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THE DIGNITY OF A CALLING IS ITS UTILITY.

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Nature Study in Our Public Schools.

The educational world has heard much about Nature Study in recent years, and has watched its rapid development in Germany and the United States, but we in Ontario have thus far been content to hear and watch. In fact, we have shown "a masterly inactivity." We prefer to watch the progress of the campaign across the border, and to await the results of the experiments rather than undertake the work ourselves. Thanks, however, to the energy and courage displayed by the pioneers this movement has passed the experimental stage in many of the states, and there is no longer any doubt as to its value as an educational factor. The introduction of Nature Study was simply a breaking away from the mediaevalism which had so long dominated nearly every phase of our educational system. Under this system the child's sympathies with nature were systematically stifled, and its activities forced into unnatural channels, from which it frequently revolted. Under the new system the teacher of Nature Study takes the child while in the inquisitive stage, and directs its energies into natural channels. He gives directions to the child for further observation, and tries to get it to answer its own numberless questions regarding the common things of Nature so that it will understand them.

The great advances made in Science, and more especially the applications of Science to almost every industry, have made informal science, or Nature Study, possible in our public schools to-day. Conditions are everywhere continually changing. The requirements of the child of twenty or thirty years ago are not the same as those of to-day. Educationists feel, and the people feel, that some important element is lacking in our curriculum, with the result that the children are one-sided and have no sympathy with

the great world of Nature about them. It is becoming more and more apparent that the observing faculties of children are not being trained to see the common things of Nature, which meet them at every turn, nor to learn how the plants and animals live, or how these influence them as part of their environment.

It is a note-worthy fact that the most practical of people, our cousins to the south of us, are the most pronounced advocates of a curriculum which includes Nature Study. They feel that the power to acquire dollars and cents is not the only power which a man should possess; they feel convinced that man cannot live by bread alone, but that there is a great interesting world of Nature concerning which the young should not be ignorant. It is true that the beauties of the woodland, meadow, and stream are often hidden from most people, who see nothing interesting in them simply because their eyes have not been opened in youth to the wonderful things that surround them. The so-called hidden forces of Nature are being utilized to-day as they have never before, so that from a utilitarian standpoint, a knowledge of the working of these forces is being looked upon as a necessary part of the educational equipment of the young man on leaving school.

The objects of Nature Study.—The primary object of Nature Study is "to cultivate the child's power of observation, and to put him in sympathy with out-door life." It is unnecessary for me to state the importance of the cultivation of the power of observation. The successful business and professional men of to-day are those who were more observant than their fellows, and who trained themselves to draw proper conclusions from what they saw. In this age of intense competition in all walks of life, when margins are so small, and where the profits depend upon the amount of attention that is given to the small matters, the successful man will be, other things being equal, he who is the most observant. Now it is claimed that the common objects of Nature furnish the best and most available means of cultivating the observational powers. Nature, as observed in the woods, the orchard, garden, fields, waysides, brooks, and marshes, is the proper subject to study; and when simple studies of the operations of the laws of Nature are undertaken the child becomes an original investigator.

Introduction into our Schools.—The most serious drawback to the enthusiastic introduction of Nature Study into our Schools in Ontario, is the lack of a supply of teachers trained in Nature Study methods, and naturally much diffidence, even indifference, will be shown by many teachers at the outset. Gradually, however, as time goes on, this objection will be removed, for our three Normal Schools are now giving considerable attention to this matter. Yet the fact remains that ninety per cent. of our Public School teachers are not prepared for the work. What then could be done to help them? 1st. The establishment of a summer school where instruction in the fundamentals of Nature Study would be given. The teacher would then secure the practical acquaintance with insects, plants, birds, soils and farm crops which is absolutely essential, if he purposes to teach Nature Study in his school. The summer school would very naturally be located at the O. A. C., which already possesses the necessary laboratory and museum facilities. 2nd. By sending out trained teachers to the rural sections. At Cornell, only the most progressive teachers (chiefly from the cities) took advantage of the summer school, and the teachers from the rural sections, for which the school was primarily aimed to help, failed to put in an appearance. The authorities decided then to send help to the rural sections in the form of trained teachers, who not only conducted Nature Classes in the

schools, but also instructed the teachers about plant and insect life. Besides, as opportunity offered itself, instruction was given at teachers' conventions. 3rd. By means of Nature Study leaflets on familiar objects prepared by experts. Similar leaflets published by the Cornell University Bureau of Nature Study were very helpful and suggestive, as they indicated the best possible methods of introducing the lesson, and furnished the needful information which the teachers required. At intervals, also, leaflets might be prepared, as at Cornell, for the children, the object of which should be to make them investigate certain simple phenomena, such as, germination, the bursting of buds, the growth and habits of trees and shrubs, the life-histories of some common insects, the formation of soils, etc. It would certainly be a wise thing at the outset to have a few leaflets dealing with such topics ready at an early date for distribution to our teachers.

In the matter of leaflets, it is very important that they should be prepared with the greatest care, and printed on the very best paper. The illustrations, moreover, should be artistic as well as scientifically correct. As no Government Publishing Office will carry out these details satisfactorily it is evident that the printing and publishing of the leaflets must be done by private concerns.

The editor of the leaflets should be a person of considerable experience in dealing with "copy." He should be thoroughly in sympathy with his work, and should not allow any leaflet to be printed unless it is "up to the mark" in every respect. The editor makes or mars the whole undertaking. He is undoubtedly the most responsible person connected with the publication of the leaflets.

With these three agencies in operation, the most inexperienced teacher would soon acquire the confidence to undertake Nature Study work. Once the work is undertaken, the teacher would find that the time devoted to it would be the most interesting part of the day, and the pupils would look forward to it with eagerness.

That the Ontario Agricultural College is fully alive to the great need for men trained in Nature Study methods must be evident to every one who has read carefully the circular of the College for 1901-1902. According to this all third year students are required to attend a Normal course of Nature Study dealing with soils, plants and insects, for two months, extending from April 18th to June 18th. Such a course, the authorities believe, will be of great value not only to those who purpose giving their attention to teaching, but also to those who will devote themselves to agriculture, and are called upon to lecture at Farmers' Institutes, and other meetings of a similar nature.

W. LOCHHEAD.

Let us be proud of our boys. A farmed once asked, "Is that house yours?" "Yes," said the farmer, "and that's the finest house around." "Is that cow yours?" "Yes, and the finest thoroughbred in all the county." "Is that dog yours?" "Well I should say, and the most intelligent setter in the entire neighborhood." "Is that boy yours?" "Well, er—come to think of it, he is." But not one word of praise. Do you know a boy, your boy? His name, age, language, manners, associates, his secret thoughts, his desires and difficulties? Does he like music, drawing, carpentry, farming? Do you really know your boy?

Those who enjoy a dollar most
Are those who really earn it;
And if they money have to burn
'Tis because they do not burn it.
—Chicago News.

Canada at the Glasgow International Exhibition.

"The earth is the Lord's and the fullness thereof. Except the Lord built the house they labour in vain that build it. They shall bring the glory and honour of nations into it. Peace be within thy walls and prosperity within thy palaces."

Under such a motto does the visitor to the Glasgow International Exhibition stand when beneath the Grand Dome of the centre piece of one of the finest collections which modern skill and ingenuity has produced. The site of the exhibition is an ideal one. Situated in the beautiful grounds of the Kelvingrove Park, and directly below the famous old University which has just celebrated its ninetieth jubilee; to the west stands the Western Infirmary a splendid pile of buildings standing in their own grounds, and to the east on Gilmorehill, the residences of some of the merchant princes of the second city in the Kingdom. Within the Exhibition grounds is a new and magnificently sculptured block of buildings, The National Art Galleries of Scotland. These were finished only a few months ago, the cost of them being defrayed by merchants of the City, the nucleus of the fund being the surplus of the former Exhibition amounting to $270,000. Through the grounds flows the classic River Kelvin completing a scene at once natural and artificial.

Being chiefly interested in affairs pertaining to Canada, let us wend our way through the masses of people toward the pavilion flying the flag of the Dominion.

Out from under the Dome, through the splendid courtyard with its great white columns towering above, and variously tinted and scented flowers about us, down past Japan and the Grand Concert Hall accommodating over five thousand people, into the east gardens till we come to the flag bearing the Maple Leaf floating gaily over the Canadain Pavillion. The building itself is a handsome white walled, red roofed structure, about one hundred and eighty feet long and seventy broad, appearing no doubt plain when compared with the ornamental and somewhat georgeous buildings of the Russians but nevertheless of equal utility. The total space devoted to Canadian Exhibits is about twenty-four thousand square feet of which thirteen thousand are in the Canadian building, the remainder being in the Industrial Hall, the main building of the Exhibition.

The chief entrance is between two square towers on the south side having an archway between, bearing in gilt letters the word "Canada," and the first object which meets the eye of the visitor as he enters is the great cereal trophy over thirty feet in height, and modeled from one of the spires of the Ottawa Parliament Buildings. This graceful structure bears over two thousand samples of grain grown in different parts of the Dominion and is a beautiful monument to the industry and fertility of the country from which it came. It is octagonal in shape and contains four arches under which one may rest and examine the many samples of tobacco and hops found in the glass cases within. Looking around the walks handsomely decorated with photos and pictures, one sees many familiar Canadian sights. Winter views of work in the shanties and tobogganning on hills, of deep ravines and high hills among the Rockies in spring, of the prairie with its miles of waving grains and grasses in summer time, and the peaceful homely scene of the orchards in autumn add to the already

attractive appearance of the interior. On either side of the entrance are two well arranged corners having stands containing over one thousand samples of fruit preserved in an antiseptic fluid and as perfect as when picked. Small fruits of every variety and tint, soft fruits such as grapes and plums, and some fruits in abundance all impress one with the idea of the importance of Canada as a fruit growing country. Directly opposite this display are several tables containing no fewer than one hundred and sixty-five varieties all having been kept in first class eating condition till the time of writing (July.) From the unpretentions little Pomme Grise to the pompous King or Spy, all have a most inviting appearance, here the ubiquitous placard "please take one" is unfortunately conspicuous by its absence, to the chagrin of more than small boys.

The west portion of the hall is almost entirely devoted to a grand display of Agricultural Implements by leading firms in the Dominion, chiefly from Ontario. The Massey-Harris exhibit alone is worth $20,000, while Noxon Bros. and Maxwell are well represented. Every piece of modern farm machinery is shown, and such implements! The workmanship is almost beyond description; even the freshest city youth could not fail to admire them. Over the passage in the centre of these exhibits is a structure similar in appearance to a church porch and apparently built of red and white sandstone. Upon closer inspection, however, this is found to be built of embossed steel, and the makers, The Metallic Roofing Co. of Toronto, are to be congratulated on their admirable imitation.

Passing to the eastern portion one finds much more that is of interest to him. The most extensive Exhibit here is that of the Forestry department containing about eight hundred samples of wood, from small logs of only a few inches in diameter to some of huge dimensions. Each can be seen in both rough and polished states. Black Cherry and Walnut, Oak, Ash, Firs, Maples and Hickory are but a few of the extensive catalogue represented. Amongst the woods are numerous funny creatures which seem to peep and grin at the visitor as he passes amongst them, while overhead are the massive heads and antlers of the great western game the Moose. Of the finished articles in wood a look at the centre of the pavilion will show its extent. From the small axe and hoe handle every wooden tool is to be seen, besides an array of school desks and household furniture, butchers blocks, the sportsmans' canoe; and the well known buggy and carriage of the farmer and doctor are seen side by side. The highest attainable perfection of wood work is to be seen in the display of grand musical instruments of the Bell Organ and Piano Co. of Guelph, who have on exhibition twelve splendid instruments. Nor must the paper made from the Pulp wood be omitted, for what Canadian does not know of the importance of the pulp trade to Canada! Each and every article in this section gives proof of the great utility of the contents of Canadian forests.

In the department of Fisheries, Birds and Furs, another extensive display is seen. From important little herring, to the large mackeral shark every species of fish found in Canadian waters may be seen. A board bearing fifty pieces of Indian fishing and hunting tackle of the most primitive kinds also proves of interest to more than sportsmen. An enormous lobster, "Le Homard D' Amerique" measuring thirty inches long and weighing fully forty pounds, reminds one of his lectures on zoology when such a specimen would have been of great service without the use of a microscope. Of Birds there is a large number, the most attractive being several young

ostriches from a farm in the neighbourhood of Toronto. These give the appearance of being covered with fine shavings from teak wood. To see the Furs one must go to the Canadian court in the Industrial Hall. The Canadian Fur Co., of Montreal, is practically the only exhibitor of this class of goods and they richly deserve credit for their grand display as not even the enormous Russian exhibit can excel it in either extent or variety. Numerous specimens of all winter garments made from the skins of the sable, seal, mink, bluefox, Klondike fox and others are on view. In prices the articles vary from $5 to $100, thus giving sufficent scope to any who may be inclined to purchase. Inspection being invited at all of the stands one need have no reason for not examining this magnificent collection of winter clothing.

The largest section in this Hall is devoted to a display of the economic minerals found in all parts of Canada. The catalogue of two hundred pages deals with almost twelve hundred specimens, which give ample scope for either mineralogist or capitalist. Samples from nearly every mining district are seen and serve to show the extent of the mineral wealth of the country. nuggets to the value of fifty thousand dollars are shown, one lot being arranged to spell Klondike. The question "Is't reelly goald?" is frequently asked of the attendant and though answered in the affirmative a very doubtful look often remains on the face of the inquiring one. Among other ores shown are samples of silver, nickel, copper, iron, lead, zinc and coal. Some magnificent blocks of the latter mineral coming from pits on the Pacific Slope. Nor is there a lack of building stone, lime and sandstone from various parts, besides gypsum, plumbago and petroleum. From this it will be seen that those American Capitalists who are making an effort to develope the iron trade in Canada have solid grounds on which to base their hopes of success.

Turning to the exhibit of the necessities of life we see an extensive square in the centre of the court devoted to the purpose. Almost every conceivable article of food is here represented. Oatmeal and flour from grain grown in the Prairie Province and prepared by the Lake of the Woods Milling Co., innumerable stacks of canned fish, fruits, meats and vegetables from British Columbia and Ontario constitute a very appetising display, while all admire the little jars of imperial cheese and boxes of pure honey comb. The Davies Packing Co. of Toronto have a stand wherein may be seen numerous samples of the famed "pea fed" bacon of which Canada is justly proud. An enclosure may also be observed wherein may be seen various perishable articles of food which have been there for months. The cold storage plan is thus shown in a most advantageous light and augurs well for those who may be interested in the development of trade between the Colonies and the Mother Country.

As may be understood this short description does not cover anything like the entire category of Canadian Exhibits, though it may serve to show that Canada is not by any means a land of snow and ice as Kipling would have us believe. It can be seen that Canada is capable of producing as fine goods as are imported into Britain from any of her colonies. The comprehensive display of the great natural resources which has been brought into such small compass shows that those under whose care the exhibits were placed were fully alive to the opportunities which such an Exhibition offered, as in all probability the pavilion will be visited by eight millions of people. The Dominion Government did a wise thing in obtaining as much space as possible

for their portion, and as they took the matter up in such an enthusiastic manner, the success which has attended their effort is well deserved. Some of the other Colonies may have sent more novel exhibits than those of Canada, but certainly none have sent any as complete, instructive or satisfactory. In conclusion let us construe the well known motto of the City of Glasgow, "Let Glasgow Flourish" into one suitable to Our Lady of the Snows, "Let Canada Flourish."

J. McA. RUSSELL '98.

Sage Advice of a Father.

COUNSEL THAT ALL YOUNG MEN SHOULD HEED.

"My son," said the fond but wise parent, "you are leaving me to go out into the world. I have nothing to give but advice. Never tell a lie. If you wish to put one in circulation, get it published. A lie cannot live, but it takes one a long long time to fade out of print.

"Always read your contract. A man might consider he was getting a sinecure if he were offered a position picking blossoms off a century plant, but, you see, he wouldn't have a remunerative occupation if he were paid on piece work.

"Be not overcritical. Even the most ordinary sort of a genius can tell when the other fellow is making a fool of himself.

"Remember that the young man, like the angler's worm, is rather better for being visibly alive.

"Be careful in the choice of your surroundings. Environment will do a great deal for a man. For example, flour and water in a china jug is cream sauce; in a pail on the sidewalk it is billsticker's paste.

"Don't forget that there's a time for everything and that everything should be done in its proper time. Never hunt for bargains in umbrellas on a rainy day.

"You may have some enemies. If you know who they are don't mention them. Silence is golden; it saves the money that might otherwise be spent in defending a libel suit. If you don't know who they are—well, abuse lavished on a concealed enemy is like charity indiscriminately bestowed. It's a good thing wasted."

A SERIOUS LOVE SPELL.

A young lady sings in our choir
Whose hair is the color of phoir,
But her charm is unique,
She has just a fair chique,
It is really a charm to be nhoir.
Whenever she looks down the aisle
She gives me a beautiful smaisle,
And of all her beaux
I am certain sheaux
She likes me the best all the whaisle.
Last Sunday she wore a new sacque,
Low-cut at the front and the bacque,
And a lovely boquet
Worn in such a cute wuet
As only few girls have the knacque.
Some day, ere she grows too antique,
In marriage her hand I shall sique;
If she's not a coquette
Which I'd greatly regruette,
She shall share my six dollars a wique.

Miss Jimplecute—Are you fond of animals, Mr. Wyndham?

Mr. Wyndham—Well, I like spring lamb.

The Location of Orchards.

The selection of a suitable site for an orchard is an important problem which involves numerous and various difficulties. As the element of soil is determined by the class of fruit which the orchardist desires to grow, it is not advisable to discuss it in connection with the general principles of orchard location and, as the species of fruits are so numerous, it will be necessary to treat the subject in a general way rather than in detail.

It is important to locate the orchard near a good market or, if this is not practicable, locate within reach of a railroad or some other means of transporting the produce to the market which it is desired to supply. If two or more means of shipping are within reach of the fruit farm, it would make the situation all the more desirable. This would permit the grower to cater to more markets of various desires and tastes, than he otherwise could, if only one mode of transportation were within his reach. After deciding upon a place that has the advantages of market and transportation facilities, it is extremely important to select a site that is, as far as possible, immune from frosts. Frosts are usually local and occur on still clear nights; freezes generally cover large areas and occur usually in connection with wind storms. Freezes cannot be controlled. Frosts, not only can be avoided by locating the orchard in a place exempt from frost, but frequently can be prevented on the occasion when they are expected to occur.

It is not desirable to plant orchards in narrow valleys or in depressions of any kind. It is well known that cold air, being denser and therefore, heavier than normal or warm air, settles to lower levels. Therefore, a narrow valley or any low lying region surrounded by hills would form a receptacle in which the cold air would accumulate and, if the air were frosty, it would seriously injure the tender vegetation of spring. Especially would it affect the young fruit buds which, in sheltered situations, are liable to expand earlier in the season than is desirable.

If the orchard were elevated near a low lying spot into which the cold air might flow, this drainage of the atmosphere would be a blessing rather than an injury. Air is seldom still. Eddies of air are formed by the draining off of the cold dense air but as air is invisible, this movement is recognized only by those who appreciate its value.

Perfect atmospheric drainage occurs only on still nights and under the most favorable circumstances. The least breath of wind stirs up the air and prevents the settling away of the cold air. A rail fence, a hedge or a slight elevation of land may interfere with the free movement of the air in its effort to reach a lower level; in fact, such obstacles, if extending across a slope, may retard sufficient air in times of frost to seriously injure the vegetation of the area adjacent to them. Regarding this Bailey says: "In some cases, there may be a difference of ten degrees in temperature in as many feet of elevation. A dense row of trees standing diagonally across a slope may convey away the cold air which settles down against it, and thereby prevents injury to plants on the lower levels. It has been suggested that in certain hilly regions, levees a few feet high be built diagonally

across the slopes, with ditches or moats above them to hold water, the evaporation of which would tend to raise the dew-point." The temperature seldom falls much below the dew-point and consequently, if the dew-point is high, the danger from frost is mitigated.

The proper elevation becomes a very important subject of inquiry in locating the orchard. It would certainly be a difficult matter to indicate a fixed level, above which there would be always be an immunity from frosts and below which there would always be danger, but we may presume to suggest the possibility of certain sites being safe or unsafe. We have seen that low depressions are frosty and unsafe. On account of the extreme thinness of air, very high elevations are colder than comparatively low ones; therefore, we may infer that the benefits of air drainage may be greatly over-balanced by the coldness of the elevation.

It is not always the absolute elevation, but rather the relative elevation of the site that must be considered. An orchard, situated on a slight rise in a comparatively low lying region, will suffer less from the influence of frost than one that is located much higher, but in a depression surrounded by higher hills.

Air drainage is usually the secret of the success of fruit-growing on land of an undulating or sloping character. Especially is this so in interior regions where the ameliorating effects of large bodies of water are not felt.

In choosing the location, the influence of large bodies of water over the surrounding temperature must be considered. As an example of this influence we have Lake Erie which is, as Tarr says, a great modifier of climate. He says: "In the spring, by reason of the low temperature of the waters, it holds back the vegetation, and this tends to keep it behind the ordinary frosts. Its very presence checks frosts by moderating the temperature of the neighbouring air. In the summer, the water tends to cool the air of the day and to keep the nocturnal temperature fairly high. During the fall, the water has been warmed by the summer sun and the influence of this warm body of water lengthens the growing season and tends to keep off the early autumn frosts." The beneficial results of prolonging the growing season, toward off the early autumn frosts, may be overcome by an immature ripening of the wood and buds which is northern sections, is often the direct cause of winter-killing. This, of course, is a serious matter, as losses incurred by winter-killing are heavier than those inflicted by autumn frosts. The latter produce injuries that are only temporary, while winter-killing usually destroys, for practical purposes, the utility of the orchard.

Referring to the proximity of orchards to large bodies of water Bailey says: "These bodies act as equalizers of temperature. The water holds latent heat, and it does not respond quickly to the atmospheric fluctuations. It is, therefore, cooler in summer and warmer in winter than the adjacent land is. The larger and deeper the body of water, the greater is this equalizing effect upon the temperature of the shores. As between the two, great depth is more important than great expanse of surface." We thus see that not only lakes and large rivers, but comparatively small rivers, if deep, exercise the desired influence.

The limit of the boundary of the area, over which the effects of large bodies of water are felt to be of economic importance, depends largely upon the degree of the slope away from the water. If the land rises abruptly and to any great height, the extent of the water's influence may be very narrow; but, if the land slopes gradually away from the lake or river, the effect of the water upon the temperature may extend to a distance of twenty miles or more.

Comparatively flat lands may feel, to a slight extent and for a limited distance from the water, the advantages of the latter's proximity, but this may be greatly over-balanced by the detrimental influence of other factors; such as the lack of atmospheric drainage or an unfavorable exposure.

Owing to the lack of space, the exposure or aspect of the land, although deserving of important consideration, cannot be discussed in this issue of the Review. A few thoughts, embracing this phase of the question in conjunction with a few remarks on the value of windbreaks as protection, may be of interest in a future number.

A. B. C.

Book Review.

VETERINARY ELEMENTS. *

"In Veterinary Elements" Dr. Hopkins brings before the public his first attempt as an author. The second edition is just lately out of press and judging by the rapidity with which the first edition was taken up, will have a ready sale. This volume should be of interest to students of this college for two reasons; first because the author is himself an old O. A. C. man, and second the book is especially compiled to meet the needs of Students at Agricultural Colleges.

The book is of nearly 300 pages, is neatly bound and has clear readable type. It is the outcome of the authors experience in two Agricultural Colleges—the Ontario Agricultural College at Guelph and the Iowa Agricultural College at Ames, where he had been led to believe that the Veterinary work is too technical for practical stockmen. The book consists mainly of the author's notes of lectures delivered before classes at Wisconsin University, supplemented by many excellent illustrations, his object being to fit the careful reader not for veterinary practice but for expert animal nursing.

The table of contents furnishes an attractive list of subjects among which may be found—"The Skeleton," "The Digestive System," "The process of Breeding," "The Foot—its care and shoeing," "Nursing sick animals," "Foot and limb troubles." "Diseases due to mistakes in feeding," "Examination of horse for unsoundness." As one reads carefully these chapters he is impressed with the intense practical nature of their treatment and feels that the book is pre-eminently one for the Agricultural Student and the Stockman. The scientific knowledge that is given is in an interesting and easily intelligible manner.

The author is to be congratulated on having compiled a book that fills such a long felt want and which is adapted so thoroughly to the work for which it is intended.

J. M.

* "Veterinary Elements," by Arthur G. Hopkins, B. Agr., D. V. M., University of Wisconsin University Co-operative Co., Madison, Wiscousin.

"Is that a good show that's running in Orpheas Hall?"

"Naw! Too goody-goody."

"But the show at the opera house is pretty bad, morally, isn't it?"

"Yes, that's a good show, all right."

Soil Fertility.

The time has gone by when a living, not to speak of a profit, could be obtained from a happy-go lucky, hit and miss system of agriculture. There was a time when with good markets and a virgin soil, a good living, and in some cases small fortunes could be made even by the crudest conceivable methods of agriculture. But that time is past. The farmer of to-day finds himself face to face with very different conditions. Competing as he does in an open market with the most skilful and intelligent farmers in the world, and operating on a soil from which the cream has already been taken, the necessity becomes more and more pressing every year, for a closer and more intelligent study of nature and of natural laws. I think that I am well within the mark, when I say that in no business or profession is there a wider scope for the exercise of human intelligence, or a greater necessity for a broad and liberal education, than there is upon the farm.

By an education I do not necessarily mean a course in a university or the passing of examinations and the winning of degrees. These are good, and even desirable, but not essential. I mean, rather the cultivation of the faculty of close and accurate observation, and the ability to derive therefrom correct and independent conclusions. In this sense of the term, there are many better educated men behind the plow, who perhaps have never seen the inside of a textbook, than many of our college graduates. For instance, the wide awake, successful farmer has noticed this year that certain causes have operated to produce certain effects; and, knowing that it is a law in nature that like causes will always produce like effects, he tries, in so far as they are under his control, to bring about the same conditions next year and if possible to improve them.

Since agriculture is no longer a mere menial occupation, but a sciences it is based on certain fixed principles which must be observed in order to obtain the best results. One of these underlying principles, and perhaps the most important, since on it depends in so large a measure the profit from the farm, is the maintenance of soil fertility.

The only part of our income that does us any good is the difference between the selling price and the cost of production. Over the former we can exercise very little control; but the latter is determined by many factors some of which do come under our control; and not the least important of these is the fertility of the soil. It costs just as much to cultivate and sow, and nearly as much to harvest and thresh, a field yielding 25 bush. per acre, as one yielding 40. So that if the farmer pays expenses, the latter yields a handsome profit; for, just as it is the last straw that breaks the camel's back, it is the extra 100 bushels that makes the farmer rich.

Lands are fertile in proportion to the quantities of available plant food which they contain, and the extent to which the temperature and moisture can be controlled. A soil may be rich in plant food and still be unproductive, because the plant food which it contains is not in a condition to be assimilated by the growing plant. Again a soil may be rich in soluble plant food, and still yield poor returns, because of the presence of too much water, or

on the contrary, the absence of sufficient moisture. The subject then naturally divides itself into two heads viz: how to maintain the supply of available plant food; and how to control the soil moisture.

I believe I am safe in laying it down as a premiss, that if all the product of the land is fed on the place, and the manure carefully saved and judiciously applied, the fertility of the land will be maintained, and even slightly increased; especially if the stock kept be chiefly dairy cows, or fattening stock. It is true that considerable quantities of plant food will be removed from the soil, even in the form of dairy or meat products; but these will be replaced by the quantity obtained from the atmosphere, rain snow, etc., and by the amount of crude, inert plant food already in the soil, which is every year being broken down and made soluble by the action of natural agencies.

But even though all the crops grown were fed on the place, and the only product sold was butter, which exhausts the soil lessthan any other farm product, the soil might still become exhausted, because of the injudicious handling of the manure. I believe that many of our farmers have wasted enough plant food to have made them rich because of mistaken theories concerning the handling of manure. For instance, it was a common practice some years ago, and is even yet in some localities, to turn the manure once, or sometimes twice, in order that it might ferment and become thoroughly rotten before applying it to the land. Now, it must be acknowledged that there are some arguments in favor of this practice. The fermentation has a tendency to destroy weeds, the manure can be more evenly distributed over the surface of the land; it is more immediate in its effects; and, if applied to light land, its effect on the mechanical texture of the soil is better. But, granting all this to be true, these small advantages are obtained at a very great expense. It has been demonstrated that manure which is allowed to ferment in this way, loses large quantities of its fertilizing elements, as a result of chemical decomposition, and the consequent evaporation of valuable gases. One German investigator found, in the case of horse manure which had been allowed to firefang, that it had lost nearly two-thirds of its nitrogen. This, of course, was an extreme case; but the results of the most careful experiments go to show that manure which has been allowed to ferment until it has become a soft cohesive mass, has lost from thirty to fifty per cent. of its most valuable constituents.

Again, there are those who go to the opposite extreme, and haul the manure direct from the stable and spread it on the fields in winter. Where the land is level or even where slightly rolling, if well underdrained, and not too deeply frozen, the practice is a good one. But, to spread manure in winter on the surface of very rolling land, especially when deeply frozen, is in my judgment a mistake. The soluble, and consequently most valuable portion of the manure is washed out by the melting snow and spring rains, and runs down over the surface of the frozen earth to the low places where it is least needed, leaving the hungry ridges with less than their proper share. I have noticed, too, that in the case of a stiff tenacious clay, this plan has a very bad effect on the texture of the soil, keeping it cold and wet, and causing it to work up tough and soggy in the spring.

Another mistake that we frequently make, is to plow manure down too deeply, especially on light soils. A fertilizer is of no use to the growing plant until it has reached that stage of decomposition in which its elements have become sol-

uble. When this has taken place, its tendency in the soil is downward ; and if plowed down too deeply, it will in the case of leachy soils, either be washed out altogether, or carried down too deeply to be of any considerable value to the crop. Granting, that, in a retentive soil, the manure will not be carried down any deeper than it is plowed, why compel the plant to bring its nourishment up from a depth of eight or ten inches ; instead of keeping it near the surface, when it would come into immediate contact with the feeding roots, and so nourish the plant during the early stages of its growth, when it most requires it. Cattle will not thrive if obliged to roam over large areas for sufficient grass; nor will plants flourish if obliged to forage in the bowels of the earth for the means of sustenance. ...

The mechanical effects are not so good when plowed in too deeply. If a heavy coat of coarse manure is plowed under in the spring, it interferes with the capillarity of the soil, and if plowed down too deeply will intercept the soil moisture before it reaches the roots of the growing plant. But if kept near the surface while it allows the capillary water to rise to the feeding ground of the crop, it will, by keeping the surface loose and free, tend to prevent under evaporation and loss.

Then, if it is desirable to keep the manure near the surface, why not top-dress? For, at least, one very cogent reason. Since a plant cannot avail itself of any fertilizer until it is dissolved, either by water or by the acids exuded by the roots, the only value of a top dressing in dry weather would be as a mulch. The only time the plant would derive any nourishment from the manure, would be when some passing shower would wash out a portion of its ingredients, and carry them down to the feeding roots; but, if incorporated in the soil, the moisture in the earth, together with the power that roots have in themselves to dissolve plant food, would ensure the crop a regular supply.

If I were asked to outline what I believe to be the best management of barnyard manure, I would say that it consisted in the use of sufficient absorbents to retain all the liquid, in the application of the manure as soon after makinng as possible, under no conditions allowing it to ferment, spreading it evenly, and working it evenly into the surface soil, either with a cultivator or by plowing it under with a very shallow furrow.

But even with the best possible system of management, the most one can hope to accomplish with farmyard manure, is to maintain the fertility. We cannot increase it to any appreciable extent, unless it is by the purchase of foodstuffs. Under present conditions, there is nothing to warrant the average farmer in very largely increasing his operations along that line. The margin for profit is too narrow to justify a man in putting up extensive buildings, with a view to carrying more stock than the farm will support, and buying food to make up the dificiency.

Happily though, we have an alternative in clover culture. I am convinced, that with a system of stock or dairy farming, in which all, or nearly all of the product of the land is fed on the place and the adoption of a short rotation, in which a clover sod is plowed under every four or five years, the fertility of the soil can be not only maintained, but steadily increased to its maximum limit.

So much has been said, and the great majority of our farmers are so thoroughly convinced of the value of clover, that, to introduce any further discussion of its merits would seem to be a waste of time and space, and yet there are many farmers working away on poor

worked out land, who feel that they cannot afford to expend the money necessary for clover seed and take the chance of losing a catch. To these I want to say, that the poorer a man's land, and the scarcer his money as a consequence, the worse he needs the clover seed. I admit, that on worn out land, and especially on land which is liable to suffer from drought, there is sometimes a risk of losing the seed. The only remedy I can suggest, is to keep on sowing it. The longer clover is grown on the same land, rotated of course with other crops, the easier and surer it is to grow.

The advantage of clover culture is perhaps most marked on soils such as I have mentioned. By increasing the humus content of the soil, its capacity to retain moisture and resist drough is correspondingly increased. Very heavy clays too, that are inclined to bake and run together, will be much improved in texture. Clover binds a light soil together and tears a heavy soil apart.

It may seem somewhat strange, but it is nevertheless true, that the more we remove from a clover field, the more we leave on it. It has been clearly proven that the roots of clover contain a great deal more nitrogen after having matured a second crop for seed, than they did immediately after the first crop was cut for hay. The attention of scientists was first drawn to this fact by the experience of some farmers in England. These men noticed that when a clover field was mown twice and all the hay removed the land would produce better wheat than when it had been mown once for hay and afterwards pastured off by sheep. They also noticed that if the second crop was allowed to mature its seed, the land was left in better condition than when it had been mown twice for hay. Some German scientists, after making a very careful investigation, found that these results were accounted for by the extraordinary development of roots while the clover was maturing its seed. It was found that between the time when the second crop was fit to cut for hay, and the time when the seed was ripe, the weight of roots per acre had more than doubled. The nitrogen had not increased in the same proportion ; but it was found to be as eight is to five in favor of the ripened clover. The total nitrogen in the roots of the ripened clover was 5.15 lbs. per acre, or enough to produce a very large crop of wheat from the clover sod alone.

In the light of these facts we are led to conclude, that with a system of agriculture in which the barnyard manure is carefully saved, and intelligently applied, and a judicious use is made of clover as a fertilizer, the Ontario farmer has little to fear from soil exhaustion.

This paper is already too long, and I have dealt, and that in a very superficial way, with only one phase of my subject, viz,—how to increase fertility by adding plant food to the soil. I must leave, until some future time, the discussion of that other equally important part, the control of soil moisture, and the rendering available, by drainage and cultivation, those immense stores of plant food already in the soil. For it is a fact, affirmed by science and borne out by practice, that the average soil contains a vast quantity of latent or inactive plant food, of which man can only avail himself by a system of thorough and scientific cultivation ; since by a wise restriction of Providence, the earth will not yield her increase, except as a reward for labor and intelligence.

KETCHEN.

"I see that your wife takes great interest in manual training."

"Yes," answered Mr. Meekton, gently, "and I'm the man."

Editorial.

With the re-opening of college, the Review staff is subjected to the inevitable reconstruction. For thirteen times this has taken place and each year, Review has seen the operation of new thoughts and new ideas. Each and all strove in the interests of the paper and each has been rewarded with a large degree of success so that the advancement has continued from year to year. The present staff greet their subscribers and hope that the progress of the magazine will continue unimpeded.

It is true a college paper can not hope to create the same interest as can many periodicals, but there is no reason why the Review cannot enlarge its present circulation and become a welcome visitor at many country homes. A paper founded on a basis so firm and true as Agriculture is bound to progress and should find a circulation not only among students and ex-students but among all interested in Agriculture.

Believing this we realize that there are as yet difficulties which beset our path. Much of the subject matter is of interest to few outside the college halls but unless considerable space is given to this phase of news the paper does not fulfil its mission. Realizing this it will be the aim of the management to give local topics their due consideration and to devote remaining space to items of more general interest.

We have again enlarged our magazine, and intend to devote the extra space to matter which will be of interest to all our readers. Besides the much appreciated articles from our ex-students we will publish essays from some well known authorities on literary and scientific subjects. Through the kindness of Prof. Lochhead we are able to present an interesting paper on "Nature Study in our Public Schools," which we know will be much appreciated.

To stimulate the interest of ex-students in this paper an editor has been appointed from among their number. Mr. T. G. Raynor has undertaken the work for the present session and it is expected that his successor will be appointed at the meeting of the Experimental Union in December.

As will be seen in another column, Mr. W. James Brown, B. S. A. '94, has set ex-students a worthy example in making a substantial donation to the new library. Mr. Brown's action is to be commended to ex-students who have the progress of their Alma Mater at heart.

On all sides we see new faces, while the halls resound with strange voices. The Review welcomes the new students, be they from far or near, and wishes them every success in their new sphere of action.

We publish a very interesting and instructive account of Canada's Exhibit at the Glasgow exhibition by J. McA. Russell '98. One year ago Mr. Russell was on the South African veldt upholding the honor of the college, now he is to be found in a responsible position near Singapore, Malay Peninsula.

Georgia is nothing if not original when it comes to rhymed obituaries. Here is the latest :—

He has climbed the golden hills—
Heaven was always his intention ;
Fought through the war, died with the chills
And never got no pension.

Athletic Notes.

Soon after the re-opening of the College a full meeting of the students was held for the purpose of discussing matters pertaining to the interests of the O. A. C. A. A. The absence of some of the students from College left offices vacant. These were filled and also two representatives were chosen by the freshmen to act on the Committee.

The following are the officers of the A. A. for the year 1901-02 :

Hon. President—M. W. Doherty, M. A., B. S. A.

Hon. Vice-Pres.—Morgan Harris, Esq.

President—E. C. Hallman.

Vice President—J. P. Cleal.

Secy.-Treasurer—R. E. Gunn.

Committee—Jacobs, Christie, W. H. Gunn, Barber, Dewar, Yeo and Suckling.

An important item of business transacted at this meeting was the raising of the fee to two dollars per annum, one for each term.

At a subsequent committee meeting it was decided to play rugby foot-ball for the year. R. Baker was chosen captain and we have no doubt but that under his able captainship the team will make good progress. The boys are now turning out with enthusiasm and striving to learn the intricate points of the game. It needs pluck and grim determination to do battle on the "gridiron," but I think we are safe in saying that these two qualities are possessed in no small degree by our players. The team has succeeded in securing the services of Prof. Harrison as coach. We are also glad to see Prof. Doherty, Prof. Rowson and "Billy" Squirrel jumping into the game with such enthusiasm.

As the close of the season is fast approaching due preparations should be made by each year for the inter-year struggle for the Marshall-Harris Cup. These games always arouse friendly rivalry between the Years.

We are safe in saying that all interest since the opening of college had been centered on Sports' day. The students looked forward to a good day of games and they were not disappointed. The sports were all that could be desired and all events were eagerly contested. Although the weather was somewhat threatening all day, the citizens of Guelph turned out in goodly numbers, showing that they take a keen interest in our annual sports.

A full list of the winners is as follows :

1. Standing broad jump—Atkinson, Weir.

2. Putting 16 lb. shot—Coglon, Calder.

3. Quarter mile—Sharp, Weir.

4. Putting 21 lb. shot—Weir, Calder.

5. Standing high jump—Atkinson, Coglon.

6. Running hop step and jump—Weir, W. H. Gunn.

7. One mile walk—Pickett, M. G. Williams.

8. Putting 16 lb. shot (open to students under 140 lbs.) R. H. Williams, Yeo.

9. Running broad jump—Sharp, Yeo.

10. 100 yds. dash—Sharp, Jacobs.

11. Three-legged race—Williams and Williams.

12. Running high jump—Atkinson, Weir.

13. Half mile run—Hallman, Newman.

14. Jockey race — Williams and Waters.

15. Hurdle race—Weir, Sharp.

16. Team race—Third year, represented by Galbraith, Newman, W. H. Gunn and Atkinson.

17. Obstacle race—R. H. Williams, Linklater.

18. 220 yds. race—Sharp, Yeo

19. Pole vault—M. G. Williams, E. B. Barber.

20. Sack race—Cleol, Yeo.

21. One mile run — Hallman, Pickett.

22. Consolation race—

23. Tug-of-war—Second year.

The championship was again won by J. Weir, he having also won it in 1900. "Jack" is a good all round sport and he deserves much credit for such good work. He was closely followed in the total of points by T. Sharp, who holds the honor this year of being a record-breaker. He reduced the college record for the quarter mile from 58 1-5 sec. to 57 sec. E. C. Hallman also made fast time in the half mile and mile runs, doing the former in 2 16 1-5 min. and the latter in 5 17 min.

Probably the most interesting event of the day was the tug-of-war between the second and the third years. The day before the Sophomores had won from the Freshmen and now it was left for them to uphold their victory from the Third Year, which they did in three straight pulls. Immediately on the conclusion of the games the presentation of prizes took place in the Gymnasium. The building was filled to the doors by the citizens of Guelph and the students. President E. C. Hallman very ably performed the duties of chairman. The badges were presented in a very graceful and pleasing manner by Mrs. (Prof.) Day, while the prizes were presented by the various gentlemen present. As each winner of a prize went forward to receive it, the spacious "Gym." rang with the yell of the victorious year.

In the evening the annual Athletic Supper was held in the dinner-hall of the college, and it upheld the record of the college, inasmuch as it was a grand success. The students, who throughout the day had striven in friendly rivalry now met to drink together the various toasts, and of these not the least important was the one to our Athletic Association, proposed by Dr. Mills and responded to by Prof. Doherty. In a few well chosen remarks Dr. Mills expressed his belief that a healthy body and a strong mind go hand in hand to carve out a way to success. Others of the staff spoke in the same strain and an interesting programme of music was supplied by Mr. Millar of Guelph and Mr. Cutting of the college.

In conclusion it may be said that sports day was from beginning to end a success which was largely due to the untiring efforts of the athletic staff and to the interest taken by the students in the sports. Also let us not forget the interest taken in the college sports by the citizens of Guelph as shown by the valuable prizes donated by them.

It is with great pleasure that we again refer to the presentation of a Trophy for a cross-country run, to be contested annually by members of the Athletic Association. Our association has indeed great reason to appreciate the handsome gift made by Messrs. W. A. Dryden and M. W. Doherty for this purpose. The winning of the handsome cup, which at present adorns our reading-room, can scarcely fail to be an incentive to systematic training for a hard contest, hoped for by the donors of the cup.

The rules and regulations governing the donation of this cup are :—

That this cup, the gift of Messrs. Wm. Dryden, of Brooklin and M. W. Doherty, Associate Professor of

Biology at the Ontario Agricultural College, shall for the time being become the property of the Athletic Association of the O. A. C., the Executive Committee of the said Association to become the custodians of the cup, and to become responsible for the safe keeping of the same and for the carrying out of the rules and regulations imposed by the donors :—

That the cup shall be competed for annually over a cross-country course chosen by the Executive of the O. A. C. A. A., which shall not be more than five miles in length, or as near that distance as possible.

That the date of the race shall be decided by the Executive of the A. A.

That all students who at the time of the race are registered as regular students shall be eligible to compete,—all points of dispute as regards this article to be referred to the Secretary of the College.

That the winner of each year's race shall have his name engraved upon the shield at the expense of the A. A.

That the cup shall become the property of the student who succeeds in winning the race three times in succession.

That a formal presentation of the cup to the winner shall be made each year at such time and place as the Executive shall decide upon.

That the Executive shall leave the cup for safe keeping in the hands of the Resident Master, until such time as the cup becomes the property of some student.

That the Executive Committee of the A. A. shall do all in their power to induce as many students as possible to train for the event in order that the physical development of the students which will result may be such as to justify the donation.

These rules and regulations may be amended by the Executive of the A. A., with the consent of the donors.

HURRAH FOR THE O. A. C.

Razzle, Dazzle : Hobble, Gobble :
Zip, Boom, Bab,
O. A. C.! O. A. C.!
Rah ! Rah ! Rah !

This was the yell that went up from the throats of nearly two hundred enthusiastic students of the O. A. C. on the evening of Friday, Oct. 18th, as the C. P. R. train pulled into the station of Guelph. The sound floated out on the evening breezes, was echoed down the streets of the city and the whole town became aware of the fact that the students were celebrating with noise and good cheer the victory won by one of their number, Mr. E. C. Hallman, at the annual games of Toronto University and Affiliated Colleges and were rejoicing in the very creditable showing made by the others of their track team, Messrs. Sharp, Weir, Dewar and Yeo at this meeting.

As soon as the train had come to a standstill the returned athletes were hustled on to the shoulders of some of their husky fellow students and carried up to the elevated platform of the station. The Honorary President then on behalf of the Athletic Association and student body as a whole extended to them a hearty welcome such as can only come from a loyal student body, and went on to say—" This has been a notable day in the annals of athletics of the Ontario Agricultural College. To-day for the first time in the history of our Alma Mater, we sent a team to compete in the games of Toronto University against the best amateur athletes of this province and we have succeeded in bringing honor to our college and in placing the name of E. C. Hallman on the athletic record of that University as winner of the mile

race, time 4 59. It is not more than two weeks since I said that it was my sincere wish that we would demonstrate that, the man who follows the plough is plenty fast enough to lead his brother students of Toronto, and this wish has materialized." Three such cheers as Guelph seldom hears were then given for each of the competitors and after a few words from Mr. Hallman a torch light procession was formed and the citizens were treated to an exhibition of spontaneous hilarity which will long be remembered. The procession then proceeded to the college where further demonstrations were indulged in.

Such a show on the part of the student body of loyalty to their Alma Mater and all that tends to bring her honor was a grand and encouraging sight. The effect of such occasions is far reaching and of fundamental importance to the growth and stability of our college. Next to mental improvement the cultivation of this "esprit de corps" should receive our greatest attention. After many long years, when the trials and battles of life weigh heavily the memory of such events as these will steal back upon us in some quiet moment and we will be transported back to our happy college days. Our hearts will beat rapidly as these scenes play across our minds and our devoution to our Alma Mater and its interests will always remain fresh and green.

DONATION TO THE LIBRARY.

In a letter recently received from Walter James Brown B. S. A., '94, L. L. B., he states that he is much interested in the development of the new college library, and as a manifestation of his interest donates six volumes of Loderbeker's new Natural History, in half morocco. The Review wishes to convey the appreciation of the students of Mr. Brown's gift. This is a most gratifying expression of the loyality of the ex-students to their Alma Mater.

Locals.

They fled from before the plague. Yea verily thus did the two seniors; and they dwelt for a space amidst strangers. But in the silent watches of the night the earthquake o'er took them and they were undone. Truly it is not so far to the floor from a high bed under normal conditions as from a low one when helped out.

All first year students are desired to attend the post-social demonstrations held at intervals in the city. Those, however, who get lost in the neighbouring country whilst engaged in the discharge of duty and are thus unavoidably detained will be excused.

Room No. 65.—Fenders will be received at the above address for the construction of a fence around the swimming bath, the same to automatically adjust itself in this position immediately on the putting out of the light and to collapse when bath is lighted up.

Galbraith in Literature Class.—Since Macbeth was first cousin to Duncan, the king, how was it that he and his wife were brother and sister?

Lie still, Evans old man, the barber will not hurt you.

Moorehouse—Swelled head did you say? Well! who would have thought it of him?

Mauritius—By gad, gentlemen you must open your mouths when you speak French.

Professor of Entomology:—Remove the grass-hopper's lower jaw and examine it carefully.

Prettie:—(Sotto voce)—Too small—ought to have hog's heads.

Scene Lower Panton—4.10 a. m.—A Young, Suckling, Yeo persuing rat.

5 a. m.—Pursuit continues, reinforcements called for.

6 a. m.—And the villains still pursued it.

7 a. m.—The rodent brought to bay in room 79—guard stationed—pursuers dress and partake of refreshments—strength regained—attack renewed—

7.15 a. m.—A Sharp Frenchman discovers an innocent rabbit.

(C. M. MacRea.) How President Mac smiles at mention of St. Margarets.

Professor ;—Any more gentlemen whose names begin with " C ? "

G— — — " Dewar."

Say, boys ! Try F. A. Young, the new photographer, McDonnell St. He can please you.

" Dysart had the " right " of it."

Scene.—(Tent on campus—third-year men within,—second-year man appears, carrying cup)

Third-year—" O it's for the rope !

Second-year—" Molasses " (Lets curtain drop,)

Third-year—"O its for the rope ! What guys ! They don't know what to put on." Query ?—

How long it took Col. Peters to inspect No. 1 Company ;— ?

Even the Great O'Grady-Haly said ;—" Well done."

Most soldiers find one attack per day quite sufficient, nevertheless our boys declared two hard " tacks " not nearly enough.

By the Camp Fire ;—" 'Twas bad enough at the college, but this " grub " is even worse."

Nothing like an umbrella to keep off the rain ; so Irvine says and we all bear witness that he has reason to know.

Rivett—(as waiter places pudding on the table) Is this chicken-feed ?

Voice from afar—Yes ; have some.

Overheard the night of the social—" The long to the short of it—" Will you go (Hugo) to Knox Church again ?"

Should gentlemen make the night hideous by practising their year-cry, when coming home from entertainments ?

(F. H. Reed) Third-year student —" You have a bright first-year."

First-year student — " Yes, Albright."

Russel, as he passed out the pudding-dish — " I wonder if square meals would ever make me round."

Despite numerous practice runs of the first and third-year teams to the city and dairy—Cobb—the second-year motto ; " Hoe your own row but watch the nod(le) of your trainer," won the day at tug-of-war.

Mr. Cooper and our Dean seem to have diverse ideas on the subject of pie(ate)y.

Mr. Linklater, in lecture on Agriculture—" Can a drone have a grand father if it does not have a father ?"

Personals.

J. Harcourt and wife called at the college on the 19th ultimo.

Lieu. Wigham '95 married a very wealthy English lady during the past summer. He had the further good fortune to fall heir to the sum of £80,000. In the future Mr. and Mrs. Wigham will reside in England.

During the past summer there has been added to the O. A. C. staff of officers M. Cumming, B. A., B. S A., in the Agricultural Department; W. C. McCalla, B. S. A., in the Department of Physics; T. Jarvis, B. S. A., in Department of Biology; Dr. Streit, V. S., late of Berne University to the Department of Bacteriology; Miss Rowsom, B. A., librarian and teacher in languages; G. A. D. Hunt, to the Department of Poultry.

Gunner Walter Bapty '99, of London, Ont., the youngest soldier in service in S. A., called at the college recently. He is now taking matriculation work at the London Collegiate.

W. N. Hutt, B. S. A., '98 and G. A. McIntyre, B. S. A., '99, were about the college on the 9th inst.

Claude Snider '97, of Atercliffe, was recently married to Miss Catherine Bradshaw. Mr. Snider was champion out door athelete during his college days and made some of the college records. "The Review" and the O. A. C. A. A. extend the customary wishes.

While attending the Pan American Mrs. Craig and Mr. R. D. Craig accidently met Mr. and Mrs. Robt. Shaw of Montana.

E. E. McCallan, a former student was recently married.

The '02 class consists of the following: Messrs. Black, Carson, Christie, Hallman, Jacobs, La Pierre, Morehouse, Murray, Pickett, Williams and Waters.

J. H. Burns '95, is again in attendance at lectures.

Mr. F. W. Hodson, Dominion Commissioner of Live Stock and Mr. Peterson Deputy Minister of Agriculture for the Teritories, were about the college recently.

It is the unanimous opinion of those who were in a position to judge, that the College Battery made the best appearance at the parade before the Duke and Duchess in Toronto on the 9th inst.

Readers will be pleased to learn that Prof. Harcourt has succumbed to the inevitable and in the words of Prof. Doherty, "has closed his eyes upon the light of his bachelor days, is now dreaming dreams of happy fireside scenes and listens to the far away chatter of children's voices."

I. N. Beckstedt, B. A., for the past three years Dean of the residence here, has resigned his position in order to further pursue his studies at Queens. He is succeded by Mr. W. J. Rutherford who we feel will fill the position to the satisfaction of all concerned.

In Toronto the Duke of Cornwall presented the following ex-students with medals for service in South Africa: G. McCalla '95, C. Kidd '96, W. C. Semple '96, J. K. Greenfield '96.

J. McLean of last year's second year was recently married to Miss L. McCallum of Niagara Falls. The ceremony was quite private and the young couple immediately proceeded to Ailsa Craig where Mac will be found busily engaged upon one of the best farms in Middlesex County. "The Review" joins their many friends in the wish that their voyage upon the matrimonial sea may be characterized by sunshine, few storms, and healthful breezes. May their cares be little ones.

T. F. Patterson, B. S. A., is also among the number of our ex-students who have recently committed matrimony. On the 16 inst. at the residence of the bride's father, Victoria, B. C., he was married to Miss Olive Tait. Mr. Patterson is engaged in the lumbering business in Victoria.

Mr. Pikert Hungarian, Commissioner of Agriculture to the U. S. and Canada, paid the college a visit quite recently. He was very highly pleased with Ontario's Agricultural College and thinks its methods, equipment and work superior to anything of the kind that he has visited.

J. Buchanan, B. S. A. '98, after spending the summer in Manitoba, has returned to the office of the Experimental Department.

W. A. Linklater B.S.A., '99 called on his old friends here a few days ago on his way home. Link has been managing a farm in the neighborhood of Ottawa.

College Reporter.

The vacation of 1901 has come and gone, and again the hum of student life resounds through the halls of the O. A. C. The doors of the college were thrown open on Friday, Sept. 13th, to admit the incoming students, and the confusion of trunks, boxes, &c., piled up on the back verandah foretold a large attendance for the coming session. The majority of those who came in on the opening day were freshmen, intending to write the Enterance Examination the following day. They were met at the depot by a deputation of the Y. M. C. A. who welcomed them as fellow-students and directed them to the college. The number of new students on the roll is the largest in the history of the institution, and the results of the Entrance Examination indicate that among them are many who will be a credit to the college. Eleven have returned for their fourth year, sixteen for their third, forty-six for their second, and these with ninety-five freshmen and seven specialists make a total attendance of one hundred and seventy-five.

The work on the two new buildings, Massey Hall, and the Biological Laboratory is now progressing rapidly and when completed, they will be magnificient structures, and will add much to the appearance of the campus, as well as being valuable additions to the institution. Notwithstanding the advantages which will certainly follow the erection of these buildings, much disappointment is felt by the students because they are not nearer completion. There is no suitable place for roll-call, and no good is derived from the library—a serious loss to the students, as the supplemental reading is a valuable adjunct to the class-work. The contractor expects to have Massey Hall ready for use at New Years, and it is earnestly hoped that his expectations will be realized.

Since spring many changes have taken place in the residence. Old No. 1, scene of many a morning prank is divided off into offices; the old library and museum are made into dormitories and a post-office is installed in a portion of the reading-room. This last is an excellent arrangement as each student may have a mail box of his own, and thus the annoyance of distributing the mail in the dining-hall is obviated. The new rooms for the students are very satisfactory as to furniture, heating, lighting and ventilation, and we hope that ere long the students will distinguish the new street with a suitable name.

The Literary Society has been reorganized upon a very different basis from that of past years. It is now sub-divided into three societies which are known under the names of the Delphic, the Alpha and the Maple Leaf Societies. The Delphic and Alpha Societies are composed of the members of the old Literary Society and the Maple Leaf Society is composed of the first year students. Although each society has its own officers the whole Literary Society is under one general management, the officers of which are:

Honorary-President—W. J. Rutherford.

President—W. J. Black

Vice-Presidents—A. Atkinson and A. P. Ketchen.

Secretary—W. T. McDonald.

Treasurer—B. J. Waters.

In the stock-judging competition at the three leading exhibitions of the province, the students and ex-students of the college have done remarkably well, as they succeeded in carrying off seventeen out of the twenty cash prizes at Toronto, as well as a number of the prizes at London and Ottawa. Below is given a list of those who won prizes:

Toronto Industrial—Horses: 1, B. J. Waters; 2, B. C. Gilpin; 3, R. H. Williams; 1, S. M. Galbraith. Dairy Cattle: 1, J. Ferguson; 2, B. C. Gilpin; 4, R. H. Williams. Beef Cattle: 1, A. Crearer; 3, F. S. Jacobs. Bacon Hogs: 1, S. M. Galbraith; 2, F. S. Jacobs; 3, R. H. Williams; 4, J. Ferguson. Sheep: 1, R. H. Williams; 4, J. Ferguson.

London Exhibition—Beef Cattle: 1, L. A. Moorhouse; 3, H. M. Weekes. Dairy Cattle: 3, H. M. Weekes. Bacon Hogs: 1, L. A. Moorhouse.

Ottawa Exhibition—Dairy Cattle: 1, H. Barton; 2, N. F. Wilson; 3, H. Craig. Beef Cattle: 1, N. F. Wilson; 2, H. Craig; 3, C. Craig. Bacon Hogs: 1, N. F. Wilson; 2, H. Craig; 3, G. H. Hutton. Sheep: 1, G. H. Hutton; 2, L. S. Klinck; 3, H. Barton.

Exchanges.

In this issue we acknowledge the receipt of "The Cornwall Freeholder," and the "Ottawa Valley Journal," we have also received the "Kansas State Agricultural College Herald" and the Michigan Agricultural College Record. Both are bright, racy organs of their respective Colleges. Doubtless the other colleges have elected their board of editors and we may expect their first editions in the near future.

"Judge," your manly form is in great demand to extricate from the meshes the venturesome freshman. Any of the students of '05 would furnish the missing link.

The bull in the china shop never did more damage than the crane in the Agri. College. (Systematist.) Better clip his wings.

Give as much as possible of your time and energy to your Literary Society.

A Night in the Woods.

By Rev. J. W. McMillan, M.A.

This is a story told me one night by my friend Maclean. We had met on the bridge across False Creek in Vancouver, B. C., and stopped to have a little chat. Maclean has been a prospector for twenty-five years. As they say on the Pacific coast, what he doesn't know about finding gold isn't worth knowing, and whoever buys Maclean for a fool will get sold in his bargain.

Now Maclean is rather a small man, and of a very good-humored and peaceable disposition. He dresses in ordinary clothes. He doesn't carry a six-shooter. He makes no attempt to render his language picturesque with strange slang and oaths. He goes to church when he is near one. He is a business man and looks and acts like one, even though his business sometimes leads him into adventures very different from the ordinary experiences of trade.

"Mr. Maclean," I said, "what do you do when you spend a night alone in the woods?"

"Why," he answered "I make as comfortable a bed as I can and go to sleep."

"And are you never afraid of the wild beasts?"

"Never, I know that there are many grizzlies and panthers in the mountains. But I never let my fire go completely out. It is very seldom that a beast attacks a man unless he is wounded. I have spent months at a time alone and far from anybody else and have never been molested."

"But you carry plenty of firearms, do you not?"

"Seldom have a gun with me. Firearms are heavy to carry, and unless you are hunting half the time, of very little use to procure food. One night, however," he added after a pause, "a queer thing happened to me." "Tell me about it, if you don't mind," I said.

"Well," he started, "it was about a year ago. I was living that winter up in Cariboo. There was nothing doing in Barkerville, so I thought I would spend a few weeks up at the head waters of Granite creek. I didn't expect to find anything, you know, in the winter, but I thought perhaps I might. So I bought a lot of stuff to eat, packed it on a sled, put on my snowshoes and started off.

"It was after dinner before I got away, so I only went about six miles that afternoon. As it got nearly dark I came to a little clump of spruce trees, just the place for a camp. The trees were easily chopped for firewood and the branches would make a soft bed; I noticed that the ground had been pretty well tramped by some sort of beast, but, of course, thought nothing of that.

"Well, I lit a fire and cooked and ate my supper. Then I cut up a pile of wood to last me till morning. Then I made a nice soft couch of the branches, put a good supply of wood on the fire, and crept into my blankets. I laid my axe on the boughs beside me, drew my knife from its sheath and let it lie at my hand, then covered my head with the flap of the blanket. That is the way I always sleep.

"A fellow who sleeps out at night gets used to waking up at the right

time to put more wood on the fire. I had just wakened and was going to get up when I heard a noise that made me lie still and listen. It was some heavy animal coming toward me. He was coming fast too, for the branches were crackling before him and he was breathing heavily. Said I to myself "It's a panther." You know, sir, that isn't the meaning of the word, a panther doesn't pant any more than any other creature; but I was half-dazed between sleep and alarm, so it came into my head that it was a panther panting after its prey. So I lay still thinking it would see the coals of my fire and sheer off.

"But it came right on, and before I had made up my mind what to do I felt it light right on my feet. It stayed there and turned round and growled and panted harder than ever. I knew what to do now. I kept as still as death. I didn't know what it intended to do, but it would have been madness for anybody wrapped in a tangle of blankets to provoke the fierce brute.

"Then it began to come up towards my head. I could feel it all the way, for it came with one foot on me and one drawing down the blanket beside me. It came very slowly and the time seemed hours long to me. Yet I daren't move. It stopped once or twice on the way and growled again. At last it stood right across my head with its heart beating and thumping right on my ear. How I wished I had had a revolver! I could have shot it dead from inside the blanket. But I knew that before I could get my hand with the knife free from those blankets it would have had time to claw me to ribbons. So I lay quite still.

"Then all of a sudden, it gave a bark. And all round a chorus of barks and yelps began. I jumped up on my feet, for I knew I was safe."

"Why, what was it?" I asked.

"A dog chased by a pack of wolves. He was a big black fellow, Newfoundland I suppose, and had lost his way from the Yale road, and gotten a pack of those cowardly brutes on his heels. And he had come to the man and the fire for protection. I tell you he was glad to find me, and I tell you I was glad to find out he was not a panther, but a dog."

"Did he stay with you long?" I asked, scenting some tale of a long attachment thus romantically begun.

"No, after I fixed up the fire and the wolves ran off, he lay down beside me as I went to sleep again. When I woke in the morning he was gone. Went at the first streak of daylight, I suppose."

Lindsay, Ont.

—The King's Own

The Manhatten College has heard the rumble from the farms and has decided to cut a few Greek verbs and add $75.00, to the Agricultural department of the institution. (Exchange.)

Students arrange your business in town so that you may be at liberty to attend the rugby practices on Mondays, Wednesdays and Saturdays.

Watch our next issue for a brief review of the second annual report of the Canadian Forestry Association.

The lone wand'rer no longer walks the floor,

'Tis hoped his nightly vigils all are o'er.

The Faculty of Observation.

"Gentlemen, you do not use your faculties of observation," said an old professor, addressing his class. Here he pushed forward a gallipot containing a chemical of exceedingly offensive smell. "When I was a student," he continued, "I used my sense of taste." And with that he dipped his finger in the gallipot and then put his finger in his mouth. "Taste it, gentlemen—taste it," said the professor, "and exercise your perceptive faculties." The gallipot was pushed towards the reluctant class. One by one the students resolutely dipped their fingers into the concoction, and, with many a wry face, sucked the abomination from their fingers. "Gentlemen, gentlemen," said the professor, "I must repeat that you do not use your faculties of observation; for, had you looked more closely at what I was doing, you would have seen that the finger which I put in my mouth was not the finger I dipped in the gallipot." —Home Journal.

Plants as Barometers.

To foretell the weather by means of flowers and plants is quite an interesting study. If the marigold does not open by seven in the morning it is certain to rain, and also thunder. If the flowers of the winter-green droop it is going to rain; and woodsorrel doubles its leaves before a tempest, foretelling a clear sky by extending. Different species of trefoil always contract their leaves at the approach of a storm. It will rain the whole day long if the flowers of the chickweed are closed up, but it will be fine if they open widely, and showery if the flowers are half concealed by their green mantle. Wet summers are generally foretold by an uncommon quantity of seeds on the white thorn and dog rose.

His Broken Leg.

The proceedings of the Royal Society of London were not taken so seriously a hundred and fifty years ago as they are now. A sailor who had broken his leg was advised to send to the Royal Society an account of the remarkable manner in which he had healed the fracture. He did so. His story was that, having fractured his leg by falling from the top mast, he had dressed it with nothing but tar and oakum, which had proved so wonderfully efficacious that, in three days, he was able to walk just as well as before the accident.

This remarkable story naturally caused some excitement among the members of the society. No one had previously suspected tar and oakum of possessing such miraculous healing powers. The society wrote for further particulars, and doubted, indeed, whether the leg had been really fractured. The truth of this part of the story, however, was proved beyond the shadow of a doubt. Several letters passed between the Royal Society and the humble sailor, who continued to assert most solemnly that his broken leg had been treated with tar and oakum, and with these two applications only. The society might have remained puzzled for an indefinite period had not the honest sailor added in a postscript to his last letter:—

"I forgot to tell your honors that the leg was a wooden one."—Harper's Round Table.

A Progressive Age.

Next year we may expect to read something like the following in the daily paper: about ten o'clock this morning a horseless milk wagon, loaded with cowless milk, collided with a brainless rider on a chainless wheel. The luckless wheelman was badly injured and being homeless was taken in a horseless cab to the home for the friendless.—Ex.

Awful Affliction.

Junior Partner—I received a note from our bookkeeper this morning saying that he wouldn't be able to come to work for several days.

Senior Partner—What's the matter with the man?

Junior Partner—His wife has been cutting his hair.

Doctor, what do you think is the matter with my boy?"

"Why, it is only a corrustificated exegesis antispasmodically emanating from the source of the animal refrigerator, producing a prolific source of irritability in the pericranium, blunting his mental profundity."

"That's about what I told Betsey, but she 'lowed it was wurruns."—N. A. Medical Review.

Farmer (starting home from the station:) Please, ma'am, do you wear false teeth? Fair visitor (for the summer): Sir! Farmer: Oh, I don't mean to be curious. Only this road is a leetle rough, and if your teeth ain't good and fast you'd better put 'em in your pocket.

Sleeper.

A sleeper is one who sleeps. A sleeper is that in which the sleeper sleeps. A sleeper is that on which the sleeper which carries the sleeper while he sleeps runs. Therefore, while the sleeper sleeps in the sleeper the sleeper carries the sleeper over the sleeper under the sleeper until the sleeper which carries the sleeper jumps over the sleeper and wakes the sleeper in the sleeper by striking the sleeper under the sleeper, and there is no longer any sleeper sleeping in the sleeper of the sleeper.—Worthington's Magazine.

At a restaurant a group of gentlemen were discussing politics. A young fellow entered and joined in the conversation, but his argument did not please the others, and one of them said to him—

"Be quiet! At your age I was an ass myself!"

"You are wonderfully well preserved, sir!" was the immediate and crushing reply.
