O, Iago, the pity of it, the pity of it, Iago!" exclaims Othello out of the depth of his compassion for Desdemona. Shakespeare's tragedies are studies of characters that are great, but that in one or other of these heroic qualities—strength, humility, compassion—stand before the world incomplete, and their incompleteness wrecks them. Othello is not complete in



PROFESSOR REYNOLDS.

tion, but was concerned only to perform the mission for which he believed he was born into the world.

The marks of the hero—whether we consider the hero of history such as Abraham Lincoln, or the hero of fiction such as Othello—the marks of the hero are these: strength, humility, compassion. Both Abraham Lincoln and Othello show that they can do things, that they can plan and undertake great deeds; that is strength. That strength they use for noble ends of public service, unselfishly; here is the true humility. And they are prompted

strength, for he shows a fatal ignorance of the human heart, and yet he presumes to judge the heart of another. Lear is self-willed and despotic, and he is disciplined to humility and compassion. Hamlet is weak in will and at times ruthless. Coriolanus has strength of character and purpose, but he wants humility, and this want is his undoing.

The Gospels are narratives written by different persons at different times, but with a common theme. Their common theme is the life and character of a person whom, to carry on the idea of the preceding paragraphs, we may call

their hero. My thesis is, that this person, as portrayed in the Gospels, exhibits, to a degree unexampled elsewhere in history or fiction, the marks of the hero.

Consider the power of his personal presence. Of his muscular strength or physical endurance, his biographers do not boast. He is often weary and exhausted by his labors. But his physical qualities are finer than these. The child in the mother's arms, the fisherman by the Sea of Galilee, the demoniac in the toms, and the greedy money changers in the temple, all feel the compelling power of that presence. According to the mode of expression you may call it charm, you may call it magnetism, you may call it virtue ("I perceive that virtue is gone out of me"), or you may call it the gift of healing. It is strength.

Consider the power of his mind. Essential truth he grasped with a sure hand, through all the husks of legalism and definition. Of the total content of doctrine which he inherited, what was of permanent value he retained, and gave it a new meaning by vivid phrase and living force of parable; what was cumbersome or useless he courageously threw away. No sophistry could beguile him, no hypocrisy deceive. No questions disconcerted him. Out of a flippant or a tricky inquiry he plucked occasion for utterance of the most solemn truths. He taught with authority, and not as their scribes.

Consider the power of his spirit. He had a work to do that his age knew not of. His friends by their dullness of understanding baffled his purpose as much as did his enemies by their prejudice and misrepresentation. His brethren declared him beside himself, and his disciples were as Satan tempting him from his high calling. The

pressing physical needs of the people among whom he labored, through the very compassion of his nature tempted him to turn aside from his chosen path. He might have secured a following and founded a kingdom on the ministry of bread and healing. But all this, worthy though it was, was only incidental to his main design, and to that design he adhered steadfastly. He declared that man does not live by bread alone, and he faltered not from the pursuit of the highest spiritual ends. It is recorded that he returned from a period of temptation in the power of the Spirit. In the power of the Spirit was his whole life guided.

Consider his self-assertiveness. Not only was he strong with a rare quality of strength, but his strength was fitted to the demands of his work by his own just estimate of it. His humility was not that sort which underates its own gifts, or from false modesty refuses to work from fear of failure. He was conscious of his own power, and declared positively and repeatedly that he was both willing and able to help men. He was not abashed in the presence of learned men, and he convicted Nicodemus, the doctor of the law, of spiritual blindness with more boldness and assurance than he convicted of sin the woman by the well of Sychar. The sacred law that had the credit of ages of belief to support it, he revised with the confident words "But I say unto you."

Consider his humility. This humility of Jesus is not that hollow insincere depreciation of personal gifts, not the mock humility of Uriah Heep going about avowing how very "umble" he is. The true humility is quite consistent with the self-assertiveness that was so decided a feature of Jesus' char-

acter. It is first of all self-control, meekness. The meekness of Moses was not the tameness of a nature without warmth or passion, but the self control that was gained over a passionate and masterful spirit by long years of stern discipline. The meekness and humility of Jesus was not want of passion, but control over passion. It displays itself in a child-like and teachable spirit. Jesus' intolerance toward the Pharisees is derived from his sense that they were hard and set in their ways and beliefs, unteachable, proud. Hence came his declaration that the publican went down to his house justified rather than the Pharisee. His ideal image of humility is the docility of the little child. Secondly, this humility is shown outwardly in the use of powers not for personal, but for social ends. Public morality is Christian humility. Jesus declares that he came not to be ministered unto, but to minister. In the hour of his greatest spiritual exaltation "he took a towel, and girded himself * * * and began to wash the disciples' feet."

Consider his compassion. On the subject of compassion he lavished all the wealth of his nature in teaching and example. He taught that mere rectitude, uprightness, is insufficient without compassion for the weak and the erring. Goodness and mercy are twin graces, and together make the complete Christian character, for it is

the character of God himself. "Go and learn what that meaneth," he says to one of the legalists, "I will have mercy and not sacrifice." Compassion for bids a judgment of the erring. His sweetest parables are parables of compassion on the weak and the needy—the Prodigal Son, the Lost Sheep, the Good Samaritan. In his vision of the final judgment, the basis of approval or condemnation is the doing or not doing deeds of mercy to one who is unable to help or to protect himself. "One of the least of these, my brethren." The shelter of children, the care for the poor, just dealing with those who for any reason are at our mercy, are opportunities for the exercise of that divine compassion without which no man can be called the follower of Jesus. And as he taught compassion, so he lived it. "He said unto her, Woman, where are those thine accusers? Hath no man condemned thee? She said No man, Lord. And Jesus said unto her, Neither do I condemn thee; go and sin no more." This large charitableness he invariably showed toward the sinful. He feasted with publicans and sinners. Matthew the publican he called to be his disciple. To Peter after his denial he gave a large commission. For those who reviled and tormented him he prayed "Father, forgive them; for they know not what they do."

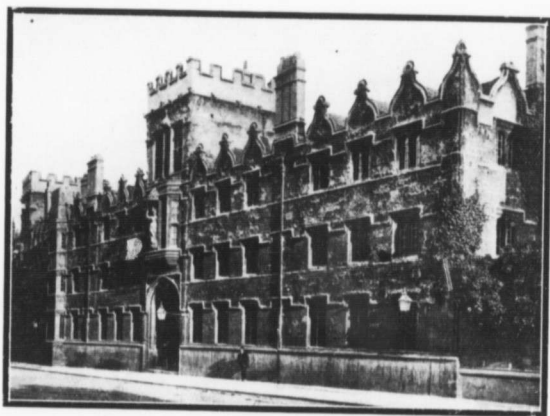


Some Impressions of Student Life at Oxford

BY G. H. UNWIN, B.S.A.

THE train draws slowly out of Paddington station, the porters on the platform dexterously slam the doors as the cars glide past, and the anxious "Fresher" subsides into his seat and glances kindly at his traveling companions. How he envies their

porary distraction is to be found: the trim Berkshire lanes and hedgerows, the momentary glimpses of the placid sleepy river, in the distance to the north, the soft, hazy outline of the Chilterns, all make a charming picture of rural peace and prosperity, and even



UNIVERSITY COLLEGE, FRONT, OXFORD.

their composure, their obvious ease of manner! That tall youth in the corner, clothed in tweeds of original and startling hues, must surely have attained to the dignity of his third year, while the two men chatting so pleasantly on the other side might have been going to 'Varsity for years. The Fresher with draws his eyes with a sigh and turns to the window. Here, at least, a tem

porary distraction is to be found: the trim Berkshire lanes and hedgerows, the momentary glimpses of the placid sleepy river, in the distance to the north, the soft, hazy outline of the Chilterns, all make a charming picture of rural peace and prosperity, and even

the Freshman, tormented, as he is, with doubts and fears, feels the soothing influence of the scene and allows himself to relax. All at once he is roused by a touch on the elbow and becomes vaguely conscious that he of the tweeds is demanding the name of the first stopping place. Thank heaven, another Freshmen! So the composed air was purely imaginary, and our original

Fresher feels a glow of returning confidence at finding somebody more ignorant than himself. He informs his questioner that their one and only stop is at Reading, and even volunteers the extra information that Reading is the place where they make biscuits; they fall in to conversation, exchange names and colleges, and, leaning back contentedly, survey the landscape with a novel sense of proprietorship. What a vast difference company makes when a man is in misery. These two young Freshmen, members of different colleges, will perhaps never meet again; yet each will look back with pleasure on that chance meeting, when they came together as "ships that pass in the night," exchanged a message of comfort and then were lost to each other, perhaps for all time. For a man seldom has a large circle of acquaintances at the university; that is to say, he takes a long time to make many friends. First he becomes acquainted, but gradually, with the men of his own year; then, if he takes a prominent part in athletics, he becomes known to the rest of the college, but in any case he forms his own small circle of friends, which he retains throughout the course. Towards members of other colleges, students preserve an attitude of studied politeness in every day intercourse, and it is only on such important occasions as the inter-Varsity boat race or any other large function that the true esprit de corps comes into evidence. Indeed, it has always seemed to me that it is not till after leaving college that one Oxford man feels the real bond of brotherhood with another.

But I digress. Let us follow our Freshman to the scene of his first labors. Having arrived at Oxford he drives to his rooms, or "digs," or, per-

haps, like Verdant Green, he installs himself at the Mitre. This is the oldest hostel in the place, and merits a few words of description: it is probable that the building has not substantially altered within the last century; the floors rise and fall like the billows on a windy sea; and there are more unexpected corners and more places to bump your head on, than in any other building in England. We will imagine our hero, then, safely ensconced for the night in this ancient hostel, listening to the soft tones of the numerous clocks, chiming forth the night hours, until he falls asleep. In the morning he repairs to the college hall, where he finds others of his tribe in all the glory of the short undergraduate gown—the most absurd garment ever invented—and the conventional white tie, awaiting the ordeal of matriculation. The ceremony, however, does not last long. Each candidate pays his matriculation fee of ten shillings, and advancing kneels before the Vice-Chancellor of the university, who murmurs over his head a Latin formula which nobody ever hears, and presents him with a book of statutes, in Latin, which very few ever read; he is now launched upon his scholastic career.

It is not my intention to give here an exhaustive account of the courses taken, of the city itself and all its wonderful old buildings, of the twenty-one colleges, each of which has enough history to fill a volume; nor do I propose discussing at length the peculiarities, languages and general habits of life of the undergraduate. All these things have been described so frequently and so thoroughly that it would be waste of time to attempt such an account. I shall be pleased, indeed, if I can communicate to the reader a little of the

atmosphere of the place, with a few impressions that have outlasted others in my mind.

A typical day is, as far as I remember, something like this: Chapel at seven-thirty, lectures from nine till one; in the afternoon the "undergrad" is free to pursue his favorite occupation; if he is a football player he goes

members of the faculty, president, or master, and dons, occupy the "high table," at the end of the hall, upon a platform which is raised five or six inches above the floor. These old college halls possess a charm entirely distinctive. Many of them have windows of stained glass; the subdued light falling on the massive, dark, oaken panel



FOUNDER'S TOWER MAGDALENE COLLEGE, OXFORD.

to the meadows, if a rowing man, to the boats, while he who is studiously inclined, repairs to his room or one of the libraries, and absorbs knowledge from the printed page. The evening meal, called dinner, is taken by the entire student body in the dining-hall; this is the only meal which the students eat in each other's company. The

ling and the shadowy portraits of founders and great men of the college, looking down upon the youthful aspirants for academic fame, leave an impression on the mind which years will not efface.

Talking about the youthful aspirants for academic fame, reminds me that I must be careful in my statements.

However, most of my readers will understand that they are to take the term "cum grano salis." As a matter of fact one would hardly believe, when observing a normal crowd of Oxford undergraduates, that many of them possessed very strong yearnings after scholastic excellence; however, one can not always judge by externals and some of these irresponsible-looking gentlemen are scholars in every sense of the word. It is of course in the senior year when the hard reading is done, when a man has ceased to go in for athletics as a pastime, and merely dips into them for exercise, and when the "oak" is sported six nights in the week.

The last phrase requires explanation. To each room in college two doors are affixed; the inner one is of ordinary dimensions, and is used on ordinary occasions, but the outer one is a massive oaken barrier, which nothing short of a battering ram could break through. When a man wishes to read he closes this outer door, and when his friends see that he has "sporting his oak" they usually seek "fresh fields and pastures new." The rooms in an Oxford college are worthy of notice, many of them being beautifully panelled with oak, and having large, deep window sills and hearths, and fine old furniture, which in many cases is exceedingly valuable; each sitting-room has a door connecting it with a bedroom behind, so it will be seen that the Oxford undergraduate does not lack creature comforts. Indeed, there is little doubt but that the life of a student at Oxford is too luxurious; a striking contrast to the time when students had to interrupt their studies to go out and run in the streets, in order to keep warm. In those days, when studying was carried

on under difficulties, men worked like Trojans; now-a-days the undergraduate supplied with every comfort and convenience, like Gilbert's House of Peers, "does nothing in particular and does it very well." Meals are brought up to the rooms by "scouts," men servants, who look after the rooms, and also wait at table in "hall." Each scout has a certain number of rooms to look after, and gets a fair wage which he manages to augment considerably with tips and perquisites. Some of these scouts grow old in the service of the college, and can trace back its history, and that of the students, for many years.

No visitor to Oxford should miss going down to the river to see the boats. Each college has a barge of its own which is used as a club-house; facing the long line of gaily-painted barges, the 'Varsity boat-house stands proudly, its high roof forming a grand contrast to the low, comfortable structures opposite. We walk along the tow-path, watching the crowd of college eights practicing, the scullers in their frail shells and the graceful "can aders," stealing along towards the Cher, that haunt of pleasure-seekers. All at once we hear a shout; the boats pull in hurriedly to the bank and up the centre of the river swings the 'Varsity eight on a trial spin, eight blades gripping the water as one and leaving it, at the finish of the stroke, with a crisp flick that sends the long shell up the stretch and round the bend almost before we realize its presence. Truly a grand sight, and one not easily forgotten.

Of the town itself, I can give but faint impressions; I can find no words to paint the old-world charm of the place, for, to me, it seems almost in

describable. The venerable moss grown buildings of grey, weatherbeaten stone, the lofty spires, the quaint crooked streets and unexpected corners, the velvety lawns and clustered quadrangles of Magdalen, the splendid hall of Christ Church and the massive stone walls of University, the oldest of the colleges, these must be seen to be appreciated. Over all hangs that quaint, musty atmosphere of learning which generations of scholars have im-

parted to the place. Arnold felt the spell, through all his sorrow, when he wrote these lines in *Thyrsis*:

This winter eve is warm,
Humid the air! Leafless, yet soft as
spring

The tender purple spray on copse
and briars!

And that sweet city with her dream
ing spires

She needs not June for beauty's height
ening.



EIGHTS ON THE ISIS.

Sculpture

BY D. H. JONES, B.S.A

ADMIRATION for the sculptor's work seems to be inherent in all races of men. Not only do civilized and cultured people take delight in the noble art, but even barbarians and savages find satisfaction in, and do honor to, the work of those, who, by their skill, and the exercise of

for knowledge of the dim and distant past. The reverence and awe of the Indian for his totem pole, of the Maori for his effigies, of the negro for his carved and painted gods, is one with that of the ancient Egyptians, the Assyrians, the Greeks, and the Hindoos, for the images of gods and men which



VICTOR HUGO.

(Clay Model for Marble Statue.)

—By Auguste Rodin.

their imagination, are able to fashion out of wood, stone, or metal, images of things they see around them, or that with their mind's eye they conceive.

This appears to have always been so, for even our prehistoric ancestors, the cave dwellers, spent some of their leisure time in carving in stone the objects of the chase—the mighty mammoth and the sword-toothed tiger, long since extinct; and it is to such carvings in stone that are occasionally unearthed that our archaeologists turn

their sculptors made, which have been and are still the admiration of all who see them.

The regular development of the art of sculpture as we know it can be traced back through the medæval ages to the Romans, thence to the Greeks, and further in the order in which they are named, to the Persians, the Babylonians, the Assyrians, the Egyptians, until finally we come to the Chaldeans, who lived on the Persian Gulf three thousand years, B. C., who, developed

the first recognized school of sculpture. The sculptured works of these various periods and peoples is to be found in our museums, our art galleries, and schools of art, where it provides the major portion of the material used for instruction in sculpture, drawing and design.

Sculpture is generally recognized to have reached the apex of its development among the Greeks from one hun-

supplied the sculptors with an abundance of the best material for study, and well they availed themselves of their opportunities in this respect. Public places and private dwellings abounded in the sculptors' ornamentation, and so great was the love of such work that it is said of a certain king, he cancelled the national debt to become the possessor of a marble Venus by Praxetiles.

But what is the value of sculpture to us moderns? Has it a place in the life of to-day? What is its aim, the end it has in view? We should make every thing subservient to utility, say some, and true it is that "The dignity of a calling is its utility." But what do we mean by utility? Is not the utility of a thing the measure of its power to minister to our needs? And let us remember that "Man does not live by bread alone." Life should be something more than a desire to get more money to buy more land, to grow more corn to feed more hogs, to get more money to buy more land to grow more corn to feed more hogs, to get more money, and so on, ad lib.

We are told that a sculptor standing in his yard one day, meditating before a rough block of marble, suddenly turned to one of his attendants and cried, "Bring me my chisel, I see an angel there." His chisel and hammer were brought, and forthwith the chips began to fly. Day followed day and the work progressed, until finally the angel that the man of vision had seen imprisoned in the block of stone stood revealed for all to see. And thousands since that day have had their nobler natures appealed to by the beauty, the peacefulness, the benignity, the sympathy that the angel statue breathes forth as it stands in the city square. Who



POET HOLDING A LYRE.

—By Falgoutere.

dred to five hundred years, B. C. The beauty of design and truth of representation in their sculpture of this period was never before, and has never since, been surpassed. Especially is this the case with their statues portraying the human form. Their figures of men and women, and of their legendary gods are as near perfection as it is possible to get. Their public gymnasiums and physical training schools

shall measure the utility of the sculptor's art?

As in the days of old, the nations have still their heroes in all spheres of activity. And what is more inspiring—for we have some measure of hero worship left in us—than a suitable group of statuary commemorating the noble deeds of such individuals, for all time. Our La Salles and Frontenacs, our George Browns and Ryersons, our Sir John Macdonalds and Lauriers, our Gladstones and Queen Victoria, our Lincolns and Nelsons and Cromwells, our Darwins and Victor Hugos, let us have them in stone and in bronze in our city parks and squares and public buildings, so that he who runs may read, and thus be reminded of his duty to himself and others.

A few weeks ago France was celebrating the centenary of Victor Hugo's birth. The principal event in the celebration was the unveiling of the Victor Hugo statue by Rodin, the acknowledged king of present-day sculptors. Our illustration is a copy of the original clay model for the statue. It is sufficient to show us the dignity and grandeur of the sculptor's conception of Victor Hugo and his work. When this model was exhibited some ten or twelve years ago, many were dissatisfied with it. They wanted Hugo as they had seen him in coat and pants. They forgot that coats and pants are but for a day, and that Hugo is for all time. They forgot that "Man," as Carlyle puts it, "is something more than an omnivorous biped wearing breeches; he is a soul, a spirit, a divine apparition." How magnificently has Rodin grasped and set forth the significance of Hugo! Here we see him as one of the world's philosophers gazing steadfastly as he meditates on some

profound problem of humanity. Behind him is a large two-handed, double edged sword. But he was not a warrior, object some. Was he not? Did he not wage a Titan warfare with Ignorance, and Darkness, and Misery, and Superstition, wielding with most glorious effect the sword of Light and Truth? Was not this the work of a warrior of the truest type? His poetic nature is symbolized by the graceful



AGE OF INNOCENCE.

—By Alfred Drury.

figure of the attendant muse singing her melodious message in his ear. Truly the group is sublime in conception and execution, worthy of the man it honors, of the man who made it, and of the nation that produced them both.

Our second illustration represents an idealistic conception of the poet. Here we see the man of visions and melody dominating natural forces, and guided

by his imagination, soaring aloft into the empyrean. How perfectly this group represents Shelly! Shelly, joyfully, ecstatically, winging his way with the skylark that inspired him to write—

Higher still and higher,

From the earth thou springest;

Like ethereal fire

The blue deep thou wingest;

And singing still dost soar,

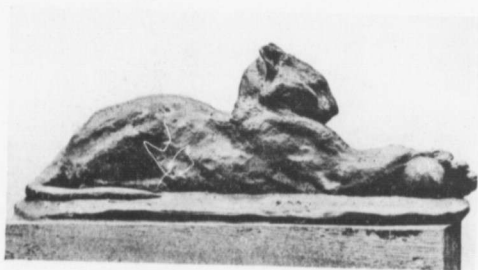
And soaring, ever singest.

"The age of Innocence," by Alfred Drury, our third illustration, is certainly a most idealistic bit of realism, and a most realistic piece of idealism. When looking at the marble bust of this little girl, one cannot but wonder at the absolute perfection of the work. The pose, the expression, the modelling are more than could be desired by the most fastidious, and yet how simple it all is, how true to life in its most charm

ing form! No one can mistake the message it is intended to convey.

As had our prehistoric ancestors, we have, to-day, men who specialize in the sculpture of animals. A. M. Swann is one of these, and his representation of a young Malayan tiger, as reproduced in our fourth illustration, shows with what truth he can portray the characteristics of the animals he works with. How consummately is the litheness, the elasticity, the springiness of the feline species portrayed in this couchant, passively active animal!

We have then, in sculpture, a means, not only of representing concrete objects, but also of bodying forth permanent expressions of the mind's conceptions; of the most fantastic flights of the imagination; of the soul's most powerful and delicate emotions. And, if we do not accord it its place in our life, we are the losers.



A YOUNG MALAYAN TIGER.

—By A. M. Swan.

An Easterner's Impressions of the West

BY PROFESSOR H. L. HUTT.

PROBABLY what strikes the traveller most forcibly in making a tour of the West for the first time, is the vastness of the country. Until one has travelled across the continent, he hardly realizes what the figures mean in stating that Victoria is nearly three thousand miles west of us. And yet, in following the line of

much to interest him in studying the country from a train window. Between Fort William and Winnipeg the broken country and sparse forests indicate that it will be many years before such land will ever be brought largely under crop, if at all, except in the growing of better timber under proper forest management. The endless expanse



AT THE EXPERIMENTAL FARM, BRANDON.
"Jimmy" Murray, the Superintendent, showing a visitor the sights.

the railway, the traveller sees but a limited strip of this vast country and is left to form his own impressions of the enormous tracts each side.

I have heard travellers speak of the monotony and tiresomeness of such a trip, but I must confess that I saw enough variety all along the way to enable me to enjoy every mile of the journey. One who studies tree and plant life in their relation to the soil, locality, and climate can always find

of rolling prairies between Winnipeg and the foothills of the Rockies, may appear monotonous to one who has been accustomed to the hills or wooded lands of Ontario, yet there is a fascination about the prairies which grows upon one as one dwells upon them. When one enters the Rockies, however, the change is so marked that for hours one cannot help but view with wonder and admiration the mighty peaks on all sides. I well remember one beautiful

moonlight evening travelling through the Rockies when a number of the party (and these were staid old married folks) sat up all night in the observation car to enjoy the grandeur of the scenery by moonlight.



FIELD, B. C., MOUNT STEPHEN
IN THE BACKGROUND

In going through this vast and varied country one cannot but be impressed with the possibilities and the wealth yet to be developed when more intensive methods are adopted. Last season was a favorable one for seeing the Prairie Provinces at their best. Rains had been abundant during the early part of the season and grain crops as a rule were excellent. It is a sight to see mile after mile of waving grain, and yet there are still great stretches of unbroken land, plenty of it apparently not even pastured, which

will sometime be brought under the plough. While the pasture does not appear to have the luxuriance and succulence of the clover fields of Ontario, still it has a nutritiousness which enables stock to thrive wonderfully upon it. The great cattle ranches of the west, where hundreds of cattle roamed over thousands of acres, are gradually being broken up into smaller farms and smaller herds and mixed stock and grain farming is taking the place of ranching.

British Columbia presents a greater variety of wealth than any of the other Provinces. An Irishman, speaking of British Columbia as compared with the Prairie Provinces, says, "Shure, it's the biggest country in the wurruud. Av British Columbia was all spread out flat loike Manitoby and Saskatchewan and Albery, it wud fill the whole av the Pacific Ocean. Why, to make room for British Columbia it had to be rowled up, and crumpled up, and humped up into great big mountains rachin' to the sky. An' the mountains had to be made on a moighty big scale to make room for all the mineral wealth they're fairly bustin' wid." The mountains may be bursting with wealth, but to one who is not a miner their wealth appears in the magnificent timber which covers their sides up to near the snow-capped peaks. The fertile valleys between afford some of the richest garden spots on the continent, and in many places fruit growing and truck farming are being developed as rapidly as possible. British Columbia has, too, great wealth in her fisheries. In the sail from Vancouver to Victoria and down to Seattle we had an opportunity of seeing the great fishing fleets at work hauling in the far-famed salmon and halibut of the coast.

To a naturalist the West affords a rich and varied field for study. The flora of the prairies is usually a surprise to the tourist. Here one sees growing in wild profusion an endless variety of beautiful plants, many of which would be prized in cultivated gardens—Prairie Roses, Gaillardias, Lillies, Sunflowers, Zygadynes and scores of other beautiful kinds. We seized every opportunity to gather and get acquainted with some of these prairie flowers, and found twenty or thirty species which were entirely new to us in Ontario and some of them of rare beauty. Up in the mountains about Banff and Lake Louise we found a wonderful variety of beautiful plant forms which one never sees except at high altitudes.

The variety, too, in bird and animal life even on the prairies where there are few trees is a surprise to many. The abundance of water fowl about the sloughs on the prairie cannot but catch the eye of the sportsman. At every little lake or slough along the line might be seen hundreds of wild ducks that merely swam out a short distance from the shore as our train whizzed past them. At one place in particular, Rush Lake in Saskatchewan, ducks and wild fowl of various kinds might be seen from the car window by the thousands.

While the West may not have the variety of song birds which we have in the east, still they have a number of excellent songsters. I think the strong, clear, liquid notes of the western meadow lark are beyond anything our larks ever attempt. I was not favored in seeing any of the large game in the West, although some of our party saw a number of antelopes and a couple of bears at different points along the line. There

is, however, one little animal peculiar to the West which may be seen by scores at any time almost anywhere on the prairies, and that is the gopher. They sit up on their burrows and watch the train as it passes, and I have seen them rush in on the track a few yards behind the rear coach apparently curious to see all they could. These little fellows have become a veritable plague in spite of the fact that they are preyed upon by hawks, weasels and coyotes, all of which I saw thriving among them. When surprised, they give a peculiar call which may be heard from the train, and which for a time I mistook for the note of the Red Winged Black Brd.

The people of the West are quite as interesting as is their country. A more cosmopolitan crowd could not well be found in any other country under the sun. At every station you may hear foreigners from all parts of Europe and Asia chattering away in their native tongue, yet no doubt these will in due time all make loyal Canadians. Many of the older settlers naturally came from Ontario and the Eastern Canadian Provinces. It was a great pleasure to me to meet so many of our O. A. C. boys. They seemed to bob up serenely at every turn. I met over forty of them during the four or five weeks I was in the West, and without exception they seem to be doing well; in fact, from an agricultural standpoint, Guelph College boys are virtually running the West. They occupy the foremost positions, not only among the farming community, but in the legislatures and educational institutions.

The optimism of the Westerner has become almost proverbial, and apparently it intensifies the farther we go

West. Whether it is the fertility of the soil or the clearness of the atmosphere, there is something about the West that seems to put new life in the Easterner when he gets out there, for they all appear to be enthusiastic and hopeful for the future.

Another feature which cannot help but be noticed by an Easterner is the co-operative spirit and courageous manner in which the towns and cities of the West undertake big problems. Even in the matter of civic improvement we in the East have much to learn from Western cities. While there may be more or less of a mushroom growth in some sections, yet these young cities are not neglecting the aesthetic, but are adopting plans to a general beautification of streets, boulevards and pleasure grounds.

I have been asked if I would advise

Easterners to follow Horace Greeley's advice and "go West." I say yes if you are discontented here, but I see no reason why old Ontario does not yet offer quite as great opportunities to the progressive, thorough going young man. No doubt while the West was being opened to settlement there was a strong inducement for the man of small capital to go out and possess himself of the land; but now that the country is being settled so rapidly and the price of good farm land is approaching that in old Ontario, where we have all the advantages of an old established country, I believe the time is near at hand when the tide to the West from Eastern Canada will cease and people of Ontario will realize that they, too, have quite as much reason to be proud of their country as the Westerner is of his.



CLIMBING A MOUNTAIN TRAIL AT LAGGAN, B. C.

Forestry in Southern Ontario

BY E. J. ZAVITZ, B.A.

THE settled portion of what is known as "Old Ontario," contains about 8,500 square miles of woodlands, commonly known as the farmer's woodlot. In addition to this area, there are in various parts of Old

management, are the problems to be confronted in Older Ontario.

A modest beginning was made by the Province of Ontario in 1904, by the establishment of a Forestry Department at the O. A. College, Guelph.



NATURAL WOODLANDS OF WHITE PINE IN NORFOLK COUNTY ON LIGHT SOIL.

er Ontario, large contiguous areas of land which to-day are almost unproductive.

The improvement of the farmer's woodlot, the reforestation of waste portions of his farm and the placing of the larger unproductive areas under forest

The work undertaken by this department was at first two-fold, namely: Academic work which aimed to give the agricultural student a knowledge of handling his own problems in tree planting and care of woodlands,—also the production of nursery material

suitable for planting in the woodlot and for reforesting waste portions of the farm.

Nurseries were established at the O. A. College, Guelph, to produce young forest trees suitable for replanting work.

A system of distribution of this material to applicants throughout the Pro

This distribution of planting material has developed slowly, but the demand for plants has come as rapidly as the nursery output would guarantee. During the last season about 400,000 plants were sent out, and in general reports go to show that these plantations are doing well. It is expected that failures will occur, but the success



"SECOND GROWTH" WHITE PINE ON SANDY SOIL IN NORFOLK COUNTY.

vince, was introduced. This system aimed to interest landowners, having land unsuited for agriculture, to reforest and also to restock depleted wood lots. It is desired to get planting of this nature started throughout the Province in representative places, so that in time these plantations will show what can be done in reclaiming other wise waste land.

ful plantations in a few years will prove the practicability of this work.

In 1908, the Government of Ontario, took a step in advance by undertaking the task of reclaiming waste lands which are described in a special report issued in 1908, namely: "Reforestation of Waste Lands in Southern Ontario."

In many parts of the Province there exist large areas of sand formations

which were originally covered with forest. These sandy soils, with the accumulated vegetable mould, were capable of producing splendid timber, but when cleared and tilled soon became depleted. These types of soil may be found in South Bruce, Lambton, Simcoe, Norfolk, Northumberland and Durham. Such tracts are from 5,000 to 60,000 acres in extent and Southern Ontario probably contains 230 square miles of such soil.

The forestry problem for Southern

ty in 1908, and a description of this will give the reader a general conception of the problem.

Situated in the southern portion of Norfolk County there are several areas of light, sandy soil unfit for the usual forms of agriculture. These areas would probably aggregate about 10,000 acres. The Government Forest Station established in 1908, is located in Walsingham township, and at present consists of 1,000 acres. This land is a portion of a block of about 5,000 acres



AN ABANDONED FARM SHOWING EFFECTS OF DRIFTING SAND.

Ontario as previously stated, is the improvement of the farmer's woodlot; the reforestation of his small waste areas and the reclamation of these larger areas.

The establishment of Forest stations or Reserves on these large waste areas throughout the Province, is the most practical solution of this problem. These lands will be reclaimed and made productive and this work will be the best possible argument to small landowners to improve their own holdings.

The initial work on the large sand areas was commenced in Norfolk Coun-

ty which will eventually be available for forest management.

The land was partially settled as early as 1800, although only small portions were cleared for tillage. The soil is a pure sand formation, but with the accumulated vegetable mould was originally capable of producing splendid white pine, oak, white ash and chestnut.

Wherever clearings were made the soil at first was comparatively fertile, and even produced good crops of wheat. It did not take very long, however, to exhaust this sandy soil and the

next rotation of depletion was rye and buckwheat. A few years of this cropping destroyed the remaining humus, and then the sand began to blow or shift, giving rise to conditions as shown in Fig. 3. These early settlers obtained work with the lumbermen who were still cutting the original pine, and this work enabled them to exist on a soil which otherwise would not have supported them. After the heavy timber was removed new conditions developed.

who seem unable to get away from these unfavorable conditions.

On the first land purchased in this district a forest nursery was established, and the nursery equipment at Guelph was moved to this location.

In this Norfolk County nursery material will be produced to supply the demand of private landowners, and the surplus stock will be used in gradually restocking the cleared portions of the local Forest Reserve.

This last spring (1909) about twenty



REFORESTING SAND LANDS IN NORFOLK COUNTY

Where fire went through and destroyed the younger pine, the oaks came in and became predominant. In more protected portions the white pine forms the "second growth," but the greater portion of the uncleared land is covered with young oak and scattering white pine.

The problem is to protect this young growth which exists on about 60 per cent. of the land, and to replant the remaining cleared areas.

Many of the farms on which a start was made years ago, have since been abandoned, but there still exist settlers

acres was replanted with locust and various pines.

Throughout the southern portion of this county there are many farms having sand ridges which are gradually drifting and injuring otherwise good land. It is hoped that the work being done at this Forest Station will prove of educational value to the surrounding district in demonstrating that it is possible to reforest these bare, sandy ridges.

History of forestry development in older countries has shown that private interests cannot be depend

ed upon to properly manage for est lands.

If the southern portion of Ontario is to maintain a reasonable per cent. of woodlands, the natural policy will be to place these non-agricultural soils under forest management. From these district Forest Stations private wood land owners can receive assistance by way of example and instruction. The

work being done in Norfolk County, it is hoped, is the beginning of a policy which will gradually place all unproductive non-agricultural land under forest management.

This will not only assist to supply the future needs for wood, but will prevent the further depletion of soils which cannot support an agricultural population.

The Bacteriology of Vinegar Making

BY PROFESSOR EDWARDS.

IT is common knowledge that if beer, wine, hard cider, or other similar alcoholic liquids are left to stand exposed to the air, they will after a few days become covered with a skin or film, which sometimes is thin, delicate and easily broken, and other times attains a considerable thickness. The alcohol gradually disappears, and in approximately the same ratio the presence of acetic acid makes itself evident; the beer, etc., has been converted into *vinegar*.

It has been known from the earliest times that an unsoured sample of wine or cider can be quickly turned into vinegar by the addition of a small quantity of such skin. This latter was regarded as the carrier of the vinegar fermentation and consequently received the name of *mother of vinegar*.

Old as is the art of vinegar making, the true nature of the processes involved was not even suspected until the early part of the last century. The first botanical investigation of the mother of vinegar was made in 1822 by

Persoon, who described the skin formed on various liquids and gave it the name of *Mycoderma*, that is, fungoid skin. Persoon did not, however, perceive the direct connection between acetic fermentation and the development of such a structure. This was reserved for a German algologist, Fr. Kutzing, who, in 1837, published a treatise on this subject, showing that the "mother of vinegar" is composed of a number of minute dot-like organisms (which we now call bacteria) arranged together in the form of chains. Kutzing classified these as algae, named them *Ulvina aceti*, and stated quite positively that alcohol is converted into acetic acid by the vital activity of these organisms.

Kutzing's results, however, attracted but little notice, because two years later the great German chemist, Liebig, came forward with a theory that the formation of the vinegar acid was a purely chemical process, basing his contention on the discovery made by another investigator, Davy, in 1821,

that when alcohol is poured on platinum black, the latter becomes very hot and transforms the alcohol into acetic acid.

The diffusion of new light on this subject was reserved for "the father of bacteriology," Louis Pasteur. In 1864 he overthrew the contention of the chemists and upheld Kützing's results, by proving that this fermentation is a physiological process resulting from the vital activity of living organ-

ism. The number of species of bacteria which have been greatly increased. New species of bacteria able to form vinegar from sugary solutions have been added to the three previously discovered, until the list now includes at least fifteen distinct organisms.

The different species show characteristic variations as to the temperatures at which they will grow, the concentration of the fluids in which they grow, and the amount of acetic acid (vinegar) they will produce. For ex-



FIG. 1.—*Bacterium aceti*.
Cells from a freshly formed skin on "doppel-bier."
Magn. 1000. (After Hansen.)

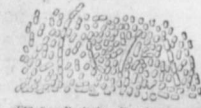


FIG. 2.—*Bacterium Kützingianum*.
Cells from a freshly formed skin grown at 34° C. on "doppel-bier."
Magn. 1000. (After Hansen.)



FIG. 3.—*Bacterium Pasteurianum*.
Cells from a freshly formed skin grown at 24° C. on "doppel-bier."
Magn. 1000. (After Hansen.)

VINEGAR BACTERIA.

isms which he named *Mycoderma aceti*.

In 1878 a Danish investigator, Hansen, showed that in the spontaneous souring of beer at least two different species of bacteria can come into action, and he named these *Bacterium aceti* and *Bacterium Pasteurianum*. Later he added a third species to his discoveries, which he named in honor of Kützing, *Bacterium Kützingianum*. (See Fig. 1).

Within the last fifteen or twenty years, our knowledge of vinegar fer-

mentation has been greatly increased. New species of bacteria able to form vinegar from sugary solutions have been added to the three previously discovered, until the list now includes at least fifteen distinct organisms. The different species show characteristic variations as to the temperatures at which they will grow, the concentration of the fluids in which they grow, and the amount of acetic acid (vinegar) they will produce. For ex-

The farmer's method of vinegar making is simply to allow the cider to stand in barrels for a number of months until it turns to vinegar. Chance is largely relied upon to insure the presence of the proper bacteria and the results are consequently variable, sometimes very good, and sometimes very bad vinegar resulting. To make more sure of a good result, some of the "mother" from a barrel which has contained a first-class vinegar should be used to start the fermentation. In the manufacture of vinegar commercially two processes in general are used, modified as required by local conditions.

The Orleans Process.—Oaken casks of sixty gallons capacity are used, new ones being first steamed and then impregnated with hot vinegar to "sour" the cask. The cask is now partly filled with good clear vinegar, about half a gallon of wine (or other fermentable liquid) is added, and the mixture allowed to stand at about 70 degrees F. for a week or two, when a little more wine is added, supplemented in another week by another lot. This is continued until the cask contains about forty gallons. About half of the material is now withdrawn as vinegar, and from this time on two gallons of vinegar may be withdrawn at a time, its place being made good by adding more wine. The acetic acid bacteria

present in the vinegar first added grow luxuriantly and cause the alcohol present to unite with the oxygen of the air, thus forming acetic acid.

The Quick Process.—The so-called "quick process" does not appear at first sight to be caused by bacteria. Wooden tanks, eight or ten feet in diameter and twenty feet or more in height, are filled with beech or rattan shavings, and thoroughly moistened with an alcoholic solution. Then the whole is inoculated with a little warm vinegar followed by alcohol. The vinegar thus added starts the process, and in a few hours new vinegar is produced. Alcohol is now added at the top, slowly but continuously, and it percolates through the shavings, appearing at the bottom as vinegar. Such a process seems at first more like a chemical change than a fermentation produced by bacteria. The fermentation does not start, however unless some warm vinegar is added and the vinegar is sure to contain some bacteria. Further proof is added by the fact that if the growth of bacteria in the shavings is prevented in any way, the formation of vinegar ceases. Hence, the commercial quick vinegar process, as well as the farmer's slower "barrel process," is dependent upon the presence and active growth of these useful acetic acid bacteria.



Organized Experimental Work With Field Crops in Ontario

BY J. BUCHANAN, B.S.A.

THE majority of Review readers are, no doubt, more or less acquainted with the work which the Provincial Experiment Station at Guelph and the Dominion Central Experiment Station at Ottawa have done and are doing for this Province, along the line of field crop investigation. A much more thorough study of this work would, however, prove beneficial to all of us, and would enable us more fully to appreciate the great possibilities of the extension work which is now being done, and which must inevitably bring about, in time, a practical revolution in farm crop production in Ontario. To discuss this extension work, which is now assuming vast proportions, is the chief purpose of the present writing, but in order to give this discussion its full value, let us just make a brief review of the work of the experiment stations.

Probably the first work undertaken by the experiment farms was to make a thorough and practical test of all varieties of farm crops which were being grown or offered for sale by farmers or seedsmen anywhere in Ontario. All the varieties of each class were grown under uniform conditions of soil, climate and treatment, in order to determine their comparative value; and the results of these tests were made public from year to year as the work continued. As time went on, it was thought possible that there might be

tries across the ocean, varieties of superior merit to any of those known in Canada; and hence plant introduction was commenced. Since that time, varieties have been brought in from the United States and from England, France, Germany and other European countries, as well as from the Orient and from the far South. In fact, almost every country under the sun has furnished its quota of material for these tests, and all this world-wide quest has been in the interest of Ontario farmers, so that they might have knowledge of the best that mother earth could offer. It is no boast to say, that at least most of the varieties now being grown in the Province have first been brought to public notice through the annual reports of the experiment stations, and many of them were introduced directly by these institutions.

In addition to the work of variety testing, and at the same time with it, many other important lines of experimental work were carried on in order to determine the best methods of cultivation for various crops, the best quality of seed to sow, the proper time to sow and to harvest different crops in order to obtain maximum results, the feeding value of these crops, the proper use of fertilizers, and many other important matters which need not be enumerated here. The results of all these carefully conducted tests have been distributed broadcast throughout

the land each year, and in this way a great deal of invaluable information has been brought to the homes of our farmers and thus made available to all who were able to read.

After many years of experimentation with varieties from all possible sources,

For a number of years, both institutions have been making a free distribution of seeds of varieties which had proven to possess superior merit in the station tests. The Ottawa station did this with the main object of as quickly as possible introducing these



EXPERIMENTAL PLOTS AT PERTH COLLEGIATE INSTITUTE

it was found that no single variety of any class of crop was perfect in all respects, and accordingly, work was commenced along the line of plant hybridization and plant selection in order, if possible, to originate varieties which would yield larger crops and of better quality than any of those previously known in the Province or introduced abroad. Some splendid work of this nature has been done at both stations and as a result, new sorts of superior merit have been obtained.

Great as has been the value of the experimental work conducted at Ottawa and at Guelph in the way of furnishing information for the farmers, it could never have affected Ontario crop production in the vital way in which it is at present doing, had it not been for the extension work which we wish now to discuss.

valuable varieties into general culture, and hence furnished each applicant with a three or four pound sample of a single variety, while the Guelph station viewing the matter particularly from the educational standpoint, distributed seeds in smaller quantities and furnished each farmer with smaller lots of two or three of the best known varieties, in order that he might grow these side by side under uniform conditions and make a close study of their respective merits on his own farm. Each of these methods possesses its strong points, and the two together have been instrumental in creating much interest in the growing of improved varieties, and in greatly increasing both the yield per acre and the total crop production in the Province.

The writer is unable to give exact data as to the extent of the Ottawa

distribution in Ontario, but a glance at the gradual development and the present magnitude of the extension work done by the Provincial Station at Guelph, with a brief consideration of its aims and accomplishments, will help to impress its value upon the mind of the reader. The organization known as The Ontario Agricultural and Experimental Union, whose membership consists of students and ex-students of the Ontario Agricultural College, is responsible for the inauguration and continuance of this extension work; the experiment farm furnishing the seeds, etc., for distribution, while a special money grant from the Provincial Government, together with the membership fees, provides for all other expenses. The first object of the work is to foster a spirit of investigation and closer observation on the part of the farmers

learn which is most suitable for each section.

In the month of March each year, a list of all the experiments for which seed can be furnished is distributed in circular form to all farmers who have successfully conducted experiments in past years, and is afterwards given general publication through the news papers. From this list, any farmer in the Province may select any one experiment which he wishes to conduct, and, by applying to the director at Guelph, he will be furnished with the necessary seeds and printed instructions, free of charge. Each experimenter is requested to conduct his experiment carefully, to observe the growing crops closely, to call the attention of his neighbors to the experiment, and to report the results of his test on a blank form which is sent to him with the



BIRD'S-EYE VIEW OF EXPERIMENTAL GROUNDS, COLLINGWOOD, ON JULY 12, 1909.

who conduct the experiments; the second is to furnish these farmers and their neighbors with a supply of seed of the best varieties obtainable; the third is to gather information regarding the value of these superior varieties in various parts of the Province and to

seeds. The experiments are all simple in plan and can be easily carried out by any farmer of ordinary intelligence, and those conducting the tests are not required to return any seed to the director. If any of the new varieties prove superior to those previously grown, the

grower will undoubtedly sow these again, and will reap his profits directly in dollars and cents, as a great majority of the experimenters do. Whether any of the new varieties prove superior or not, the man who makes the test derives great benefit from his experience, by acquiring or strengthening the habit of close observation and by increasing his interest in his calling, and in addition to this, he has the satisfaction of knowing definitely just how his own varieties compare with the best that can be obtained elsewhere.

When the distribution of seeds for definitely planned experiments was commenced many years ago, the funds available were limited and the number who received seeds was very small; but the work has gradually increased from year to year until in 1939 alone, over four thousand farmers were furnished with seeds and instructions and took part in this co-operative scheme. It is true that a large number of the men who receive seeds do not complete their experiments in a perfectly satisfactory way, but a goodly proportion of them do, and even those who do not, learn much by their experience, and many of them try again with better results. It should also be remembered that a great number of these men have followed up the practice of experimenting for several years, taking a new line of work each year, and it is surely a significant fact that two hundred and thirty-seven of these Ontario farmers have each conducted complete tests, according to instructions, and sent in satisfactory reports for five or more years. In other words, they have virtually established two hundred and thirty-seven, more or less permanent, branch experiment stations, which have become centers of interest and of edu-

cation for the surrounding communities. It will still further emphasize the value of the work to state that twelve out of the above mentioned two hundred and thirty-seven have sent in complete reports of satisfactorily conducted tests for ten or more years, two of these having recently reported the successful completion of their fourteenth annual experiments.

Before leaving the discussion of the Experimental Union work, attention should be called to the fact that, while this article deals only with field crop tests, these do not by any means comprise the whole work of the organization. A very large number of experiments have also been carried out along the lines of horticulture, bee-keeping, poultry raising, soil investigation, forestry, etc. It should also be stated that, while variety tests have been discussed particularly, numerous other field crop experiments have been made, such as the trying out of grain mixtures, grass mixtures, fertilizers, different methods of cultivation, etc.

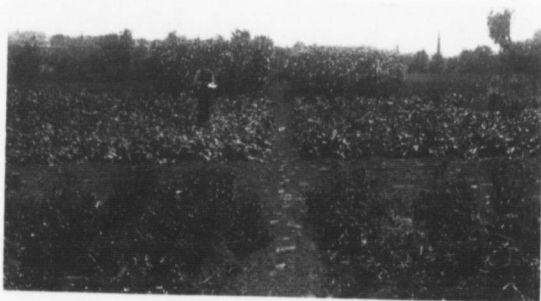
Besides the work already described, which is under the auspices of the Experimental Union, mention should be made of some extension work which has been carried on during the past five years through the instrumentality of the Bacteriological Department at the Guelph Experiment Station, in the co-operative testing of nitrocultures for Alfalfa, Red Clover and other leguminous crops. To show the large proportions which this work has already assumed, it is only necessary to state that over one thousand lots of material have been distributed for tests during each of the past two years. By this means, information regarding the now much talked of nitro-bacteria is being

brought to the farmers in a very practical way.

Two years ago, the Provincial Department of Agriculture decided to make an effort to extend the already wide-spread influence of the Ontario Agricultural College by placing a number of its graduates, as district representatives of the department, in as many counties throughout the Province. Each of these men offers a course of instruction in agriculture, in connection with the high school or collegiate institute of his district. He also

tention of as many farmers as possible to the growing crops and to discuss their relative merits with these men.

At the Prince Edward County branch, the land in charge of the district representative has been used for demonstrating the variations in manner of growth, strength of straw, liability to disease, etc., of some of the leading varieties of farm crops, the seeds of which were obtained at the Guelph Station; but in addition to this, a number of tests have been made throughout the county to determine the value of



EXPERIMENTAL PLOTS AT GALT COLLEGIATE INSTITUTE.

has an office which is used as a local bureau of information on agricultural matters, and a piece of land on which to conduct experiments which will be of special interest and value in his particular section of country. Up to the present time, eleven of these district branches have been established and already several of them have begun definite crop investigations, while others are using the plots for demonstration purposes rather than for real experimental work. In any case, the plots will be of great value, as the men in charge make it a point to call the at

certain fertilizers for tomato, sweet corn and potato crops.

In the Galt district, the experimental work is also extending beyond the ground especially assigned for the purpose, and a number of fertilizer tests, spraying tests and experiments in the improvement of swamp soils are being made throughout Waterloo County, while varieties of roots, corn, potatoes, etc., are being tried out on the school plots. The accompanying illustration shows how well this work is being looked after by the representative in charge.

At Collingwood an area of two acres has been set apart and a splendid showing of plots has been maintained on it. The experiments here include grain mixtures, fertilizer tests and sowing seeds at different dates, as well as some good variety work with grains, roots, potatoes, etc.; and the director is now arranging for important plant selection work in order, if possible, to secure a more suitable strain of dent corn for his northern district.

In Ontario County, the experiments include, besides some cereal tests, the

school and general education work, has been carrying on variety tests of spring wheat, barley, grasses, fodder corn and sweet corn, and produced the best samples of corn shown at the county fall fair in 1909. Besides these experiments, he also had, during the past summer, a number of plots demonstrating the comparative growth and appearance of various classes of forage crops, such as sorghums, millets, rape, kale, vetches, etc.

At Perth, in Lanark County, the school plots are used chiefly for illustra-



EXAMINING INDIVIDUAL ALFALFA PLANTS IN THE COLLEGE EXPERIMENTAL PLOTS.

trying out of three types of millet following green manure crops of barley and grasses; and a careful trial of inoculated and uninoculated Alfalfa seed, in addition to some spraying tests and a lot of splendid drainage work.

Since Essex County has a soil and climate particularly well suited to corn growing, the district representative is giving special attention to this crop, but is also conducting fertilizer and variety tests with various garden crops on soils which seem to be specially adapted to these.

Victoria County also has a representative who, in addition to his regular

purposes, and for these, the seeds distributed by the Experimental Union are utilized. In Lanark, there are thousands of acres of swamp soils which are now being drained, and consequently a series of experiments are being conducted throughout the district to determine what can be done to bring these soils into a suitable condition for growing various crops, and to find out what crops are best adapted to such land. In this county also some preliminary experimental work with corn has been carried on, with a view to selecting for early maturity, and, if possible, to produce home grown seed

of a good dent variety. The results of the first year's work along this line have been very encouraging.

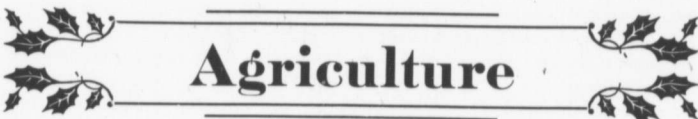
In addition to the counties already mentioned, Norfolk, Dundas, Carleton and Peterboro each has a representative, but as these men have been at their respective posts for only one season, little can be said regarding their work as yet. In each case, however, plans are being made for work which will be interesting and instructive to the farmers of the district.

Besides the two large experiment stations and the eleven county branches, there has recently been established by the Dominion Government a station for tobacco investigations in the County of Essex. While the work at this place is quite new, an extensive line of experiments is already under way, and the results of these will no doubt be of great value to the tobacco growers of Southwestern Ontario.

When we consider the extent and the practical nature of the work being carried on by the two main experiment stations; the great increase in the number of co-operative experimenters and the gradual improvement in the care and accuracy with which these men do their work, and its effect upon neighboring farmers; the very evident local value of the demonstrations being made and the investigations carried on by the district representatives of the Provincial Department of Agriculture; the benefit which is likely to accrue from the work of the tobacco station in Essex County, and all that will naturally evolve from these various lines and centres of activity, it is surely not too much to expect that within comparatively few years the prediction made in the introduction to this article will have been fulfilled, and the acreage production of field crops in the Province increased seventy-five to one hundred per cent.



"YOUNG AGRICULTURISTS."



Agriculture

Good Roads

BY A. M. SHAW, '10.

PART I.

THE art of road making is seemingly a very simple one. At first sight it appears as if "any one could build a road."

However, all that is now known of road making, it has taken centuries of experience to discover. At the present day technical colleges in the United States and in Europe, where good systems have been established, the very best of engineering ability is procured for the work of road construction.

Road making of a certain kind can be carried on by "anyone," as it were, but it is not the kind of road making that is economical and leads to good results.

One of the greatest drawbacks to the advancement of good roads is the number of townships and municipalities that are employing incompetent overseers and pathmasters.

Right here comes up the question of Statute Labor. Statute labor necessitates the appointing of pathmasters, their duty being to warn out the men and direct and oversee the work done. These pathmasters are changed from year to year, and are seldom selected because of special qualifications for road work, and therefore cannot be expected to produce as good results as a man who is making a special study of

road making, and who devotes his whole time to it, season after season.

There are many other defects in statute labor. The men come to work with very inferior equipment, their wagon boxes holding anywhere from a half to one and a half cubic yards of gravel. There are too many bosses, usually, and as these bosses are changed frequently, therefore no good plan of procedure can be followed from year to year. It often happens that the good work done one season by a certain pathmaster is entirely undone the following by the methods which his successor uses in working the road. By an absence of system much labor is lost.

Again, repairs are not made when needed, or at the proper time. Statute labor is all done practically at one season of the year; whereas, roads need attention and repair at every season. It is a fundamental requirement of road maintenance that repairs should be made as soon as signs of wear appear. When a rut or hole first appears in the road it should be filled. When a drain or culvert becomes clogged it should be cleaned out. When a road begins to become flattened out, the metal, if it is a macadam road, should be drawn

toward the center or else a new coating applied. A rough, rutty road wears out very much faster than a smooth one. The work of a few minutes when

idea of the advantages of a bridge or culvert is that they shall be given the job of repairing it.

Townships have to resort to some



MACADAM ROAD

repair is first needed becomes the work of as many hours when neglected.

Statute labor is no longer suited to road making, because a better method has been devised. This new method is called the "Commutation System" and is embodied in a by-law of the township, providing that all statute labor must be commuted at a fixed rate per day. The rate in many cases remains at one dollar, although some townships have reduced it to seventy-five and even fifty cents. The road work is then put in charge of a road commissioner.

The position of road commissioner in many townships is by no means an enviable one. He very often has to endure severe criticism regarding his methods of work, and if he does not get all the roads in the township made good and smooth within a week or so in the spring, he is censured severely.

means of raising sufficient funds to enable them to go ahead and build a permanent road.

Roads cannot be profitably or permanently improved by scattering small sums annually on unimportant works. The result of such a practice is that a considerable sum is squandered annually with little or no permanent results. Where the township depends on its taxes for road improvement, it means that either the main or market roads require it all, or the main roads must suffer to temporarily fix much less used side roads.

Now, a way which some townships are using to overcome this difficulty is as follows: They issue debentures to pay for the construction and maintenance of the most heavily travelled roads and then use the ordinary taxes to keep up the side roads. The payment of these may extend over, say



NEEDS CROWNING

However, this is done by only a certain class of farmers; men who cannot consider any roads, except those in front of their own farms; whose one

from fifteen to twenty years. There is no reason why the people living and owning property on or near the improved road should bear the entire cost

of it, as it will be of benefit to a succeeding generation. And as the succeeding generation in the majority of cases get the farms clear and free they

An increased expenditure will no doubt be made, but this will be fully covered by the Government grant. A county system, of course, will comprise



TEL FORD ROAD

can well afford to help pay for the road.

So far I have only spoken of township management of roads, but in connection with this, it might be well to consider what is known as, the "County Road System."

In 1901, an Act entitled "Act to Aid in the Improvement of Public Highways," was passed by the Provincial Government. This Act, with its amendments, provides that county councils assuming and maintaining a system of county roads, will be assisted by the Provincial Government to the extent of one-third of the cost of construction.

Under this system the main roads are chosen and are repaired according to their needs. The by-law is brought before the ratepayers of the different townships and voted upon. If passed in

only a small percentage of the total number of roads.

The aim of the system is to secure uniform and systematic work, to employ and properly operate modern implements, to provide for constant maintenance and to provide object lessons in the art of permanent road building.

Now, as to the actual road making. As I said at the beginning, road construction is seemingly very simple, but the more one studies it the more complicated it appears.

No two counties, and in the majority of cases, no two townships, have the same natural conditions regarding nature of the soil, quantity of gravel and stone available for use as road metal. Hence, no rule can be laid down which will apply in all cases, but there are certain factors which must be observed in all cases, no matter what the condi



PROPERLY CROWNED

a majority of the municipalities, the county system is adopted, and the main highways are turned over to county management.

tions are. They are thorough drainage, to remove all surface and saturation water, and grading to form the water tables, and give the road suffi

cient crown so that the water falling upon the surface of the road will quickly run into the ditches and away.

In this way a hard, firm roadbed can be formed, which is one of the most important features in the building of a permanent road.

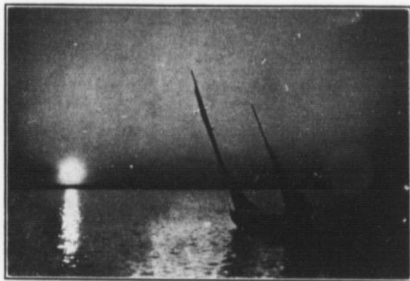
A prominent road builder of the United States once said that the chief matter to consider in the improvement of a road was first, "drainage;" second, "better drainage" and third, "the best drainage possible."

The importance of drainage cannot

be too thoroughly impressed. All water should be disposed of in as small quantities as possible along natural water courses. If it is carried for long distances, in ditches along the roadside it gains head and force and the result is, extensive washouts in many places.

Drains without outlets are worse than useless. If there is no outlet the water stands in elongated ponds on either side of the roadway to soak into and destroy the travelled roadbed. This water is drawn up by capillarity into the roadbed and tends to soften it.

(To be concluded in January Issue.)



"MOONLIGHT ON THE LAKE"



Young Man, Stay East!

BY P. C. DEMPSEY, '11.

HAVING read from time to time of the great successes of western fruit growers in the competitions at great expositions, and their invasion of world markets, I accepted, with pleasure, the opportunity of accompanying Mr. Crow, of the O. A. College, on his tour of western fruit lands, in order to see what the west was doing.

After an interesting trip across the prairies, and through the marvelous Canadian Rockies, we found ourselves in the Okanagan valley. At first one is apt to misjudge this country from the stories of the ever-present real estate agent. However, a few hours spent with the westerners among their orchards is sufficient to give even the most conservative easterner some respect for the Okanagan growers, and their orchards.

The climate of the Okanagan is delightful. At the south of the valley peaches are successfully grown, while further north the climate is adapted to apple growing. The growers told us that last winter was exceptionally se-

vere for the Okanagan, and thus explained the winter-killing of trees in some of the young orchards, where trees had been exposed to such danger by irrigating too late in the season.

While the slight rainfall makes irrigation a useful aid in maturing the half grown crop, the growers have made too free use of the water when cultivation would have been better, and guarded against winter injury. The soil is easily worked, this makes it possible to grow truck between the rows of fruit trees and keeps down expenses until the orchards pay for themselves.

Many of the orchards have been planted on speculation by individuals and companies. In many cases the men owning the orchard land have set out the trees, and sold it to distant investors for whom the young orchard is to be grown for a period of years as stated in their contract. By thus having the planting carried on under the direction of very few men, fewer varieties have been planted than would otherwise have been. These company orchards, as seen at Kelowna and Ver-

non, are models of uniformity in size and shape, each being under care of one foreman. The trees are comparatively low headed in most of the orchards. The others are headed about the same heights as the orchards of Ontario. The great majority of the trees are young, scarcely bearing yet. The oldest orchards are about nineteen years set. There have been many gaps made in these older orchards which shows that many of the trees in the older orchards have failed to reach maturity. While clean cultivation has been used so far by many, several growers have been experimenting with cover crops to restore the nitrogen, and humus to the soil.

The orchards are cultivated with such low cultivators as the Acme or Kimball, which permit getting close to low headed trees. The irrigation water is generally distributed by shallow furrows between the rows of trees. The other labor spent on the orchards consists of pruning, and spraying, as in Ontario, but has thinning added to the routine in the growing season.

This special work tends toward the production of the most perfect fruit, and when combined with the effect of long sunshine, during the most of the growing season, gives excellent results in the production of first-class fruit. The market for this fancy fruit put up in the fancy box packages is naturally B. C. and the Canadian Northwest. It has been shown that B. C. fruit can be shipped to Great Britain, but when it comes to this long distance shipping Ontario can produce fruit for these markets cheaper and save the freight charges.

The Okanagan fruit section is comparatively small, but land prices are very high. Uncleared apple land sells

at \$150 per acre, while orchards from three years old up sell at from \$450 per acre and upwards.

From the Okanagan with its bright prospects, we went by way of Victoria, Seattle and Portland, to the famous Hood River section, in Oregon. The valley of Hood River is located about ninety miles up the Columbia River from Portland. Here nestling at the base of Mt. Hood is a very small valley of which most of the suitable orchard land has been planted. The climate here is delightful, and one is seldom molested by the real estate agent, so prevalent in B. C. The quiet, sunny days and soft twilights, tempered by the mountain hues are never to be forgotten.

The soil in Hood River orchard lands is easily worked. The rainfall is sufficient for growing an apple crop, provided cultivation is kept up. The thick dust mulch formed by thorough cultivation makes it unpleasant walking in the Hood River orchards, but as they are managed for the production of high-grade apples, and not for parks this is no objection. While the crop was light this season, owing to a very heavy crop last year, and the exceptionally severe winter which killed a few trees in the valley, it is evident that Hood River can produce apples. As most of the agricultural land in the valley has been planted to apple trees the whole section is dependent on outside places for most of their farm produce.

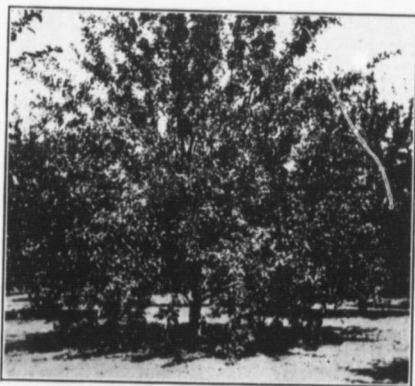
A very interesting feature of these orchards is the system of pruning adopted by some growers. The vase form is taken as ideal. The long under branches forming the weak top are supported by strands of tarred rope connecting opposite branches. This

holds the top together even while heavily loaded. Such trees are picked by means of two tripod ladders used on opposite sides of the tree, and connected by means of a light plank bridge. This makes it easy to pick the tree without seriously injuring it. These lower headed trees form a desirable model for Ontario trees in sections at least where the snow is light.

The apples are very carefully picked, and taken to storage, where they are packed under direction of the co-opera-

torial land owners. In spite of this fact, and the fact that their lands sell at a more moderate price than do the Okanagan orchards, there are doubtless other places offering as good opportunities to the prospective apple grower.

Grand Junction, Col., the last great fruit section visited, is interesting because of its fire pots. The fire pot is an invention designed to counteract the late spring frosts which have so often ruined the fruit crops in this valley,



TYPICAL LOW-HEADED APPLE TREE OF THE WEST.

tive manager. The system of uniform packing, grading, and co-operative selling accounts for the high profits to Hood River apple growers. As an illustration an acre of apples producing 100 barrels or 300 boxes of apples, packed as in the east, would, at \$3.00 per barrel, net \$300.00. If, however, handled as do the Hood River people theirs, it would bring \$3.00 per box, and net \$900.00.

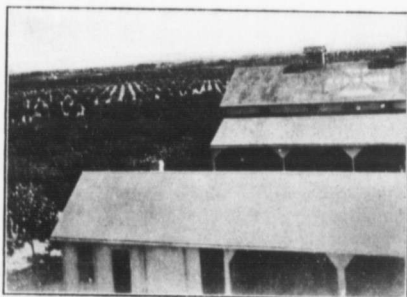
The people of Hood River are very progressive, and boast one hundred university graduates among their seven

even as late in the spring as the time the trees were in full bloom. However, now they have gained a victory, and can at a very low cost protect themselves against these emergencies. This suggests a field for experiment in a few sections of the east when fruit blossoms have failed to set from unknown causes.

Grand Junction and the valley up as far as the Palisades is an example of an almost wholly planted fruit section. For a distance of twenty-five miles the valley varying from two to

five miles in width is entirely planted. From the car window the view is grand, perhaps nowhere can one see a similar sight. As the train enters the peach section the mass of waving green tops appears like the level top of some broad hay field. So few are the breaks between the orchards that one forgets to notice them in contemplation of the magnificent scene. The accompanying illustration shows the degree to which the whole land is planted to fruit trees, and illustrates the advantage of high

one free from insect pests, and little is known of the variations in climate. The climate is very local, and therefore to a stranger it is difficult to choose a safe location. Railroads and real estate men are over-drawing the possibilities of the west in trying to attract investors and capital. The very high prices asked for land make it a poor place for the man of moderate means. The fact that winter injury, insect pests, and problems of fertilizing as well as questions of pruning and of irrigation have



A WESTERN APPLE PLANTATION.

priced land for growing apples or other fruit.

While we visited many other sections of horticultural interest, space will not permit a discussion of their individual merits. The three great sections mentioned may be taken as fair examples of western fruit lands. There are beside these apple sections districts devoted to the growing of special lines of fruits as pears, plums, and small fruits.

Before deciding to go west and settle on an apple section it is the best policy for the discouraged eastern grower to consider the merits of both east and west. Nowhere in the west is

to be reckoned with, show that fruit growing is not yet on as safe a basis as in the east.

Therefore, our advice to restless fruit growers is to cut down expenses by planting suitable land, growing lower-headed apple trees; to increase the profits by growing first-class fruit only, even if thinning is necessary; by organizing to sell co-operatively; to give the orchard the same attention and to throw into the business the same enthusiasm one would have to in the west; having done this to stay in the east near the great markets where climatic conditions are better understood.



Breeding Indian Corn in the Southwest

BY PROFESSOR L. A. MOORHOUSE B.S.A., M.S.

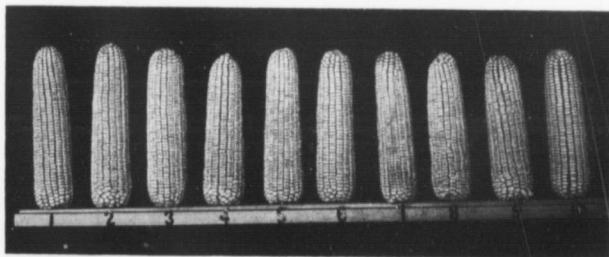
OKLAHOMA, "the Land of the Fair God," will undoubtedly become a rival of a few of the states which are commonly classified in the great corn belt. Starting in 1898 with an acreage which did not exceed the half million mark, Indian corn has continued to increase in acreage until more than five million acres have been set aside for the cultivation of this cereal within the new state; and we have every reason to believe that this field may be extended still further; thus more land will be planted to corn within the coming five or ten years. Through the adoption of better methods of farm management, and by giving greater attention to the selection of first grade seed, a feature which goes hand in hand with judicious tillage, it is certain that larger quantities of corn will be available for market

purposes; the Oklahoma grower will, therefore, continue to draw a substantial revenue from the sale of grain, or from the sale of products which have been made possible through feeding the corn or fodder in accord with an approved system of live stock husbandry. There are important changes represented in this transition. A few years ago winter wheat was grown almost to the exclusion of all other cereals in the north central counties of Oklahoma, but at the present time the Indian corn plant occupies a very prominent part of the rotation on many of these wheat farms. The golden grain which is usually harvested about the middle of June in the southwest has been supplanted by Indian corn, and the marshalled rows of stalwart stalks now stand like a vast army guarding the heritage of the farm.

The Grower has a Real Problem to Solve.

In this south land we are compelled to meet certain conditions which are not favorable to the production of large yields. While our rainfall is usually abundant during the growing period, the distribution is frequently not so well regulated as it might be; consequently the crop often suffers for lack of moisture more especially on those fields which do not receive good cultivation prior to the time of planting. This factor may be controlled

such periods the crop may be damaged seriously. When the hot winds blow continuously for several days and the corn plants are subjected to a very severe test the pollen becomes ineffective through this scorching process and imperfect fertilization is the result. Low yields are usually reported after the crop has passed through a season marked by high temperatures. This difficulty may be overcome in part by planting early varieties of corn. This gives the plant a chance to reach a stage of maturity before the hot winds



A GOOD EXHIBITION SAMPLE OF BOONE COUNTY WHITE.

largely by the grower and every effort should be made to bring the seed bed into the very best form; but after this work has been accomplished there are influences beyond the reach of the grower which must be governed indirectly and it is here that the intelligent breeder has an opportunity to exercise his skill in manipulating unseen forces. The corn crop finds a normal environment and makes its best growth in sections or districts where the mean July temperature does not exceed 80° F. It may be observed that the temperature is frequently advanced several degrees beyond this point in the southwest, and during

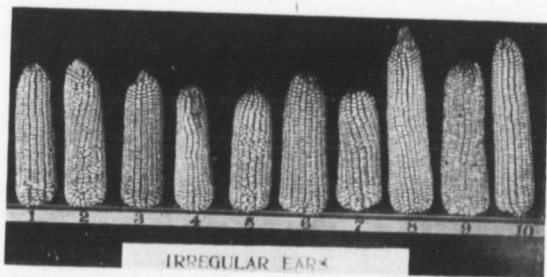
prevail and normal yields can be harvested. In the second place, we believe that it is possible to combine the characteristics of varieties which have been cultivated for several years under what we might term abnormal conditions and from these crosses the grower may be in a position to develop a strain with drouth resistant qualities so pronounced that at least forty or fifty bushels of corn per acre will be forthcoming in spite of dry, hot weather.

The Prospective Breeder has Some Desirable Strains at his Disposal.

Careful investigations have shown

that many of our varieties of corn are well adapted to the areas in which they have been grown for several years, but it is also a fact that many of these types are deficient in one or more qualities that should be much more in evidence. In southwestern Oklahoma some of our Indian tribes have cultivated a type known as "squaw corn," for several seasons in succession. Some affirm that this type has been planted in these districts for at least one hundred years, and although no attempt has been made to change the general form or nature of

bined in the resultant progeny. Some very successful crosses have been made and comparative field trials in the near future will enable us to determine whether the new product can be used as a substitute for the best types that are now cultivated. Our field trials have also demonstrated the fact that early varieties of corn like Kellogg's Pride of Saline, Graves' Cow corn, and Sixteen to One, as well as some other minor types, make first class yields under temperatures that are detrimental to high production in the case of the later maturing varieties. It has been suggested



THIS SAMPLE WOULD MAKE A LOW SCORE ON THE EXHIBITION TABLE, BUT IT UNDOUBTEDLY CONTAINS A FEW HIGH YIELDING EARS.

the plant, it does possess some excellent qualities. Squaw corn is an early maturing variety, and when planted side by side with some of the larger types, it will return fair yields during the unfavorable seasons when the improved types fail. This well known Indian variety is, however, not a high yielding corn, but by crossing this type with a productive strain like Boone County White or some other standard variety, the drought resisting characteristics of the parent squaw corn and the productive efficiency of the Boone County White may be com-

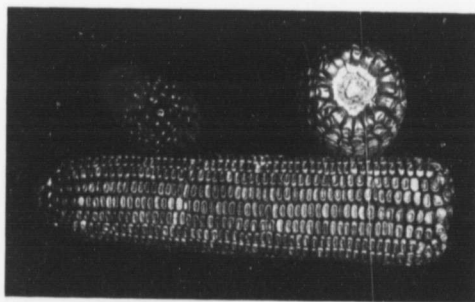
that crosses might be made between the two types under consideration and thereby secure a product which will bring more bushels per acre under the climatic extremes which are experienced in this country. The corn grower may also gain something by importing varieties of corn from sections of the country where the rainfall is somewhat limited and the temperature comparatively high throughout the growing season. Indian corn grown under such surroundings, possibly for centuries, must surely possess to some degree at least the qualities

that will enable the plant to grow to maturity and produce normal yields under a climate which is almost the same as the native home of the imported stock. Dwarf Mexican June may be included in the latter list.

The Score Card for Indian Corn probably has some Defects.

The score card has been applied in selecting seed corn much in the same manner as the score card is used in judging live stock. Recent studies lead us to question the advisability of bas

nels, and it also states that the rows of kernels should extend in regular order over the butts. A careful examination of a large number of ears produced from individual selections last season appeared to indicate that ears with well filled tips had a tendency to be some what shorter than the average ears of the breeding plot, and they were also located on rows which had a very poor performance record. The selection therefore, of our ears must ultimately result in a reduced yield per acre. The score card has some value in that it directs the attention of the student to



GOOD EARS—ACCORDING TO SCORE CARD.

ing our judgment wholly upon the items which are inserted in the average score card. While it is true that the ears in an exhibit should be similar in size, shape, color, and indentation in order to present a favorable appearance on the exhibition table, the score card does not assist in isolating individual ears which under practical field trials will give a high relative efficiency from the standpoint of productiveness. Furthermore the score card insists that the tips of the ear should not be too tapering, but they should be well filled with regular uniform ker

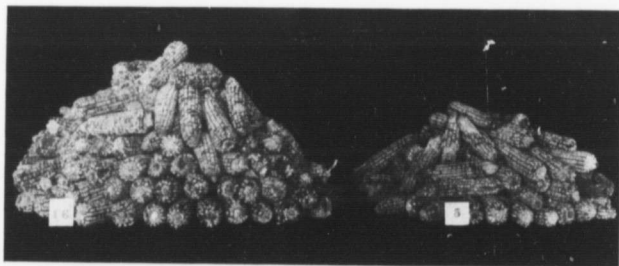
form, color or market condition; and it encourages a spirit of investigation because specific items are placed with in our mental balance; but from the breeders' viewpoint we ought to have some radical changes in these values, and the new features should be so outstanding that productive types will be brought into the foreground.

High Efficiency Should be the Basis of Selection.

The average yield of corn for the State of Oklahoma does not exceed

twenty-five bushels per acre. On many farms fifty and sixty bushels per acre are reported, and this means that many do not secure more than ten or twelve bushels, or in other words, they fail to harvest a sufficient amount from their fields to meet the cost of production. Shiftless methods of cultivation or soil management with no thought concern in the value of selected seed may be given as a reason for these low yields. Still better returns than fifty bushels

presented in these types can be carried over into the general field, it will be possible to secure results on the average farm that will be far in advance of the most enthusiastic breeder. Much has been accomplished merely by sorting the best ears from the general field plantings; greater attainments may be ours provided the selected ears are compared in a test plot for the purpose of giving a chance to reject the low yielding types.



YIELDS FROM INDIVIDUAL ROWS.

per acre are made possible through the selection of individual plants which possess more than average merit. The season of 1908 was not an ideal corn year in central Oklahoma, and yet, under these unfavorable circumstances certain individual plants in our breeding plot produced as high as eighty-four and a fraction bushels per acre; the same plot contained individuals which did not give more than forty-six bushels per acre. The same feature was apparent in plots which were located on upland areas that are not well suited to the production of Indian corn. If these high producing individuals can be isolated, and if the efficiency repre-

Individual Plants which Have Merit Ought to be Isolated.

The American Breeders' Association has outlined a plan which is worthy of some notice on the part of men who are anxious to increase the quality and yield of their product. In place of using ears from the rows in the test plot which have given a high yield, the grower goes back to the remnants which have been saved from the original ear, and he plants this selected material in the isolated breeding plot. Under this plan a portion, say one-half of the corn from each selected ear which is set aside for experimental

*American Breeders' Association Report, Vol. 3, 1903, pp. 110-122.

work in the ear test rows, is shelled, placed in a small jar and set aside for planting after the initial step has been taken. These jars must be properly numbered, and they should be stored in a room where they will be free from any damage by excessive moisture or any chance to be destroyed by rats or mice. At the end of the growing season the yields of the test rows are computed and the most desirable individual plants may be singled out for further study. By comparing the numbers of

the test rows with the jars which contain the remnants, it will be an easy task to select the very best material for the breeding plot the succeeding year. The readers of *The Review* are familiar with the methods which are employed on large farms where corn breeding is followed as a specialty; and it will, therefore, not be necessary to discuss such features in detail. It was the writer's purpose to suggest a few items which are engaging the attention of the corn breeder in the southwest.



MAMMOTH WHITE—YIELDS FROM INDIVIDUAL ROWS.



STAFF OF O. A. C. REVIEW.

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Bottom Row (sitting)—S. E. Todd, Horticulture; W. R. Reek, Experimental; Miss Belton, Macdonald; F. C. Nunnick, Editor; Miss Flavell, Ass't Macdonald; S. H. Gandler, Associate Editor; C. M. Learmonth, Agriculture.

THE O. A. C. REVIEW

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C. M. LEARMONTH, Agriculture.

W. R. REEK, Experimental.

S. E. TODD, Horticulture.

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Editorial

Within the past few years The Review has made marvelous growth, so great in fact that it is now beyond what any undergraduate should undertake to carry on along with his studies. It takes too much of his time to do it as it should be done and at the same time take his course and get from it what should be gotten from it to fit him for the greatest future usefulness.

We have in the past felt the need of a press of our own, we feel it now, and we shall feel it even more strongly in the future.

At the present time we pay out enough for printing to pay for the services of a permanent managing editor and a permanent business manager.

These would relieve the students of the work of setting up the paper, reading proof, mailing, looking after subscription lists, etc., and yet give the students every opportunity to write for it and assist in many other ways.

There is enough printing in the way of circulars, letter heads, catalogs, programmes, and other College printing which could be efficiently done right here to pay for the services of an experienced printer. But these and many other details of a like nature can be arranged when the time comes for the change. There are always many students with journalistic tendencies who would be only too glad to have the opportunity of seeing how The Review is made up and of contributing to its columns. There is with the ex

perimental and investigation work at the College, abundance of material to make The Review of great interest to thousands of ex-students and members of the Experimental Union, the whole year through.

The College Life Department might be left out and The Review printed twelve months in the year, thus making it of greater interest to others as well as to students. There might be a weekly journal of college news published for circulation among the students and faculty. By running the two, greater opportunities would be afforded the students to obtain a knowledge of agricultural journalism which would be of great value to them after graduation, when they leave to undertake work in the various spheres of life's activities.

Another thing which could be undertaken in connection with The Review would be the handling of text books and students' supplies. If we had the room we could handle all books, stationery and supplies, thus saving the students much annoyance and delay in procuring these at the beginning of each college year. It would mean, too, a considerable saving on the price of these to the students, as they could be procured in large quantities at whole sale rates. There are very many other things which might be said in favor of a press owned and controlled by the students of O. A. College, but suffice to say that the need is keenly felt and steps must be taken towards the procuring of one.

It cannot be done all at once, nor can it be done in a year, but we can make a start this year. We can set the ball rolling at a lively pace by inaugurating what we may term "The Press Fund."

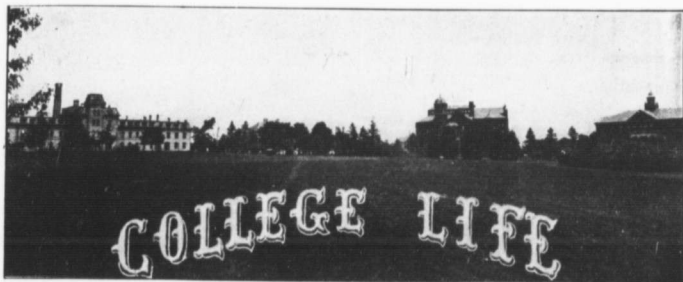
We are happy to be able to state

that through the splendid endeavors of our business manager and his assistant we shall be able to contribute a substantial sum towards this fund. Then, if, from year to year, for a few years, the staff will strive to keep adding to this it would not be long before we could have a press of our own, modern in every respect and capable of turning out anything we wished printed. Of course, if we are to do this, we cannot expect to lavishly spend money on superfluous or elaborate illustrating and special numbers. We can, however, seek to improve The Review with as little outlay as possible. If special numbers are to be issued let them pay for themselves.

If economy is practiced there is no reason whatever why this fund cannot be swelled from year to year. Money makes money, is an old saying, and let us endeavor to make this come true in our own case by making a start, and thus we shall have something to which, perhaps, some kind friends of The Review may be happy to add.

Let us lead out boldly and let our aim be the establishment of a printing press of our own. This will put The Review on a firmer and surer foundation where it will be able to more successfully place before the public the work of the College, and thus fulfill to a greater degree the primary function of its existence.

We confidently maintain that with the united efforts of the staff and students, this can be brought about and a paper truly representative of this institution will be the outcome; a paper which will have the effect of drawing more closely together the farmer and his College in one bond of common interest.



Christmas Time

BY PRESIDENT CREELMAN.

CHRISTMAS time is a joyous time. Peace reigns and all are glad. Men cease their strife and toil and become again as little children; women forget their petty cares and fashions and prove to the world that it is "more blessed to give than to receive." Snow and ice and sleigh bells, and roaring fires, and rosy cheeks—these are the accompaniments of Yule Tide in the Northern

clime. Santa Claus without his sleigh is as inconceivable as Christmas without Santa Claus.

Then the home comings—boys and girls and men and women and grand children. Surely Christmas time in Canada is a joyous time, indeed.

And what shall we contribute to the general good? Shall we as college boys and college girls return home to laugh at the old fashioned manners of



PRESIDENT CREELMAN.

our old fashioned friends Shall we find the house too small after college halls? Shall we smile at the appearance of the cows and horses and sheep and despise their winter quarters, while we mentally compare them all with Government flocks and herds and Government barns and stables? Or shall we play the man, showing father and mother that we appreciate their sacrifice and that we have profited much by our college work and associations; that we have learned complacency and

Department of Field Husbandry.

The statement has been made recently that the value of the output of the farms of Ontario has doubled within the past fifteen years. This certainly signifies that there has been an increase in the intelligence of the farming community and an improvement in the methods of agriculture. It also indicates greater prosperity throughout the Province, and increased comforts in the homes of the people of both the



PROFESSOR ZAVITZ.
Department of Field Husbandry.

eternal good humor from our Japanese companions; softness of speech and a love of truth from the British Islanders; that we have acquired a love of fun and fair play from the men of Africa, a stolid sobriety and quiet dignity from the New Zealander, the aggressive spirit of the American, and above all, that we have gained a breadth of vision from our studies that makes us realize the goodness of God and appreciate the love of family and of home.

country and the city. Among the various agencies which have assisted in the improvement of our agriculture, the Ontario Agricultural College occupies a prominent place. Its work is having an influence over the lives of men in many ways which they scarcely realize themselves.

As one of the branches of the college work, the Department of Field Husbandry has been trying earnestly to give a helping hand in this great work. Its aim has been to help men—agricul

tural men—and in co-operation with these men to help agriculture. It has tried to teach the great importance of high quality and of purity whether they apply to the students at the College, to the farmers at their homes, or to the seed which is sown in the fields. If men would try their best to live good lives and to grow good crops, they would not be bothered much with evil thoughts or with troublesome weeds. As the present Christmas season commemorates the birth of Jesus,

Chemistry is not confined to a laboratory, that its processes are taking place all around us, and its compounds exist everywhere. The air we breathe is a mixture of chemical elements and compounds; the water we drink is a chemical compound; the earth beneath us is a complex mixture of chemical substances, and plants and animals are composed of a few chemical compounds built up as a result of that mysterious process called life.

When the farmer cultivates the soil,



PROFESSOR HARCOURT.
Department of Chemistry.

so may it be the time of the birth of the Christ spirit in the hearts of many of our people.

Department of Chemistry.

Many people wonder what Chemistry has to do with Agriculture. They think of Chemistry as a laboratory science, the working of which is shrouded in mystery, and of chemical compounds as the liquids and solids confined in bottles on the shelves of the drug shop. They fail to realize that

he is providing the conditions which will cause chemical changes resulting in the formation of soluble plant food, which compounds, together with those drawn from the atmosphere, are used by the plant to build up the complex carbohydrates, fats, proteids, etc. To obtain the best results, the farmer must strive to secure those conditions which are most favorable to the chemical changes required.

The compounds formed by the plant become the food of animals, and the animals make rapid growth produce

milk, or do work somewhat in proportion to the quantity and proper arrangement in the diet of the chemical compounds formed by the plant.

In making hay and silage, in preserving roots or other forms of foods, the farmer is dealing with chemical problems. In keeping milk sweet or manufacturing it into butter or cheese, his success depends upon his ability to control chemical change. And in making the various insecticides and fungicides used in combating insect and fungus

which is the best breed of cows; neither can I say which is the best separator, nor give you a temperature which will be suitable for churning all kinds of cream. Am very sorry to learn that the creameryman in your locality is so dishonest. The sample of cream sent in by you tested 39 per cent. fat, which is a comparatively high test. I sincerely hope you will obtain justice for the past month, as doubtless you told him you were sending a sample of your cream to be tested at the O. A.



PROFESSOR DEAN,
Department of Dairying.

pests, he is handling chemical compounds and causing chemical change. Thus, in every part of the farmer's work he is continually aiding or retarding chemical change, his whole work is full of chemical problems and, whether he realizes it or not, his success is dependent upon his ability to control these changes.

Department of Dairying.

I have yours of the 30th inst. I regret that I am unable to tell you

College. We should advise a "heart to heart" talk over the matter.

Yours very truly,

"The Rev. Mr. from who would like to ask some questions about dairying."

"Glad to meet you, my dear sir."

"I intend to keep a 'coo' and wish to know what is the best feed for her and how much she ought to receive." "Have you clover hay?" "I can get it." "Give her what clover hay she will eat up clean in an hour, twice a

day." "Mangels?" "Yes." "About half a bushel per day, increasing to a bushel if necessary." "In addition give about 3 lbs., bran, 3 lbs., chopped oats, and 1 to 2 lbs. oil cake in two feeds daily, together with all the water and salt she needs and you will likely get good results."

"How do you do?" "Prof.?" "Yes." "Very glad indeed to see you. I am representing the Glad Hand Art ists' Association that sell everything

"Can't sell you anything?" "Good-day."

"Good-day!" (Exit "Glad Hand Art ists").

Department of Animal Husbandry.

In practically every Agricultural College where animal husbandry is given a prominent place, the subject of stock judging is made an important feature of the animal husbandry course, and it



PROFESSOR DAY.
Department of Animal Husbandry.

from underclothes to gaitors. I was told by that you would be sure to purchase some of our patent under clothing that keeps you cool on all warm occasions and warms you under all cool circumstances." "Don't need any underclothes, eh?" "What about our 'Salary Increaser?" "Guaranteed to do the trick or no pay." "Don't want any salary increaser? Well that's funny!" "Ever try Government Gait Reducer?" "Best thing in the world to lessen the giddy pace which prevents mental and physical expansion"

may occur to some to question the wisdom of devoting so much time to a single subject. There are reasons, however, for emphasizing this feature of an agricultural college course, and the present is probably a seasonable time to present a few of these reasons for consideration.

One of the first reasons to demand attention is the importance of the subject. The ability to judge is one of the first essentials in the equipment of a successful stockman. Without it, no man can make an intelligent selection

of breeding stock, nor can he successfully direct breeding operations. The man who would succeed as a stock breeder, must have a very intimate knowledge of animal form, and must have clear ideas of what constitutes the most desirable type in the class of animals he is breeding. If we could increase the ability to judge intelligently among the farmers who are handling live stock, we would soon see a wonderful improvement in the stock produced in this country.

Stock judging can be learned only by persistent practice. It is one of the few branches of college work in animal husbandry which lends itself to this sort of teaching, most of the other work having to be given in the form of lectures. For this reason, stock judging can be taught more satisfactorily than most other branches of animal hus-

bandry, but to make the work thorough much time is necessary. If it is worth doing at all, it is worth doing well, and we think the importance of the subject justifies the time spent upon it.

The intimate study of live stock, stimulates enthusiasm, and instils a love for good stock in a manner peculiar to itself. It would be interesting to develop this thought further and to show the relation of enthusiasm and a love for live stock to the improvement of live stock. It would be interesting also to trace the work of enthusiastic and trained judges throughout this and other countries, and the great influence for good which they have upon the live stock industry, but space forbids more than this fragmentary discussion of the subject of judging live stock.

NATURE'S SINCERITY.

Not by fine straining above our natural powers,
 Or standing tiptoe over greater heads,
 Do we beget that greatness; nature weds
 To her sure actions and her patient hours.
 Nor yet by building arrogant Babel towers,
 And aping genius, do we spin those threads
 Of grave existence, which the world besteads
 When fortune fails and life's horizon lowers.

Nor thus doth Nature tread her patient rounds
 In gloom of darkness or in wine of light,
 Flaming the wheel of her slow fixed bounds,
 Revivifying day in womb of night:
 Plodding her dream in mists of mightiest powers,
 Working her miracles in her natural hours.

—Wilfrid Campbell.



Athletics

Rugby.

Much might be said about last season's rugby—our victories and defeats—but at this stage it is scarcely opportune except to deduce a few conclusions that might be helpful to us in the future.

We have seen the value of a thorough training in the fine points of the game. Now, what we need is more practice matches with outside teams. We lack confidence and that is the only way to gain it.

No effort was spared to keep the players in good physical condition. A rubber was employed to assist at half time and after the matches, and now that the season is over the players admit that they feel the need of the healthful exercise necessary to keep the mind clear and vigorous.

But we need more men. Many of us play simply for the recreation and pleasure of the game and when it comes to the hard work—the big games—we are inclined to drop back. But we should keep something else—the championship—in view. A few men can not win this. We need your support not on the side line, but on the field of battle. With your support and the old players that will be with us again next year, we are sure of a winning team. Don't disappoint us, but come out and play the game.

Just one word more, "Kick and hold the ball."

O. A. C. at 'Varsity.

The first game of the semi-finals was played on 'Varsity oval, on the morning of October 23rd. From the spectators' and also from the College point of view the game was a decided disappointment. O. A. C., though at times doing good work, seemed to have lost confidence, especially in the first half, and frequently fumbled the ball. 'Varsity took advantage of this and soon ran up a good score, O. A. C. getting nothing. But the second half was a better exhibition of ball. The College steadied down and though unable to overcome their opponents' great lead, kept the ball much in their territory, and as a whole, in this half, had the better of the play.

'Varsity at O. A. C.

What was, perhaps, the hardest fought, and best played foot ball match ever witnessed on our campus was played against 'Varsity, in the afternoon of October 30th. This was the last match in the intermediate semi-finals and all the strength, ingenuity and skill that could be mustered was put into play for one short hour. Again O. A. C. seemed nervous in the first half, and were unable to run up any score, while 'Varsity seemed as full of confidence as usual. But the second half was a different story; O. A. C. having the better of the play from start to finish. The College kicked and

tackled well, showing to advantage the excellent training they have had this year. The score ended 19-13 in favor of 'Varsity.

Junior Matches.

The two junior matches played with 'Varsity III's were repetitions of the old, old story. On our own campus our boys, owing to lack of experience, were unable to make a score; 'Varsity having matters pretty much their own way. But in Toronto, O. A. C. showed much improvement and though unable to win, made a very credible showing. The second team contains much good material, and another year with careful training will prove a valuable asset to the winning firsts.

Basket Ball.

Now that the rugby season is over, perhaps the most popular game at the College is basket ball. Already, at date of writing, much interest is being shown, and we much regret that no league is open to us; but the prospects for more exhibition games are excellent.

The game in Hamilton, on November 5th, was a good one in many respects, and the better team won; speedy work and good combination on the part of Hamilton, showing their strength to advantage. This coupled

with the fact that they were playing on their own floor, and much smaller than that of the College gym, and before a sympathetic audience, put the good work of the College team somewhat in the shade. Also the College, owing to unfamiliar surroundings, lost many excellent chances to score on fouls. The following men represented O. A. C.: Hunter, Learmonth, Kennedy, Reeds and White.

Aquatics.

This year for the first time in the history of the College we have the privilege of entering a league with 'Varsity and McGill for the promotion of water sports in general. As yet no other College has expressed a willingness to join, it being a very difficult matter to produce men with sufficient training and speed. The company being fast, it is necessary to get to work as quickly as possible, especially in water polo. In this sport we have as good men as can be produced as evinced by the 'Varsity vs. O. A. C. match a year ago. But as in foot ball we need practice, and the support of the student body. This latter you can help to contribute; the former we feel sure the team will not neglect, and if we work together we are indeed in a position to make a very credible showing.





Alumni



Reminiscences of College Days

BY MACKENZIE ROBERTSON.

IT seems unfortunate that the average individual does not realize the good things of life, not after they are past, but while they are here. To the writer's mind college days are among the happiest days of every individual, who is privileged to attend College. Yet, how true it is, that while we are enjoying these days, the spirit of discontent creeps in. We long to get through with our studies, and get out into the big, busy world to try our steel in life's business. When once into the world, with its keen commercial competition, how longingly we look back to good old college days. Thus we illustrate the discontentedness of human nature.

Perhaps the first day at College is one of the most eventful. I recall very distinctly the events of one young man's first day at College. This young man was very young, and also, I am afraid, very green. The first defect has been overcome, the latter one, I think, still holds considerable sway. Leaving his home, up in good old Grey County, he journeyed down to Guelph, on one of the many luxuriant (?) trains belonging to the Grand Trunk Railway system. On arriving at Guelph station, he was accosted by a very genial drayman, who offered to transfer his bag-

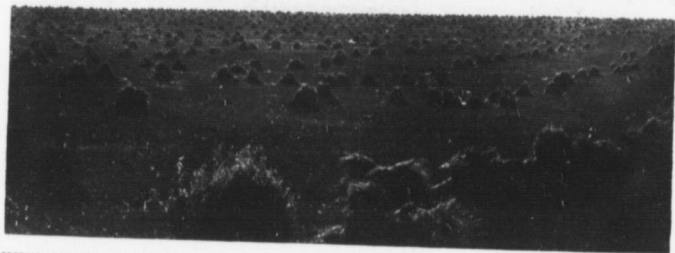
gage to the College for the small sum of fifty cents. This offer was accepted, it being harvest time for the drayman, and the young traveller not having noticed in the college curriculum that trunks and baggage would be taken to the College free of charge by the college teams. Seeing this drayman, who is still doing business at the old stand in Guelph, often reminds that youthful traveller of that little incident. Perhaps, he is worrying over the loss of the fifty cents; perhaps, not.

Again, later in the day this same traveller arrived at the entrance of the College main building. He stands here for a very, very long time, indeed, patiently and persistently pulling at what seemed to be the door bell. However, no one responded to the ring; what must be done? It would never do to walk right in. At last, however, the problem is solved, by the kindly sympathy of a Sophomore for a "Freshy." This Sophomore, seeing from the campus ground, that very little progress was being made, came and explained that the bell was disconnected and offered to usher him in to interview the President of the College. That act by a fellow student can never be forgotten. It was a very present help in the time of trouble. It is always recalled

to the mind of that Freshman, when he sees the then Sophomore's advertisement in the Farmers' Advocate, advertising his pure-bred swine. He is now as successful breeding swine, as he was then ushering Freshmen into the President's office.

Perhaps, one thing which strikes vividly home to the student of ten years ago, is the rapid growth of the College. To re-visit the College now, is to be agreeably surprised by the great number of new buildings. On the brow of the College Heights the

College for boys and young men only. The need for educating our girls as well as our boys, has been recognized, and by the kind generosity of Sir William Macdonald, means for this education has been supplied. How lucky the college boy of to-day should consider himself. Do you, Mr. College Boy of to-day, ever stop and consider how lonely it would be without the affiliated institution across the way. The college boy of ten years ago could secure an education only at the Agricultural College, but the boy of to-day



VIEW OF FARM WHICH PRODUCED THIS YEAR 19,000 BUSHELS, "KEY RANCH."

first indication of progress is observed. Instead of the old rail or snake fence and luxuriant crop of wild mustard, we now observe a row of beautiful college residences. Everything denotes neatness and orderliness. Then, a little further on we have the Macdonald Consolidated School for the education of the children. Further to the east we have the fine Macdonald Hall and Institute. The gentler sex now have their dormitories at the College. It is no longer a

can secure both an education and a wife; two friends that will remain for life.

Then, in addition to the above mentioned buildings, there is a new physics building, a new biological building, a new machinery hall and carpenter shop and last but not least a beautiful "Massey Hall" and library where chapel is held every Sunday afternoon. How much easier it is to attend "Chapel" right on the college ground, then to

tramp over a mile to the city churches, or hide under your bed?

Another noticeable change is that in the personnel of the college staff. Dr. Mills, Professor Panton, Mr. Jas. Mc Intosh, Mr. Wm Rennie, Professor Shuttleworth, Professor Harrison, Professor Lochhead and Mrs. Craig are all gone, their places being filled with new faces.

Dr. Mills, who so ably conducted the destiny of the College for many years, has stepped up to greater things, being one of Canada's Railway Commissioners. Professor Panton, who was head of the biological department, and Mr. Jas. McIntosh, who was head of the carpenter shop, have both crossed the great divide. The loss of these two kindly Christian gentlemen was keenly felt by the College. Mr. Wm. Rennie, the keen sighted, practical farmer, who filled so ably the position of farm superintendent, has resigned to spend his declining days in well deserved retirement. Professor Shuttleworth having the courage of his convictions, is now farming near the Royal City. He will know the nature of his soil, if the knowledge of chemistry can teach it. Professors Harrison and Lochhead have joined the staff of Macdonald College, at Ste. Anne de Bellevue. Mrs. Craig, the genial matron, has given up her duties as acting mother to so many unruly boys, for less ardent tasks.

Thus we see how great a change so short a time makes. Many, whom the writer never had the privilege of knowing have come and gone since then, and so it will always be. Men will come and men will go; but the College, like the babbling brook, will go on forever.

Out on the fertile prairie, 20 miles north of Calgary, there is a spot that

makes one smile. It is Key Ranch, the home of E. C. Hallman, '02. Hallman is the happy combination of a hustler, gentleman, rancher, farmer. He, in company with his father and brother, operates Key Ranch, a patch of 4,500 acres, of which about 500 acres are under cultivation, and 400 acres annually



E. C. HALLMAN

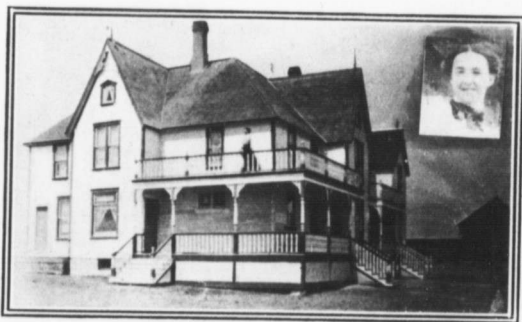
in crop. This year the separator disgorged for them 19,000 bushels of grain. Clydesdales are the chief stock in trade, there being over 200 head, the foundation for which was selected in Ontario, and which has been much improved upon in recent years. When Calgary has a show, which happens twice a year, it is Hallman's first with heavy draft horses and the others several laps behind, like it used to be when E. C. ran a five mile race. Hallman always avoided "farm cattle," consequently it is only to be expected, that his horses would not be ruined by stabling and slow suffocation. Every

thing runs out all winter and the show stuff only need to have their long hair combed out to enter the ring. The public service takes its toll of Hallman's talents. The church, the council, the Live Stock Associations get his attention, and the Alberta O. A. College Old Boys' Association has him on its executive.

F. S. Jacobs, B. S. A., '02, on leaving the O. A. College was associated with the Farmers' Advocate, of London,

gary, Alta. That the land of cattle and horse ranches, together with wheat and oats, and in full view of the "everlasting hills," is more congenial than the metropolis where wheat is king would be reason enough for his change; but the call to greater activity, and in creased responsibility was to our inde fatigable "Jake" simply irresistible.

Mr. T. Reg. Arkell, B. S. A., '08, of the firm of Henry Arkell & Son, Arkell, Ont., breeders of Oxford Down



RESIDENCE AT KEY RANCH, AND MRS. HALLMAN.

Ont. After proving his ability in news paper work, he was promoted to the editorial staff, and became in turn Editor-in-Chief of the western edition. Never had the Advocate been closer in touch with western agriculture, nor more appreciated by the farmers of the West than during his editorship.

During his stay at Winnipeg he was married to Miss Brownie Williams, of London, Ont., and is now the father of a bouncing little Miss.

Last summer, Mr. Jacobs accepted the position of managing editor of the "Farm and Ranch Review," of Cal

sheep, has secured the position of Professor of Animal Husbandry at the New Hampshire State College. Arkell is a strong man in his line, and will no doubt give a good account of himself in this new field of work.

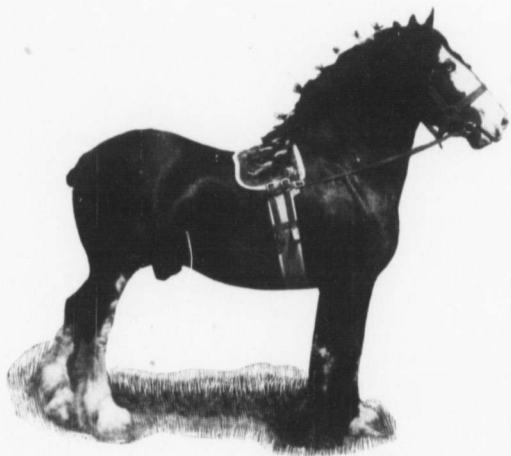
"Do you know that The Iowa Home stead, published at Des Moines, is the only agricultural newspaper in the United States, whose editor owns, lives on and operates his own farm?" Such are the opening words of a circular sent out by the above paper of which Jas. Atkinson, B. S. A., is editor-in

chief. Atkinson is one of the many O. A. College graduates, who have made strong records for themselves under the Stars and Stripes. Besides filling his position as a journalist, he operates very successfully a large grain and stock farm, where he puts into practice his scientific agricultural knowledge. Jim is never weary in his praises of the work done by his Alma Mater, and is ever ready to assist the cause of scientific agriculture in the land of his adoption.

Tired of the aching void in his bachelor life, J. A. Hand, B. S. A., on

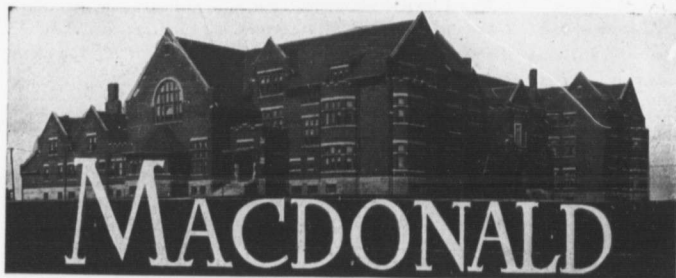
Oct. 13th, joined heart and hand with Miss Sadie A. Hamilton, of Grand Valley, Ont. We bespeak for the young couple a long and prosperous wedded life.

The following from one of the Vancouver, B. C., papers of a recent date, makes reference to a prominent member of the '08 class: "Mr. and Mrs. R. H. Palmer, of Victoria, B. C., announce the engagement of their only daughter, Rose, to Roy Maywood Winslow, B. S. A., of Victoria, recently of Guelph, Ontario."



BARON KERR (12454 [8325])

Winner in his class every year since imported. Owned by
E. C. Hallman, "Key Ranch."



Widen Your Jacket

BY HON. GEORGE W. ROSS.

A story is told of Professor Stuart Blackie, of Edinburgh University, that when he finished his course at the university, a friend called at his mother's house to see him. In the course of conversation, the future of the young graduate was discussed, and his possible achievements in literature or some of the learned professions. His attainments as a scholar were fully admitted, but, says the friend, "Scholarship is not always enough, I would advise you to send him abroad. He needs to have his jacket widened." The moral of this story is obvious. No matter how great the scholarship, the very effort to attain honors and medals so concentrates the student's mind on one course of study or on one train of thought, that he is apt to regard all knowledge outside his own special subject or subjects as flippant and unsubstantial, or the effect may be to lose a relish for the pursuit of other branches of knowledge equally valuable with those in which he has won distinction. Such a scholar needs his "Jacket Widened." His point of view of the great

"ocean of knowledge," as Sir Isaac Newton designated the unexplored immensities of science, is narrow and circumscribed. John Stuart Mill's definition of an educated man would not apply to him. That is "to know some thing of everything and everything of something."

Now, while specialization has its advantages in every department of knowledge, particularly as the arch of knowledge has become so enlarged, it is not by any means the course which, in my opinion, brings most pleasure to the student, although it is often the course which contributes most to the aggregate of human knowledge. To be able to call the stars by their names is no small accomplishment. But the universe is not all firmament, and he who practically shuts up his mind against the knowledge of history, and the study of literature in order to be a specialist in any department of science, deprives himself of one of the greatest joys of culture as well as one of its greatest assets. Let the jacket, while it is useful and comfortable, be so wide

ened from year to year that the wearer is not cramped or made to feel that some other garment at times may not be quite as serviceable.

And, so in all the activities of life. The statesman, the professional man, the teacher, the farmer must allow themselves room for growth. There

should be no period of a man's active life in which it could be said that was incapable of receiving new ideas, of correcting his opinions by fresh observations, or by an enlarged experience. Life is growth, and growth requires an ever widening jacket.

Christmas.

The time draws near the birth of
Christ;

The moon is hid; the night is still;
The Christmas bells from hill to hill
Answer each other in the mist.

Four voices in four hamlets round,
From far and near, on mead and
moor,

Swell out and fail, as if a door
Were shut between me and the sound.

Each voice four changes of the wind,
That now dilate and now decrease;
Peace and goodwill, goodwill and
peace

Peace and goodwill to all mankind.

—*Alfred Tennyson.*

A Visit to Chinatown

BY MISS FRANK.

In visiting a Chinese city, the first step is to secure the services of a reliable and licensed guide. This is absolutely necessary for the personal safety of the visitor. The guide, in turn, engages ric-shas, sedan chairs, and coolies.

Ric-shas are used in the outskirts, but upon penetrating farther into the city the streets grow narrower and are so crowded that it becomes quite impossible for the ric-sha coolie to make any headway. The visitors are then transferred to the sedan chairs—the supporting poles hoisted to the shoulders of the coolies, and in a short time "Chinatown proper" is entered.

A strange sight it is:—Imagine a street from four to eight feet in width, literally packed with all kinds and conditions of men, women (of the coolies class) and children. The streets are paved with stone, slightly hollowed grooves on either side, serving as drains, and constituting the sewerage system of the city. As a result the stench and filth is unspeakable, though it apparently causes no discomfort to the inhabitants.

Children play, or rather wallow in the midst of these surroundings. Beggars are lying in every nook and cranny, some covered only with a coarse piece of sacking and wailing out their miserable cry for help. Street vendors call their wares, chairmen cry for right of ways, and the great throng of pedestrians peer curiously at the intruders, ready to turn and criticize and follow the strange-looking foreigners.

The buildings are mostly two stories

high, with quaintly tiled rooves, curving upward at the corners to form dragons. The stores and shops are on the ground floors, and above them are the dwellings.

At night the shops are enclosed by heavy shutters which are removed in the day time, leaving only a counter across the front and exposing the whole interior of the shop and its wares. Oblong signs in black, gold and vermilion are hung from the front of the shops and lend color and brilliancy to the scene.

Cobblers, silk weavers, ivory and wood carvers, potters and tailors ply their trade in full view of the passers by. Butcher shops with rows of cooked fowl hanging from the ceiling, and fresh dog meat, pork and cat stew simmering over charcoal burners on the counters, and even rats, cooked and nicely browned, and strung by their tails, are not uncommon sights.

Interspersed among these shops are beautifully carved doorways, with projecting, tiled rooves, surmounted by dragons. These doorways lead to the home of some mandarin or wealthy Chinaman.

The tea-gardens are wonderfully interesting and picturesque. Some of them are made of artificial rock, and are threaded with a labyrinth of paths which wind and curve among vine-clad arbors and tea houses, with octagon shaped rooves, forming dragons at the corners, and a beautifully carved stone stork ornamenting the apex. The windows are set with small diamond

panes, and the woodwork is painted in gold. The furnishings are principally of teak.

For some reason many of these tea gardens are unfrequented and are falling into a state of delapidation.

The approaches to the Josh-houses are lined with beggars and some even find their way inside. In many of the Josh-houses a hideous red-painted fig

ure of Josh is seated at the end of a table, laden with every delicacy to appease his hunger, and propitiate his wrath. Mrs. Josh is assigned to a small room at the side of the temple, and to her, the women—too lowly and unworthy to approach the mighty Josh—raise their humble supplications, and burn Josh-sticks to ward away the evil spirits.

Responsibility of Opportunity

BY M. STUART.

A visitor in a studio, when shown among many gods, one whose face was concealed by hair, and which had wings on its feet asked:

"What is its name?"

"Opportunity," replied the sculptor.

"Why is its face hidden?"

"Because men seldom know him when he comes to them."

"And why has he wings on his feet?"

"Because," answered the sculptor, "he is soon gone, and once gone can not be overtaken."

We cannot too often say to our selves, nor with too ample illustration, that opportunities are not to be waited for, that they come unawares and once gone cannot be overtaken. Great things are gained by intelligent and patient waiting, but the man who stands beside the highway of life waiting, not for something he is prepared to receive, but for something which accident may throw in his way will never be overtaken by fortune. When fortune does come his way she will pass without any recognition from him. It sometimes seems as if life were a great game, and as if the invisible players

against whom we are matched delighted in perplexing and confusing us. As a matter of fact life is full of opportunities if we could but see them. The great things are, for the most part, so humbly garbed that unless we penetrate their disguise we do not recognize them until they have passed, and are a long way off, when we discover their majesty. Emerson has written a poem called "The Days." Each is a queen in disguise whose hands are filled with the choicest gift of opportunity, but if a man fails to recognize her, he finds out only after she has passed who she really is. The difference between us lies largely in the ability or lack of ability to penetrate this disguise. Opportunities come to us all, but some of us are more richly endowed with the power to see them. As a rule they come in the most unexpected moments and ways. The great majority of those who have attained marked success as they look back, see clearly that they passed the turning points in their career when they were quite unaware of it. Not one of us knows when her opportunity will come. No one ever

does know when the decisive moment of his life will arrive. They come like a bolt out of the blue on a summer day without a moment for preparation. The only way for us to be ready is to be constantly on the watch, prepared for whatever may happen by performing our duties to the best of our ability. Then we shall act instinctively—do what we are in the habit of doing—and because we are in the habit of doing our best we will be prompted to put forth our best and seize the golden moment even if we do not discover until long after that it is golden. There is a great difference in our conditions and in our ability to seize the right moment and make effective use of what ever is thrown in our path. Still opportunities come to us all.

Do you remember in the chapter about the talents, the twenty-fifth chapter of Matthew, we read:—

“And unto one he gave five talents and to another two, and to another one, to every man according to his several abilities.”

He that had the five talents was rewarded according to his ability to use those five talents and so with him who received the two talents. God rewards us with greater things, not according to our sphere, but according to our faithfulness in the lesser things. Love, truth, kindness and unselfishness are as worthy in a hovel as a palace—in a factory as on a throne. This should be a great comfort to those who have but smaller opportunities and narrower spheres, for the reward is as far beyond what we have, to test our fidelity, as the ripened harvest is beyond the few seeds we plant.

An amusing old Latin maxim says: “Opportunity has hair in front, but behind she is bald. If you seize her by

the forelock you may hold her, but if suffered to escape not Jupiter himself can catch her.” This simply means that opportunities unnoticed as they come along are unattainable when they have passed by. We must be faithfully growing into a power to see and use them. All the falling apples in the world would not have suggested to Newton the law of gravitation, nor would all the steaming kettles in England have awakened in Watt the idea of the steam engine, if they had not been prepared by previous faithful work and study.

Spain inscribed on her coin the picture of the pillar of Hercules, which stood on either side of the straits of Gibraltar, the extreme boundary of her empire with only an unexplored ocean beyond. On the scroll over the pillar was written: “Ne plus ultra”—“no thing beyond.” But afterwards when Columbus had discovered America, Spain struck out the negative and left “Plus ultra”—“more beyond.” If we could only remember this inscription “more beyond” in our studies and in our college work. Every girl has unexplored regions lying before her, and through which it is her privilege to wander. Every opportunity that we seize, all we accomplish, leaves but room for “more beyond.”

Besides the more we attain the more we are capable of attaining. The careful use of any faculty increases its power. The sailor, by continually using his eye has a clearer vision, the athlete by constant practice increases in strength, and the musician by perseverance becomes more skillful. You all know that the more one studies the more one is capable of studying. You remember away back in the A B C's of your knowledge how difficult it was to

remember that $9 \times 7 = 63$. But our brain with use has become capable of solving larger and more complex problems. Had we not used our brains in the intervening years it would be just as hard for us now as it was then to remember that $9 \times 7 = 63$. The powers we do not use grow rusty just as the limb not used is wasted. Dickens has written a story in which he describes a visit to what he calls Skitzland. A man digging a hole in his garden, broke through the crust of the earth and fell into the interior. Here he found a strange land, the peculiarity of which was that while every person was born physically perfect, at a certain age, any part of the body which had not been used was lost entirely, leaving only the bones. Thus a coachman had only stomach and hands; a lawyer had no legs, but a massive jaw; some fashionable young ladies were only a pair of eyes and a bunch of nerves, while a schoolmaster had only his heart left. There is a large measure of truth in this. The punishment for not doing good and using our opportunities is the loss of the power to use them.

I would just like to say a word to you about the opportunity we have to read good books. We have the college library over in Massey Hall and may choose among books written by great men of all ages—great statesmen, thinkers and readers. Through the society which we meet in books we come in contact with other's opinions in order to become large and liberal minded and to gain a wider and purer conception of life than our own.

Then there is the great opportunity of choosing friends. The more we love and the truer friends we have the better we are. Let them be as dear and let them be as perfect and as many as

you can. Let us be true friends, finding only good in others. In some cases it is delightfully easy to find good for some people seem to have nothing but good in them, while in others it seems a hopeless task. But if we always look for the good qualities, not the bad, we will be amazed at the manner in which the bad qualities seem to disappear. Do you remember:

"There is so much bad in the best of us,
And so much good in the worst of us,
That it ill becomes any one of us
To find any fault with the rest of us."

Let us try to be useful and helpful friends. Many a one has taken heart again because of a kindly word of sympathy, expressive of somebody's faith in the possibilities of better things, and many a one has been crushed completely because nobody seemed to think that it was possible for him to do better, because nobody recognized anything good in his life. Besides by following the divine example of recognizing the good in others instead of dwelling so much on the evil as we are prone to do we ourselves shall make infinitely more of life.

Another great opportunity which is given us is that of usefulness to others. We are responsible not only for our positive sins, but for not taking advantage of the opportunities to do the good we might have done. Imagine, if you can, two pictures, one of what you might have been and might have done, the other of what you have been and have done—and think over the contrast. Just like those who shut themselves up in hermit's huts or convent walls, we hide our talents in a napkin when we do not perform our share of the work at College. Perhaps it may be through an un

due modesty, an unwillingness to push ourselves, or perhaps we are selfish. We have come to Macdonald to get an education, have other work to occupy our time, are overpowered by other cares. Had the boy of Tarsus always remained a boy and never grown into Paul at Rome—or the boy in the bull rushes refused to grow into Moses, or the uncouth mountaineer to become Elijah on Carmel—we would then have had a few examples of those who hide their talents in a napkin.

In conclusion and as the new year draws nigh, let us determine not to squander our time at Macdonald. After all two or three years is a very short time, and we must make the best of it. Every minute is valuable. Do what

you will only that actively and energetically. Read, think, study, converse, play tennis or attend college gatherings—the whole range is open to you here, only don't be idle and let your opportunities slip by. What you lose to-day you cannot gain to-morrow. God never meant us to waste our time. Some of you may seem to have greater opportunities than others, but it may be because you are more fitted for them. How miserable we would be if we spent our time as if it were given to us and not lent—as if hours were waste creatures and such as should never be accounted for, as if God would take this as a good bill of reckoning.

Item—spent upon my own pleasure two years of my life.



A SUMMER SCENE.



Among Ourselves

Miss M. O. Anderson, Student Secretary in Canada of the Y. W. C. A., spent the week end of October 16 at Macdonald Hall. Miss Anderson spoke to the girls, at their regular Sunday evening service, on the Student Volunteer Movement. Her talk was simple and very interesting. She gave the history of the Student Volunteer Movement from the first, speaking particularly of the increased number of delegates at each convention. The last convention was held at Nashville, Tenn., in 1906, and was attended by four thousand, two hundred and thirty-five delegates. The next convention is to be held in Rochester, N. Y., from December 29, 1909, to January 2, 1910, and promises to be the largest convention yet held. The executive committee of the Student Volunteer Movement is limiting the delegates this year. Each college in America may send two student delegates and one additional delegate for each two hundred students or

fraction thereof above the first two hundred. The convention not only brings the students from all parts of America together, but it brings them all into touch with the greatest missionary men of the world. These conventions of the Student Volunteer Movement are held once in four years—that is once in a student generation. As the longest student generation here is two years, it is not every body of Macdonald students who have the privilege of sending delegates to such a convention and of receiving the benefits from it. It will bring each institution inspiration from the fact that its leading students will come in touch with a centre of marvellous spiritual power.

The evening Miss Anderson spoke our girls realized their opportunity and acted accordingly. A committee of seven, with Miss Smellie as chairman, was appointed to take charge of the matter. Dr. Ross was unanim

ously chosen as the faculty delegate. The girls displayed excellent judgment when they elected Miss Margaret Smellie and Miss Sybjilla Hadwen to represent the student body.

Dr. Ross, Miss Smellie and Miss Hadwen form a very strong delegation. They are interested in the convention, and, we feel certain, that they will bring back to Macdonald the very best that can be gotten from such a gathering.

cessful and we now await results. The best wishes of the girls go with their delegation for a pleasant trip and a profitable and enjoyable visit in Rochester.

On Hallowe'en Macdonald Hall was the scene of a merry gathering of College students in fancy costumes representing almost every station in life and nationality in existence. Much valuable time and labor had been spent previously in order to make the entertain-



THE SENIOR NORMAL CLASS.

Besides choosing the delegates there was the financial side to consider. The committee decided to try to raise the required amount by subscription. When President Creelman was called upon he very kindly offered to forward the entire amount from the fund which is supported by annual collections at chapel. This fund is kept for benevolent purposes and any other good cause which may arise.

So far everything has been very suc-

cessful, and great praise is due to those who so willingly assisted in any way.

Even before the guests arrived the excitement commenced as the girls struggled into their unfamiliar costumes and went forth in disguise to be admired and in turn admire. About seven-thirty others began to arrive and great was the excitement in trying to discover whose face was behind that peculiar mask; thus the evening pro-

ceeded. Stationed at the door was a committee of three girls wearing paper costumes of orange and black, who supplied each guest with a programme and a "tag." The programmes represented pumpkins both in color and shape, while the tags were mostly souvenirs to arouse curiosity, though they did become of use before the evening was over. The reception committee consisting of the executive of the school, received the guests and wore dainty costumes of green and orange to represent pumpkins.

Promptly at eight o'clock everybody lined up for the grand march, and preceded by the reception committee, slowly wended their way to the gymnasium where the staff were seated upon the platform. The procession marched once or twice around the gym. in order that the judges were able to decide on the best costumes, a very difficult task among so many fine costumes. Here the decorations were most appropriate, apples strung from every available

spot, magnificent palms and ferns, pumpkins everywhere and a profusion of college pennants, cushions, together with the proverbial witches and cats.

Various amusements were carried on throughout the evening, among them being a take off on a Macdonald cooking class by several of the college boys, also a hat trimming contest by the boys, a pantomime by the girls, which was very cleverly staged, for tune telling and several other entertainments equally good. Dainty refreshments were served in the dining room, which was prettily decorated, pumpkins and apples being in evidence everywhere. It was here the "tag" was found of value, as each one on presenting his tag received "something good to eat."

Very few of the college boys appeared at all, but those who did were very loathe to leave and we feel certain they were fully repaid for any trouble they may have had in securing costumes.

Much Ado About Nothing

Macdonald Hall Motto.

Love no man—not even your brother,
If girls must love, then love one another.



H. F.—We made junket to-day.

Friend—In class?

H. F.—No, in little brown bowls.



Miss Hales (to Mr. Slater, at the masquerade)—How do you expect us to respect you after this in class?

Mr. Slater (representing a soufflette)—The faculty expect respect from all those who respect themselves.

O. A. C. Motto.

Love the women all you can,
Don't leave the task for some other man.



Miss W. (on the introduction committee at the Hallowe'en Prom., to a Freshman)—Is your programme full?

Freshman—No, which one do you want?



Many a girl thinks she has broken her heart when she has only sprained her imagination.

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.

REVIEW—ELEMENTARY INDUSTRIAL ARTS—Circular No. 7.

Issued by the Ontario Department of Education, Toronto, September, 1909.

To those interested in our common school education, the circular, just issued by the Department of Education, "Elementary Industrial Arts," must come as a real relief. It is a commendable movement to bring into the schools the means whereby the child may, through extended handling of tools and materials, find opportunity to train those motor centres of the brain, which for lack of manual exercise, too precious to be lost, are becoming increasingly idle. Any atrophy on their part is a distinct mental loss. These motor centres can only be trained through the muscles with which they are in nervous connection. Psychologists tell us that the hand that has not begun its training for its life work before fifteen years of age never becomes thoroughly efficient. Hence, the danger of neglecting this kind of schooling, so essentially and vitally associated with the whole life of human industry. Are not the effects of the hand seen in the structure of society and its history, as much as are the effects of the brain? The tremendous industrial revolution created by substituting machinery for hand work, and transferring to the factory and workshop, the old-time processes of various pursuits carried on in the home and its vicinity, and in which every member of the household took part, is accountable, in a large degree, for the lack of skill, accuracy, neatness, and interest in his work of the present-day craftsman. The mere fact that vast industrial interests demand trade schools in the United States to supply them with skilled labor, of which they are in need, indicates the presence of a real problem in primary and secondary education, and to us there is no issue out of the difficulty unless scientific education and manual handwork are combined together.

Considering our educational system seriously, we must acknowledge that there seems an element of absurdity in taking the majority of the children of any community and educating them as though, in life, they were to be chiefly concerned with literature and art, and the luxuries of life, and not at all with labor and industry. We are too apt to forget that the hand is the very tool which examines, compares and judges the data of experience. Handwork constitutes a part of child nature, and its introduction into the schools will develop the child from its productive and material side, and give it an opportunity for self-acquired concepts of industrial manipulations and processes. It is mainly for this reason that handwork is coming into the schools, for it is at last recognized that the traditional methods, so long perpetuated in our schools, do not meet the requirements of to-day. The cry to-day is for more practical instruction, and we fail to see why handskill should not precede trade training, just as much as mental training a literary or scientific career. We must not overlook the fact that the manual dexterity and knowledge of mechanical principles, acquired at school, will be for many boys the immediate stepping-stone to profitable employment. We are well

aware that this training will not increase the output of Angelos, any more than our literary system has effected a slump in Shakespeares. It will, how ever, raise the standard of mechanical skill, as well as maintain the intellectual average.

The broader the education of the individual the better the citizenship of our land. No matter how well educated a man be in the ordinary acceptance of the term, if it stops there his learning is one-sided and lacks the broadness only to be attained by training of both hand and brain.

Dean Balliet, of Columbia College, New York, one of the foremost educators of the day, declares that the trades school is coming to stay, and says that "ten years from now a boy will start for school with a kit of tools instead of a strap of books on his shoulder. This is the view also of many other prominent instructors. The man with the hoe, as well as the man with the hammer and saw, or the man at the forge is now fast coming to the front to take his place in the great problems of life, but it must be the trained arm and the skillful eye which directs these affairs, for the unskilled will fare worse than before."

J. EVANS.

HOUSEHOLD SCIENCE.

Correlation of Household Science and Arithmetic.

Some time ago a former mathematical master of the Ottawa Normal School, who was anxious to make the arithmetic taught in the Model School as practical as possible, inquired of the writer if it would be feasible to make use of the problems occurring in Household Science. This seemed to me an excellent opportunity to correlate Household Science with arithmetic, and with this end in view, problems relating to the work in Household Sciences were given to several classes.

For example, in the first place a table of measurements and a table stating the prices of the common food materials were given to the fourth class girls. The day previous to this lesson in Household Science, a practical problem, bearing on that particular lesson, was handed to the teacher of that grade, to be solved in the arithmetic class. The children were required to bring the answer to the Household Science teacher.

Again, an accurate account of the laundry is kept by the girls, under the supervision of the Household Science teacher. Quite frequently the teacher of the second class girls sends for the laundry book and the children are required to find the cost of the laundry for the week, after which one of the children is allowed to enter the cost in the laundry book. The Household Science account book is frequently used as the children are required to make out the monthly grocery accounts. The little girls of the class who are eagerly looking forward to the time when they will receive instruction in Household Science, take great delight in this work.

The following are typical problems used in this way:

1. The groceries for September cost \$7.98; for October \$6.37. There are 216 pupils in all the classes. Find the average cost per pupil per month.
2. The ingredients in "Standard Cake" are: $\frac{1}{4}$ cup butter, $\frac{3}{4}$ cup sugar, 2 eggs, $\frac{1}{2}$ cup milk, $1\frac{1}{2}$ cups flour, $1\frac{1}{2}$ tsp. baking powder, $\frac{1}{2}$ tsp. vanilla. Find $\frac{1}{8}$ of the recipe and find the cost of the cake.

The science master also co-operates with the Household Science teacher and last year several science lessons, bearing on the work in Household Science, were taught by the Normal students to the Model School grls. The following were some of the lessons taught: 1. Principles of combustion; 2. Principles of ice cream freezing; 3. Conduction, convection and radiation; 4. Expansion of

air, due to increase in temperature; 5. Digestive apparatus; 6. Process of digestion. Without entering into a discussion on the educational value of this method, it will be seen that by correlating Household Science with Arithmetic the importance of accuracy is impressed upon the pupils and the economic value of Household Science is emphasized.

Ottawa, Oct., 1909.

A. Enid Robertson.

VALEDICTORY.

Normal Teachers' Classes—Spring Term, 1909.

Three months ago this class existed as individuals at the six Normal School centres of this Province. To each of us, the world was "our" Normal School. We were only partially conscious that there were other Normal Schools. Pestalozzi, Froebel and Rousseau, each in his own way, were the ideals of our lives; our respected masters were our friends and earnest helpers. All the laws in the psychologies of Angel and Betts, the methods of teaching, as expounded by McMurray, the application of these to each subject, the course of study in those subjects, the drills, the art and manual training work, domestic science, music and the many other subjects, not omitting those lessons which we prepared with care and taught with trembling—all these made our mental atmosphere.

In the midst of all these concerns there came a message from the outside—the Department of Education was offering us a course in Arts or Agriculture at the Ontario Agriculture College, provided we passed our examinations in April. "Was the offer worth accepting? The risks were small, the expense still less, dormitory life a novelty, examinations eliminated and the course really ought to be good." Given, three months! What should we do with them? Teach school, stay at home, or go to Guelph? And so the balance hung! To us now it does not seem unfitting to say of our indecision:

God, who instructs the brutes to scent,
All changes of the elements,
Whose wisdom fixed the scale
Of natures, for our wants provides
By higher, sometimes humbler, guides
When lights of reason fail."

And so it was that we came here and on that very first morning and the very first day when the President made us his address of welcome, we knew that we had found something better than that for which we came. We formed new ideals and purposes. For the completeness of the organization of our class, for the excellent arrangement of our ten weeks' programme, we feel a great degree of admiration. Both the Industrial Arts and the Agricultural Class have reaped the benefit of the skilful and efficient direction. One of our evening lecturers not long ago, said: "Sometimes we neglect the educational principles we teach." This cannot be said of any of our O. A. C. teachers. We have been encouraged to seek our information at first hand. We have made our gardens, propagated our plants, performed and demonstrated those in dividual experiments and made countless trips to the campus, the roadside, the bush, and the park to learn the birds, the flowers, the trees, the insects and all that nature has to show us. None of our teachers forgot that "it never was the intention of Mother Nature that school should be kept indoors—since her whole teaching apparatus is set up outside." Surely we are not only wiser than when we came here, but a spirit of investigation has been aroused that will not soon subside. If anyone doubts the statement let him ask the

people around us on the farm, and at the Guelph, Hespeler and Galt factories which we visited, whether or not we have any scientific curiosity! The extremely practical nature of our course and the emphasizing of the doing, have rendered our former fund of information more usable. This has been the best kind of a supplementary course. The implicit has become explicit.

Enthusiastic as the students in Elementary Agriculture and Horticulture may be over their work here, we know that the students in Industrial Arts are no less so over theirs. The course implied much more than the cultivation of good taste in all lines of household furnishings, in the manipulation of tools and school room occupations. Valuable life lessons have been carefully instilled and this will of necessity show itself in a more sympathetic touch with the life of all whom the class may reach in their chosen profession.

One other feature of our course here has been as new as it has been delightful—life in a dormitory. When we came here apologies were made for the unsuitability of our quarters. We are sure that anything which might have been thought inconvenient, has not in the least, hindered our happiness. Although our neighbors just across the car line may enjoy the modern equipment of Macdonald Hall, we congratulate ourselves that it has been our privilege to have had a home in the time-honored O. A. C. residence, the corridors of which ring with the names of many men who have brought credit to their Alma Mater. We have especial reasons to remember the gay and more or less profitable experiences of our Saturday evening programmes. Of all our experiences in residence and of those who had personal charge of us, we shall always retain pleasant recollections.

We have seen too, that no time is free from pain. We sincerely regret that the spring which has brought so much pleasure to most of us has brought to our President sorrow in the breavement of a dear child. Some of our own number have also had their griefs in the loss of friends. For all we hope that time will ease the pain and that God who gave them the cross of sorrow to bear, will also sanctify it.

Now as we come to the closing of this short term we think of the time when we left the Normal Schools to enter on this work, and how we said to ourselves, "If we could take our teachers and these school friends with us to Guelph, how much better it would be. It is not new friends we wish for, but just the old ones a little longer." Yet now we are saying good-bye again just as unwillingly as ten weeks ago and enrolling on our memory's list of friends the names of our O. A. C. teachers with those of our Normal Schools. Our name is the Toronto-Ottawa-Hamilton-London-Stratford-Peterborough Agricultural and Industrial Arts Normal Class! We are all one—may our deeds be as great as our name! And we are saying good-bye because there is one place that is better than any of these—that is Home.

The Residence, O. A. C. June 28, 1909.

L. Field.



Locals

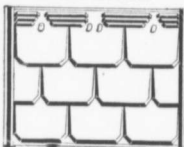


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On buildings for 25 years, and still in perfect condition.

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

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

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For implement sheds or barns, fireproof and durable.

You should read our interesting booklet "EASTLAKE METALLIC SHINGLES," and our new catalogue No. 70. Post card with your address will bring them.

Agents wanted in some sections. Write for particulars.

MANUFACTURERS



2023

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

A famous Sophomore was being questioned recently as to what books he had read.

"Have you read Lorna Doone?"

"No."

"Have you read Old Mortality?"

"No!"

"Then, what have you read?"

"Well, I have red hairs on my head,"

Rusty replied.

Young lady (at Norfolk Street Church reception, speaking to Main)—I don't believe I met you before. You surely must be a Freshman, are you not?

Mr. Jarvis, to Palmer—What is a caterpillar?

Palmer—An upholstered worm.

Shields—McIlquham, if I were you I wouldn't play second fiddle to any girl.

McIlquham—I feel lucky to be in the band at all.

Ryrie (gazing at list of fines)—Well, boys; I started out on the theory that this old world had an opening for me.

Bland—Have you found it yet?

Ryrie—Sure; I'm right in the hole—only \$3.25.

Clancy to Robinson (as conductor came through car for tickets)—Hold Ginger Smith in your arms for a little while.

Robinson (astonished)—What would I do that for?

Clancy—Why, don't you know "All Babes in arms go free"

Sophomore—Hurrah, for 1912.

Freshman—So much enthusiasm over nothing.

Doc Reed (after assigning seats and lecturing to Sophs.)—Oh, where, tell me, where is my little Teddy gone,

Why not sing songs at Rugby matches, appropriate to the occasion? For instance, when a touch down is scored, strike up "After the ball was over."

When Moorhouse falls on an opponent, "Break the news to mother—gently."

When one of the players runs into a goalpost head foremost—sing "The Stars and Stripes," laying particular emphasis on the stars.

Shorthill—Baker, what would you do if you had to work for your food?

Baker—I'd hoe potatoes.

Mr. Ceaser—reading a letter,
"Dep't of Forestry,

"Washington,

"22nd Insect."

Now boys, your help, I do implore.

In writing local news;

For sure, I never dream't to stand

In editorial shoes.

But nevertheless, altho' you know,

I'm but a student green;

I want our column to be the best

The Review has ever seen.—Ed.

Springhill Ayrshires

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

ROBT. HUNTER & SONS

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Are You Prepared For The Winter Sports?

Are you enthusiastic over outdoor winter sports? The majority of real Canadians are, and the wise ones are ready and waiting.

Perhaps you didn't realize that you need a new skating outfit—Snowshoes, Toboggan or Ski.

This season we are showing the finest line of winter sporting goods ever displayed in Canada. SWEATERS, SWEATER COATS, TOQUES, SKATES, BOOTS, SNOWSHOES, TOBOGGANS, SKIS, MOCCASINS, etc., are here in profusion. Our new catalog describes all in detail; send for it.



O. A. C. Seal Pennants and Cushions

The popularity of these seal pennants and cushions is not surprising. They are the most beautiful ever produced. Nothing could make a more suitable Christmas gift.

Made of fine quality felt, in college colors, with a print of the official crest.

PENNANT, size 15x34, price.....\$1.25

CUSHION, filled with fine quality form, size
24x24, price..... 2.50

CUSHION, unfilled, price..... 2.00

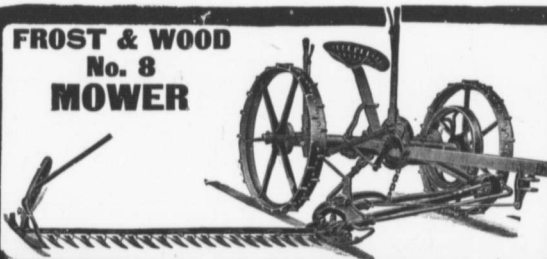
On sale at the College, or direct from—

The Harold A. Wilson Co., Ltd.

297-299 Yonge Street, Toronto

"Everything That's Good in Sporting Goods"

**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. It 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 secrets of good profits about these hay-makers. Send for our catalog "It" and "Farmer's 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



This Handsome Winter Overcoat **\$15.00**

WITH A FINE COLLAR



KOAC

N. B.—You may have this coat made to your own measure, in sizes up to 44, at no extra cost.

OR, if you want it immediately we will send you your size all ready to wear the day we receive your order.

We import this material specially for this style of coat. It is the correct weight and finish, and every coat is made in our own workrooms, not factory-made, but carefully tailored by expert coatmakers.

Sizes over 44 chest or 50 inch long will cost 50c. per inch extra.

*KOAC—These coats are made from a fine quality, heavy weight English Beaver, in a thoroughly fast black color, made up double-breasted style with a shawl collar of full-furred German Otter and lined with a heavy quilted Italian cloth, giving them the appearance of a fur-lined coat, but is much lighter, and at the same time is warm and comfortable. Cut full and roomy with centre vent in back and full 50 inches long. They have a double row of barrel buttons and fasten with mohair cord loops. The sleeves are lined with a heavy black glissade or haircloth with leather shields at the arm holes. Sizes 36 to 44 as cut KOAC Our **\$15.00** Special price.....*

This is the best fifteen dollars worth of Winter Overcoat to be found in America.

THE ROBERT **SIMPSON** COMPANY LIMITED
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**THIS IS THE
SHEET
METAL AGE.**

Galt Steel Siding

Are your frame buildings neat in appearance, warm in winter and protected from fire-risk? If not, you should investigate Galt "Art" Steel Siding.

It's wonderful what a difference you can make in looks, comfort and insurance premiums.

Our Sidings are original patterns, modeled to exactly represent the best mason work in stone and brick.

Very easy to apply—very low in cost.

Our free catalog "B" illustrates and explains them.

THE GALT ART METAL CO., LIMITED, GALT, ONT.
Sales and Distributing Agents: **Dunn Bros.,**
Winnipeg and Regina.




The Royal Military College of Canada.

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

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

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

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

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

The strict discipline maintained at the College is one of the most valuable features

of the course, and, in addition, the constant practice of gymnastics, drills and outdoor exercise of all kinds, ensures health and excellent physical condition.

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

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

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

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

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

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

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

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

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The Store around the corner, Market Square.

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WE ARE MANUFACTURERS OF

MILK BOTTLE FILLERS

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PASTEURIZERS and COOLERS

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

W. A. DRUMMOND & CO.

173 King Street East,

TORONTO, - - ONT.

Strictly Temperate.

Bashful Freshman (in quest of a promenade, to embarrassed young lady)

—Are you full?

Young lady—No, not yet.



Robinson (to Todd)—What is the plural of mother-in-law?

Todd—Troubles—Troubles.



Mr. Grange—A man to understand stock-judging must be brought up with the animals.



Mr. Stairs (Pres. of M. L. L. S.)—Our Darling—secondor of the opposition—will now present his arguments.



Mr. Dougall—The city man is nothing but a tin box of theory on wheels.

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A PAYING CROP

When Planted and Harvested by

O. K. CANADIAN POTATO MACHINERY

which saves both time and labor



Seed Potato
Cutter

With this little implement one man can cut 6 to 8 bushels per hour.



O. K. Canadian Self-Feeding Potato Planter

POINTS TO NOTE:

Geared from both wheels.

One lever raises and lowers slow disc and puts machine out of gear.

One man and team can plant 4 to 6 acres per day.

Handles the seed with a cup-device almost as carefully as by hand and so prevents puncturing or bruising.

Can be had with or without fertilizer attachment.

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130 Stone Road - Galt, Ontario

Guelph Radial Tky. 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	10:15
3:05	7:00	10:35
3:30	7:20	
3:50	7:45	

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

ONTARIO VETERINARY COLLEGE



Temperance Street - Toronto, Canada

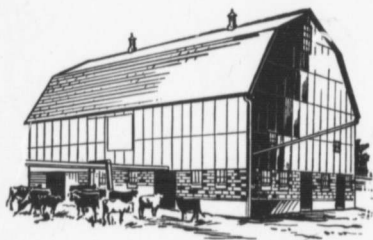
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E. A. A. GRANGE, V. S., M. S.
PRINCIPAL

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SAFE LOCK Metal Shingles

are the kind that wear well, look well, and keep out the weather. They have a positive hook lock on all four sides, and are absolutely proof against every element. Wind, rain and snow cannot penetrate a Safe Lock roof. Fire and lightning cannot injure it. Safe Lock Shingles lock so securely that they cannot be blown off by even the heaviest wind storm.

Write us for our Free Booklet, "Truth About Roofing," giving particulars of our Lightning Guarantee.

The Metal Shingle & Siding Co.
PRESTON AND MONTREAL, CANADA LIMITED



"We handle everything that is required in a Cheese and Butter Factory and when in need of supplies kindly write us for quotations."



R. M. Ballantyne, Limited

Dairy Supplies

Cheese Factory & Creamery Furnishings

STRATFORD, ONT.

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CANADIAN MADE

Spray Chemicals

Lime Sulphur Solution

(Concentrated)

Lead Arsenate

Sixteen per cent. Arsenic Oxide, 40 per cent. moisture average.

THIS IS THE INSECTICIDE TO GIVE RESULTS ON ALL LEAF-EATING
INSECTS, POTATO BUGS, ETC.

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All our products are made from the Purest Chemicals, under the supervision of
Expert Chemists.

MADE IN CANADA BY

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LIMITED

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HEADQUARTERS FOR CHRISTMAS GOODS

No time honored custom is more worthy of being continued than the practice of sending some little remembrance to your friends at Christmas. There is usually a certain difficulty experienced in deciding just what to send, but our Christmas Catalogue makes this matter easy for **EATON** customers. It contains only those things most suitable for holiday presents. Every article listed will prove most tempting and every price quoted will convince you that **EATON'S** is the buyinghead quarters of every economic Santa Claus

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TORONTO - CANADA

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There is hardly a farmer's daughter in Canada who does not know Windsor Salt.

It has been the universal standby for years.

Practically all the prize winners at the fairs have used Windsor Salt—last year, 95% of those winning cash, medals and premiums, made their prize butter with Windsor Salt.

If you have not been using Windsor Salt for butter making, get a sack and try it. You will then see why the prize butter makers use it.

Royal City Mineral Water Works

Manufacturer of
HIGH-CLASS CARBONATED BEVERAGES
 247 BROCK ROAD.

Phones—Works 582A
 Residence 582B

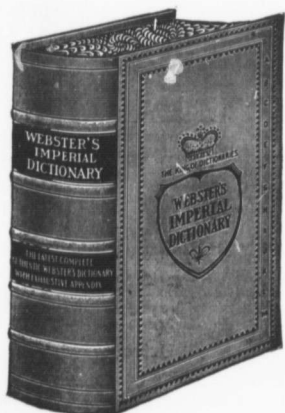
A. REINHART
 Proprietor.

FREDERICK SMITH,

PLUMBER, STEAM
 AND GAS FITTER,

Sanitary Appliances. Estimates Furnished.
 GUELPH.

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AN IDEAL CHRISTMAS GIFT
USEFUL TO ALL - AT ALL TIMES

**WEBSTER'S
IMPERIAL
DICTIONARY**

NEW EDITION
1909
RIGHT UP-TO-DATE

Beautiful Clear Type, Re-Edited Throughout, Printed from New Plates, Thousands of New Words. Not a reprint or a photographic reproduction, but an entirely new Webster's Dictionary that defines more words than any previous Webster. The One Great Dictionary by Which All Others Are Measured.

It is the Best and Most Practical, as well as the Latest Complete Dictionary of the English Language, giving the Spelling, Pronunciation, Etymology, and Definitions of Words, together with thousands of Illustrations.

A Modern Gazetteer of the World, A Dictionary of Authors, Standard Fiction, A Dictionary of Foreign Words, A Dictionary of Scripture Proper Names, A Pronouncing Dictionary of Greek and Latin Proper Names, A Dictionary of Abbreviations and Contractions, A Pronouncing Dictionary of Biography, Values of Standard Foreign Coins, A Complete Atlas of the World, consisting of 64 Maps Printed in Colors, etc. 2,205 Pages, 2,500 Illustrations, New Colored Plates and Tables.

This work is handsomely and substantially bound with the best materials that can be selected for durability, with flexible back which opens perfectly flat and makes the book easy to consult. Full Law Sheep, Thumb Index.

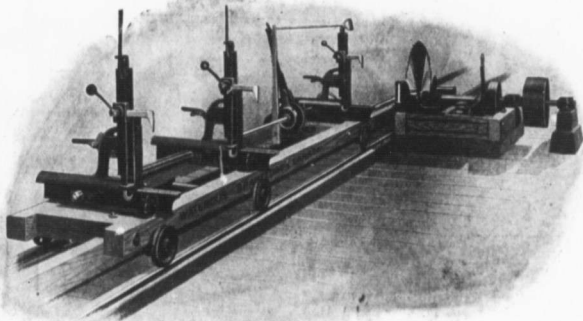
WILLIAM BRIGGS - PUBLISHER
29-37 RICHMOND STREET, WEST - TORONTO

EXPRESS CHARGES EXTRA

\$6.00 Your own card inserted if desired

WATEROUS PORTABLE SAWMILLS

LIGHT, COMPACT, DURABLE.

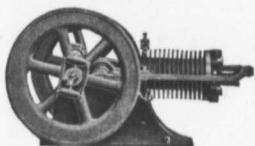


IN SIZES TO CUT 2,000 TO 8,000 FEET PER DAY.

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

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

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CHOOSE A GILSON ENGINE GOES LIKE SIXTY

is the advice of experts, authorities and users
—“THE MEN WHO KNOW.”

For **QUALITY COUNTS**, and the **GILSON GASOLINE ENGINE** is the **ENGINE of QUALITY**—The highest type produced at any price.

Positively guaranteed, all sizes, all styles, for all purposes.

Send for large catalogue and pamphlet by Prof. Ocock, University of Wisconsin, “HOW TO CHOOSE A GAS ENGINE.”

GILSON MFG. CO. LTD.

GUELPH, ONTARIO.



TOKENS FOR THE FOLKS BACK HOME

The fellows who are going home for the Christmas holidays will appreciate the appeal these pretty leather cushions and pennants with monograms on them will make to big sister, to the best girl and most important of all, to mother, who is never done thinking about “her boy who is off to college.”

The Cushions—big, comfortable and pretty, have the O. A. C. and Macdonald Hall Monograms on them and are the kind which will bring back fond memories, long after dear Alma Mater has been left behind.

The College Pennants—these are made of good, sturdy cloth and have the College Monogram on them. For “The Girl” to wave at the athletic games and afterwards to adorn the den or bedroom, at prices which range from 25c to \$1.00.

Lots of other gift things of this nature at this big store. All of them priced in practical manner and breathing the College spirit for which the O. A. C. is famous.

D. E. MACDONALD & BROS.

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

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

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



KELEHER & HENDLEY

MODEL MERCHANT TAILORS

Fine Furs.

Fur-lined Coats a Specialty.

The Guelph Mercury

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

∴ THE JOB DEPARTMENT ∴

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

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



**IF YOU APPRECIATE
: : GOOD VALUES : :**



YOU WILL BE SURE TO BUY YOUR

**SHIRTS, TIES, COLLARS, HATS
AND FURNISHING GOODS**

HERE. THE CHOICEST STOCK IN THE CITY

My Tailoring Department is one of the most reliable in the trade. First-class, stylish clothing made to fit perfectly, and satisfaction always assured. See my stock of fine up-to-date goods. Only one price. Goods marked in plain figures. Be sure and give me a call

R. E. NELSON

Next Traders Bank.
Just above the Post Office.

Men's Furnishings.
Hats and Fine Tailoring.

NORTHWEST LANDS

FOR SALE
OR EXCHANGE

ALSO FARMS
IN ONTARIO



F. E. SHANTZ & CO.

BROKERS

38 FREDERICK ST. BERLIN, ONT.



**The
Stickney
Gasoline
Engine**

(The Farmers' Favorite.)

Because he can always depend on it. No frills to get out of order. Just Simplicity itself.

A boy can learn to operate it in a few minutes.

Farther, it grinds out the power. In fact, we guarantee it to do so.

Send for our 57 reasons and you will know all about gas engines.

ONT. WIND ENGINE & PUMP CO., Ltd.
Toronto and Winnipeg.

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**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?

ADDRESS AT ONCE.

International Stock Food Co.

TORONTO, CANADA,

Sole Manufacturers of

INTERNATIONAL STOCK FOOD

THREE FEEDS FOR 1 CENT

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

THREE FEEDS FOR 1 CENT

Dan Patch Mailed Free

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

International Stock Food Co.

TORONTO, CANADA.

The Manufacturers Life

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

Apply to W. E. BROLEY, Elora

HEAD OFFICE: TORONTO, CANADA

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Freshies faults are many,
 Sophs have only two,—
 Everything they say,
 And everything they do.



Prof. Day (teaching physics to Fresh men)—Mr. Ghent, what is space?

Ghent—I don't remember at present, but I have it in my head.



"Money is not at the bottom of everything," sadly remarked Pat Stewart, as he plunged his hands deep down into his pockets, and saw the train leave for Hamilton not long ago.



Carpenter to Todd (at flower show)—Have you any apples on the sly?

Todd—I had quite a number, but they all slid.

MAP OF TORONTO

A good clear plan of the business section of Toronto, in convenient pocket form, will be mailed free to any reader of the O. A. C. Review who sends us a request for same.

The Geo. M. Hendry Co.

LIMITED

Educational Supplies

20 Temperance St. Toronto, Ont.

THE WHITE HOUSE

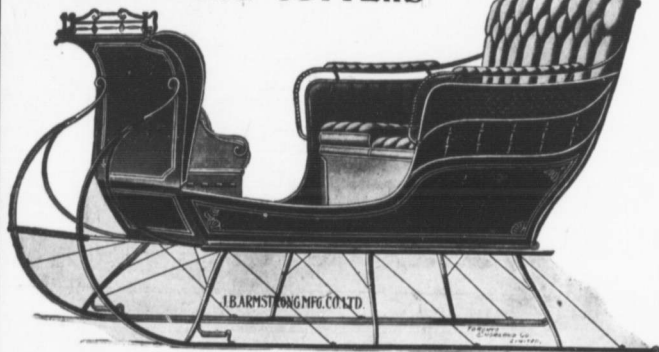
LADIES' FINE SHOES AT \$2.50

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

JAMES RAMSEY

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

ARMSTRONG CUTTERS



NO. 20 $\frac{1}{2}$ —SOLID COMFORT.

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

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

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

G. B. RYAN & CO., Guelph
General Dry Goods Store

Noted for **STYLE & FINISH**

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

Character and Exclusiveness are the Two Great Features of Our Merchandise



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

G. B. RYAN & CO., Guelph
MEN'S CLOTHING STORE

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

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



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





WE POINT WITH PRIDE
 TO OUR
 PREPARATIONS
 FOR
XMAS




A BOX OF
Bon-Bons



IS A DAINY GIFT FOR
 Mother, Sister
 or Sweetheart

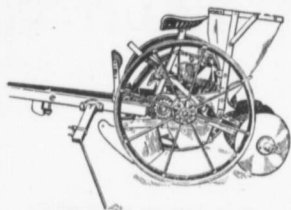
THE KANDY KITCHEN
 LOWER WYNDHAM STREET





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POTATO CROP A MONEY MAKER



No. 3 POTATO PLANTER

Automatic. Requires no human aid other than the driver.

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

Booklet on Potato Culture mailed free.

Aspinwall Mfg. Co.

112 Sabin Street, Jackson, Mich., U. S. A.
Canadian Factory, GUELPH, ONT.

"Look for this firm's exhibit at the Mid-Winter Fair."

LUMBER

LATH and

SHINGLES

All kinds

Bill Stuff

ETC.

DOORS

SASH

FRAMES

All kinds of

BUILDING

MATERIAL

Manufacturers of

Washing Machines. Stair Building
and Interior Fittings a Specialty.

—THE—
H. A. CLEMENS Co. Limited
GUELPH, CANADA.

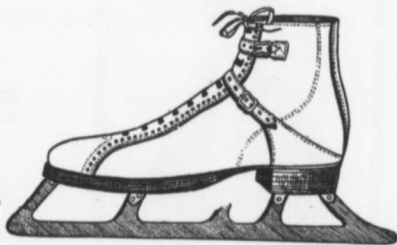
Phone 50.

Hockey Boots and

Skates

Hockey Sticks

Sweaters, Toques, etc.



Special prices to
O.A.C. Students,
send for illus-
trated catalog.

J. BROTHERTON

550 YONGE STREET

TORONTO

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Wanted immediately—A guide, who is thoroughly acquainted with the City of Guelph and surrounding country. Hours of duty: 7:30 p.m.-12 p.m. Apply stating qualifications, salary expected and experience, to Ross Graybiel, Room 33, Upper Hunt.

Roller skating—"Then you and I and all of us fell down."—Ding Gordon.

Sophomore—If algae contain green coloring matter and fungi do not, what is the difference between the Fresh men and Sophomores.

Freshman—Why, in the quantities of green present.

**HARD STUDY-
EYE-STRAIN**



**OUR GLASSES
BRING RELIEF**

A. D. SAVAGE,

Guelph's Only Exclusive Optician.
Phone 571 21 Wyndham Street.

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

FRUIT

We make a specialty of Fruit. You can always depend on getting everything in season fresh here.

BUSCUITS

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

Phone 169. Prompt 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

Farm and Dairy

A paper of quality, well illustrated, carefully edited, in close touch with the average farmer, above all a paper that does things.

**PUBLISHED
WEEKLY**

In the interests of the Farm, the Dairy, the Rural Home, and for a better agriculture.

Only \$1.00 a Year

Join its ever-increasing number of interested readers. Write for specimen copies.

THE RURAL PUBLISHING CO.,
Limited,
Peterboro, Ont.

GUELPH AND ONTARIO INVESTMENT AND SAVINGS SOCIETY

(INCORPORATED A. D. 1876)

SAVINGS DEPARTMENT.—Deposits of **One Dollar** and upwards received and interest allowed at highest current rate. Every facility afforded depositors. Office open until four o'clock every week day (including Saturday). Interest allowed on both current and savings accounts.

DEBENTURES ISSUED for sums of **\$100.00** and over, for periods from one to five years; interest, 4 and 4½ per cent. per annum, payable half-yearly.

Both the **DEPOSITS** and **DEBENTURES** are legal investments for trust funds.

J. D. ELDERRY,

Managing Director.

Office: Corner Wyndham and
Cork Sts., GUELPH, ONT.

A Suggestion



WATERLOO CHAMPION

**INSIST UPON HAVING A
Waterloo Champion**

**TO DO YOUR
THRESHING
AND YOU WILL
HAVE NO MORE
THRESHER
TROUBLES
TO CONTENT WITH**

THE PIONEER SEPARATOR OF THE DOMINION
IT CLEANS THE GRAIN FIT FOR MARKET

We make a Specialty of **TRACTION** and **PORTABLE ENGINES** AND
THRESHING MACHINERY. Write for Catalogue, Prices and Terms

The Waterloo Manufacturing Co., Limited WATERLOO
ONTARIO

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

THRESHERMEN'S
FARMERS' AND
DAIRYMEN'S

Rubber Goods

Thresher Belts, Steam Packing, Hose, Rubber Tubing and Molded Rubber Goods of every description for agricultural and dairy machinery.



The Dunlop Trade Mark,
the two hands is the seal
of quality in rubber.

DUNLOP Tire and Rubber
Goods Co. Limited

Agents and Dealers throughout Canada.



SCOTT KNITTING COMPANY

Makers of High-grade, Pure Wool Goods, Sweater Coats, Sweaters, Jerseys, and Athletic Suits, Hose, Toques, Etc.

Write for Catalogue.

352 Queen Street West, TORONTO.



ABSORBINE

Will reduce inflamed, strained, swollen Tendons, Ligaments, Muscles or Bruises, Cure the Lameness and Stop pain from a Splint, Side Bone or Bone Spavin. No blister, no hair gone. Horse can be used. Horse Book 2 D free. \$2.00 a bottle at dealers or delivered.

ABSORBINE Eo-Hi-for man kind. St. Reduces Strained Tora Ligaments, Enlarged glands, veins or muscles—heals ulcers—always pain. Book Free. W. F. YOUNG, P.O.F., 177 Temple St. Springfield, Mass. LYBASS '64, Montreal, Canadian Agents.

Marmora, Ont., April 8, 1907.

Dear Sir,—In regard to your ABSORBINE, I cannot praise it enough for what it has done for me. I had a valuable horse with a big leg and I used one bottle and it cured him completely. Yours truly,

Robert Jones, Sr.

The People's Store

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

CLOTHING

Have also a big assortment of Gents' 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.

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Well, Do You Like it?

AH SING'S idea may suit some people, but from a sanitary standpoint—pardon our lack of enthusiasm. Modern methods of laundering—used here—do not conform to the Mongolian's conception of cleanliness, yet how superior!

Guelph Steam Laundry

PHONE 95. 80 NORFOLK ST.
E. M. HUNTER, Mgr.

THE DOWLER CO.

Ladies' and Gentlemen's Garments

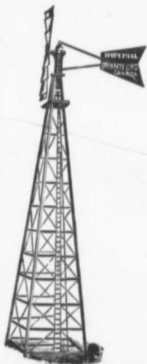
Made to your order, or ready to put on

Modern merchandise at moderate prices. Your patronage is earnestly solicited.

THE DOWLER CO.

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Windmills!



Towers girded every five feet apart and double braced.

Grain Grinders.
Pumps.
Tanks.
Gas and Gasoline Engines.
Concrete Mixers.

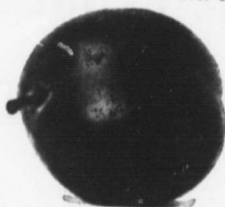
Write for Catalogues.

Goold, Shapley & Muir Co.

LIMITED
BRANTFORD, CANADA

The Fonthill Nurseries

Established 1837. Over 850 acres.



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

Send for our proposition. It will interest you.

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

Send for catalogue.

STONE & WELLINGTON. TORONTO.



We sell the best makes of Shoes, The Walk-Over, Geo. A. Slater INVICTUS, the Beresford, the ART, and many others.

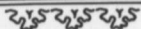
We AIM TO PLEASE. Give us a call.

KNECHTEL'S SHOE PARLOR,

Opposite the Winter Fair Building.

R. B. KENNEDY

Photographer



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

PHONE 498

CENTRAL Book Store

Opposite where the Street Cars stop.



Text Books, Exercise Books, Foolscap
Writing Pads,
Up-to-Date Note Papers and Envel-
opes, Paperties, Etc., Etc.,
Bibles, Hymn Books,
Books by Standard Authors, Poets,
Prayer Books.

In fact, everything kept in a well-ordered
Book Store.



C. ANDERSON & CO.

Petrie's Drug Store

*For Kodaks, Cameras and
Photographic Supplies*



Special attention given to develop-
ing and printing for amateurs



LOWER WYNDHAM STREET

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

Students' O. A. C. Supplies

Botanical, Entomological, Nature
Study, Manual Training.

Plant Mounting; Butterfly, Insect and
Larva Collecting; Weed Seed Collect-
ing; Microscopes; Slides and Cover
Glasses; Drawing and Painting Outfits;
Mathematical Instruments; Dissecting
Tools; all kinds of Note Books and
Fillers; Fountain Pens; Pencils; Inks;
in fact, everything to make a student
happy, contented and successful in his
work.

Waters Bros

41 WYNDHAM ST., GUELPH
PHONE 350.

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 Col-
lege and Macdonald Institute.

C. L. Nelles

PHONE 45.
ABOVE POST OFFICE.

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

STUDENTS!

We carry a full and
complete Stock of

Shavers' Needs

RAZORS, BRUSHES, MUGS,
SOAP, STROPS, ETC.

AND DON'T FORGET

McKee's Shaving Cream

The proper finish to every shave.
Allays irritation, soothing and emol-
lient, and highly antiseptic.

25 CENTS.

At McKee's Drug and Book Store.

JOHN D. MCKEE, Phm. B.

Druggist, Bookseller and Stationer
18 WYNDHAM ST. GUELPH, ONT.
Please mention Review when purchasing.

SKATES and
SKATE STRAPS
HOCKEY STICKS
PUCKS
SHIN PADS
ANKLE SUPPORTS
GLOVES and
SPORTING GOODS OF ALL
KINDS.

Excellent values in Razors and Pocket
Knives.

McMillan Bros.

Phone 31 - 20 Wyndham St.

FURS

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

JOHN HALLAM, TORONTO

SPRING BROOK STOCK FARM.

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

A. C. HALLMAN,
Breslau, Ont.

SUEY WAH,
LAUNDRY

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

16 Wilson St., Guelph, Ont.

"The sweetness of low prices never equals the bitterness of poor quality."



**ADVERTISER JOB
DEPARTMENT**
191-195 Dundas Street
LONDON - ONTARIO

PHOTOGRAPHS

at special rates to students.

W. J. WINTER, Upper Wyndham.

HACKNEY'S

The Old Tobacco and Pipe Shop.

Established 1884.

Next door to Royal Bank.

"Eclipsed by None."

WALKER'S ELECTRIC BOILER COMPOUND

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

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

The Electric Boiler Compound Co. Ltd.

Guelph, Ontario.



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NEILL'S XMAS SLIPPERS

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

HOCKEY SHOES. You will be pleased with our showing of regulation hockey shoes.

GYMNASIUM SHOES of all kinds at lowest prices.

NEILL--THE SHOE MAN

THE
AUTONOLA



MAKES
EVERYBODY
A MUSICIAN

The Bell Piano

RECOGNIZED AS CANADA'S BEST.

Ask for our Free Catalogue No. 71



The Bell Piano and Organ Co.,
Limited

Canada's Largest Makers.

GUELPH,

ONTARIO.

CLASS PINS, MEDALS, ETC. FROM

RYRIE BROS.

have a appearance that only careful designing and expert workmanship could produce. Our designing department on the premises will gladly furnish designs and estimates, with full information, free upon request

RYRIE BROS. LIMITED

134-138 Yonge Street - - Toronto, Ontario

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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, honest materials and the best of tailoring experience 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 \$16.00 to \$28.00.

R. J. STEWART,

Opp. Knox Church, Quebec Street,
Phone 456.

"T. & D." Clothing for Men Makes Optimists.
—A man could hardly be a pessimist if he tried in a suit of new fall clothes from "T. & Ds."

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

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

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

THORNTON & DOUGLAS, Ltd.
Lower Wyndham Street.

Mutual Life of Canada

HEAD OFFICE, WATERLOO, ONT.

Is a thoroughly SOUND AND PROGRESSIVE COMPANY, confining its business to the Dominion of Canada and Newfoundland, noted for the most healthy Climates IN THE WORLD.

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

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

OWN Everything CONTROL Everything GET Everything
GEO. CHAPMAN, General Agent, GUELPH.



Every medal, every first premium, every grand prize on construction, durability, ease of operation, and quality of work, as well as speed in typewriting, has been won by the Underwood.



UNITED TYPEWRITER CO, Ltd.
Adelaide Street East
TORONTO

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

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.



REFERENCES

AGRICULTURAL COLLEGES

At Guelph, Truro, St. Anne de Bellevue,
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