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# THE O. A. C. REVIEW.

The Dignity of a Calling is its Utility.

VOL. I.

GUELPH, ONT., FEBRUARY, 1890.

No. 4.

## THE O. A. C. REVIEW,

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

### EDITORS.

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### SUBSCRIPTION RATES.

Annual subscription, 75 cents; \$1.00 if not paid before 1st February. Single copies, 10 cents.

Advertising rates on application.

THE O. A. C. REVIEW will spare no endeavor to furnish reliable news and information to those interested in farming operations.

Ex-students will confer a great favor on the Editors of this Journal by sending news, particularly experiences of practical value.

## EDITORIAL.

We extend our warmest sympathies to the Provincial University in their great loss by the recent fire. In two ways we are closely connected with the "Varsity":—First, by affiliation; and in the second place, by means of our Y. M. C. A., which is the foster-child of its Association. We owe it no small debt and anything we can do to help them in this their time of need, will be done gladly.

That this will seriously affect the students there in this year's work, is quite plain; yet we cannot help admiring the pluck and energy shown by its chief men in arranging for the continuation of the work with so little interruption. Possibly great good may result from that which now appears to be a calamity, and out of the ashes may rise a structure more noble than its predecessor.

It is not likely that it will make any difference to our men who are studying for degrees in agriculture as the training is wholly given here, and the examinations are conducted at the College under the supervision of a person sent by the University.

\* \* \*

Our readers will see that we have enlarged our paper this month to make room for the publication of urgent matter in connection with the recent meeting of the Ontario Agricultural and

Experimental Union. The Union appointed a committee consisting of Messrs. Craig, Marsh and Robinson, to meet the Board of Management of the REVIEW to see what could be done towards having it become the organ of the Union; or at least to try and make some arrangement whereby the College paper might assist the Union. After due consideration the following resolution was adopted:

Moved by H. H. Dean, seconded by Byron Robinson, "That the O. A. C. REVIEW be enlarged by four pages, two pages of such enlargement to be used for the publishing of urgent matter pertaining to the O. A. and E. Union; the Union to bear half the expense of enlargement so long as it continues, and that the Agricultural Editor be placed in charge of the same. And further that the motion be laid before the Literary Society."

The motion was laid before the Literary Society and adopted unanimously. We felt that this was as much as we could do this year, and if the Union can make some arrangement with the Literary Society for next year by which the REVIEW will be a recognized advocate and supporter of the Union we are quite sure that both will be helped materially. That such a course would tend to bind the ex-students more closely to the College we feel quite confident. Students and ex-students ought to be one in their endeavors to promote the welfare of the O. A. C. and the practice and science of agriculture. Would it not tend to promote this end if both felt it to be their duty to support the claims of the College paper?

We should be pleased to hear from ex-students and prominent members of the Union in regard to this point. Let us have a few crisp ideas in regard to this matter from live members and we shall be pleased to publish them in our next number.

\* \* \*

It certainly must have been very gratifying to the officers of the Institution to see the many familiar faces and to hear the numerous kind words which were said of them by the ex-students at the annual supper. One after another told of the great benefit which he had derived from his course at the O. A. C. One man said that he would not take the best 100 acre farm in the Province and be without what he had learned during his short stay here. And these were no fanatics, but honest intelligent men—men of sterling worth and business ability, and who know a good article when they come in contact with it.

We missed a number of faces who have nearly always been at the Annual Gathering; such as Holterman, Stover, Lick, Sleightholm, Jeffs, Wark, Raynor, Clinton, and many others, but we are happy to know that we had their best wishes and hope to see them here next year. Instead of these were a great many ex-students who seldom or never attend the Union. We were glad to see them and hope that next year may see them back again with many others. With pardonable pride the O. A. C. can look

upon her sons who are scattered over nearly all the globe and see what good work they are doing.

We may be pardoned for giving a few extracts from letters written by ex-students which have come under our own observation:

"Enclosed please find the annual fee of fifty cents; and my subscription to your sprightly little paper, the O. A. C. REVIEW."

ARTHUR E. SHUTTLEWORTH,  
McGill College, Montreal.

"A copy of the O. A. C. REVIEW came to me on Christmas Day and it gave me much pleasure to see that the boys are getting so enterprising and practical in journalism. I wish the REVIEW and its editorial staff every success."

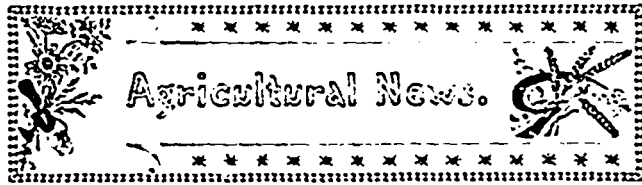
W. J. SLOVER,  
Port Antonio, Jamaica.

"We have a little Union of our own down here and we had a meeting last week. Although we did not set the world on fire, I think we are gaining ground and hope to send a delegate or two up to the Annual Meeting at the College another year.

The establishment of the REVIEW is a grand move and should be generously encouraged."

W. W. HUBBARD,  
Burton Hill, Oromocto, N.B.

Such encouragement as this is every helpful and stimulates us to even greater efforts. We can assure our readers that editing a College paper is not all sunshine, neither is the path of its editors strewn with fragrant, beautiful flowers, but on the contrary quite frequently a thorn is in the way which pierces and causes pain; however, if our labors are appreciated we shall be amply repaid for any discomforts we may suffer.



The eleventh annual meeting of the Ontario Agricultural and Experimental Union held at the College on the 6th and 7th of February, was one of the best, if not the very best, meeting ever held by the Association. The seats in the lecture hall were full to overflowing, and many valuable papers were read and keenly discussed. There was a good representation of ex-students this year, and by their cheerful countenances and hearty handshakes, we were convinced of their pleasure in getting once more back to their Alma Mater. We, as students, most thoroughly appreciated their company, and obtained many practical lessons from the various papers and discussions. We can only say that those ex-students who were unable to join in this re-union missed a rare treat.

At the request of the Association a number of the papers read at the Union as well as the reports of experimental work, will appear in the REVIEW under the heading of "Agricultural News."

A list of the officers, District secretaries, and experimental committees for 1890, will be given in this issue, and it is very important that the members of each committee correspond and make arrangements as soon as possible for the experiments to be undertaken during the present year. We hope that each ex-student of the College will be enabled to conduct some experiment planned by one or other of the various committees.

### Union Officers for 1890.

Hon.-President, Prof. T. Shaw, O. A. College.  
President, M. T. Raynor, B.S.A., Rosehall, Prince Edward Co.  
Vice-President, J. J. Sinclair, Ridgetown, Kent County.  
Corresponding-Secretary, G. A. Brodie, Bethesda, York County.  
Secretary-Treasurer, A. Shantz, Waterloo, Waterloo County.  
Editor, C. A. Zavitz, B.S.A., O. A. College.  
Auditors—J. A. Craig, B.S.A., Toronto; H. H. Dean, O. A. C.

#### DISTRICT SECRETARIES.

No. 1, W. E. Serson, Antrim; No. 2, T. Raynor, Rosehall; No. 3, G. A. Brodie, Bethesda; No. 4, H. E. Jeffs, Bondhead; No. 5, H. L. Hutt, Southend; No. 6, A. Shantz, Waterloo; No. 7, N. Monteith, Stratford; No. 9, W. A. McCallum, Ailsa Craig; No. 9, N. J. Clinton, Windsor; No. 10, E. A. Wark, Wanstead.

#### COMMITTEE ON EXPERIMENTS.

Agriculture—Profs. James, Shaw and Robertson, Messrs. C. A. Zavitz, J. Harcourt, E. A. Rennie, N. Monteith, W. A. McCallum and H. L. Hutt.  
Horticulture—Prof. Panton, N. J. Clinton and E. Lick.  
Apiculture—R. F. Holterman and E. A. Rennie.  
Dairying—Prof. Robertson, G. Harcourt and E. A. Rennie.  
Live Stock—A. E. Wark, F. J. Sleightholm, J. J. Sinclair, H. H. Dean and Geo. Harcourt.

### PRESIDENT'S ADDRESS.

J. A. Craig, B. S. A., Toronto.

GENTLEMEN,—It devolves upon me as a pleasant duty to welcome you all to our annual re-union, and this I do with all the heartiness and cordiality at my command. To our visitors we extend the free hand of friendship and invite them to reason with us on the burning questions of our agriculture, to the graduates and associates we give fraternal greetings, trusting that the old fond days of student felicity may once more be experienced unalloyed, while to the students and professors we offer glad welcome to our consultations hoping that the outcome of all our efforts may be reflected in some degree in our after work as well as strengthen and uphold to a greater height of power the institution we all love to think upon, talk about, and glory in. It is one of the soundest economical truths of the age, that the broad grindstone will sharpen the axe quickest, and so in touch with this we, as a society, seek to sharpen our wits by the breadth of mind resulting from the presence of many.

A decade has swept rapidly by since this society of ours launched out on its course with the laudable and extended work before it of binding the alumni of this college together for her and their good, as well as to endeavor to raise our agriculture to a status of a skilled art and sound science; and if I correctly draw conclusions from the past, and if I peer not too optimistically into the future, the years to come will be pregnant with greater results and fraught with closer unity. Our caption implies that we are a union, but it fails to express to the uninformed mind the great truth round which all others swirl that we either as students, ex-students, graduates, or friends of the O. A. C., are bound together as a unit to extend the usefulness of our Alma Mater. Fealty to our college and her cause is the cementing material that holds together the foundation and superstructure of this Union and this

allowed to weaken through oversight presages the collapse of the whole structure. The connection between our society and the college deserves a first place and the highest honor in our estimation when considering the elements that have contributed to the success of our Union. It has appeared to me that in the past this desired unity of all for the good of the one, though at all times apparent, yet has never been accredited with the importance that is due it and the fruits of this are to be seen in the number of the college alumni that annually gather here. Our weakness, and it is well that we should know it, is that we cannot bring out the number of ex-students, associates, and graduates, that should attend; this statement is grounded on the fact that there are hundreds of such throughout Ontario. Why is this? It may be a matter of dollars and cents with those far away but it cannot be so with those near at hand. It seems to me that not considering their presence according to its true value there never has been a very strong bid made for their attendance. As a means of in part remedying this condition of affairs we should in our programme give greater prominence to the discussion of collegiate matters, and through this means keep up the interest in the college in the minds of all the alumni. For some time past I dotingly mused on the pleasure I would have in broaching to you the subject of a college paper, but I am happier now in spending words, that otherwise would have been used in advocating this measure, to give cheering encouragement and express warm gratitude to the active and able movers in this important matter. As the REVIEW greatly strengthens the bond of union between friends outside the college walls with those within its Campus, so must it serve to make this Union of ours stronger in every way. The scheme that I would have advanced would be to make it not only an organ of the O. A. C. Literary Society, but of the Experimental Union as well, and it is still an opinion of mine that such a step might well be taken yet. As we are all aware there has always been a great delay in issuing our reports, and this has been the fault of the printer and not of the compiler. Being an organ of the society the results of the experiments and doings of this meeting would be made known through its pages long before it would reach the anxious experimenters through the usual tedious course. It would devolve upon the Union to bear some of the expenses of publication of the REVIEW, but that would not be considerable. This suggestion I commit to your charge. I have thought that in our brief sojourn here we do not extend our acquaintances among the students as we should. We are not here to merely criticise each other coldly from a distance and drop comments as to the evolution of the O. A. C. graduate, but we are here to know of each other and to co-operate with each other in helping along our good cause. Means should be considered such, perhaps, as the adding of a committee on reception to our list to make our meetings more genial in that respect, and further also provide, as far as possible, for the accommodation of visiting alumni in the college. It dampens their ardor and tempers their zeal to seek the modest Inns of Guelph, and I am sure that I voice the opinion of every graduate here when I say that they would willingly pay double the hotel charges to be allowed to make their home in the college while here. Repose this duty in the charge of the students and thus find them up with the interests of the Union as much as possible.

The most practical phase of our work is that of experimentation, and in respect to this it seems to me better to urge a thorough development of the various lines of experiment we now have in hand rather than weaken our forces by branching off into any-

thing new. It has been said by Coleridge that experience is like the stern lights of a ship which illumines only the track it passes over, and we may extend this simile by saying that experiment is the brilliant head-light that illumines the path before. Agriculture has long suffered for the want of experimenters to solve the many perplexing questions of practical import that are continually cropping up, but that day is past and now we find farmers and scientists, though long estranged, brought into close contact with benefit to both through the medium of experimental stations and associations such as ours. That the results of experiments carefully conducted and bearing on the practice of the farm are appreciated, is reflected in the energetic efforts that are being made in the establishment of stations in all countries. In our own Ontario and the older Provinces of our Dominion the bottom has been completely knocked out of grain farming, and moreover it is a bottom that will require the best knowledge and finest skill to restore. Be it our work to do this through the medium of our experim'nts.

The data we are constantly collecting through our fertilizer and grain experiments that deserves emphases by reaction, is that each experimenter determines the best fertilizer and grain for his own soil and conditions, this no experimental station can do for him. It was a timely suggestion that was made by my predecessor in regard to experiments in respect to our live stock industry, and I am pleased to know that this suggestion has been acted upon. This is a field for our Union worthy of it for there is now in Ontario a strong reaction going on in favor of this interest, and it means that in a few short years Ontario will be the stockman's paradise of this continent, and as the interest grows the value and appreciation of our experiments will become greater.

In conclusion, let me say, our footpath through the labyrinth is already blazed for us, and all that we need is hearty co-operation, generous enthusiasm, and universal encouragement, and under such conditions the objects that gave birth to this society must gradually evolve into accomplished realities. Many of us rest too long after we hoe our row, but this should not be; for this Union to make permanent progress in the work before it must ever have your interest, your best efforts, and the benefit of your counsel.

Having these views optimistic though I may be, I cannot with any degree of surety mark the limit of usefulness of this Union not only in keeping us shoulder to shoulder in the ranks of college defenders, but in elevating to a higher position in the industrial, intellectual, and social world, that industry with which we are all proud of being inseparably connected.

### The Scientific Principles Underlying the Making and Feeding of Corn Ensilage.

By C. C. James, M.A., Professor of Chemistry, O. A. College.

The making of corn ensilage began in America about fifteen years ago, its development belongs to the last ten. To-day the growing of corn, the production of ensilage, and the feeding of it to stock are among the most extensive and most numerous of the experiments carried out at the Experimental stations of Massachusetts, Maryland, Connecticut, New Jersey, New York, Ohio, Kansas, Missouri, Minnesota, Wisconsin, and Ontario, and it is upon the results of these that the present address is based. From the multitude of opinions and results I have carefully endeavored

to separate the hypothetical from the actual, and to draw reliable conclusions based upon a wide range of experiments.

I shall divide my subject into three parts: the corn put into the silo, the process of making ensilage, the use of the ensilage thus produced.

#### THE CORN PUT INTO THE SILO.

Out of nothing nothing comes. Good ensilage can be made only from corn of good quality. What comes out of the silo depends upon what goes into the silo.

Circumstances affecting the quality of the corn are:—

1. Variety of corn.
2. Nature of soil, method of preparation, fertilizers used.
3. Method of growing corn, whether broad casted or drilled, cultivated or uncultivated.
4. Season.
5. Stage of maturity at time of cutting.

The chemist is concerned principally with Nos. 3 and 5.

3. Method of Growing.—The general conclusion of experiments at all stations, based on chemical analysis and actual feeding tests, is that the best ensilage is produced from corn that has been drilled and not broadcasted. Every stalk of corn should be grown so that it has plenty of soil room in which to develop its roots, plenty of rich soil to draw nourishment from, plenty of air-breathing space, and plenty of sunlight falling directly upon all of its leaves. The immaturity of closely growing corn depends more upon its lack of sunlight than upon any other cause.

Prof. Roberts (Cornell Experimental Station, New York, 1888), valued as follows:

One acre of hay.....	\$18 00
"    broad casted corn.....	19 72
"    drilled corn.....	35 74

4. State of Maturity.—This is controlled greatly by method of growing. Prof. Roberts, following out his experiments as cited above, says:—"From the above facts it will be seen that the real feeding value of the corn increased 166 per cent. after it had tasseled out, and 80 per cent. after it had nearly reached the roasting ear stage. This being so, the greatest care should be taken to select those varieties of corn intended for ensilage that will fully mature before frost, in the localities where it is proposed to grow them."

Bulletin 9, 1889, Missouri Experimental Station, discusses the life history of corn and contains this among many important statements. "The considerable increase between Sept. 10th and Sept. 17th (amounting to 24 per cent. of the total weight) indicates clearly that a crop of corn should remain in the field as long as possible, the weather permitting, to reach its greatest perfection."

Mass. Report for 1885, says, (p. 53) "One ton of green fodder corn in tassel contained in one case 307.2 lb. of dry vegetable matter; whilst in the case of the seed just beginning to glaze 463.8 lb. of dry vegetable matter are found in one ton,—a difference of 156.6 lb. in favor of the more matured state of the growth."

Mass. Report for 1886. "The ensilage of a more matured fodder corn has a higher feeding value pound for pound, compared with that cut at an earlier stage of growth."

Other experiments might be referred to, the general conclusion is that for quantity and quality of corn and ensilage the plants should be grown in drills and allowed to grow until the kernels begin to glaze. So long as a plant is increasing in height there will be little sugar or starch accumulated in its stalks or leaves, its compounds will be principally in a state of translocation, in a soluble form liable to easy change.

#### CHANGES TAKING PLACE IN THE SILO.

In 1884, Dr. A. Voelcker, F. R. S., addressed the Royal Agricultural Society as follows:—"I feel compelled, however, to say at once that a careful and critical study of the literature of the subject, and attentive perusal of most of the original publications on ensilage in England, America, and the Continent, have shown me how scanty and imperfect is our knowledge of the complicated processes of fermentation and of similar chemical and physical changes to which succulent green food is liable under various conditions of temperature, the total or partial exclusion of atmospheric air or its free admission."

The same can be repeated with equal truthfulness in the year 1890. The changes taking place in the silo are principally changes that are classed as fermentations, and the latest English, French, and German investigations of fermentations leave us in much uncertainty as to their nature and conditions. From the conflicting opinions and the varying results I have selected a few results that are the unmistakable outcome of a large range of experiment and experience.

1. Loss.—There is a loss of valuable plant material due to the chemical changes taking place in the silo. It will vary from a very small per cent. to one-half of the dry material of the corn. The loss will depend upon the condition of the corn placed in the silo and the fermentations taking place. The substances lost or used up will be in the following order:—Sugar, starch, fibre, nitrogenous compounds. The distillation of these constituents will be accompanied by the production of acids (carbonic, lactic, butyric, acetic, etc.), so that the acidity of silage is a fair test of the loss sustained, and the production of as sweet a sample as possible is both advantageous and economical.

2. Production of Acid.—We have just stated that this is carried on at the expense of the most valuable portions of the corn. The difference between sweet and sour silage is one of degree of acid, varying in sweet ensilage from .02 per cent. to .30 per cent. of acid to 2.0 per cent. or over in sour ensilage.

Now let us look at some of the conditions controlling acid production, for in understanding them and following out their conclusions lies the difference between sweet and sour, good and poor ensilage.

(a) Water.—Ordinary fermentations are carried on in solutions, in presence of water. Matured grains, straw, well-cured hay, succulent foods thoroughly dried, manure deprived of all of its moisture will not ferment. Even concentrated solutions ferment but slowly. It would seem that when the plant is young and succulent when the amount of water rises much above 75 per cent. that the cells are in their most favorable water condition for fermentation. Water is not only a favorable medium in which the fermenting cells develop most vigorously, but is also demanded for many of the chemical changes, many fermentations being processes of hydration. To retard acid formation therefore, save loss of food, and make sweet ensilage the material put in should not be too succulent.

Conclusion.—For sweet silage use well matured, or partially dried and wilted corn.

The amount of water in the corn depends upon the state of maturity, the method of growing, and the treatment at harvesting.

CORNELL EXPERIMENTAL STATION, DEC. 1888.

PERIOD.	DATE OF CUTTING.	PER CENT. WATER.
I	July 21	86.11
II	Aug. 8	84.57
III	Sept. 3	77.13

"It will at once be seen that the most marked difference in the composition of the fodder cut at the different periods consists in the constant and rapid decrease in the amount of water." (Prof. Roberts.)

MASS. EXPERIMENTAL STATION REPORT, 1884, P. 42.

FODDER CORN AT DIFFERENT STAGES.

JULY 22, JULY 24, AUG. 3, AUG. 5, AUG. 27, SEPT. 3.

Water	88.04	86.70	84.91	82.68	80.85	76.81
Solids	11.54	14.21	15.79	17.02	18.84	23.00

The crowding of corn together also has the effect of retarding growth and maturity, and in most cases, of increasing the water per cent.

ONTARIO EXPERIMENTAL DAIRY DEPARTMENT, 1888.

Drilled corn, 81.32 p. c. water; broad casted corn, 83.61 p. c. water.

In favorable weather the wilting upon the ground will have the effect of reducing the water per cent. and also of effecting changes (as many advance) similar to hay making or curing.

(b) Condition of Maturity.—"The marked increase of nitrogen free extract (members of the starch family) as the corn matures and the progressive decrease of acid in the ensilage, show how greatly the corn improves as it approaches ripening. The relatively large amount of water and crude fibre in the young plant justifies the epithets 'slush' and 'swill' as applied to the ensilage from such material." (Michigan Experimental Station Report 1889). This statement accompanies a table of analyses of ensilage from which the following is taken:

No. 1, Aug. 25, wilted two days, then ensiled, 1.10 per cent. acid.			
" 2, " 27, put in fresh,	1.02	"	"
" 3, Sept. 1, wilted two days,	0.95	"	"
" 4, " 3, put in fresh,	0.91	"	"
" 5, " 8, wilted two days,	0.87	"	"
" 6, " 10, put in fresh,	0.80	"	"
" 7, " 13, put in fresh,	0.81	"	"

Prof. Henry, of Wisconsin, says, "In regard to making the so-called sweet ensilage the main point appears to be to have the corn well ripened, ready for early cutting and shocking. Corn ripened so that the grain begins to dent will make sweet ensilage even if the silo is filled in a single day."

The more matured a plant, the more fixed, less changeable are its constituents, i. e., the constituents of a young plant will suffer change or decomposition more rapidly than those of the same plant more matured.

(c) Temperature.—Mr. George Fry, of England, in his work "Sweet Ensilage," laid great stress on the necessity of raising the ensilage to 122° F., thereby to stop the various ferments. The most favorable temperature for the development and working of the various ferments is about 95° F., and most of them cease at

122° F., but some continue active to 140° F. Fry says that excess of water in succulent food prevents this rise of temperature and that sour ensilage thereby results, as the ferments are not then destroyed.

In opposition to Fry, Prof. Alvord, of Maryland Experimental Station, says, "Temperatures 110° to 140° F. are most favorable for their development and activity, and it requires at least 185° F. to destroy them, while fermenting ensilage does not often exceed 140° F., and no authentic record of 150° F. can be found."

Along the same line Prof. Johnson, of Michigan, says, "I am of opinion, however, that positive evidence to sustain this theory is almost if not entirely wanting. Enough careful work has not been done to demonstrate it beyond question."

Amid conflict of opinions I think that, taking the conclusions of scientific experts as our guidance, we are warranted in the conclusion that though we cannot expect to raise the ensilage to such a temperature as to cause all ferments absolutely to cease work, nevertheless we can retard greatly their action and control somewhat the souring of the ensilage. There is along this line room for investigation on the part of our interested young agriculturists of a scientific turn of mind.

(d) Method of Filling.—Whether slowly or rapidly, whether whether wilted or unwilted; this will be partly controlled by the weather, but there seems to be something of more controlling influence back of this. The effect of the method will perhaps have more effect on the aroma or flavor of ensilage than upon its acid production.

(e) Exclusion of Oxygen.—Presence of air is of course necessary for the beginning of many of the fermentations, but, once commenced, absence of air will not necessarily destroy them. The exclusion of the air is of most importance in the case of ensiling young and succulent fodder.

3. Effect on Protein.—This is the muscle and flesh forming portion of the plant, hence the effect on it is worth considering. Michigan Experimental Station, Bulletin 49, May 1889, states, "A small loss of crude protein is common in the silo, but the change from albuminoid to amide condition of the nitrogen of the nitrogen compounds is the most striking feature of ensiling. These two facts point to a loss of value in ensilage as compared with the fresh corn stalks, or even the dry material when it has been rapidly and perfectly cured."

The same conclusion was arrived at by Dr. Voelcker in '86-'87, and reported upon to the Royal Agricultural Society of England, Report XLVI, p. 403. Silage was made from grass and compared with hay from the same. "The total loss due to fermentation, evaporation, &c., in making the silage was 7.29 per cent. on fresh grass, of this 3.25 per cent. consisted of water. The loss of total nitrogen when, as here, no drainage is allowed to flow away, is very slight; but the nitrogenous bodies have undergone considerable change from the albuminoid to the non-albuminoid condition. The woody fibre, as indeed the whole of the fibre has been diminished, insoluble albuminoids are lessened, and the soluble albuminoids increased. In the hay the nitrogen has undergone but little change."

Put in silo 151 lb. (n. compounds), 123 lb. alb'd, 28 lb. amides.  
In silage 155 lb. (n. compounds), 73 lb. alb'd, 82 lb. amides.

(TO BE CONTINUED.)



## Correspondence \*

### \* and Contributed.

#### Our Language.

In this present age when *life* is at such a rush that there is just time enough to breathe in fulfilling our daily avocations, not much attention is given by the average citizen to refinement of thought and language. This fact is forced upon us more and more each day as we look at our daily journals or listen to the speech of the ordinary business man. Who cares, for instance, how beautiful and correct an advertisement appears as long as it reveals the truth or obtrudes the truth before the eyes of all. And yet, is there so little in a mere advertisement? Apparently not, for some large business houses have built up their name and fortune by judicious, pleasing, and beautifully expressed language in newspapers. If this be true then in the most trifling affairs, is it not much more so in our periodical literature? If we understand the position of our periodicals it is to educate the people, and not merely this, but to do so in a pleasing manner; still, articles appear before us constantly which may contribute largely to our mirth and even stir our intellect, yet they are often marred by language ungrammatically expressed and by thoughts written in a course and clumsy way.

Are we writing to please or instruct, or are we trying to force ourselves on the public, courting notoriety and so revealing strongly the lowness of our natures? Do we not know that the best of everything is sure to last longest? Compare the works of Abraham Cowley with some of our 19th century novelists. Have we the depth of thought, beauty of language and purity of speech in the latter that we possess in the former? We feared not. How then did he and how shall we obtain this purity of thought and beauty of speech? By going to richest stores of literature and by spurning the trivial trash poured forth every day as language too vulgar, crude, and unchaste for the developing of the intellectual mind. Perhaps no line of literature has suffered so much in impurity of language—by this is meant violation of etymology and correctness (purity) of speech—as fiction. Science has been championed by our ablest and best educated men. Notice Lyell's *Geology*, Dr. Carpenter's *Mental Physiology*, Huxley's *Physiology*, or Darwin's works.

Would science have the hold on the public mind which it has at present if its literature had been of an inferior kind? Most certainly not, for its devotees would be filled with disgust and readily give up the study.

Let us then at all times advocate lofiness and purity of speech, and if we are at a loss for a guide what better book can we have than the grand old Bible, a book recognized by all critics of literature as the finest work in our English tongue.

PERCY M. VIX.

#### Progress of Life and Length of Geological Time.

We are now assured through the researches of eminent scientists that the time intervening, between the period when the earth was in a nebular state to where authentic history begins, was of almost immeasurable length. Many no doubt will ask what

proof there is for this assertion; to those we would answer three men through long years of research and study have accumulated evidence which goes to prove that the earth has passed through several different stages of development and changes that are clearly defined in layers of rocks, which are by some termed "the eternal leaves of history." By these leaves, or the rock masses of which they are composed, we are enabled to judge time with a fair amount of accuracy by comparing them with a rock disintegration and soil formation within the period embraced in man's history. Among the most notable of these are the Niagara Falls and the Coral reefs. The former has made a gorge six miles in length, which, at the present rate of retrogression, viz: One foot per year, would take 31,000 years to accomplish. But this does not give us a very satisfactory answer to the question of time, for evidences are forthcoming to prove that the waters of the great lakes went out by way of the Mississippi River, so that at some period long ago there must have been an immense rift in the rock through which the St. Lawrence now flows, and only since then would the Niagara act as a gauge of time.

We have still another register in which is recorded the evidence of centuries, viz: The Coral reefs, the rate of whose increase is about one-sixteenth of an inch per year. The thickness that some of these have attained is 2,000 feet; therefore, at the present rate of increase, it would take 314,000 years for them to accumulate. That these are fairly accurate we may judge from the fact that the great depression of the sea bottoms and the elevated lakes or continents have always maintained much the same position which they now occupy.

The record of time as deciphered in the rocks by that eminent scientist, Sir Wm. Thompson, is 100,000,000 of years, which no doubt is accurate enough for all ordinary purposes.

I have omitted the rock layers considering that you would deem them hard subjects. Next let us consider what has been adduced to substantiate our heading, viz: The "Progress of Life." The first life or germ is thought to have originated in the Archean age, or the beginning of the Paleozoic, and was of the most simple form. The Rhizopod, the first among animals, without limbs, without any sense beyond the general sense of feeling, no stomach, no respiratory system, nothing, but a mere protoplasmic mass; such, we have reason to believe was the beginning of life, from this small beginning we can note the gradual development or progress of life, from the one called Rhizopod up through long ages in successive periods during which different creatures held sway to the present, where we find man, the last limit to which the law of cephalization can be carried in the system of life. Condensation anteriorly and abbreviation posteriorly is the law of all progress in embryonic development. Thus man stands at the head of all vertebrates in having only the posterior limbs required for locomotion, the anterior having higher uses, viz: the worship of his God, and also in having the head most compacted in structure and brought into the least compass consistent with the amount of brain. The idea of system in all structure and of progress through the ages, under laws of specialization and cephalization according to a scheme that may be compared to the opening of a flower, or the development of a germ, instead of being æsthetic, it is the only view of the history of life that is consistent with its Divine origin. Were there no such order or succession, no such unity of law and structure, this would be complete demonstration that a being of infinite wisdom had not ordered or controlled events.

## How Shall the Work of the Farmers' Institutes be Rendered More Effective?

The work of the Farmers' Institutes is two-fold, viz.: to *educate* and to *protect*. The former is more properly the work of the individual Institutes, and the latter that of the Central Institute through representatives sent by the District Institutes.

The work of education will be efficient in proportion as the meetings are frequent, large and well managed, and as the papers and addresses are direct, practical and interesting. The frequency of the meetings may be greatly increased in an indirect way, that is, by organizing local Institutes as has already been done in some instances, which may or may not be affiliated with the larger Institutes. Few meetings well attended are of course more effective than more thinly attended. The size of a meeting as things are at present is mainly in the hands of the Secretary, and is dependent on his ability, earnestness, and methods of advertising. The meetings should be much more advertised than they are by means of fly-sheets distributed through the post-office direct, and through the country schools. After a time it will probably be found necessary to appoint an overseer or director of Institutes to manage for mammoth meetings in each county, in conjunction with the Secretaries and have these meetings addressed by talent of the first order.

A Secretary who is not efficient should not be retained for a single day beyond the expiration of his term of office, and good Secretaries should get some remuneration for their work.

The management of the meeting will depend much on the chairman, who has power to throw life into the meeting or to chill it, as he is capable, entertaining and possessed of life and good business tact, or the opposite of these. Slow coaches whose methods are conformed to the wants of the last century should never be appointed to the duties of the chair. *Fossils* should never be requested to address the meetings. The age has outlived the want of the help of fossils, hence they in all time to come should be retained as curiosities. It is not enough that a man say good things, but that he should say them with the life and animation of a young man fresh from an agricultural college, and brimful of knowledge of the exact kind, adapted to the present needs of the farmer. A taste of science at these meetings may be used as a relish, but a meal should never be made of it there.

The day is not far distant when the work of instructing in the Institutes will be largely relegated to the graduates of the Ontario Agricultural College. They are doing a good deal in this line already, and while the exercise is helpful to them, it is more helpful to the Institutes.

The Central Institute may do a magnificent work if wisely and temperately handled. The disposition is at present to discuss too many questions without having sufficient regard to conclusions. When the findings of this Institute are sent to the powers that be, and are not heeded, they should be again reminded, until what has been fairly shown to be the will of the farmers of this Province is granted as a matter of equity rather than of favor, as these things are sometimes represented.



J. Neilson writes us from Lyn, Ont. He was a member of '82 Class.

John Leask, of '81 Class, died at Melbourne, Australia, in September, '88.

J. B. Muir, 1st Silver Medalist of '83, is farming at North Bruce, Ont.

F. C. Warner, of '87 Class, is farming on the old homestead at Decewsville, Ont.

E. Luton, of '82 Class, is engaged in mixed husbandry near St. Thomas. "It is not good that man should be alone."—EARN.

W. W. Hubbard, of the Special Class of '87, sends words of encouragement. He is farming at Burton, N. B., and regrets being unable to attend our Experimental Union meeting.

We learn that T. H. Timmy, of '87 Class, is conducting a large business in the cutting and shipping of cedar posts to different parts of Ontario and the United States.

W. J. Palmer, A. O. A. C., of '88, writes us from his home near Charlottetown, P. E. I., where he is engaged at farming. Joe thinks times are looking up when the O. A. C. Literary Society can run a paper.

A number of the delegates of the Central Farmers' Institute meeting at Toronto, stopped off to attend our Union meeting, on their way home, and without exception, expressed themselves as well pleased with the papers read and their discussion.

Mr. F. J. Sleightholm, Humber, Gold Medalist of '87, was married Feb. 27th, inst., to a young lady of Norwich, Ont. The REVIEW staff wish Mr. and Mrs. Sleightholm a long and happy life; and after them we ring our oldest slipper. All the medalists of '87 are now married and have set a good example for others.

We regret to learn of the death of W. J. Gilbert, at Sackville, N. B. He was an Associate of '87, being also cartoonist and artist of that year. At the time of his death he was editor of the *Maritime Agriculturist*, which position he had held for a short time. His friends and relatives have the heartfelt sympathy of the REVIEW staff.

There was a larger number of ex-students in attendance at the Experimental Union meeting, held at the college on the sixth and seventh inst., than has been for several years past. The following is a summary of their names:—Byron Robinson, of '79, Wheatly; W. W. Ballantyne, '81, Stratford; Jas. Fotheringham, '81, Grenfell, Ass.; G. A. Charlton, '81, St. George; J. R. Job, '81, Waterford; J. B. Bowes, '82, Pinkerton; W. A. Jameson, '83, Thornton; T. T. Morden, '83, Walkerton; P. S. Idington, '86, Stratford; G. F. Marsh, '85, Thornbury; J. S. Howes, '87, Harriston; W. R. Bishop, '88, Brussels; J. J. Fee, B. S. A., '88, Toronto; E. M. Jarvis, '88, Clarkson; J. J. Wilkinson, '89, Winterbourne; C. J. Brodie, '85, Bethesda; J. J. Sinclair, '88, Ridgeway. Among the visitors were a number of leading



agriculturists from different parts of Ontario, viz.:—J. I. Hobson, J. Laidlaw, J. Anderson, W. F. Clark, W. Kenny, Major Hood, J. Hobson, and others from Guelph and vicinity; D. E. Smith, of Clurcheville; H. and J. Lee, Dumfries Township; T. Brooks, Brantford Township; S. Rankin and J. Dempsey, Stratford; W. D. Henry, Thornton; J. Crosby, Martin; H. L. Riding, Frankfort. L. and J. Stauffer, Waterloo; J. H. Shephard and I. Weber, Bleamingdale; J. Morgan, Adelaide; J. Shore, of *Farmers' Advocate*, London; G. Craig, Elora.



Two thoroughbred Ayrshires arrived on the 13th from J. Yule, Carlton Place.

NOTICE to the first year. Night lodgers not taken in the non-smokers' room.

New reading for "Macbeth" Act I., Sc. 2, L. 15.—"Of Kernes and Galloways is supplied." J. Harcourt, Editor O. A. C. version of Shakespeare.

TUMBLERS are apparently deficient in the College stock, we noticed one table set recently with seven extra delicate china cups at dinner time.

SKATING was very fair at the time of the Union Meeting and also on the 1st of February. Several boys enjoyed a good hour or two's run on the trusty blades.

PROF. PANTON has been attending the Dominion Convention of Fruit Growers at Ottawa, on the 19th., 20th., and 21st. insts., there delivering a valuable lecture on the "Fungi of the Grape."

PROFESSOR ROBERTSON led the Y. M. C. A. meeting on the 30th. Jan., giving a practical talk on College life. He urged on all as a necessity for a right footing the unceasing practice of diligence, economy and kindness.

FERTING rations are being carefully studied here. We venture to state, however, that Mr. Cuppage, with his experimental steers, cannot equal the results obtained in the College, for we learn that a certain individual has laid on 21 lbs. to his 200 in two weeks.

TAKING advantage of a little cold, or rather cool, weather five teams are busy hauling ice in wagons. Is winter not coming this year? We remember seeing in a recent English paper that wild strawberries were in bloom in Wales in the middle of January.

We have received an interesting account of a tour of Messrs. Hobson, Croil and Raynor to Farmers' Institutes last Jan., written by T. Raynor, B. S. A. Owing to press of matter in connection with the Union we are obliged to withhold it from this number.—(Ed.)

So that the Guelph Fat Stock Show should not be lightly passed over by the students here, Prof. Shaw very kindly offered three prizes to the 2nd year for the three best essays written on it. Five or six competed and the happy winners are Messrs. Hutt, R. E. Cowan and J. Harcourt.

Owing to the frost and snow no foot ball has been indulged in for the last month. We are glad to hear that next season a Junior Champion Cup has been offered by the Rugby Union. Should the College be as well represented as in the last season their chances for the trophy are brilliant, but it is feared that few of this year's team will be included.

Boxing seems to have fallen flat this term though it is rumoured that nightly exhibitions are given by one of our champions; then he poses before the admiring gaze of two or three small boys to whom he expounds his different systems of reducing all superfluous fat: walk up, walk up and see this Sandown burst chains (string) by means of expansion of chest.

Born Guelph Cricket Club and we feel sorry that Sidney Saunders has left Guelph. Every footballer will remember what yeoman service he rendered us in our matches against Toronto and Trinity and may be some will call to mind his all round play for the College in former years, however we wish him every success and feel sure that what is our loss is Hamilton's gain.

We have had one or two accidents this last fortnight, but we are thankful to say that none have been of a very serious nature. Some amount of suffering has been experienced by H. Wills, who got his wrist caught in the fanning mill and pinched rather badly. Mr. Carruthers was the next unfortunate, having his finger cut in the chopper and the nail taken nearly off. W. Wood got a nasty jam from a sleigh being backed up and catching him against a wall, and Moody unfortunately cut his foot while out chopping.

An enterprising dairyman near London, Ont., had a very enjoyable trip last week to the O. E. F. Being desirous of starting a cream separator he enquired here if ours would be running on a certain day so that he might come up and see it in operation. The secretary asked Mr. Storey if it would be, and obtaining an affirmative reply telephoned the same to the expectant visitor. Up he came, and found to his exceeding delight our Champion Separator wrestling manfully with sheaves fed by an extra supply of students specially hunted up for the occasion by the farm foreman.

The Business Managers of the REVIEW wish to acknowledge the receipt of subscriptions from the following:—E. H. Iate, W. R. Bishop, S. P. Brown, W. W. Ballantyne, S. Calvert, G. C. Crechman, D. R. Denison, C. W. Elton, J. J. Fee, J. R. Hutton, A. E. Hogg, R. M. Holby, T. J. Horrocks, J. S. Howes, E. M. Jarvis, W. A. Jamieson, S. M. Knowlton, C. A. Kiel, Jas. Laidlaw, E. Lick, H. A. Morgan, J. B. Muir, J. S. McLaren, E. G. McCallum, T. T. Morden, Jas. Neilson, L. Patterson, R. J. Phin, T. G. Raynor, H. B. Sharman, J. Smith, M. W. Steacy, A. E. Shuttleworth, E. P. Smith, A. B. Wilmot.

It is hoped that another year will not be allowed to pass without holding the annual athletic sports considering the number of sporting chappies at the College, it is strange that such manly exercise should have gone to the wall; now is the time to reorganize an annual meeting, for when was the College so well represented in all branches of sport? Behold our Hercules Dolsen, our champion shot putter, Buchanan and Thompson, world renowned jumpers, Curzon, champion sprinter, McFarlane long distance champion, and such an all round champion as Gelling, besides, where are the equals of Shaw and Bayne in the three legged race? Let all lovers of sport unite to reorganize the annual athletic meetings.

ACCORDING to an old established custom the first meeting of the Literary Society after the Christmas vacation was left in the hands of the 3rd year, and certainly this time a very good entertainment had been provided. Clever parodies of 'Varsity songs had been prepared with numerous playful allusions to college life and celebrities. The solos in each case were taken by Mr. Monteith, while the rest of the graduating class joined with much vigor in the choruses. Mr. Gelling gave a speech on Nova Scotia, giving us a very clear insight into the resources of the country with special reference to gold mining. Mr. Shantz contributed a recitation, and the halls have since resounded with exact imitations of his musical cry of "Charco." A very fine display of club swinging was given by Messrs. McCallum, Brodie, and Shantz. Mr. McEavoy delighted us all with a comical reading, and Mr. Monteith gave a speech on "Science." Much credit is due to Mr. Rennie for his composition on "How Our Preacher Bought the Cow." It was brimful of fun, and his amusing manner of reading, coupled with the fact that for once he had got his tie in, kept us all interested from beginning to end.

ON Wednesday, the 5th inst., our Association was privileged in receiving a visit from Mr. C. K. Ober, of the International Y. M. C. A. Committee. Notwithstanding the number of boys engaged preparing for the Friday night's entertainment, we had a well-attended meeting at 9 p.m. Mr. Ober is a very taking speaker and we felt quite at ease with him when he began his remarks with "Fellow students." Frank, hearty, addresses have always characterized all such visitors to our Y. M. C. A. and quite do away with the idea that members of that association are necessarily namby-pamby sort of fellows. Mr. Ober gave us a brief insight into his work as travelling secretary and to show how far-reaching it is, he mentioned that on the previous Sunday he had been "away down South" in Georgia. He gave us several useful hints for improvements in the work here, but the most enjoyable time spent in a friendly conference in the reception room after the meeting proper. There our special difficulties were gone into and we all felt much cheered and helped by his memorable visit. Mr. Ober left early on Thursday to attend the convention at Brantford.

OUR Association decided to send five delegates to the annual convention of the Y. M. C. A. for Ontario and Quebec, held at Brantford. Accordingly early on the 7th inst. Messrs. G. Harcourt, B. S. A., Hewgill, Whitley, Buchanan and McKergow went off to attend the sessions. Their reports were given at the Thursday night meeting on the 13th, and the following Sunday afternoon. They must have had a real good time there, for keen interest was taken in the reports presented and an impetus has been given to the work here. There can be no doubt that it is exceedingly beneficial in many ways for delegates to attend such convention. There is the mixing with men whose names are well-known through the Province as active Y. M. C. A. workers. This in itself is inspiring, but how much more so must it be to attend meetings full of life from beginning to end and hear the profitable discussions? It is a pity that the helpful influences under which the delegates are brought cannot be transmitted in their entirety to the home association. Still, as our foundation is of comparatively recent date it is a matter of some congratulation that five men should be sent, and especially that Mr. Harcourt's paper, read at the Convention, should be so thoroughly acceptable to those present.

INSTEAD of an ordinary meeting of the Literary Society on the 14th inst., we had the pleasure of hearing Miss Henderson, from the City, deliver a lecture on Phrenology. The subject was handled in a very interesting manner, and was illustrated by several lantern pictures descriptive of various types of heads. The amusing part of the programme was when Messrs. Brown and Brodie ascended the platform and had their characters and aspirations read by the lecturer as she lightly fingered their silky hair and many "bumps." Mr. Brown's comical solo at the commencement of the meeting must have given Miss Henderson a little insight into his appreciation of fun, and certainly as far as we know these two beauties their natures were pretty accurately revealed. As we filed out of the lecture room the news of the terrible conflagration at Toronto spread through our midst and for a long while we grouped together discussing the scanty details. Fellow students at the 'Varsity accept our sincere sympathy. The following day the universal question was, "Have you had your head read?" for all the afternoon Miss Henderson was busy with various craniums expounding unto us our faults and talents, and distributing charts. Several boys were heard loudly lamenting that the "Adaptation in Marriage" column had not been filled in.

THE Annual Supper of the O. A. C. Football Team, kindly given by Professor Robertson, was held in the dining hall on Jan. 28th. Covers were laid for 40, as besides the team there were present Professors Shaw, Panton and Hunt, as well as a few specially invited students. After partaking of the numerous good things provided, an interesting toast list was entered upon. The absence of the President and Professors James and Grenside was regretted by all, as the speeches for which they were down would have contributed in no small degree to the success of the evening. The Honorary President, Professor Robertson, was naturally the speech maker, and his remarks, full as they were of humor and deep thought, were highly appreciated by all. Prof. Panton responded in very graceful terms to the toast "Science the Handmaid of Agriculture," and Prof. Hunt gave an amusing reply to "Mathematics in a Scrimmage." Prof. Shaw roused all present by his earnest remarks in response to the "Agricultural Interests of Ontario." The musical part of the programme was well provided for. Mr. Esterbrook contributed a banjo solo and also played a duet with Mr. Dolsen. Mr. Bayne (Captain) gave the O. A. C. version of "Killaloe," and Messrs. Musgrave and Buscarlet charmed the audience with good songs. The inevitable "Farmers' Song" was also on the list, the solo being taken by Mr. G. Harcourt, B. S. A. After the "Ladies" had been duly honored, Mr. Dean responded in a very able speech to the "Press." Time passed so pleasantly that 12 o'clock sounded long ere the guests were ready to depart, but "Auld Lang Syne" had to be sung as the finale, and away the happy athletes trooped after three rousing cheers for our esteemed Professor Robertson, and those who had so nicely arranged for the inner man.

AN open meeting of the Literary Society was held on the 7th inst. in honor of the ex-students attending the Union meetings. The old familiar dining hall had been decorated with evergreens, flags, and red, white, and blue hangings, making it very attractive. The stage had one of the most magnificent drop curtains ever placed before a Canadian public. The rooms on our flat had been ransacked for "wings" and "back pieces" so that that end of the hall was transformed into a perfect bower of beauty. Joking apart, the decoration committee deserves praise for the tasty ap-

pearance of the hall considering the short time at disposal. The first part of the programme consisted of a minstrel entertainment; notwithstanding the stormy night all the darkies got in well blacked and with costumes intact. The troupe was composed of Messrs. Esterbrook and Mattice, bones; Seymour and Brown, tambourines; Harrison, cymbals; Dolben, guitar; Hadwen, violin; Misgrave, flute; McCallum, Gelling, Ransom, Bayne, Worthington, Busearlet and Harris. The last mentioned as center man or interlocutor was very good, his oft repeated "Would you mind asking your question again," and "Did I hear your question aright," also his somewhat "Tomatomanian answer to every question, "I must confess that I have never given that subject my careful consideration," fairly brought down the house. The jokes were for the most part topical (or as one paper printed it, *topical*) and gave a great amount of amusement. The "corner men" had their full share of the work and kept up the fun merrily. After Mr. Harris' opening speech the company played the "Boulangier March" with great spirit. Besides the numerous songs and choruses, which evoked hearty applause from the audience, there was a capital duet on the banjo and guitar by Messrs. Esterbrook and Dolben. To Mr. Hadwen were entrusted the two topical songs of the evening, "Later On," and "Where Did You Get That Jam?" the latter being enthusiastically endorsed. After a first-rate exhibition of club-swinging by Mr. McCallum in most becoming costume, the curtain rang up on the laughable farce of "Box and Cox." Mr. Harris undertook the part of the whitewasher, Mr. Ransom, the waiter, and Mr. Esterbrook impersonated "Auntie Bonceer." All the parts were capitally sustained while the general "business" had evidently been carefully rehearsed.

The *Messenger* of the 6th. inst. reports: "The members of the staff of the O. A. C. met quietly this afternoon in the College Reception Room on a fitting, yet regretful, mission. It was to mark the severance of the brotherly relations which have always existed between Prof. Robertson and the other members of the staff. Year by year they have stood shoulder to shoulder in advancing the interests of the College and those of the farmers of Ontario and now the removal of Prof. Robertson to a wider field has broken the companionship, which has so long existed in this work. A tangible expression of their esteem accompanied the words of farewell. Prof. Shaw, on behalf of the staff, read the following address:

O. A. C., Guelph, 6th February, 1888.

To: Prof. J. W. ROBERTSON.

DEAR SIR, It was with feelings of unmeasured regret that we, the members of the faculty of this College, learned that you had severed your connection with the same.

During the whole period of your term of office here we have observed with much satisfaction and pride the success which you brought to your own special department and the prestige which came along with the success to the entire Institution.

In view of this fact, and of the very pleasant relations that have all along subsisted between us, we feel that we would be recreant both to duty and prestige were we to allow you to go to another sphere of labor without giving you some token of the true and deep regard that we bear towards you.

We, therefore, unite in the request that you accept at our hands the paper knife which we now present you, and this volume of "Our Own Country." You will please accept them, not because of their intrinsic worth, but that they may serve to you as remembrances of our regard for you, both now, hitherto, and in all times; and also of our sense of loss in knowing that so much of manly, honest, sterling, worth and wisdom is going from us.

We find unmingled pleasure in conveying to you the assurance that our best wishes accompany you to your new sphere of labor, and we trust that you will make it even a greater success than the one you are leaving. It is our earnest desire that you may long be spared as an offering of usefulness on the altar of your country and of your country's God, and that you may prove abundant in successful labors, and in the temporal and eternal rewards that come to the great and good.

SIGNED BY THE MEMBERS OF THE COLLEGE STAFF.

Prof. Robertson, in replying, thanked the members of the staff very feelingly, for the kindness of their expressions of esteem. He felt sorry at the prospect of a severance of the pleasant relations that had existed, but expected to find some solace in being associated with congenial workers in his new sphere of labor for the Dominion. He was assured that the College would continue to grow in the confidence and respect of farmers, while such willing and able men are on its staff of Professors.

Although the weather is not first rate for visiting, we get several people up almost daily, to inspect the museum, library, stock and buildings. We noticed recently a delighted student escorting three charming young ladies round the premises, loud and prolonged was the well-known cry of "Lalla-lie-hoo" as the party explored the sheep stable.

A few nights ago the professor on duty passing along "Upper Hunt St." surprised a boy out of his own room and in another's. The poor wretch eager to escape detection, hid under a coat hanging behind the door and was detained there while a lengthy conversation took place between the rightful occupant of the room and the preceptor. The unlucky wight was so thoroughly frightened that he dared not move although the light went out accidentally (?) once or twice.

If students perambulate the flats at night clad in but one loosely flowing, white garment, it is but natural they should be the targets of canfuls of cold water. One boy's recent experience has proved this remarkable fact.

The meetings of the Experimental Union held on the 6th. and 7th. insts. were an unqualified success. One great feature, the Annual Supper, must not be omitted and so we append the *Messenger's* report:

THE SUPPER.

The annual reunion of students, ex-students, visitors, the staff and their families, took place round the tea tables in the large dining hall in the evening, and there were no vacant seats, about one hundred and fifty being present. The room had been tastefully decorated by the students and the delicacies prepared by the Matron and her assistants were gratefully disposed of in the most practical manner.

After this necessary preliminary had been attended to, President Mills welcomed the ex-students and visitors, referred kindly to the absentees, said that they were about on their feet again after their set back of 1888, the burning of the barn, and spoke of the great loss the College would sustain in the departure of Prof. Robertson for his new field. He then proposed the toast of "The

Queen," which was heartily responded to with three cheers and "God Save the Queen."

In proposing the toast of "The Experimental Stations of the Dominion," Prof. Shaw referred to the success of their gathering and said they would have to build a larger hall. Touching on the work of the Farm, he said he proposed clearing eighty acres of the Farm of the noxious weeds which had so long been a disgrace to it, without a fallow, announced that the Minister of Agriculture had given his consent that they should build a new fence on both sides of the Brock Road such as would be a credit to the institution. He dealt also with the uplifting influence of the ex-students and spoke on the experimental work on the Farm which they hoped to make very useful, especially the experiments in live stock. The toast was drunk with all the honors.

Prof. Robertson, in reply, made the speech of the evening, full of inspiration, encouragement, and setting before the students high ideals. It was the aim of the experimental stations to spread knowledge to the humblest home of the poorest farmer. It was one of the best works of God. In their land, where prosperity in agriculture followed skill, they should learn to rule the forces of Nature, filling their own place without harm to their fellows. "I want to know" was the cry of every true man, and by studying Nature's methods and God's ways in Nature they would have Nature's abundance. The experimental stations were to stimulate thought rather than till the soil, and the Professor here drew a realistic picture of the agriculturist who filled his true place and formed himself after God's model, a man of dominion and power. It was not theirs to propound finespun theories, but they should speak whereof they knew. He touched upon the three-fold work of the Professors at the O. A. C., viz., teaching the students, conducting experiments, and attending Farmer's Institutes, and their highest experiments were to influence the students for good. Concluding he said that their ultimate aim was not alone to make better and cheaper food, but to aid in making true men and women, happy homes and the best land in the whole earth.

"The Agricultural Interests" were responded to by Rev. W. F. Clarke, who gave some amusing incidents in connection with his relationship with agricultural interests. They wanted more good farming; there was money in farming, and even in wheat growing, if farms were worked properly. The farmers should fit themselves for the highest places in the land.

Prof. James, in proposing "The Ex-Students" touched on the work they were doing, and gave some very interesting reminiscences of those who had gone out from among them. The toast was responded to by Messrs. Fee, B. S. A., Sinclair, Robinson, Bishop, Henry, Fotheringham, Charlton and Ballantyne.

Mr. J. A. Craig, B. S. A., President of the Union, gave the toast of "The College Staff," coupling with it the names of Prof. Hunt, resident master, to whom he paid a high tribute; Dr. McGuire, College physician; Mr. McIntosh, mechanical foreman; and Mr. Storey, farm foreman. All these gentlemen acknowledged the toast in appropriate speeches.

"The Students" was proposed by Prof. Panton in a humorous speech, full of scientific hits, and those who responded touched a little along the same line. Messrs. Monteith and Dean spoke for the third year men, Hutt and Hadwen for the second year, and Harris and Perry for first year.

Mr. W. A. McCallum gave "The Press," which was briefly responded to by Mr. Craig, *Live Stock Journal*; Mr. Shore,

*Farmers' Advocate*; Mr. Gelling, of the *College Review*; and the representatives of the *Herald* and *Mercury*.

Mr. C. F. Whitley proposed "The Ladies" which was ably responded to by Messrs. Zavitz, B. S. A., and Robinson.

This concluded the business proper of the annual supper. During the evening several choruses were sung with good effect by the students, the solo parts being taken by Messrs. Hutt, Monteith, Harcourt and Hadwen. Messrs. Buscarlet and Worthington also gave splendid songs, the latter getting a rousing encore.

## THE O. A. C. STUDENTS

Honor Prof. Robertson with an Address and Presentation.

At the close of the annual supper of the Experimental Union at the College on Thursday night at eleven, a most interesting departure from the usual proceedings took place. This was the presentation to Mr. J. W. Robertson, the late Professor of Dairying at the College, of an offering to signify the esteem in which he is held by the students, and their gratitude for his labors among them.

Mr. H. H. Dean stepped to the front and read the following address:

TO PROF. J. A. W. ROBERTSON:

DEAR SIR,—On the eve of your departure from the Ontario Agricultural College, Guelph, to enter a wider sphere of work and influence as Commissioner of Dairy Husbandry for the Dominion of Canada, we, the students of the College, desire to express our deep and heartfelt regret at our irreparable loss and our satisfaction and delight in your gain. We most heartily congratulate you on your appointment to so important a position in the Dominion. Those of us who have enjoyed the privilege of attending your lectures feel that we have received knowledge that will be of great practical and lasting value to us in our future life. Our thorough appreciation of them arises not only from their practical bearing, simplicity, comprehensiveness, and thoroughness, but also from the masterly and amusing manner in which you have presented your thoughts to us. We have also learned from your sterling character as constantly revealed in your genial manner, your uniform courtesy, your unselfish devotion to others, your tender sympathy and your strong, fearless and open opposition to all wrong, thus to admire the good and true. Your earnest and untiring efforts in our behalf, the full and cheerful discharge of your duty, the concern you have shown for our advancement in the knowledge of dairying, and the kindly interest you have invariably taken in us as boys, have made you very dear to us. Great as has been the conscious influence of your words and work, we feel that the unconscious influence of your personality on our characters has been even greater. We beg you to accept the accompanying token of our love and respect, and we hope that in your efforts to introduce and establish improved methods and practices in agriculture, you may still retain your interest in the progress of the Agricultural College.

Signed on behalf of the students by their committee,

H. H. DEAN,  
CHAS. F. WHITLEY,  
JOSH C. HARRIS.

Mr. C. F. Whitley then walked forward with a magnificent silver tilting water pitcher and goblets, which he handed to the Professor, at the same time asking him to read between the lines of the address and look behind the gift for the love and esteem they bore him.

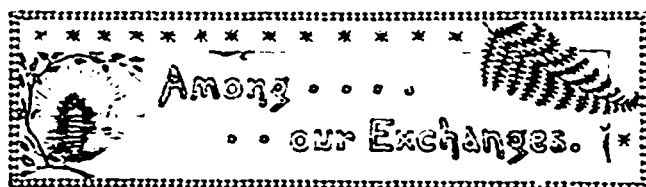
Prof. Robertson said it was hard to do himself fairness in such a position. He had listened between the lines, and could say that in all his work there had been no unpleasantness of any sort in the class room. He would have a wider field, but he would have

no greater pleasure than standing in the class room and imparting what knowledge he had to the students. If, in a small measure, he had increased their knowledge and manliness, he was amply satisfied. He expressed his deep appreciation of the kindly sentiments in the address; and it was a far better glory that their gift should come to him full of their love and respect, rather than to have it filled with gold or diamonds. Their aim was to leave the world richer in knowledge, truer in plans, kinder in judgment, broader in sympathy, and better in every way. He thanked them inadequately, but heartily. He would continue his interest in the College, and would have no better satisfaction than in giving it a friendly lift. They should lay hold of their life's work with both hands, and he hoped to welcome some of them into his work, to fulfil their duty to their country and their flag.

President Mills then declared the proceedings closed, and three hearty cheers were given for Prof. Robertson.

The address is very handsomely illustrated by W. Bruce Hamilton, and is a most appropriate gift in itself. The water pitcher is a massive piece of work, richly chased, and bears the following inscription:

"Presented to Prof. J. A. W. Robertson by the boys of the O. A. C., Guelph, February, 1896."



*The Portfolio*, of the Hamilton Ladies' College, has of late been conspicuous only by its absence. Having learned something of this college through the few numbers already received, and not wishing to sever our slight acquaintance already formed, we therefore invite *The Portfolio* to visit us again.

*The College Times* has been somewhat irregular in its coming. There has been a change of arrangement in *The Times*, by which the old time puzzle column has been replaced by the more modern exchange column. That puzzles should prove of little interest to a student, can be well understood from the fact that he meets plenty such work in the class room.

Among the new arrivals to our exchange table, we are glad to notice the *Student Life*, from Washington University. The January number presents a pretty full table of contents, which are ably treated in their respective columns. An interesting article is that relating to the early history of Carl Wimar, a German artist, who, after having spent a portion of his younger days in America, studying the peculiarities of the Indians, returned to his native land, and there, during his college life, makes Indian warfare the subject of his paintings. We will look for the conclusion of this article with much interest. A paper on "A Plea for the Students," argues in a clever manner the advisability of having a more concentrated and thorough course of study.

The Trinity University Review for December and January is to hand. The Christmas number arrived in the college colours is especially attractive. The inside, with its many appropriate contributions, is well in keeping with the cover. The article on "The Beginnings of a Nation," bring out many interesting historical facts, regarding our early legislatures. It shows how the legislature of Upper Canada first met in rude frame buildings at

Niagara, then known as Newark, here Governor Simcoe opened the first session of the first parliament. It goes on to relate that the farmer of those days had more influence in making the laws of the land than he has to day, for on one occasion the Governor said, "I call you together at an early period in the hope that you may be able to finish the business of the session before the approach of harvest."

#### COLLEGE NEWS.

The general endowment fund of Wesleyan University has been increased recently by gifts amounting to \$310,000.

The new register of Cornell University shows a total enrollment of 1,300 students.

Wellesley College has limited the number of its students to 640 for the present.

The trustees of John Hopkins University have adopted a resolution discouraging the attempt on the part of undergraduates to publish a paper.

The seniors at Dartmouth in their English course are obliged to make extempore speeches of fifteen minutes' duration upon suitable subjects before the class.

Cornell is to have the finest library building in America. It will have an auditorium with seating capacity for 1,000 people, the reading room is 120 feet long, 72 feet wide, and 35 feet high. There will be room for 409,000 volumes.

Scene.—Class in English Literatures reading Hamlet. Professor—"Mr. H., will you read please?" Mr. H. turns the leaves rapidly to find the place, while a deep silence settles over all. Finally the Professor looks up and reprimands the young man for not keeping the place. By this time Mr. H. has found the place and reads "What have I done, that thou dar'st wag thy tongue in noise so rude against me?"

Second Year—"Well, how do you like Gym?"

Wondering First Year—"Jim! Jim who?"

Student (reading virgil)—"And thrice tried to throw my arms around her"—that was as far as I got Professor.

Professor—"That was quite far enough."

#### THE STUDENT

Who kisses pa and ma good-bye,  
And wipes a tearlet from his eye,  
And tells his sister not to cry?

The would-be First Year.

Who looks on the Third Year with awe,  
And tries to learn Avogadro's law,  
And for his class shouts loud "hurrah!"

The First Year.

Who kicks the football out the lot,  
And throws to second like a shot,  
But reads his lectures with a trot?

The Second Year.

Whose student life is almost past?  
Whose knowledge is supremely vast?  
Whose die like Caesar's once is cast?

The Third Year.

Who makes a speech 'mid great acclaim,  
And writes B. S. A. behind his name,  
And goes to seek his share of fame.

The Graduate.—Ex.