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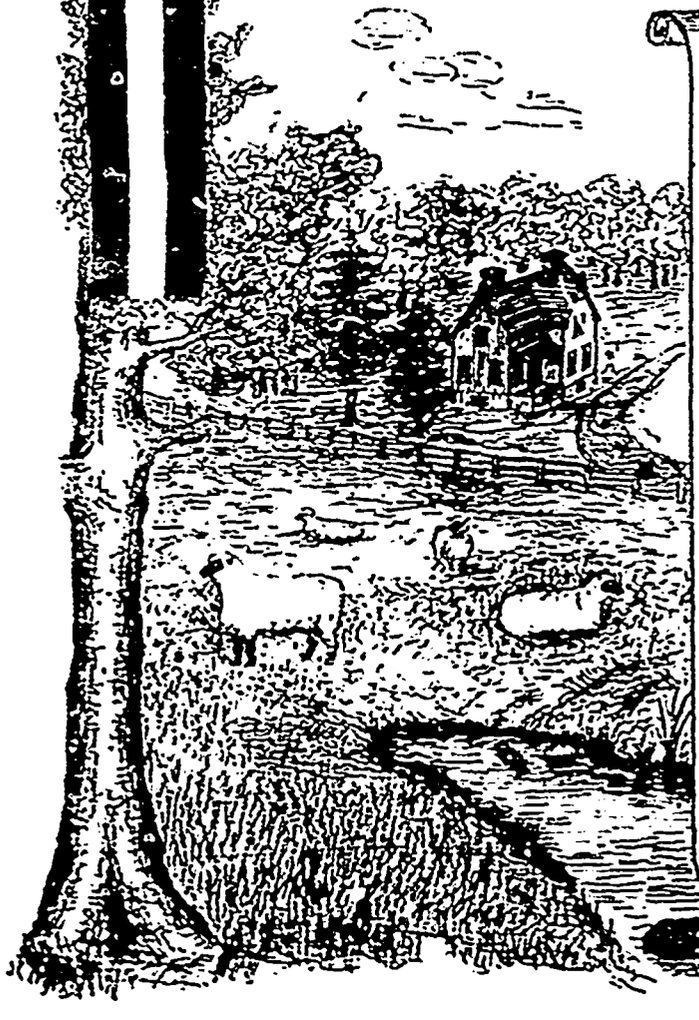

Contents.

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The O. A. C. Review

The Dignity of a Calling is Its Utility

VOL. VII. ONTARIO AGRICULTURAL COLLEGE, GUELPH, DECEMBER, 1895. No. 3

Editorial.

EXPERIMENTAL UNION.

THE annual Experimental Union of the students and ex-students of the Ontario Agricultural College, was held at the College on the 12th and 13th insts., and it was certainly the most important and most successful meeting ever held by the members of that now large and influential body. Never before in the history of the Union has there been gathered within the halls of their Alma Mater such a large and enthusiastic number of her ex-students. Never before has there been exhibited such a keen interest to further the interests of the Union in every way possible. Ex-students who, from circumstances of different kinds, have been prevented from visiting the College for a number of years, were astounded at the wonderful advance the institution has made in providing better facilities for the imparting of a knowledge of the principles which underlie scientific agriculture. Noted visitors, from the United States and elsewhere, who were present at the Union, expressed themselves as delighted with our equipment and course of instruction. Representatives from sister Agricultural Colleges and Experimental Stations in the United States, heartily approved of our annual re-union of students and ex-students, as a means of keeping ex-students in touch with their Alma Mater: and through the carrying out of experimental work by them in furthering the advancement of science along agricultural lines.

The work of the Union is increasing every year. During the past year, over 2000 experimenters, composed of ex-students and other agriculturists, have experimented along agricultural lines. Reports of the successful ones have been taken note of by the different directors of the Union, and will appear in the Annual Report of the College for '95. The Government grant to the Union was increased $250.00 last year, and an increased grant means increased experimental work, and thereby the furtherance of agriculture. Every dollar of the grant has been wisely and economically expended, and it is to be hoped that the Ontario Government, which has done so much for the agriculturists in the past, will see their way clear to still largely increase the grant for the year 1896. The grant for '95 was $950, and with the increased membership, we hope it is not too sanguine on the part of the Union, to look for $1,200 for the coming year.

Many of the ex-students were unable to attend the Union this year, and some sent letters of regret at not being able to be present. A large number, who carry on experimental work and are members of the Union, live at too great a distance from the College. In fact it may be said they are scattered far and wide. Throughout this country, from the verdant slopes of British Columbia, washed by the "calm Pacific," to the shores of that fertile island, Prince Edward, lashed by the breakers of the Atlantic, are to be found representatives from this institution. Several of the States of the Union south of us have claimed a large number, and in the words of Dr. Myers, of Indiana, "They want more." Some of them have gone back to practice agriculture in the British Islands, while others uphold the name of the College in Bermuda and other islands of the sea.

In closing, we will say to ex-students who were unable to be in attendance, that they missed a rare treat. The programme of addresses was of a high order. The Annual Supper and addresses afterwards by students representing the years intervening between 1874 and 1895, was a decided success. Along the corridors in the evening were to be seen groups of ex-students of some particular year, rehearsing old College times, and comparing notes as to what they had been doing since they left. Many of the "old boys" renewed acquaintances in the city and elsewhere, some remaining over until the following Monday. All left satisfied with the Union, the College, and themselves, and many of them will no doubt return next year. Let there be a grand rally at the meeting of '96. Every ex-student should make strenuous efforts to be present. Deprive yourselves of some other enjoyments so that you may see your way clear to visit, at least once a year, the Agricultural College. Read the accounts of the meeting and addresses in the agricultural papers of Ontario, study them carefully, come up next year, and the "Union will do thee good."

* * *

THE REVIEW has been enlarged four pages this month. It was thought at one time that the staff would be enabled to present it with a new dress for Xmas, but want of time and money, prevented them from doing so. The examinations close on the 20th inst. and the staff considered it advisable to have the REVIEW published a week earlier than usual. We call the attention of our readers to the articles from the pens of some of the professors and especially to the one by Pr. Mills which was delivered at the Annual Supper. The staff now lay down their pens for the year '95, and close by wishing our many readers a Merry Christmas, a Happy New Year, and many returns of the season.

Words of Advice from President Mills.

In answer to the question, "How can the ex-students of the Ontario Agricultural College make the best use of the lessons learned during their College course?" Dr. Mills delivered the following address to the ex-students and students at their annual supper, Dec. 12, 1895. In offering it to our readers we hope and feel that they will give it a careful perusal. It contains words of sound advice, which all ex-students will do well to take into serious consideration. Coming, as it does, from one who has made a success of life, it cannot help but have a lasting influence on the lives of those who have a personal acquaintance with the writer.

1. **Do not find fault with what you see around you.** You may notice bad methods, poor appliances, and the most striking evidence of neglect and mismanagement—things deserving the severest censure; but you must hold your tongue. Farmers will not take advice from beardless boys, nor even from well developed young men, if they are fresh from College.

2. **Improve your farm.** Do much, say little. Instead of finding fault and giving advice, take off your coat and go to work. Do something. Make an intelligent, persistent effort to improve your farm. There is great room for improvement on many farms. The soil is poorly cultivated, weeds are plentiful, fences are out of repair, and things about the farm buildings present an appearance of the most discreditable neglect—stones here, sticks there, a pile of rails or boards yonder, and an old sleigh or a broken implement somewhere else—all seeming to say that the owner is lazy or devoid of taste. Untidy men ought to give up farming. They are a disgrace to the beautiful country in which we live; and, like the old Quaker, I am disposed to say that the man who allows wild mustard, wild oats, quack grass, or other noxious weeds to take possession of his farm, is working too much land, is lazy or does not understand his business.

Straighten and repair your fences; then keep them in order. Remove all piles of stones from your fields; you can haul them away to the woods or somewhere else in winter. Rest not, night or day, till your farm is clean—till you have all noxious weeds thoroughly under your control and most of them destroyed. Tidy things up and keep them tidy, around your house, in the yards, and about the farm buildings; and plant some trees (maple, elm, pine, and spruce) to shelter and adorn your home.

3. **Implements.** Take good care of your implements and do not buy any more than you really need. The annual waste under this head throughout the Province of Ontario is enormous. Implements of various kinds—plows, harrows, waggons, &c., left out, exposed to rain, frost, and snow! What a disgrace, and what a loss to the owners! Yet many incur this disgrace and suffer the loss involved therein; and such men, young and old, often have a weakness for buying implements which they could do without, getting them on credit and wearing them out before they are paid for. Do not be guilty of such folly. Keep all your implements, waggons, sleighs, and carriages under cover. Keep them in good repair; and let no one persuade you into buying what you can do without till you have the money in hand to pay for it.

4. **Attend closely to your business.** Hard work is the price of success in all honest vocations; and, in these days of low prices and intensely keen competition, the man who frequents hotels or spends much time away from his farm, need not expect to succeed.

5. **Be Punctual.** Punctuality is an important factor in all kinds of business, and it is to be regretted that farmers generally are looked upon as less prompt and punctual than men in commercial and professional life. Lying is among the disgraceful vices. Men everywhere resent the imputation of falsehood; and yet a great deal of practical lying is done in every-day life by persons, young and old, who thoughtlessly make promises which they neglect or forget to fulfil. Think before you make promises or enter into engagements; then keep your promises and fulfil your engagements to the letter.

6. **Make up your mind to be something more than a mere laborer.** Many farmers' sons in this province are not making a good use of their time. Far too large a proportion of them are living very listless, useless lives, not well satisfied with their position, but doing little or nothing to improve it, going through the dreary routine of their daily life—eating, working, sleeping, sleeping, eating, working—without any well-directed effort to rise above the condition of mere laborers. Labor is honorable, and no one is degraded thereby; but human muscle alone counts for very little in these days of steam and electricity—very little in the keen competition and amidst the unceasing progress which we see in almost every line of human activity. If any of our ex-students have been dreaming in Sleepy Hollow, we would urge them to wake up, open their eyes, and look around. Those who do so, will be surprised at the great changes which have taken place since they fell asleep.

7 **Observe, read, and think.** In every community, the educated classes are the ruling classes:

> For just experience tells, in every soil,
> That those who think must govern those that toil.

Your education is very defective and you are doing nothing to improve it. Begin to read. Nearly all great men are great readers. It is not necessary to go to a High School or a College to get an education. Some of the best educated men in the country are self-educated—self-made men, and you can acquire a good education, if you will only observe, read, and think. Read papers, magazines, and good books. Read closely, read thoughtfully, and think over what you read. It is wonderful what a man with even one talent can do, when he makes a good use of his time.

8. **Take at least one agricultural paper.** You need the information contained in such a paper. It will be of much practical value to you—value in dollars and cents; and, without it, you cannot keep in touch with the leading agriculturists of the country.

9. **Attend meetings in which matters pertaining to your own occupation are discussed or illustrated,** such as meetings of the Farmers' Institute, the Horse Breeders' Association, the Cattle Breeders' Association, the Sheep and Swine Breeders' Associations, the Dairymen's Association, the Creameries' Association, the Fruit Growers' Association, the Poultry Association, and the Bee-Keepers' Association; also the annual Fat Stock Show, and one or two of the leading fairs—not all of these, but as many as you can, and especially those which bear most directly upon your special line of work. But

do not spend too much time at fall shows, to the neglect of fall work.

10. Take some part in the affairs of your township, county, and province, and of the Dominion also. Be not a blind follower of any party. Do your own thinking in such matters; and, if need be, sacrifice a little, to put the best men into positions of trust and responsibility and to keep professional demagogues from ruling thy country.

11. Keep out of debt. Sensible people respect the young man who wears rusty, threadbare clothes and drives in an old buggy or democrat till he gets the means to buy something better. Such a young man has a chance of success, while the one that borrows money to purchase clothes, carriages, implements, or anything else (unless in rare and exceptional circumstances) is almost sure to become a hewer of wood and drawer of water for some money-lender or loan society. Whatever you do, live within your means and pay as you go. Have nothing to do with mortgages or promissory notes. Get some interest if you can, but do not pay any.

I shall not speak to you about religion and sound morality (strict truthfulness, scrupulous honesty, &c.) as the true foundation of success on the farm as elsewhere. I assume that this important fact is impressed upon your minds from week to week.

Pooling Milk.

UNTIL within the last two or three years, milk delivered at the cheese factories was paid for according to weight alone. The quality of milk was not considered. One hundred pounds of a three per cent. milk was considered worth as much money as one hundred pounds of milk of any other percentage of fat. Now this method of paying for milk is not fair unless the cheese producing powers of equal quantities of milk of different percentages of fat are equal. For example, will one hundred pounds of one milk produce as much cheese as one hundred pounds of another milk richer by 8% fat? The poorer milk will not yield as much cheese as the richer milk. In our factory tests this season 44089 lbs. of milk, made up of 22194.5 lbs. of practically 3.2% milk, and 21894.5 lbs. of 4% milk, yielded 4217.75 lbs. of cheese. Assuming that equal weights of these two lots of milk yield equal weights of cheese, the 3.2% milk would be credited with 2123.2 lbs. of cheese, and the 4% milk would be credited with 2094.5 lbs. of cheese, while the former actually yielded 1983 lbs., and the latter 2234.75 lbs. By assuming that equal weights of the 3.2 and 4% milk yield equal weights of cheese, the medium milk is credited with 140 lbs. more cheese than it actually made. What does this mean? It means that Patron A, sending 300 lbs. of 3.2% milk per day, receives, every three months, at least 140 pounds of cheese or $11.20 belonging to patron B. who, during the same time, sends 300 pounds of 4% milk per day. This method of paying for milk delivered in cheese factories is glaringly unfair. It should not be practiced in any factory.

By the use of the Babcock tester, it is practical to determine, in factories, the percentage of fat in milk. Composite samples of the patrons' milk may be tested by the Babcock tester, once a month. Having thus a ready and practicable means of determining the percentage of fat in each patron's milk, by multiplying the percentage of fat in each patron's milk by the number of hundred pounds of milk delivered by each patron respectively, the total number of pounds of fat delivered by each patron, are known. In many cheese factories, both in Canada and the United States, butter fat has been introduced as a better and fairer method of paying for milk than the old method, that is by pooling the milk. This is a step in the right direction. It recognizes the difference in the cheese-producing power of poor, medium and rich milk. But, while much better than the old method, it makes too great a distinction between what may be called poor and rich milk. Very extensive tests, jointly conducted by the chemical and dairy departments, show, practically, .3 of a pound of cured cheese less per pound of fat made from a 4% than from a 3.2% milk. The greater the difference in the percentages of fat of different lots of milk, the greater is the difference in the yield of cheese per pound of fat. It is claimed by some that the cheese from richer milk will sell for more than the cheese from medium milk, which increase in price equalizes matters, leaving fat a fair and satisfactory basis of paying for milk in cheese factories. In my opinion, based upon many tests, the fat basis alone puts too great a premium upon richer milk.

If Casein in milk increased as fat, there would not be this fault in the fat alone as a basis in paying for milk in cheese factories. Casein in milk, which, like fat of milk, enters into the cheese, influences the yield of cheese. Now while the quality as well as the weight of the milk must be considered in estimating its cheese-producing power, fat alone does not determine its quality for cheese production.

Take for illustration, the ratio of cheese to the fat and the casein in milk. In the former, the average of many tests shows 2.784 lbs. of cheese per pound of fat in 3.2% milk, and 2.498 lbs. of cheese per pound of fat in 4% milk. But in the latter, the same averages show 1.602 lbs. of cheese per pound of fat and casein together in 3.2% milk, and 1.511 lbs. of cheese per pound of fat and casein together in 4% milk. To make the fat basis alone practicable, the cheese from the richer milk would need to command a considerably higher price. If it cannot be shown that the increased value of cheese from medium milk, compensates for the increased yield of cheese per pound of fat in medium milk over yield of cheese per pound of fat in richer milk, then the fat basis, although better and fairer than the pooling system, is not the best and fairest practicable method of paying for milk in cheese factories.

Instead of casein in milk varying as fat, casein is fairly constant. It does not always, in individual samples of milk increase, were slightly, when fat increases, and vice versa. Sometimes an increase of fat is accompanied by a decrease of casein and vice versa. But averages show that the increase or decrease of fat. This fat makes it possible to calculate the casein in several lots of milk of which the average per centage of fat is known. The calculation is simply made by the use of a sliding-scale representing the casein in milk of different percentages of fat. This scale allows 2.3% casein in milk below 3% fat, 2.4 in milk of 3% and under 4%, 2.5 in milk of 4% and under 5%, 2.6 in milk of 5% and under 6%. The use of this "fat and casein" method recognises the true cheese-producing power of milk and the quality of cheese.

A. E. Shuttleworth.

Soil Nitrogen.

THE element nitrogen plays such an important part in plant growth, and is so liable to waste through careless cultivation, that too much attention cannot be given to study of the preserving that which is already in the soil, and to the problem of adding to the supply.

Storer estimates that in the surface foot of an ordinary cultivated soil, there are 3700 pounds of nitrogen per acre. Therefore, taking Warington's estimate that a crop of wheat producing 30 bushels of grain per acre, removes 38 pounds of nitrogen per acre, the supply of nitrogen in the soil is more than sufficient to produce 70 such crops. Samples of rich prairie soil have shown more than three times the amount of nitrogen mentioned above, and therefore such soils possess a correspondingly greater degree of fertility.

But Nature is too wise to allow that reckless spendthrift, man, to quickly squander the wealth of the soil. If he were allowed to grow these 70 crops of wheat in succession, no doubt he would do so, but Nature places various obstacles in his way, and saves him from himself. The method in which nature accomplishes this object is not clearly understood in all its details, and to enter into a discussion of the subject would be going outside the limits of this paper.

The main source of soil nitrogen is the organic matter which the soil contains. This organic matter is composed of the partially decayed remains of plants and animals which have, at some time, grown or lived upon the soil. It follows, therefore, that the amount of organic matter (humus) which a soil contains indicates the amount of nitrogen contained by the soil.

But plants cannot feed upon the nitrogen as it exists in these organic compounds. The organic matter must first undergo decay or fermentation, and the complicated organic compounds which it contains, must, by this process, be broken up into much simpler forms before plants can avail themselves of the nitrogen. Just here, a few words regarding the different steps in this breaking up process, may not be out of place.

Everyone who reads must know that fermentation is caused by certain minute forms of plant life, called bacteria or microbes, and that different kinds of bacteria form very different products. Then again, everyone who has had anything to do with farm yard manure is familiar with the smell of ammonia which is produced when the manure ferments (heats) rapidly. Here then, we have the first step in the fermentation, or the breaking up, of organic compounds, viz., the formation of ammonia. One class of bacteria feed upon the organic matter of the soil, and, as a result of this operation, ammonia is formed. If this were all, the ammonia would escape as a gas and be wasted; but another kind of bacteria take hold of the ammonia as it is formed, and when they are through with it, the ammonia has been changed into nitrous acid. But this is not all. A third set of bacteria attack the nitrous acid, and the result of their operations is nitric acid. The nitric acid, as it is formed, unites with different substances in the soil, such as calcium, potassium, etc., forming nitrates of these substances. With this latter step the nitrogen is rendered fit for plant food. Plants take up their nitrogen from the soil in the form of nitrates, and build it up again into the complicated organic compounds first mentioned. Thus the cycle is completed, and when the plant dies and becomes incorporated with the soil, the breaking up process will all occur over again.

The process through which nitrates are formed, is called nitrification, and from what has been said it may be seen that nitrification is of vital importance to plant growth. Nitrification is more or less active in all cultivated soils, the conditions favoring it being, warmth, a certain degree of moisture, and the presence of air. It ceases altogether at 41° F., and is most active at 98° F. With a temperature above 98° F. nitrification becomes less active, and at 113° F. it is barely appreciable.

Then again, while a certain amount of moisture is necessary to nitrification, it is possible to have too much moisture in the soil. An excess of moisture checks nitrification in two ways: first, it lowers the temperature of the soil, and second, it excludes the air. But this is not the only injurious effect of too much moisture. In very wet soils, where the temperature is low and the air is largely excluded, there lives another kind of bacteria. These bacteria break up organic compounds, but, unlike the bacteria previously mentioned, they liberate free nitrogen which escapes into the atmosphere and is practically lost. This last process is called denitrification. A few minutes study of the facts given above, will explain some of the great advantages derived from underdraining.

On a well worked summerfallow nitrification is very active, owing to the high temperature of the soil during the summer, and to the free admission of air which the frequent stirring of the soil occasions. But since no plants are allowed to grow on the fallow to take up the nitrates as they are formed, and since nitrates are very soluble (easily dissolved) in water, there is great danger that a considerable quantity of the nitrates will be washed out of the soil by the summer rains and lost in the drainage water. Thus summer fallowing reduces the amount of organic matter in the soil by causing rapid fermentation and wastes more or less of the soil nitrogen by allowing it to escape in the drainage water. The loss, however, is not so serious in stiff clay soils as it is in soils of more open texture.

It is true that the atmosphere contains small quantities of ammonia, nitrous acid, and nitric acid which are carried to the soil by rains, and that the soil of the fallow is in a particularly favorable condition for absorbing the nitrogen brought to it in this form; but the gain in soil nitrogen from this source is very small, and does not compensate for the loss mentioned in the preceding paragraph.

It seems strange that while nearly four-fifths of the atmosphere is composed of nitrogen, plants may die from the want of this element of plant food, and that fertilizers containing nitrogen are among the most expensive on the market. This is explained by the fact that plants cannot feed upon the free (or uncombined) nitrogen of the atmosphere. As stated before, they feed upon nitrogen in the form of nitrates, and these nitrates are taken from the soil by means of the plant roots. It is claimed by some that plants can assimilate nitrogen in other forms, but, in any case, the greater portion of their nitrogen is obtained as first stated.

But it has been discovered that certain plants will grow successfully upon soils containing very little nitrogen, and actually leave the

soil richer in nitrogen than it was before they were grown. Such plants, therefore, must have some other supply of nitrogen than that contained in the soil. Investigation has shown that certain forms of bacteria are associated with the roots of the plants mentioned, and that these bacteria act upon the nitrogen of the atmosphere which permeates the soil, changing it into forms which are suitable for plant food. Thus the lowly organized bacteria perform very important functions for their more higly organized neighbor, and no doubt receive certain friendly offices in return. Strange to say, these wonderful and important little plant-food manufacturers are found associated only with the roots of leguminous plants, such as clovers, peas, beans, lupines, etc. Why they refuse to live with other plants, is not known. Upon the roots of a healthy clover plant may be seen minute rounded bodies, called nodules or tubercles, which are in some way connected with the operations of the bacteria. Thus may be seen the wonderful importance of leguminous plants, especially clovers, in the work of maintaining and increasing the supply of soil nitrogen.

It is also claimed that other bacteria exist in the soil, which perform work similar to that just described, but which are not found associated with the roots of any plants. Their existence is perhaps doubtful: at best, their work is not well understood.

It would be interesting to trace the application of the facts which have been so hurriedly noted; but this paper has already extended far beyond its proper bounds, and the reader must be left to piece out for himself the important practical lessons to be learned from a study of the wonderful operations which are carried on in this small corner of Dame Nature's workshop.

G. E. Day.

College Patronage.

THE ATTENDANCE at the Ontario Agricultural College this year being somewhat less than it has been for some years previous, to all true friends of the College comes the anxious question, What does this mean? It is the purpose of the present article to find an answer to this query.

The decrease in attendance is, without doubt, caused, directly or indirectly, by hard times. While the population of country districts and of small towns is decreasing; while business men are failing, profits diminishing, and the value of property lessening year by year; while commodities that were considered necessaries ten years ago are looked upon as luxuries to-day; while other Colleges, in diminished attendance, are feeling the pressure of hard times very keenly, and some have even been compelled to close their doors; while such a state of things is universal, it is to the Ontario Agricultural College a matter for congratulation that she has so well escaped the effects of the present stringency.

But she has not altogether escaped. The hard times are beginning to tell, even here. And now is the time for her to decide what part she is to take in the future of Ontario. Is the Ontario Agricultural College to be classed as a luxury, which in the present financial depression the farmers of Ontario must forego, or as a necessary part of their equipment; made more and more necessary by the present condition of affairs?

What is the College doing for the country at large and for this Province in particular? Her work is two-fold. By a laborious series of experiments in grain, roots, etc, carried on by the College experimentalist throught the summer season, by an equally laborious and exhaustive series of tests in milk and cheese carried on by the College chemists; a great deal of invaluable information has been gathered and will be given to the farmers of the country. But that is not all even along the line of outside work. The College entomologist, the horticulturist, the agriculturist, the professors of dairying and veterinary science, the farm superintendent, and the manager of the poultry department,—all these are being called upon continually by the fruit and grain growers, the dairymen and poultrymen of the Province, to give expert advice in their respective departments. It would not, therefore, be unreasonable to say that, in this department of usefulness alone, the College has become indispensable.

But, great though its usefulness in this respect undoubtedly is, this work is only secondary. The primary and most important work of the College is to teach sound, practical, scientific principles to the young farmers of the Province. In the early pioneer days, men could afford to neglect scientific principles of agriculture, because of the great potential energy of the virgin soil. But that energy has been proven to be not inexhaustible, and now farmers are most concerned to know how to restore that energy so lavishly wasted, or, at least, how to prevent any further waste.

To teach these and kindred principles, is what the College professes to do. And now, while farmers on every hand are waking up to the necessities and demands of the new order of things: while Farmers' Institutes, Dairymans', Fruit Growers', Sheep Breeders' and Swine Breeders' Associations are becoming more and more the order of the day; while thus men shew that they see the necessity of an interchange of thought and opinion, and experience; men must also see that if the farmer of the future is to be master of his business, he must seek that special training and equipment which an Agricultural College alone can give. And the stringency of the times, in which success in any department demands the most thorough preparation, makes a College course all the more necessary. Trusting, therefore, in the sound good sense of the farmers of this country, and knowing that they will rise to meet the demands of the times, the College has no fear for its future, either for its popularity or for the extent of its patronage.

J. B. Reynolds.

The faculty of Ohio Wesleyan University has decided that hereafter all students of that institution must abstain from the use of tobacco in any form.

THE O. A. REVIEW

PUBLISHED MONTHLY DURING THE COLLEGE YEAR BY THE LITERARY SOCIETY OF THE ONTARIO AGRICULTURAL COLLEGE, GUELPH.

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DECEMBER, 1893.

Condensed Milk.

THE problem of preserving milk is one of great practical importance, especially in thickly populated districts. It is quite reasonable to say that this problem has been solved in the production of the article about which we purpose offering a few remarks.

The subject of condensed milk is one with which very few persons are at all familiar. It might be a surprise to some to learn that in the year 1891 there was imported into Great Britain, in round numbers, 4½ million dollars worth of this product, while in the same year the importation of cheese into Great Britain amounted to 23½ million dollars.

In other words the importation of cheese is only 5½ times greater than that of condensed milk. Of this amount France sent the most, their exportations being valued at $1,825,000. Holland and Norway also exported large amounts. The value of the exportation from the United States was about $35,000. Canada did not send any. The trade is a constantly growing one. The value of this class of goods imported into Great Britain in 1890 was about $3,521,000.

The process of manufacture is quite simple, but the greatest care must be exercised in keeping the supply fresh and pure. Every lot must be carefully inspected and any defective lot rejected before it can spoil the rest. After being accepted, the milk is received into vats where it is heated and the sugar added to it. It is then drawn into a vacuum pan of suitable size where it is reduced by heat to about one-third its normal bulk. The principle of the vacuum pan is simply that the milk can be reduced more speedily and at a much lower temperature than in air of the normal pressure. There is consequently no danger of the finished product having a burnt or scalded taste. After being sufficiently reduced it is allowed to cool to about 70° F. when it is drawn into pound tins which are sealed by soldering. Only the best granulated sugar should be used. The quantity used varies from 35 to 50 per cent. of the finished product. In adding the sugar some manufacturers follow the rule of taking 16 parts of sugar to 100 of milk.

The average composition of condensed milk is about as follows:—

Water	25	per cent.
Fatty matter	6 to 11	"
Casein	9	"
Milk sugar	13 to 14	"
Cane sugar	40 to 45	"
Salt	2	"

It will be noticed that the quantity of fat, casein, and sugar are not in the same proportion as in whole milk, the greatest variation being in the quantity of fat. This may arise from skimming. Indeed it is claimed that unless the milk is partially skimmed the finished product will have a rancid taste if kept for any length of time.

The above analysis will indicate the amount of sugar necessary to be added. If we take 300 pounds of whole milk, which we will assume is not to be skimmed, but that all the dry solids of the milk appear in the finished product, and add to it 48 pounds of sugar we will have 85½ pounds of dry solids. This should be reduced so as to constitute ⅔ of the product, since by analysis we fine 25% water to be present. These quantities will therefore give us about 113 pounds of condensed milk. The usual selling price in Great Britain is $9.12 per case of 96 lbs. net.

A good quality of condensed milk should have a presentable appearance, in color about that of cream. It should dissolve readily in cold water, and be free from any unpleasant taste or smell. This last is very important, and will depend largely upon the condition of the milk supplied. It is possibly this fact that enables the manufacturers of Switzerland to produce such a superior quality of goods, the rich mountain pasture and healthy climate contributing to that end.

There is only one company in Canada engaged in manufacturing condensed milk. This is situated at Truro, N. S. Their goods are labeled the "Reindeer Brand," and are unsurpassed by any, not even by the Anglo-Swiss Company or the Henri Nestle Company of Switzerland, or any of the companies of the United States.

W. R. BISHOP.

Locals.

We offer our most humble apologies to a certain inhabitant on "Lower Hunt" who took offence at a local in our last issue. Upon investigation we find that besides being the possessor of "some clothes and one valise," he also has in his possession a—celluloid collar.

Owing to an overpressure of work, it has been found necessary to make an addition to the Local Editor's staff. We are happy to announce that the services of a noted local pugilist have been secured to fill the responsible position of "fighting Editor." Persons having any demands will receive ample satisfaction.

Smart first year man (as bell rings at end of Agricultural lecture) —"The curfew tolls the knell of parting Day."

One of our most Brill-iant students at present is Paterson, of Bruce.

Our table had a little lamb,
The lamb was very tough.
Under the circumstances
A little was enough.

Morgan's favourite song:
"Oh! there's one more river, and that's the river of *Jordan*.

The following books have been sent to our office to be reviewed. In some future issue we intend giving a full synopsis of them.

"Elora and its attractions."
By R. B. Maconachie.

"Black but comely."
By F. A. Parker.

"Culture of the voice." (Based on scientific research).
By Chas. King.

"Why I changed my religion."
By G. A. Smith.

Overheard on Wyndham street—
1st Kid—"See that girl?"
2nd Kid—"Yes."
1st Kid—"Well, get out of her way. She's an O. A. C. girl."

West (to Gipson who is chewing gum)—"Say, Gip, what are you doing that for?"

Gipson—"Its good for Mi-nerve(s)a.

Effect of College food on "Brady"

"And the sunshine on me streaming
Throws no shadow on the floor:
For I am too thin and sallow,
To throw shadows on the floor.
Never shadow any more."

The 2nd Year have for some time past been engaged in compiling a revised edition of Shakespeare's Julius Cæsar, with critical notes. Anyone wishing to obtain a copy of this work can obtain it on application at this office.

Things we would like to know:

Why West no longer sits on the radiator outside the Resident Master's room?

If Gibson has received any money(?) lately?

If it is necessary for Wigham to go skating in order to "cut a figure."?

If Cunningham has purchased a diamond mine? If so, is A. C. Wilson a stockholder in the same?

If Selwyn and Woodcock intend starting a shooting gallery?

If Rogers knows the difference between peas and peach stones?

Prof. (lecturing on chemistry to First Year)
"A metre is the length of Prof. Robertson's arm: a decimetre the length of his fore-finger; a centimetre the length of the nail on his fore-finger. Now, gentlemen, how can we remember the length of a millimetre?"

Balfour (who has "been there" before)—"It's the width of the dirt on his finger nail, Sir."

The latest acquisition to Upper Hunt are the bloomer pants which adorn the shapely form of Mrs. Geddes.

Being of an inquisitive turn of mind, one of the Local Editors undertook the task of analysing a sample of the "hash" which was supplied for our mastication at a recent meal. The result of his investigations was that four distinct kinds of meat were found to be present, viz: Chopped sausages, ham, mutton and common (or rather uncommon) beef.

"When these prodigies
Do so conjointly meet, let no man say,
These are their reasons, they are natural.
For, I believe they are portentous things
Unto the death that they point upon."

We are pleased to announce that the threatened cases of brain fever in the first year have been averted, by the termination of the Christmas exams. The patients have fully recovered, and are much elated at the thought of their speedy return to the paternal roof.

Prof. in Mechanics—"If you stood on a perfectly smooth table, devoid of friction, how could you get off?"

Sissons (promptly) "Why, I'd blow myself off."

Prof.—"Yes! you might be able to do that."

It is with great regret that we chronicle the sudden departure of

George Robertson, who left for Ottawa on last Saturday afternoon. His presence will be greatly missed at the weekly gatherings of the "Bummers Society," in which association he held the post of vice-president. There is a rumour going the rounds of the College to the effect that he arrived at the station half an hour too early for his train, but as two fair young damsels were there, he did not regret it. When interviewed, the baggage-man said that during all of his twenty years experience, he never saw such a heart-broken and tender farewell as the one was that took place between George and one of the aforesaid young ladies.

Personals.

WE thought it a "bright idea" to place books in the Reception Room where ex-students and visitors who attended the Experimental Union might register. There were provided, and in this way we are able to give a list of visitors and ex-students who were present with us.

VISITORS.

R. C. Tye, Hayesville; R. R. Hunter, Dundas; J. Sissons, Barrie; Joshua Legge, Gananoque; Prof. J. W. Robertson, Ottawa; H. Page, St. Marys; John Dickin, Milton; James and Philip Hellyer, Kenilworth; S. W. Hatch, Lavender; Prof. C. C. James, Toronto; Thos. Saitheenth, Toronto; Alf. Brown, Picton; M. Brown, Guelph; M. A. Scott, Rockland; J. O. Moody, Guelph; W. J. Black, Stanton; S. Hunter, Rockton; James Lamont, Caledon; J. Pate, Brantford; W. C. Shearer, Bright; W. I. Fraser, Bradford; Prof. John Craig, Ottawa; R. G. Ratcliffe, Anderson; Prof. Wm. Sanders, Ottawa; Dr. Myers, West Virginia; J. S. Pearse, London; Wm. Steele, seedsman, Toronto.

EX-STUDENTS.

D.F. Kidd, B.S.A., Cookstown; R.A. Lehmann, B.S.A., Orillia; R. F. Holtermann, Brantford; Elmer Lick, Oshawa; Fred. T. Lailey, '95, St. Catharines; Fred. C. Elford, '95, Holmesville; Jno. Atkinson, '93, Seaforth; Geo. A. Robertson, B. S. A., St. Catharines; Chas. S. Carrick, '94, Kincardine; W. R. Cowison, '94, Queensville; W. J. Dobson, '90, Chatham; Chas. R. Stevenson, '88, Fingal; Allen Shantz, '88, Waterloo; J. W. Widdifield, B. S. A., Siloam; W. H. Harvey, '93, Exeter; J. E. Crealy, '93, Strathroy; W. D. Ryer, B. S. A., Columbus; Jas. H. Cowan, '91, Galt, H. L. Beckett, B. S. A., Hamilton; D. Z. Gibson, B. S. A., Willow Grove; T. H. Mason, '76, Staffordville; W. R. Graham, B. S. A., Bayside; T. G. Raynor, B. S. A., Rose Hall; R. C. Brown, '92, Kingston; R. H. Henderson, '94, Rockton; C. W. Tye, '95, Hayesville; Nelson Monteith, B. S. A., '90, Stratford; R. M. Holtby, '89, Manchester; W. W. Ballantyne, '89, Stratford; Reds. E. Cowan, '90, Galt; F. E. Webster, '90, Creemore; Wm. Rendall, '89, Guelph; A.G. McKenzie, B.S.A., '91, Fairview; C.A. Kiel, '84, Chatham; P. Brown, '88, Coldstream; Edw. E. Wilson, '94, Brampton; A. R. Evans, '95, Newmarket; J. E. Leggatt, '94, Mitchell; Thos. J. Hurley, '92, Belleville; W. J. Thompson, '94, Edgar; J. S. Seffery, '92, Toronto; Fred. Caldecott, '94, Shropshire, Eng.; Geo. B. Phin, '92, Hespeler; W. H. Taylor, '95, Peterborough; J. G. Laird, '94, Sarnia; J. B. Spencer, B. S. A., London, Prof. John A. Craig, '89, Madison, Wis.; W. Elliott, '94, Galt; A. H. Christian, B. S. A., O. A. C.; J. F. Findlay, '93, Barrie.

Thursday evening, at 8 p. m., those present of the '93 and '94 class dined together in the dining hall. The following were present, sixteen in all: A. H. Christian, J. W. Widdifield, John Buchanan, W. J. Thompson, D. F. Kidd, W. A. Kennedy, Geo. A. Robertson, T. F. Lailey, F. Caldecott, W. M. Doherty, C.S. Carrick, R. H. Henderson, Jno. Atkinson, E. E. Wilson, J. G. Laird, W. Elliott. After they had partaken of the repast, speeches were in order and each man responded. Of this class J. W. Widdifield is the only "double" man, and on one occasion he was carried by the other members of his class up stairs to his former sanctum. Among this number there are six graduates. This is the second time this class have dined together at the Union, the same number being present each time. Let the succeeding years follow their example.

Having heard that the G. C. I. have not organized a Literary Society this year, we offer a reasonable explanation. J. W. McGillivary is now in Sumas, B. C. It was a well known fact that for some reason "John, Jack Todd, Wesley, Jo" took an active interest in the G. C. I. Literary Society while here, and we attribute its non-existence to his absence.

Todd is farming in B. C., doing everything on a scientific basis. He, in company with Chadsey, reports an increase in the death rate of ducks, thus once more verifying the statement, "Sumas for ducks."

J. W. still maintains his reputation as a vocalist, and the B. C. trio have been receiving numerous invitations to sing throughout the Province.

A. Kipp, '95, another B. C. "tough," the champion athlete during his course here, winning the championship two consecutive years, is also farming in B. C. His ranch is situated in the famous Chilliwack Valley, noted for its large crops and great floods. His many friends in the city deplore his absence, but entertain hopes that he may again return to the O. A. C.

E. Rive, '94, has sailed for his home in St. Heliers, Jersey Island. He has been engaged in farming in Nassegawa township, near Guelph. Mr. Rive intends returning to this country again next spring.

W. E. Butler, '95 has been a very extensive exhibitor at all the leading fairs this fall, carrying off the lion's share of premiums on his Duroc Jersey and Chester White Swine, at Toronto, Montreal, Ottawa and London, besides numerous local fairs. He again came to the front with his grand display of porkers at the recent Fat Stock Show, winning nine firsts, thirteen seconds, and one third. His pre-

miums this year total up about $80 (eight hundred dollars). We wish "Billy" success in his favorite line of stock raising.

We are pleased to behold once more the smiling countenance of genial Fred. C. Elford '95. Early last Spring Fred was forced to discontinue his studies here on account of his eye sight failing, since then he has been engaged in raising "shoats" Berkshires being his favorites until late, but the growing demand for lean bacon has caused him to deviate from his orignal course, and to grow something larger. We regret very deeply that Fred's eyesight is not improving much.

Prof. Panton, who has suffered much with his left eye for the past few years, thought it expedient to have it taken out. He has had several operations performed upon it, with a view of permanent cure, but medical skill has been in vain. The operation, though a painful one, has not interfered materially with the Professor's duties.

Prof. Jno. A. Craig, Madison, Wis., a graduate of '89 was present at our Union and gave a practical, instructive talk on Feeding Sheep. Prof. Craig is a Canadian and hails from Russell county. He is an impressive lecturer and was listened to with much interest.

Fred. T. Lailey, '95, has purchased a fruit farm near St. Catherines. He reports a fairly successful season, notwithstanding the severe early frosts.

W. R. Graham, B. S. A., is engaged in the poultry business at Bayside, near Belleville. Ever since "Dick" used to "fight roosters" he has had a tender feeling for the feathered tribe, and his discourse in the discussion on "Poultry" at the Union was evidence of his practical work along this line.

At the recent plowing match held on the farm, among the first and second year students, Archibald Campbell, Dalmeny, Russell county, won first; Charles King, Guelph, second; James Thomas, Woodville, Victoria county, third; Alexander Kennedy, Linehouse, Halton county, fourth; and Theodore Wiancko, Sparrow Lake, Muskoka, fifth. The prizes were awarded by the farm foreman, Mr. Rennie.

Wm. Squirrel and F. Benson acted as judges.

Athletics.

THE ATHLETIC ASSOCIATION held their annual dinner on Friday, November 29th, and it was a pronounced success. The toast list being considerably shortened the proceedings came to an end at a reasonable hour and we were spared the tediousness of listening to toasts and speeches for two or three hours, as has been the case in past years.

Mr. Paterson occupied the chair, and in his opening speech said he thought there was a lack of College spirit among the students. By College spirit he meant that students should uphold the name of the College in every way. If they did not actually take part in the various matches, they should cheer on those who did. Athletics are important besides study and should have their place. Athletics, like everything else, can be carried to excess, but were necessary for the proper development of the physical part of man. He congratulated Mr. Atkinson on having won the first prize in the county walking race on Thanksgiving Day and said that the prize, a diamond ring, was well worth having won.

The toast of "The Queen" having been proposed and "God Save the Queen" sung, Mr. Wigham followed with the fine old song "The Death of Nelson," which he rendered in his usual acceptable way.

Mr. Clark then proposed the toast of the O. A. C., which it is needless to say was drunk with the greatest enthusiasm.

Mr. Reynolds, replying, made an excellent speech and one that we can all afford to think over.

This is an age of specialties. There was a too general opinion that the agricultural profession required no special training. The success of the O. A. C. depends on whether a special training in agriculture will not be profitable if we cling to the principles of the old adage "Tickle the earth and it will laugh with a harvest," but people are beginning to realize that agriculture is a science and calls for a scientific training.

Unlike other agricultural colleges, where agricultural science had been superseded to a great extent by other sciences, the O. A. C. had had the courage to remain true to her sailing orders and agriculture was still the principal subject taught.

Mr. Morgan then gave "Love's old, sweet song," which was heartily enjoyed by all present.

Dr. Mill's in proposing the toast of the Association said he was very much pleased with Mr. Reynolds' speech. He differed from Mr. Paterson in considering that there was a lack of "esprit-de-corps." He thought both present and past students had a warm attachment to their "Alma Mater" and a great many of the new students came on the recommendation of ex-students.

Mr. Day in responding spoke on the advisability of prizes at the annual field day. He thought they had a place. In 1892 when the first annual field day was held he remembered that there were no prizes at all and the champion athlete for that year had to content himself with the honor alone.

Mr. Ed. Johnson brought the proceedings to a close with a song which was heartily encored and we were treated to a capital rendering of the touching little song entitled the "Sunshine of Paradise Alley."

We must thank Mr. Johnson for his songs and hope that it will not be the last time that we will hear him in College halls.

The much talked of County Road Race was held on Thanksgiving day and the O. A. C. took more than its share of the prizes. In the walking race of 10 miles, James Atkinson took first place and Mooney fifth place. In the running races of the same distance Woodcock was third, G. A. Smith fourth, and Johnston fifth, so that in the two races the O. A. C. took five prizes out of the ten that were offered.

Literary Society.

On Oct. 4th a meeting of the members of the O. A. C. Literary Society was called for the purpose of organizing for the year. The attendance was large and the spirit of the meeting enthusiastic. The officers elected for the year were as follow: –

Hon. President,	Prof. A. E. Shuttleworth.
President,	J. F. Clark.
Vice-President,	W. J. Thompson.
Secretary,	A. C. Wilson.
Treasurer,	W. Gamble.
Critic,	Jas. Atkinson.

Committee of Management: H. D. Kewley, A. Kennedy, P. W. Hodgetts, W. Rothwell and J. C. McDonald.

One of the first and most important changes under the new regime was to change the time of meeting. Formerly Friday evening was Literary Society evening, but it was also our "free" evening and being the only "free" evening the students had it is not surprising that many of them had a very strong feeling to overcome before they decided to do their duty to the Society by staying for the meeting. To make matters worse our city friends, knowing that this was our free evening, generally arranged to have all their "at homes," socials, and all other such events as delight the heart of the average student on Friday evenings. The result of it all was that the Literary Society often lost many of its members from the meetings and the city friends failed to have the privilege of entertaining the best of the boys, who felt in duty bound to do what they could to make the meetings of the society a success, and at the same time improve their own talents. Now why not meet on Saturday evening? So questioned one genius. The idea had many things to support it. Saturday evening is well known to be the time when the citizens of Guelph take their weekly dissipation and the authorities have very wisely decided that no student shall visit the city on that night. Further, Saturday evening comes near the latter part of the week, when we are all more or less weary of study, and lastly, we do not need to rise so early as usual on the Sabbath. President Mills kindly offered to make study hour half an hour earlier to enable the Society to meet at 9 p. m. So it was unanimously decided to make the change. Never was a more fortunate move made in the Society. The attendance has been simply remarkable, being about 95% per cent. of the students in the College as a rule. It is also worthy of mention that, notwithstanding the large attendance, there has never been more exemplary order.

Shortly after organization the Society elected the "Review" staff, and the wisdom of their choice in this matter is to be judged by my readers. Another and very important thing which was done (also of interest to my readers) was the reduction of the subscription price to 50 cents, provided it be paid before Feb. 1st. We hope that as two "fifties" make a convenient sum to send in a letter at our risk that some of our friends who are in arrears will see the point.

The great object of the Literary Society, under the present management, has been, and is, to *develop* latent talent in the members, particularly such as relates to the transaction of public business, and the expressing of their thoughts in a clear, logical manner before an audience. With this object in view debates have been arranged for nearly every meeting and persons appointed two weeks ahead to lead on both sides of the question. After the debate the meeting is always thrown open for an "open discussion." This part of the programme has been a surprise to all. No sooner is the opportunity offered but there is someone on the floor, and often two or three. All the students seem to have resolved to make the best of their opportunities in this line, and after five or six weeks experience the officers were compelled to limit the time that the meeting would thus be open for all to take part: and while perhaps we have as yet not many brilliant speakers, it must be admitted that we have an unusually large number of students who are competent and willing to take part in ordinary debates.

The subjects discussed have covered a wide range, and were mostly, and very properly, of an agricultural turn. One very interesting debate on "Student Labor" might be particularly mentioned. It aroused a very lively debate but it was noticeable that those who had had the most experience at the College were the ones who were the strongest supporters of this system, which is of such vital importance to the college, not only as a means of keeping her sons in touch with the PRACTICAL side of farm life, but also as a means of keeping the College itself in touch with her patrons, the farming community.

I said that the development of latent talent in the members was the first object of the Literary Society. But we have other objects and one of them is INSTRUCTION. To accomplish this we have been glad to have addresses from time to time by Professors, Ex-Students and Students. Worthy of special mention were those of our Hon.-President, Prof. Shuttleworth, and Prof. Day. We have not space to particularize further, but suffice to say that both were interesting, instructive, practical and highly appreciated.

A third object is to ENTERTAIN. This has been accomplished, largely by the zeal of our music loving students, who have thrown themselves heartily into the work of training the talent along these lines. As a result we have our Quartette Club, Quintette Club, and we understand that a Glee Club is one of the possibilities of the near future. We would add, why not a full fledged Orchestra as well? In the early part of the term we were handicapped in the musical line for the want of a competent pianist but the society were fortunate in securing the services of so clever an artist as Mr. B. Barker, of the city, who is deservedly popular with the boys. Since his appointment music has made rapid strides, and we have discovered soloists where we little expected it. We would also take this opportunity to thank our city friends, Messrs. Johnson and Hewer, for their kindness in contributing to our entertainment in the musical line.

Now a word to the students. As you go home for Xmas holidays keep your eyes open and get as many good recitations, readings, songs and subjects for debate together as possible, and bring them and every

new and worthy idea that will in any way contribute to the success of the society back to us. And let us all unite to make the Literary Society of the winter term even yet more successful, and in doing this we will not only add greatly to the pleasure of our College life, but the skill we acquire by this training must prove of inestimable value in after life.

J. F. C.

Y. M. C. A. Notes.

So far this term students have taken an active interest in the work of the Association. The weekly prayer meetings have been well attended, and have been taken part in quite heartily by the students.

Mr. Griffith, B. A., travelling secretary in the interests of the Canadian College mission, visited the Association in November and gave a very interesting account of the Mission in Corea. Dr. R. A. Hardie was sent out in 1890, under the auspices of the Young Men's Christian Association of Toronto and Trinity Medical Schools. In 1892 those two associations united their foreign mission efforts under the name of the "Canadian Colleges' Mission," a provision being made in the constitution of the new society by which other Colleges and Schools might unite in the same work. Mr. Griffith is bringing this work before the students of the various schools, colleges and universities throughout Canada, and at the present time there are more than thirty of these institutions united in the efforts to support the mission in Corea. As a result of Mr. Griffith's visit our association adopted a systematic method of weekly giving, and we hope, before the end of the year, to be able to show our interest in this good work in a tangible way.

Rev. S. Sellery, of the city, gave the members of the association a very practical address on "Christian workers." He spoke of the great necessity of doing hand to hand Christian work. Preachers could not do all the work. The strongest congregations were those with many personel workers. Some of the greatest evangelists known to the world were converted by words of persons of whom the world knows nothing—hence the necessity of every Christian student in this College becoming interested in the welfare of other souls.

During the last month the weekly meetings have been led by Messrs. Naismith, Rathwell, Bishop, and Christian, and the attendance at these meetings has been encouraging indeed; but we should like to see even more who could spend a short time every week, and join with their fellow-students in the public worship of God.

The attendance at the Bible Class on Sunday afternoon has been large, and as we advance, the interest in the lessons seems to be increasing. The scheme of lessons was chosen by Mr. Reynolds, the object of which was to give a comprehensive knowledge of the Old Testament. There is not a student in the College who can afford to let an opportunity like this pass unimproved. Could there be a more pleasant duty than that of quietly sitting down one hour in one hundred and sixty-eight for the purpose of systematically studying the Bible? The new year is at hand. In order to make the best of it let us now resolve to give more time to thoughtfully reading our Bible, and we will not only be better Y. M. C. A. men but better men in every way.

Exchange Notes.

Among recent events of importance, none has caused such a stir as the death of Louis Pasteur, of Paris, France. He was known the world over as the greatest scientists of the day, "one of France's most illustrious children," and his death has called forth expressions of sorrow from every civilized country of the globe. Not to be behind the times, two of our Canadian college papers, the "Owl" and the "Argosy," come to us, in their November issue, with short but interesting sketches of his life and scientific work. The "Acta Victoriana," however, in its October number, was the first to express its appreciation of Pasteur's great labor for the good of his fellow men.

—o—

He that walks through life with an even temper and a gentle patience, patient with himself, patient with others, patient with difficulties and crosses, he has an every-day greatness, beyond that which is won in battle or chanted in cathedrals.—Dr. Dewey.

—o—

"Hear how the trees in the orchard moan," exclaimed the romantic Miss. "I guess you would moan too, if you were as full of green apples," replied the matter-of-fact youth. And the air grew a-chill.—*Philadelphia Record.*

—o—

WHAT IS THE REAL GOOD.

By John Boyle O'Reilly.

"What is the real good?"
I asked in musing mood.
Order, said the law court;
Knowledge, said the school.
Truth, said the wise man:
Pleasure, said the fool;
Love, said the maiden:
Beauty, said the page;
Freedom, said the dreamer.
Home, said the sage:
Fame, said the soldier;
Equity, the seer.
Spoke my heart full sadly—
"The answering is not here."
Then within my bosom,
Softly this I heard—
"Each heart holds the secret—
Kindness is the word."

—o—

Etiquette writes to us to inquire if, in our opinion, it would be proper for him to support a young lady if she were taken in a faint

even if he hadn't been introduced. Proper, young man, prop her by all means.—Ex.

—o—

Everything that happens to us leaves some trace behind.—Goethe

—o—

For a fit of passion, walk out in the open air. For a fit of idleness, count the tickings of a clock. For a fit of extravagance and folly, visit the workhouse. For a fit of ambition, go to the churchyard and read the gravestones.—Interior.

—o—

"Don't talk to me," said the lettuce to the turnip. "I have a heart and you haven't." "I don't see how that can be," replied the turnip. "You never get mashed, and I do."—Life.

—o—

The classicals are said to have
A very easy course;
They spend the most of a college life,
In riding with a horse.
But others say biology
For fun will take the cup,
Because they say that in this course
They're always cutting up.—Ex.

SOME FACTS ABOUT GRAPES.

Grapes prefer southerly exposure, with a well-drained, fertilized and cultivated soil. The beginner would scarcely credit the difference careful cultivation makes, not only in the appearance, but in the flavor of the fruit. The vineyards in the famous grape region from Erie, Pa., to Brocton, N. Y., in August are free from weeds and as carefully kept as the daintiest flower garden in the land, and the vines cling to the trellises perfectly, with no vagrant branches to accuse their owners of carelessness. There is no other fruit requiring more delicate handling than the grape; if the bloom is rubbed off or the clusters are in any way disfigured, the market value is seriously reduced. As soon as the fruit has ripened, the labor of picking and packing begins. The picker is supplied with wooden trays, each of which holds about 30 pounds when a little less than even full. These trays are made so that they can be piled up in tiers on the grape wagons. The picker takes each cluster by the stem and cuts it from the vine with sharp-pointed grape scissors, and lays it carefully in the tray. The clusters are handled entirely by the stems, and the careful picker lays them in the tray with stems up, so that packers find no trouble in taking them out by the stems. Grapes are usually assorted by the packer into three or more grades. The Niagara Company, says the Rural New Yorker, puts a certificate of excellence on its first-quality fruit, and nothing goes into these boxes that is not absolutely perfect. The clusters must be large and shapely, the berries large, well-ripened and of good color. The second-quality boxes contain smaller clusters, but all imperfect berries are clipped out, and all webs and other foreign matters are removed. No loose clusters are packed in these boxes. If fruit is scarce and high, a third quality may be packed with profit, but the fruit left from the second selection is usually made into jellies, catsup, fermented and unfermented wine. It is said that grapes may be produced at a fair profit for two cents per pound, but unless sold in bulk the margin from such sales must be very narrow. The care necessary to pack the grapes for market render this part of the work expensive, as cheap labor cannot be utilized. True, a great bulk of fruit may be raised per acre, but the average packer will not ordinarily put up more than 500 pounds per day.—Prairie Farmer.

How to Build an Ice House.

S ice is one-tenth less in weight than water as, when packed in an ice-house as close as possible, there is some space lost between the blocks, it is safe to estimate the measure of it at fifty cubic feet to the ton. Thus for fifty tons the house should have 2500 cubic feet space for the ice, not counting the spaces around it for the saw dust or other protective covering needed. Thus it will be necessary to increase the size of the excavation to fifteen feet each way, which will give room for the ice and some to spare for the walls of the building and the packing.

Lining of wood under ground will be quickly rotted by the continual moisture and the oxidizing effect of the porus earth, something seldom estimated for such buildings as this. Brick or stone should be used if at all possible.

The bottom must be dry; this is indispensable for the keeping of the ice. If the soil is sandy or gravelly, no special drainage will be necessary, and unless surface water is apt to flow into the cellar, the subsoil water will drain away through the soil with sufficient rapidity to avoid damage to the ice. Otherwise there should be a drain laid under the wall around the building to cut off the water. This drain should be of three-inch tiles, and as well as cutting of the soil water, it will carry off that which collects from the melting of the ice, which it will be safe to provide for.

Some useful information will be gained from the volumes of *Rural Affairs*, in which has been collected in easily available form, a large amount of practical information of daily use to rural residents in all walks of life, including the construction of ice-houses. It may be added that if the walls of an ice-house are of brick or stone, there should be a wooden lining inside, leaving an air space of six inches; or this may be filled in with sawdust, in which case no sawdust will be needed about the ice except on the top of it, and under it, as the walls will be sufficiently non-conductive of heat to preserve the ice during the summer. Otherwise at least six inches of dry sawdust, or tan-bark, or other porus matter, as dry leaves well packed down, or the chaff from the clover threshing, which is excellent, or, as a last resort, finely cut straw or wheat or other chaff. A foot of either of these should be laid on the bottom, under the ice. The non-conducting efficiency of an air space only is about half of that of dry porous packing, but the efficiency of any packing is reduced in proportion to the moisture it may gather, and when saturated it is no better than a solid wall. The air space is more efficient in proportion to its tightness; hence if lined inside with tarred paper and the wall tarred over or plastered and tarred, the intervening dead air space will be about as good as the ordinary filled-in space that will be sure to gather moisture in time.—Country Gentleman.

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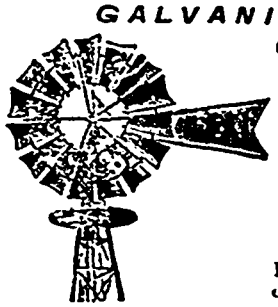

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