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MISSING

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THE DIGNITY OF A CALLING IS ITS UTILITY.

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The Agricultural College and Rural Life.

By W. LOCHHEAD, B.A., M.S.

SIGNIFICANT of the trend of expert opinion regarding the training of teachers for rural schools is the Report of the Commission on Industrial and Technical Education for Massachusetts recently published. This Report recommends the establishment of a Normal School or Department in the Massachusetts Agricultural College for the training of teachers for the rural schools of that State. The Chairman of the Commission was Dr. Carrol D. Wright, the noted economic thinker and writer, and President of Clark College, Worcester, Mass.

Massachusetts has always given careful consideration to its school system; for more than a century it has taken the lead in educational matters. The Ontario educational system, it will be remembered, was patterned in many respects after the Massachusetts system; but while the former became inelastic, mechanical in its rigidity, and bureaucratic, the latter was more responsive to the changing conditions of both rural and urban life.

The reasons for the recommenda-

tions of the Commission are plain. Probably there is no greater educational agency in the country than the agricultural colleges. By sheer merit they have gradually forged their way to the front. They have shown how crude country boys can be trained into young men of power, capable of most efficient service. They have made the land more productive, because the workers of the land have been educated to make more of themselves and of their farms. More than this, the agricultural colleges have shown how a careful study of Nature and Nature's processes is one of the best foundations for general culture. By such a study, under the skilful guidance of good teachers, the intelligence of the students is developed, their imagination stimulated, and their outlook widened. There is aroused a scientific, practical and sympathetic interest in the world about the students, and there is an elevation of the ideals of living. In fact, the agricultural colleges, directly and indirectly, are bringing the country homes into closer vital relationship

with all that stands for better living and better citizenship.

There is a little wonder, then, that thoughtful persons should turn for assistance in the improvement of the rural school to the agricultural colleges who have done so much to educate the boys and men of the farm. They feel that the studies in rural schools do not deal definitely enough with rural things; and that the course should be enriched by a study of the things surrounding the child on the farm.

Owing to the constant changes in agricultural conditions which result from the new applications of knowledge each individual citizen needs a higher degree of adaptability than was formerly the case. These changes in the conditions of life call for a new spirit in education from the earliest years upward. Professor Sadler says, "A vast body of new knowledge has to be brought into educational account. The old tradition has to be examined, readjusted to new needs, and in part discarded, new studies have to be introduced, and scientific thought has to be given to the training of the senses and of the physique."

Professor Davenport says, "The new agriculture means new conditions not only in the business, but as to the people who follow it. The principles underlying agricultural practice are coming to be better known, and farming is growing constantly more difficult. Agriculture is now no calling for the grossly incompetent or helplessly ignorant. Accordingly our people must be educated—educated not only as individuals and citizens, but educated as farmers. The consolidated school is the only plan proposed which will keep intact the coun-

try home, educate the child within the environment in which he is growing up, and make him the intellectual equal of his city cousin. I would have in such a school a good portion of agriculture, shop practice, household arts, and of science in general. Why? Because these are specially characteristic of country life."

From many quarters, therefore, comes the demand that it is the duty of agricultural colleges "to revive and redirect the rural schools," just as they have revived and redirected the farming industry of the country.

There was a time when agricultural colleges taught mostly by books, the head being considered the only part that required special training. But that kind of college has happily passed out of existence, and a new college has arisen, one that is in close touch with country life and full of energizing power for good. The history of the growth of agricultural colleges reveals the fact that the confidence of the farmers was only gained when the members of the teaching force went out from the class-room to the farmers, talked with them, advised with them, and gave practical demonstrations that appealed to their common sense.

In some such way will the rural school be revived and redirected.

The teachers of such schools should be able "to articulate the country school closely and smoothly with the country home, the neighborhood, and the country at large; only so can the instruction of the school take on the reality needed to make it vigorously and practically effective. They should be able to utilize the local community life—its occupations, resources, organ-

izations, traditions and customs, for the rural school."

All this implies that the teachers should have some practical acquaintance with the elements and principles of agriculture, household science and manual training, as taught at the agricultural colleges.

Hitherto, the normal schools have failed to a large extent to train teachers for the special work of country schools, simply because they were located in large cities where rural life could not be studied to advantage, where it was impossible to get that scientific and practical knowledge of farm life that is so essential, and where the practice work was done in city graded schools. "City schools teach city life and the facts and atmosphere that go with city life." The rural teacher has seldom to do with a graded school, and his problems are entirely different from those of a city teacher in a highly graded school.

It would appear, therefore, highly important for the future welfare of the rural population that a Normal School should be situated at the Ontario Agricultural College, where there are unsurpassed facilities for instruction along the very lines that have been indicated. Three years ago the O. A. C. made an excellent beginning in preparing teachers for rural schools, and perhaps no better work was ever done for rural life than that done by the Macdonald Institute. But the work of the last three years in training teachers should be continued by the Department of Education, in co-operation with the Department of Agriculture. The writer has received many unsolicited letters from both principals and inspectors of schools testifying to the improved efficiency of the teachers

who have received instruction at the Macdonald Institute. Even better work could be done for our rural schools if a normal school were established and the full normal course given.

With a Government alive to the situation, and willing to better the position of the rural school and its teacher, the outlook is hopeful; but it will specially require the active support of the students and graduates of the O. A. C., who perhaps realize best what is most lacking in the rural schools. May we hope to see these young men and women champion the cause of rural schools by demanding better equipped schools, better paid teachers, and a course of study that will fit the country child for his best service on leaving school.

But the work of the agricultural college should go beyond the making of farms more productive, and the training of teachers for rural schools. Increased productivity does not necessarily mean increased profits. The marketing and transportation of the farm products are important factors.

The welfare of an agricultural community under modern conditions depends, in a large measure, upon the power of organization, upon readiness to combine, upon prompt and intelligent use of scientific methods and upon co-operation in putting the produce of the farm upon the market in convenient and attractive forms. Hence a study of these questions as related to farm products should be given a more prominent place on the curriculum.

More attention should be given also to economic and social subjects from the point of view of the farm. Not only are good roads, good politics, good churches and good schools proper

subjects for discussion in an agricultural college course, but also is the betterment of the farm house and surroundings from a sanitary and artistic point of view, as making for the welfare of the individual. Professor Bailey says: "Logically, rural economics has as much right to form a part of our agricultural curriculum as agricultural chemistry. The entire effort of a college of agriculture is devoted to the elevation of country living. Economic and social questions are, in many ways, the most important that fall to the field of a college of agriculture."

A great advance was made towards this "elevation of country living" when the Household Science Department was established at the Macdonald Institute for the training of young

women from country homes; but there is great need for educating *young men* to see the necessity for better and up-to-date equipments in our country homes. In the modern demand for good barns and stables equipped with every convenience for feeding and housing the stock, the farm house has been largely overlooked. The home after all should be the centre of interest of the farm and the real power for the elevation of rural life.

Good home influences, good social environment, and carefully planned education for our boys and girls are the three great agencies for the elevation of rural life. That agricultural college is not doing its whole duty to the state which neglects the rural schools, and fails to give instruction along economic and social lines.

DISCOURAGEMENT.

With leaden arms she grasps the seeker's knees,
 In silence pointing back at deeds undone,
 At gifts unseized and bursts of song unsung,
 Till numbing grayness colors all he sees.

Yet, at his feet are other chances cast,
 Right ready to his hand to have and hold,
 This very day's warm sun might see him mold
 A living present from an empty past.

Warwick James Price, in Munsey's

What Does a Forester Do?

BY H. R. MACMILLAN.

TO profit by the text of an article in the January Review, I might say there are at present over 900 persons in the employ of the Forest Service of the United States. Of these over 200 are trained foresters, and the remaining 700 will be replaced by technical men as soon as possible. That even this number is small when compared with what future expansion promises to the Republic to the south of us, is evident from a statement recently made by Mr. Penchot, the United States Forester, when he said that if they were available he could immediately find work in the Government service for 2,000 graduates, and these starting at a minimum salary of one thousand dollars per year.

Now, I believe that it is unnecessary to repeat here the many and time-honored arguments, showing why, on account of her illimitable timber area, and its flagrant abuse, Canada should practice forestry, but a more pertinent and less considered question is how is forestry practiced, or to put it more generally, what is forestry?

What we, as Canadians, and as young Canadians seeking a profession, wish to know is, first, what is forestry from a forester's standpoint, and what has it to offer us as a profession, above others, that we should choose it before the stable calling of agriculture, the adventurous one of engineering or the more problematical law and medicine?

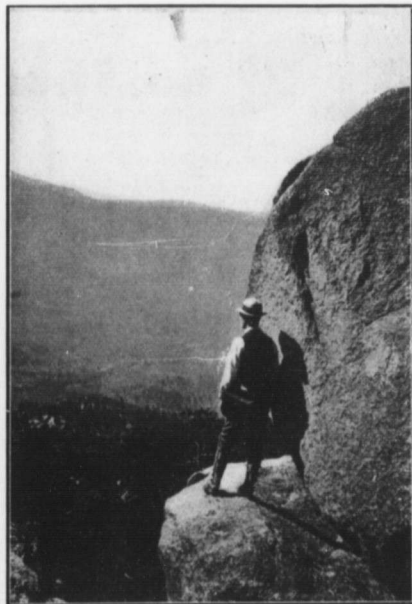
The great question which really stirs the minds of most Canadians when they do think of forestry is, "What do foresters do?"

To answer this we must go to the United States for the most illustrative examples, since at present the Dominion Forestry Department does not portray exactly what will be expected of its members when, after a few years the organization shall be completed.

The first idea to be assimilated is that forestry resembles agriculture in the diversity of its branches. Just as there are many different phases of animal husbandry and agronomy, experiment station work and laboratory investigations in agriculture, so are there divisions of silviculture, forest mensuration, management, utilization and laboratory research in forestry, each differing radically from the other. To carry the comparison even farther, foresters are divided as are agriculturists, into research workers, teachers, and those who might be known as practitioners, whose work keeps them a great deal of the time in the field. As with the farmer it is in the field that the foresters' sphere of usefulness actually lies. While it is not possible with the one short article to define and describe the many different aspects of a forester's duty, I may by one or two examples illustrate his life and method of work.

It is upon the numerous forest reserves that most young foresters in the

United States are initiated into the Government employment and actual practice of their profession. These reserves are being maintained as a perpetual source of timber, and in order to fulfil this object definite information must be gained of them by means of a careful study by specially educated men. In such a study, which, on a



Looking over the country. One of the first steps in planning the work.

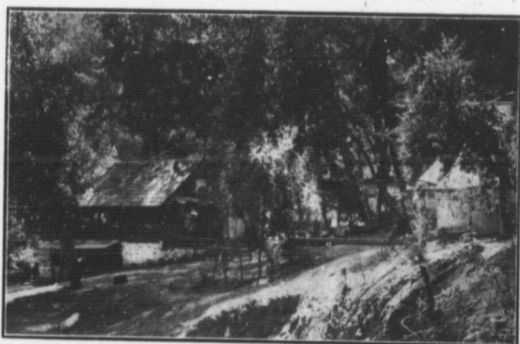
large reserve, would busy several men for a few years, the amount and character of the timber is ascertained by a systematic survey, which may also include the making of a topographic map. Market conditions are studied, and future development considered. With the data all collected, the forester

decides what method of management is most profitable, which method of timber sale most suitable, defines a policy for generations in the future, and applies himself to the most economical means of carrying his ideas into practice. Should the timber be sold he makes the terms of the sale, fixes the price and remains on the ground

during the period covered by the purchase, to care for the nation's interest in the contract, select the cutting areas, to devise and enforce systems of cutting to insure future growth, or possibly to plan cheaper methods of logging. During this period the forester has in all dealings been subordinate to the head office, but should he be supervisor a great deal has depended on his ability, integrity and judgment. He has had to deal directly, decisively and immediately with all the varied problems of surveying, logging, milling, economics, and finance. The business interests of the reserve require that there be a central office at the nearest town or most important neighboring centre, while the actual prosecution of the work demands the presence of foresters on the reserves. This difficulty is obviated by choosing the most experienced and responsible of the foresters ac-

quainted with the locality, as supervisor, with home and headquarters in town. This man will usually remain permanently attached to the same reserve—the increasing revenue under continued successful management making it possible to increase his salary to satisfactory proportions. He will man-

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The permanent camp on the Reserve about which the forester's home life centres.

age the reserve under his care much as if it were, as it really is, a large estate, and while using all his own accumulated experience and great local knowledge to solve all the more difficult economic and technical problems, he will assign to his assistants the investigation of all details. These assistants, while working in this manner, spend nearly all their time in the woods, living in camps established for this purpose, and acting almost wholly on their own initiative, as free to enjoy their surroundings as would be a party of summer campers. As well as being fortunate in their subordinate position, they are fortified by the knowledge that merit will be rewarded by promotion to a more responsible post.

Those who are engaged in research work and testing laboratories differ but little in their methods from students of similar problems in other professions. So much in the management of the forest depends upon the habits and characteristics of the different species, and so little is known of these char-

acteristics that now and for years to come one of the most important investigations conducted by the Government must be a study in the field of the different commercial species. The men doing this work travel constantly during the summer months, living and working in the open in all parts of the country, as close to nature as they can conveniently get, while during the winter months they usually return to the head office to "work up" their data. Such work is very popular, because of the opportunities it affords of combining three usually very conflicting occupying money.

cupations, travelling, studying and saving. As well as learning the characteristics of trees in the forest, attention is devoted to studying the qualities of the products of all the important species. This is done in connection with different manufacturing plants or university laboratories, and as a rule attracts those who are inclined to work of a purely scientific or mechanical character, and those who do not

hunger for camp fare, and to whom the "pine breath from the hills" extends no lure.

Another important feature of forestry as a profession, and one which has been exemplified in Canada of late, is private employment. Private employment usually means to the forester employment at an inviting salary by a company of progressive lumbermen. His duties in this connection are much the same as those of a supervisor on a reserve. He not only must study carefully and personally the conditions under which they are working their holdings, but so equip himself as to be able to advise and undertake all possible improvements in the conduct of the business, from the far-sighted, economic policy of extending and improving the supply of raw material, through every intricate detail of its manufacture and transportation, to the final test of marketing a better product most advantageously. The man who can do this well will never want. Private employment attracts all those who are afforded the opportunity of entering it by reason of its greater pecuniary advantages, and because it affords the forester an opportunity of studying the woods as much as he wishes without being forced to travel all the time or completely seclude himself. While engaged in this capacity the forester enjoys the pleasures of home life, the exhilaration of extended trips into the wilds, and the excitement of keen business competition.

There are also other spheres of usefulness open to the technically trained man. One of these, differing a little from usual government service, is the office of State or Provincial Forester. This position carries with it more complications than probably any other. To occupy it successfully one must be so versatile as to cleverly educate the



A party in charge of F. C. Hart '06, estimating yield of timber per acre.

The forester's work is leading him in the retreating footsteps of a disappearing Indian village of the fur days.

legislators to discernment in forest legislation, curb the political appointment of deadheads to positions of responsibility in the fire and forest service, organize a system of management of state reserves, conduct a campaign for public education, probably deliver lectures on forestry in the state college, and at the same time hold his position

against all comers and undisciplined kickers.

These have only been stray examples of what will be required of foresters, not only in the United States, but in Canada, and they serve to exemplify



You can seldom get closer to Nature than this.

that for those who wish to work with their brains, but to whom a sedentary occupation and perpetual confinement is repulsive, and for whom the reek of the woods, of the open places, of the saddle leather and of the buckskin has an irresistible attraction, for those

of such exquisite senses, there is a profession.

The call of the forester in the biggest of republics has led him by trail and river, by horse and canoe, from the moose and monadnocks of Maine, to the everglades of Florida, through the wide valleys of the central rivers to the dry deserts, baked adobe and high mesas of burning Arizona, high over the snow fields and grizzly haunts of the mighty divide to the arid mountain sides and laughing valleys of California, or out of the ditched Bad Lands of Dakota into the misty shrouded columnar forests of Washington, and likewise foresters of the Dominion will in the next few years trek over every inch of ground from Belle Isle to the great clay belt, across glacial lakes and grassy plains to lordly Sir Donald, and they shall trace the Alaska panhandle from Prince Rupert to the City of Gold, and know every tree from the Arctic circle and its wandering bands of musk oxen to the chinook-fanned cattle ranges of the south.

PAVEMENTS.

Stern and unyielding as some natures are—
 Perfect in polish and precise in poise,
 They seem to glory in the clash and jar,
 In all the tense and immelodious noise.

What wonder, as I tread them day by day,
 Passing upon life's multivariied round,
 My spirit yearns for quiet paths of clay,
 The springy feel of mossy woodland ground!

Agriculture.

Horse Courage.

COURAGE in horses. Is it congenital or is it acquired? On account of the prevalence of electric cars, automobiles, traction engines, steam road rollers, and other objects calculated to alarm horses while on the city streets or country roads, it is becoming more and more requisite—in fact necessary—in order that there may be a reasonable degree of safety in driving, that our horses should have "courage."

The question that confronts us is, "How can we engender courage in our horses?" Is courage an inherited trait or the result of environment and education? We think it is influenced by both, but especially by the latter. The alarm or fear shown by horses the first few times they behold an object with which they are unfamiliar cannot be said to be due to a want of courage. We all remember that a few years ago, when bicycles first came into general use, that mostly all horses became excited at the sight of a man or a woman moving along rapidly without "visible means of support." Many horses under such circumstances were quite unsafe, and unless the rider dismounted from his wheel and either stood or walked along, there was every probability of an accident.

Horsemen used to grumble and often swear at these machines, and claim that they had no right on the roads or

streets. Wheels became very plentiful, and many of the said horsemen were soon seen riding them, either as a convenience or pastime. In fact, they became so common that a horse had not time to take notice of them, he met so many, and now, even though they are comparatively seldom seen, it is exceedingly rare to see a horse taking any notice of them.

Have we any well-founded reason to claim that our horses of to-day have greater hereditary courage than those of a few years ago? We think not. What then has brought about the change? We must, I think, attribute it to environment, or the familiarity that "breeds contempt." Bicycles are seen by most colts during colthood, and by all during their first lessons in harness or saddle on the roads or streets, and they, from the first, treat them with indifference. It may reasonably be claimed that heredity has some influence in the matter. There is no doubt that colts are influenced by the habits of their ancestors, probably more particularly by those of their dams during pregnancy. Hence, if the sire is accustomed to certain sights without experiencing any particular emotion, and the dam the same, and especially if so during pregnancy, it is reasonable to suppose that the progeny will naturally have no aversion to the same. This law of breeding, we think, has an

influence, but we think that education and environment have more. We may say that a bicycle is not to be compared with an electric car, automobile or traction engine, as a means of instilling fear into a horse, and there certainly appears to be reasonable grounds for the contention. At the same time the fact remains that horses which are accustomed to these sights become as indifferent to them as to the former. None of the objects named is so formidable as a locomotive engine going at good speed and blowing off steam, with a train of cars behind it. It is quite a common thing to see a horse that will stand quietly at a crossing quite close to a train while it passes, or drive quietly along a road going parallel with the railway track while a train is going either way, become practically unmanageable at the approach of an automobile or electric car. Can we call this exhibition of fear cowardice or want of hereditary courage? We think not. It is due to want of familiarity. The horse has become accustomed to seeing and hearing locomotive engines since colthood, and has learned that they will not injure him, but the other sight is that of an object to which he is not accustomed, hence his fear. It will be noticed that horses in large cities, where they meet these objects frequently, with very few exceptions are perfectly indifferent to them, but those in small cities or rural districts, in which such sights are not frequent, continue to fear them. There certainly is a great difference in the quickness or readiness with which horses lose their fear of such sights. But even this, we think, is not altogether due to the degree of normal courage they possess. It is largely due to the manner in which their familiarity to such

sights is attained. Great care should be exercised in educating horses in such matters. There are few who do not show fear at first, and if we attempt to break him, or more properly, to educate him at once, force him to go close, and whip him if he refuses, there is great danger of spoiling him. In such cases he soon associates certain sights with abuse and a whipping, and becomes practically unmanageable, while, on the other hand, if he is carefully handled, allowed to view the object from some distance, and, if he shows fear, is petted instead of being spoken sharply to and whipped, he, in most cases, decides there is no danger, and a little care, intelligence and kindness will usually be successful in his education. Of course there are some horses that cannot be educated to tolerate certain objects, notwithstanding all the patience and kindness that can be practiced on the part of the driver. In some cases this is due to a bad fright the first time the object was seen, while in others it may be due to congenital "cussedness," or a normal want of courage. In either case the animal is unsafe and practically useless in a section where the particular object is liable to be seen, and the only wise thing to do is to dispose of him to go to a section where he will not meet it. There are peculiarities in horses that are very hard to account for. Some have a decided aversion to certain objects, as a pig, a wheelbarrow, an umbrella, a trolley car, an automobile, a traction engine, a perambulator, etc., etc. They will treat with indifference all objects except the one, and cannot be reconciled to that. Why such animals will exhibit courage in facing everything but some particular one, and exhibit gross cowardice, or

fear of that, cannot, in many cases, be understood, but must be due to some unaccountable inherent dread of the sight, or to some injury or extreme fright caused by it on a former occasion. Again, some horses will not tolerate certain objects under certain circumstances, and are quite indifferent to the same under others. For instance, a horse may be practically indifferent to a trolley car when standing or moving slowly, but become very unsafe if it be moving fast; while others are indifferent to it at any speed, but will not go near it while standing still. Again, some become very much excited and hard to handle when a car is coming behind them, but pay no attention when they are meeting one, while others are the reverse. This may be claimed to be caused by the use of blinders on the bridles, but most of them will exhibit the same peculiarities when driven with open bridles. The same, or other peculiarities exist in regard to other objects, and, as stated, cannot be satisfactorily explained. When we consider matters carefully, we cannot be surprised that we meet with such cases, and it certainly is cruel to punish an animal so afflicted. If we consider a minute we can call to mind many women, and some men, who became greatly alarmed during a thunder storm. They cannot bear to be alone, and in some cases become

hysterical, or insist upon having the blinds drawn and the gas lighted, etc. They cannot help acting in this way. They know there is little danger, that company and artificial light are no protection, but all the same they cannot act calmly. Let us, then, be charitable, and attribute to horses the same unconquerable dread that exists in some human beings. We think our arguments go to prove that "courage in horses" is engendered more by education and environments than by heredity, although the latter operates to some extent. In breeding it certainly is wise to select as parents animals of known courage when possible, but we must intensify such courage by education, and make sure of their safety in the presence of all sights and noises they are liable to meet before we can trust our wives or children to drive or ride them, as a horse that is liable to act badly under any such circumstances or other conditions not mentioned, is unsafe for general driving except in the hands of an experienced and courageous horseman or horsewoman. We would again like to emphasize the fact that education is the main point to be considered, and that many horses are made cowardly and unsafe by cruel, timid, passionate or incompetent drivers.

J. H. Reed.



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Experimental.

Lucerne or Alfalfa Clover.

(*Medicago Sativa*)

CAN Lucerne Clover Seed be matured in Canada? is a question asked almost every day by fairly well informed agriculturists in all parts of the Dominion. Undoubtedly it can be, and is produced in all the southern counties of the Province of Ontario, but most successfully on the Niagara peninsula between Lakes Erie and Ontario, where the soil and climatic conditions are peculiarly suited to the requirements of the plant. In the first place the season is very much longer in that favored district, frost seldom doing any damage until the middle or latter part of October, whereas further north frost is the great drawback to success in the growing of this variety of clover for seed, Lucerne being fully a month later in coming to maturity than common Red Clover, hence the advantage of a longer growing season. Our large seed houses in Ontario are now selling Canadian-grown seed exclusively, although a few years ago they imported their finest samples of seed from California and Utah, where the weather conditions are ideal for developing and maturing seed of a very high quality. Unfortunately the same careful attention as is given to a seed crop in Ontario was not exercised in these States, with the result that Sweet German Clover, *melilotus alba* (which is considered a very in-

jurious weed) got fairly mixed with their crops, making it impossible for Canadian houses to handle American seed with any confidence—for the seed of the sweet clover is identical in all respects with the Lucerne seed, being of the same size, shape, weight and color as the genuine article. Now, in Ontario all stands of Lucerne reserved for seed are carefully watched, and all weeds eradicated before cutting operations commence.

Another question asked, will it pay to grow Lucerne clover seed in Canada? It is a very difficult matter to come to a satisfactory decision on this point, for if Lucerne is grown for hay or soiling it is one of the most profitable crops on the farm. If grown for hay three or four cuttings can be taken in one season, which, if taken just as the blossom is beginning to show color and handled carefully, will give an exceptionally fine feeding quality of hay, averaging from two to three tons at each cut. This, of course, aggregates a lot of fodder. Then, again, as a soiling crop fully twenty tons of green feed can be cut even in a dry season. One can easily understand that the successful culture of Lucerne means a great deal to the farmer, who, as a rule studies his best interest as keenly as the successful business man, and can determine what is most

advantageous to his bank account as well as any man.

In a good season, when other clovers and timothy are plentiful, and the price of hay low, the chances are that a crop of Lucerne seed would pay well, as the producer has always the first cutting for hay—which he secures very early in June—he then allows the field to stand for seed, which in an ordinary season will be ready to cut about the first week of October.

The seed crop is a risky one at best. Some seasons blight strikes the crop, and the seed pods are empty; again, at other times the crop does not more than pay for the expense of threshing. In some of our best districts it is only yielding half a bushel of seed to the acre, and the best yield I have heard of this season is two bushels to the acre. The straw, after threshing, is practically of no feeding value, being hard and woody and only fit for bedding. Owing to the lateness of the cutting season, wet, broken weather usually prevails, which is apt to cause a complete loss of the seed crop, and lucky indeed is the man who gets his crop into the mow without having to turn it a few times, and of course each turning means so much seed lost.

Perhaps a short synopsis of the nature and habit of the plant and methods of cultivation would be interesting and beneficial to those who do not understand its value.

Lucerne is not a true clover, but belongs to the *Medicago* or *Trefoil* section of the family of *leguminosae*. It was grown by all the peoples of Southern Europe and brought over to this continent by the Spaniards, who grew it in the arid sections of Mexico. From thence it spread to California, and then it gradually worked its way

east again, still retaining its Spanish name of *Alfalfa*. It is a perennial of upright branching habit, with small dark elongated leaves; purple blossoms of hooded or pea-like form, scattered loosely along the stem, not coming to a head like other clovers. The seed pods are single, and spirally coiled; the seed is of a bright yellow color, and resembles red clover in shape, but is considerably larger in size.

The plant has a single strong tap root, which throws off numerous rootlets as it passes downwards in an open porous soil, roots have been traced to a depth of twenty feet. It seems fairly to revel in a strong, deep loam, naturally well drained, but it will succeed either on light sand or stiff clay. In fact it adapts itself to any soil which is not covered by water at any season of the year. Excellent results have been obtained on hard red clay knolls where nothing else would grow, but on such ground a liberal top dressing of barnyard manure is essential at time of seeding, to secure a catch.

Careful cleaning of the land for this crop is absolutely necessary before seeding. This should be more especially attended to on poor land, where the first year's crop will likely be small, and consequently in danger of suffocation by weeds if the proper care is not exercised. Cleaning the land can most easily be done by a late summer follow, or seeding may follow a hoe crop.

Sow twenty pounds of seed per acre. The best catches are usually obtained by sowing it alone, without a nurse crop, as soon as the land can be got into good condition, after the danger of heavy frost is past; or better still, half a bushel of barley sown with the

seed and allowed to crinkle down to hold the snow as a protection during the first winter, which is the most critical time for the young plants. Should there be considerable growth the first season a safe plan is to go over the field with a mower, having the finger bar set as high as possible,

and nip off the tops of the plants and all weeds that may be growing and leave them on the ground as a mulch. On very stiff clay or light ground a top dressing of barnyard manure applied after winter has set in will be found beneficial.

T. Lawson.

Co-Operative Experiments in Agriculture for 1907.

THE members of the Ontario Agricultural and Experimental Union are prepared to distribute into every Township of Ontario material for experiments with fodder crops, roots, grains, grasses, clovers and fertilizers. About 2,000 varieties of farm crops have been tested in the Experimental Department of the Ontario Agricultural College, for at least five years. These consist of nearly all the Canadian sorts, and several hundred new varieties, some of which have done exceedingly well in the carefully-conducted experiments at the college, and will be used for the co-operative experiments throughout Ontario in 1907 for the first time.

Each person in Ontario who wishes to join in the work may choose any one of the experiments for 1907. The material will be furnished in the order in which the applications are received, until the supply is exhausted. A sheet containing the instructions for conducting the chosen experiment, and the blank form on which to report the results of the work, will be sent to each experimenter at the time the fertilizers

or seeds are forwarded. All material will be furnished entirely free of charge to each applicant, and the produce of the plots will, of course, become the property of the person who conducts the experiment. In return, the Committee on Agricultural Experiments desires to ask that each experimenter will sow all the plots belonging to the particular experiment which he has chosen for 1907, and that he will be very careful and accurate in his work, and forward to the director a complete report of the results obtained from the test, as soon as possible after the plots are harvested.

All seeds and fertilizers will be sent in good time for spring seeding, providing the applications are received at an early date. The supply of material being limited, those who apply first will be surest of obtaining the desired outfit. It might be well for each applicant to make a second choice, for fear the first could not be granted. The experiment selected should be indicated by using its number as given in the left hand column in the list of experiments.

LIST OF EXPERIMENTS.

Grain Crops.		Plots.
1	—Testing three varieties of Oats	.3
2a	—Testing three varieties of six-rowed Barley	.3
2b	—Testing two varieties of two-rowed Barley	.2
3	—Testing two varieties of Hulless Barley	.2
4	—Testing two varieties of Spring Wheat	.2
5	—Testing two varieties of Buckwheat	.2
6	—Testing two varieties of Field Peas	.2
7	—Testing Emmer and Spelt	.2
8	—Testing two varieties of Soy, Soja, or Japanese Beans	.2
9	—Testing three varieties of Husking Corn	.3
Root Crops.		
10	—Testing three varieties of Mangels	.3
11	—Testing two varieties of Sugar Beets for feeding purposes	.2
12	—Testing three varieties of Swedish Turnips	.3
13	—Testing Kohl Rabi and two varieties of Fall Turnips	.3
14	—Testing Parsnips and two varieties of Carrots	.3
Forage Fodder, Silage and Hay Crops.		
15	—Testing three varieties of Fodder or Silage Corn	.3
16	—Testing three varieties of Millet	.3
17	—Testing three varieties of Sorghum	.3
18	—Testing Grass Peas and two varieties of Vetches	.3
19	—Testing Field Cabbage and two varieties of Rape	.3
20	—Testing three varieties of Clover	.3
21	—Testing Sainfoin, Lucerne and Burnet	.3
22	—Testing five varieties of Grasses	.5
Culinary Crops.		
23	—Testing three varieties of Field Beans	.3
24	—Testing three varieties of Sweet Corn	.3
Fertilizer Experiments.		
25	—Testing fertilizers with Potatoes	.8
26	—Testing fertilizers with Swedish Turnips	.6
Miscellaneous Experiments.		
27	—Sowing Mangels on the level, and in drills	.2
28a	—Testing two varieties of Early Potatoes	.2
28b	—Testing two varieties of medium ripening Potatoes	.2
28c	—Testing two varieties of Late Potatoes	.2
29	—Testing three grain mixtures for grain production	.3
30	—Testing three mixtures of Grasses and Clover, for hay	.3

C. A. Zavitz,
Director.

New Bulletins.

FOR some time past the Chemical Department has been engaged upon a careful chemical study of the agents used by agriculturists and horticulturists for the eradication of insect and fungus pests. An account of the work done has been embodied in a bulletin, (No. 153), entitled "Insecticides and Fungicides," under the authorship of Professor R. Harcourt and H. L. Fulmer. The bulletin does not aim to give an account of any new methods or remedies, but merely to gather the information available on the subject, which is voluminous and scattered, and to present it in a concise and accessible form.

Paris green is one of the most widely used of insecticides, not less than from 100 to 120 tons being consumed annually in Ontario alone. An exhaustive study was made of a large number of samples, but despite the large demand for this agent, the purity tests have been highly satisfactory.

Although such a large amount of Paris green and other arsenical poisons are used each year, yet these are totally ineffective upon insects which obtain their food by sucking. To destroy these it is necessary to clog the breathing pores. For this purpose various soap washes and emulsions are used. The new bulletin gives directions for making these washes and results of chemical analysis.

The increased cost of production and the need of producing maximum crops

and the growing demands of the larger towns and cities for garden and fruit product of high quality is causing market gardeners and fruit growers to consider seriously the advisability of using some form of fertilizer. This has created a demand for information concerning these substances. This demand has not been easy to fill, for experience has shown that the farmer must have a wide knowledge of plants, soils and fertilizers themselves before he can properly use them. It is with a view of supplying information about chemical fertilizers that Professor R. Harcourt has prepared another bulletin. This bulletin, "Fertilizers," gives a brief account of the food required by plants and how the plants obtain this food from their storehouse, the soil. In addition to this, and most important of all, the Professor tells how losses from leaching and the removal of crops may be prevented, and how plant food may be accumulated and stored in the soil for the use of future crops.

One of the most important points in connection with chemical fertilizers is their purchase at a moderate cost. Many substances which have a high fertilizing value cannot be used on account of their prohibitive price, and in considering the use of any substances as fertilizers the farmer should be able to calculate the cost of one in relation to the cost of another. This he will be enabled to do by the aid of the new bulletin.

It is as yet a disputed point whether commercial fertilizers can be profitably

employed under average Ontario conditions, and upon this point Professor Harcourt does not pronounce a definite opinion. To settle this he says that everyone must experiment for himself under the conditions under which he is working, and for those who wish to decide whether they can profitably make an expenditure upon chemical fertilizers, Professor Harcourt has outlined a simple scheme of experiments which can be carried out by any farmer who is willing to exercise a little care and accuracy.

"Farm Forestry" is the title of another bulletin now on the press. This has been prepared by E. J. Zavitz, of the Forestry Department of the College. A valuable feature of this bulletin is the check list which it contains of the forest trees found in Ontario. The question of the Woodlot is dealt with, as also is waste land planting. This latter is a subject of great importance in all parts of the Province. A very large proportion of our farms have upon them areas of land of greater or lesser extent which are unfit for the usual agricultural purposes of crop production, and often worse than that, for they too often prove a breeding ground for noxious weeds, which, from thence, are spread far and wide. By planting these waste lands with suitable species of trees, not only will the growth of injurious weeds be prevented, but in the

near future a direct income may be secured from them, and for all time the particular farm district will be beautified and enriched by birds and other life, as well as by the trees.

Bulletin 134—"Hints on Making Nature Study Collection in Public and High Schools," is now ready for distribution in its second edition. The first edition appeared under the authorship of the late W. H. Muldrew. It has been revised and brought to date by Professor S. B. McCready.

Another Nature Study Bulletin (No. 152), recently issued, is "Gardening for Schools," also by Professor McCready.

In discussing the place of gardening in education, Professor McCready says: "The most important side of school gardening that it is sought to incorporate into American and Canadian schools is not economic. The child may not learn to prune, graft, cross fertilize, spray or prepare soil scientifically, but he should come out from the work observant, careful, considerate, and equipped with general tendencies good for him in his life's work or in his life's leisure. It is a general culture, and not a technical training. It makes for love of home and love of nature. In the crowded city, it satisfies a hunger for the quiet rest of the country; in the lonely country it furnishes a satisfying and wholesome companionship."

Horticulture.

Horticultural Education.

By JOHN CRAIG, Professor of Horticulture, Cornell University, Ithaca, N. Y.

FOUNDATION TRAINING FOR THE HORTICULTURIST.

THE would-be horticulturist should lay a foundation broad and thorough. It is gratifying to know the entrance requirements to most of our colleges of agriculture are on a par with those of the colleges of arts and sciences. Graduate students in horticulture are then on the same footing as their co-workers in the fields of philosophy, mathematics, or the classics. In addition to the studies required for entrance this fundamental work of the horticultural student in the college should aim to qualify him to deal with the many-sided problems which are certain to confront him in the field of horticultural research or of horticultural teaching. Horticulture is not an exact science. It is a composite resting upon many sciences, and no matter what special field the investigator enters, he finds that it is made up of two parts, one relating to the applied, the other bearing upon the underlying science. It follows then that the training of the investigator in those nearly related sciences should be specially thorough. In botany he should specialize in the physiological and pathological branches. In my opinion this is more important than laying stress upon the systematic side. More emphasis should be laid upon the function of the plant than upon its taxonomic peculiarities. In geology, in zoology, in physics, and in chemistry, the student of horticulture should be given a thorough drill. Of no less importance are the culture studies. The natural sciences are his tools, while the culture studies, English, philosophy and economics, in addition to the languages, are the agents which will impress his influence upon the world of affairs. Many of our students in their haste to enter the fields of activity overlook the importance of a thorough foundation, a complete grounding, and are in consequence hopelessly handicapped in prosecuting their life work.

CHIEF DIVISIONS OF HORTICULTURE.

Eliminating forestry on one side and ornamental gardening on the other, we have remaining as legitimately belonging in the field of the horticulturist:

1. Pomology, being the study of fruits and their culture.
2. Olericulture, being the culture and study of vegetables.
3. Floriculture, the culture of flowers.
4. The manufacture of fruit products.

1.—THE CLASS-ROOM SIDE.

The instruction and investigation in the first three branches stated may be co-ordinated very naturally, while the last stands somewhat by itself. In this group should be found the preservation of fruit products by evaporating processes, by canning and special methods; the extraction and preservation of fruit juices will also come under manufactures. An important division of this branch should be devoted to a study of ferments in their relation to the manufacture of wine and cider.

Pomology is said to be synonymous with fruit growing. In the common usage and acceptance of the term, it is; but in pedagogics it should mean much more. Fruit growing studies ways and means of promoting fruit culture, but it does not suggest the necessity of a monograph on Japanese plums or Chinese peaches. Geology is the study of the earth's crust. A course in soils, however, deals with the same thing, but in quite a different way. Pomology is to fruit growing what geology is to soils. Pedagogically pomology is the better term. It has grown to occupy a very important place in the horticulture of the country because new regions are opening, old fruits are finding new adaptations, and more than all because of the rapidly extending markets and the superior facilities for storing fruits and subsequently transporting them.

To the student of horticulture pomology divides itself into two parts: (1) practical pomology; (2) systematic pomology. The first deals with the management of fruit plantations and the handling of fruit. It is difficult to treat this subject without taking the geographical factor into important consideration. For instance, the great citrus and sub-tropical fruit interests of the United States are developing quite out of proportion to the land areas they occupy.

Systematic pomology is quite as fascinating to the student as systematic botany, because it studies relationships and characteristics of varieties of fruits. It has a deeper value than the mere discipline derived from the study because characteristics of fruits and of groups of fruits are intimately associated with adaptations, and these broad distinctions often form important suggestions to the planters in different parts of the country.

FLORICULTURE.

This is now a highly specialized branch of horticulture. It is too closely identified with the germ of horticultural thought to be segregated and placed in a category by itself. A larger number of persons are interested in one or another phase of floriculture than in any other branch of horticulture. The commercial interests are, however, not as great as in pomology or perhaps vegetable growing. There are two well defined parts to floriculture. The first is the architectural, taking up the construction of houses and involving certain phases of mechanics. Thus

far horticulturists have been very willing to follow the lead of greenhouse builders, and to accept their dictum in the matter of general principles, and to some extent details. There are few more important courses in horticulture, in our colleges of agriculture than that bearing upon the construction and management of greenhouses. If there is a first class course in this branch given in any institution, I should like to have the privilege of indulging myself as a student for a term or as long as it lasted. The student in this course should have as a prerequisite a good training in mechanical drawing. The range of work is wide, going from drawing on one side, to the spreading of putty on the other. In the growing side or department, a florist is needed, one who is a craftsman as well as a teacher. The instruction should contain a minimum of lectures and a maximum of practice.

OLERICULTURE.

I have heard objections to this name on the score of awkwardness and ambiguity. I have no fault to find with it myself for we have accepted agronomy, we are getting on speaking terms with zootechny, and are even found coquetting with thremmatology. Then why should we balk at olericulture? It is smooth, though not oleaginous, and is sufficiently descriptive; why not accept it? Apart from the term, the subject is not a particularly easy one to teach. As a recitation course of the old type, it is usually not a brilliant success. As a lecture course it has some possibilities. But whether lecture or recitation or something of both, it should be supplemented with laboratory work and garden practice. Many of the root crops may be carried over for study, and made the object of systematic examination, though the work is given in the second semester. This laboratory work should be related with bibliographical exercises in past as well as contemporaneous literature. Finally, no student should complete the course without having made the plan of a garden, ordered the seed, planted and cared for the crop during the spring period. As far as possible the class room instruction should be supplemented by excursions to nearby truck growing and vegetable growing centers, where the commercial methods may be studied at first hand.

SUPPLEMENTARY STUDIES.

Aside from the fields which have been mentioned and which form the frame work of a department of horticulture, there are certain subsidiary branches which must be provided for.

1. Plant breeding.—The field of the plant breeder is found in every phase of agriculture and horticulture. At the present time no subject is of greater importance in the horticultural world. In a few institutions a course on plant breeding is given. In no institution with which I am acquainted are there adequate laboratory facilities. While principles are

important and should be carefully studied, nothing will develop in the student an active interest in this great work more quickly and more impressively than the actual doing or performing of the operation itself. The modern college of horticulture should have its plant breeding laboratory, a house set apart in which plants are introduced and grown for the specific purpose of allowing breeding work being carried on during the winter months. The laboratory work should afterward be supplemented by actual experience in the field.

2. Literature.—The teacher and investigator should give a good deal of time to a study of the literature of horticulture, and this is so closely associated with landscape gardening that one can hardly be taken up without a consideration of the other. A study of the literature gives background and perspective. It also provides a philosophic flavor and seasons the entire work with wholesome sentiment. We should be taken away from the practical, the money-getting, the knowledge-acquiring point of view occasionally. A view of the literature of any subject will do much to correct our views and give us a sane outlook, which may perhaps be tinged thereby with a feeling of respect and reverence for men of the past who worked hard and made progress amid difficulties and tribulations much greater than those which beset the student of the twentieth century.

II.—LABORATORY AND FIELD EQUIPMENT.

Pomology.—The teacher of practical and systematic pomology needs in addition to his sound training in plant physiology and the fundamental sciences, a broad and personal acquaintance with the same fruits under varying conditions of soil, climate and elevation. This experience, which can only be gained by travel, is of the utmost importance. Nothing in my opinion is so dangerous, and I might say pernicious, as the opinions and information gained through by first hand experience, in circumscribed local surroundings. Do we not need travelling fellowships in horticulture as well as travelling fellowships in history and archaeology? In order to teach pomology the department should have its field laboratory, and this must be regarded as a laboratory and not as a show or model orchard. One of the most difficult things the teacher has to deal with is the misconception on the part of the layman of what a college orchard stands for. It is not an illustration orchard. It is not an experimental orchard. It is a laboratory in which the student may study the forms which belong to his field. There should be an abundance of tree and plant material representing all stages of growth.

The systematic side of the subject takes up the taxonomy of fruits, deals with descriptive pomology, and the problems of nomenclature. It is desirable that the student should become acquainted with not only

typical varieties of fruits, but varieties of fruits grown in different parts of the country. It should also be stated that this work in practical and systematic pomology should be preceded by an elementary course in the propagation of plants.

It will be observed that we are not dealing with the experimental side nor are we considering the mere looks of things. The scheme conserves educational interests, and should be completely separated from the province of the experiment station. One develops the teaching side, the other that of research. As an accompaniment to the work of the field laboratory in the college, excursions should be made to fruit farms and orchards within convenient travelling distance. Plantations visited should be typical of their kind, and as far as possible should illustrate special principles, or systems of management.

In teaching systematic pomology it goes without saying that while the fruit is the main end of the course, the study should begin with the tree itself. Its botanical characteristics should be studied and related to the systematic and morphological studies of the fruit, which take place later on in the conventional laboratory.

In order to provide fruit for the seasons, cold storage is called into requisition, and this will enable the teacher to furnish even stone fruits in the early part of the season, and to hold most of the early varieties of pomes, apples and pears till they can be studied by the class. Other types of perishable fruits may be preserved in liquids. The citrous fruits are in season in mid-winter, and can be studied at any time that they can be procured conveniently. The old method of studying these fruits was by the use of casts, but no imitation or fac-simile is equal to the real thing, and the farther removed the student is from the plate book and the wax model, and the nearer the actual object, the better. Our teaching of pomology and kindred topics must ever be wider than our own conditions.

FLORICULTURE.

The laboratory requirements for the proper pursuance of this department call for greenhouses adapted to the forcing of the leading commercial crops. In these the student should actually manage and study the plants he is dealing with. Certain houses are assigned to groups of students in turn, and each one is put through a drill in the management of the houses and the crop. Related with this is the lecture and recitation side. The observation powers of the student are stimulated by reports being called for at stated intervals. These reports should cover every detail of management, and will give the student status as an observer in an accurate manner.

The other side of this field bears upon the construction of greenhouses, and to this end there should be material supplied for the erection

knock-down order, and can be erected and dismantled at will. Not only is the actual work of construction studied, but this should be preceded and followed by the execution of plans with complete specifications. The same details should be followed out in the heating of the plant.

OLERICULTURE.

As either a lecture or a recitation course alone olericulture is not likely to prove a shining success. It should be accompanied by a definite laboratory course, in which the actual materials of the garden may be studied at first hand.

In the manufacturing side very little has been done in any of the colleges, except in states where certain industries have become highly specialized, as for instance in California where grape growing is of primary importance, and in the northwest Pacific, where some of the deciduous fruits used for drying are staples. In most of our eastern institutions a department of manufactures for the utilization of by-products and otherwise waste products of the orchard should be provided. The manufacture of fruit juices and jellies should have a distinct place in our horticultural courses; but these could not be attempted until facilities for practical instruction are provided. Lectures might do some good, but it would be like chemistry with a note-book and no laboratory.

III.—POST GRADUATE WORK IN HORTICULTURE

It is a gratifying fact to find that our leading universities with affiliated colleges of agriculture now offer students in horticulture and allied branches the same privileges and the same degrees in the post graduate department which are accorded to students of the natural sciences, the concrete sciences, or the classics. In Cornell University the same preparatory requirements are demanded of the student who enters the College of Agriculture as those required of the would-be student in Arts and Sciences. In a like manner, the man who wishes to supplement his undergraduate experience with post graduate training is admitted on the same basis and given the same opportunities and the same degree rewards that are offered in other fields. A student may now secure his Doctor of Philosophy degree in Cornell University by investigating a special topic in horticulture, whether it be in the field of floriculture, olericulture, or pomology. This is a significant admission on the part of academic authorities, and points to the acceptance of these subjects as being of equal pedagogic value and equal research value to the investigator, as any other subject which he may take up.

The whole theory of education has been very considerably modified in recent years. While I am not of the opinion that really technical subjects, like horticulture and agriculture, should have a place as such in

secondary or elementary schools, yet the nature study phases of some of the natural sciences should be used to give the pupil an opportunity of expressing his natural bent, and at the same time can be used as training subjects for the development of the analytical, the observational, and the deductive qualities of the pupil as satisfactorily as the conventional subjects ordinarily provided. It seems to me that a good many of our educators in advocating unqualifiedly the admission of agriculture into the common schools overlook some important points. They overlook the fact that agriculture is essentially a technical branch, and should follow a course of training which equips a pupil to engage in research. On the other hand, the directing of the attention to natural phenomena, to the habits of the occupants of field and wood, and their relation to the industries of the farmer, is conducive in the highest degree towards a sympathetic association with phases of outdoor life that are likely to lead the pupil into a serious consideration of some rural occupation.

DEMAND FOR TRAINED HORTICULTURISTS.

It seems perfectly fair to say, and the statement is justified by the condition of the present day labor market, that there never was a time when the world showed greater appreciation for the trained worker, than to-day; there never was a time when the market was more active and the supply smaller than at present, and this in the face of the fact that our agricultural colleges are annually training some thousands of workers.

There are three types of men in demand: (1) the teacher, (2) the investigator, (3) the manager. Horticultural schools of high as well as low grades are being organized each year. The demand for teachers is constantly in advance of the supply. On the passage of the Hatch Act, in 1887, a great impetus was given to research work in agriculture and horticulture, and a consequent demand upon trained workers was levied. The recent passage of the Adams Bill, which materially increases the appropriation for research work, creates many new openings, and enlarges investigational opportunity. The difficulty at the present time is that our men are called into the field before they are properly equipped for their life's work. Again in the world of affairs we find that capital is looking upon land investments and land development with more and more favor. The American people as a class purchase more of the luxuries of life than any other nation in the world. The market for high class fruit products is constantly increasing. The demand for business men, for skilled labor in the production of these articles of diet, is also increasing. Men with scientific knowledge, with practical experience and with business methods and analytic minds are needed to manage large fruit growing establishments. Culture and competency await the conscientious worker.

The O. A. C. Review

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Editorial.

At the recent meeting of the Fairs and Exhibitions Association a deputation was appointed to wait upon the Minister of Agriculture to ask for such an amendment to the act relating to fairs as will permit the local fair directors to hold races or speeding contests subject to such regulations as will prevent professional racers monopolizing the tracks, and to effectively prohibit all gambling, pool selling and betting.

This action raises the question, though it is not a new one, to what extent should amusements be provided at Fall Fairs? At the present time amusements of one kind and another, in very many cases, form the attraction to the show ground, while the real purpose of the show is lost sight of. The Guelph Show, for instance, held about the 12th September, may be taken as a type. The first

thing which the visitor meets is not an array of cattle or horses, or an exhibition of agricultural products calculated to arouse the interest and enthusiasm of the farmer, but a series of tents and side shows, the owners of which fill the air with their cries and fancied oratory. The case of Toronto Exhibition is somewhat different. Yet, even there, how large a part the Midway plays. At Brandon Exhibition the Midway runs clear down to the main entrance to the grounds, and all must pass through at least a portion of it before arriving at any of the stables or buildings. Such conditions as these elevate the amusement side of a show or exhibition to a position far higher than it should occupy, and of course thrust the important things to the background.

The function of the Fall Fair should be primarily to educate those attending it and to arouse afresh their

enthusiasm in their calling. It is true that farmers and their families make the occasion one when they may take a holiday, and that they should do so is only right. At the same time if the fairs were made more business-like, if their real objects were more emphasized by the directors, and if side shows were made the minor, instead of the major attractions, the agriculture and agriculturists of the Dominion would receive greater and more lasting benefits from them. English local fairs can teach us much. With practically no financial assistance from county funds, without side shows and attractions, and with agriculture as a third or fourth rate industry as compared with the first rate position it holds in Canada, English fairs succeed as fairs and accomplish a great educative work. Why cannot we give our fairs more of the same character? Put the fun and amusement to the rear instead of to the fore.

This is the fourth time that a portion of this page has been used to make the minds of our readers unhappy regarding the necessity of a covered rink at the Ontario Agricultural College. Sometimes we have stated the bald facts and waited for a rink to spring up next season. When it did not spring, nor yet any sign of a shoot appear, we grew angry and wrote our editorial in the "blood and fire" style. This being equally fruitless, we resorted to persuasion and put our paragraph in the form of an appeal. This of all forms proved the least effective. When once a student body, or a community, or a band of men of any description approach a

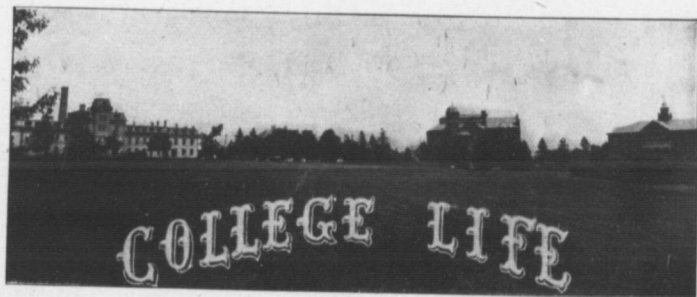
government in that way they may consider their case abandoned. That method was all right in its day, whenever that was, but quite clearly in disuse at the present time. The "club" method is the one now, or none. Unfortunately we are not in a position to use the "stick," but happily there is an indication of help from another quarter. The ex-students, who once labored under the difficulties that now beset the student body are taking an interest in the conditions obtaining and seem desirous of doing something towards its amelioration. Last year a number of them complained of the need of a covered rink, one going so far as to offer \$100 towards the cost of a building. This year many others have expressed themselves emphatically upon the subject, one man offering \$50 and four others \$25 each.

We would like to ascertain if this is "the cloud the size of a man's hand" to indicate the gratification of a long-felt want.

Any ex-student of the O. A. C. or any person in any way interested in the college, would help us to solve this problem by writing a few words to The Review, expressing their views on the matter in question. If the time is ripe we want to get busy; if not we are willing to hear the worst.

In our February issue there appeared an appreciation of Mr. James McIntosh. While the issue was on the press news came that Mr. McIntosh had died, after only a very short illness. To Mr. McIntosh's relatives The Review extends its sincerest sympathy.

**Dr. James
McIntosh.**



IN the words of our English friends from over the sea, "this has been a jolly fine winter." Conditions have been decidedly more favorable this winter than last for our favorite winter sport—skating. A couple of sleighing parties, gotten up by students of Macdonald Hall and the O. A. C., constitute certainly a pleasant feature of life on College Heights.

A new departure in the management of our rink has been made this winter, when it was decided to throw the rink open to the students of Macdonald Hall on Friday afternoons, so that on these afternoons there is to be seen on our ice a gay and interesting spectacle. The time probably is not far distant when a large covered rink, the common property of the two institutions, will be erected. That such a building would be highly beneficial in many ways, cannot be doubted by anyone interested in college matters and conversant with college conditions, equipment and prospects. Agitation for a good covered rink must and should begin with the student body. There is, however, for those with whom the

movement would naturally originate, namely the juniors and seniors, no very strong incentive to go ahead in the matter, since in view of other important improvements it is almost hopeless to expect a sufficient Government grant at present, generous as the Government is toward the college, to get up a rink before the greater part of the students now here have gone. Any efforts students might put forth of their own accord would thus be for the benefit of succeeding classes who, if they would energetically carry on the work, would soon have a good sized rink fund, which, with subscriptions from various sources, together with a Government grant would mean a rink in the not-very-far-distant future. Could not students by their own energy and enterprise raise \$1,000 in the next two years? Think of it!

Union Literary Meeting.

The first meeting of the Union Literary Society for the spring term took place in Massey Hall on Saturday evening, January 26th, with Mr. A. McKenney, president, in the chair.

The programme consisted of an instrumental solo by Mr. R. Fraser; an address by Prof. W. H. Day, honorary president; vocal solo by Miss Holland; debate—affirmative, Messrs. H. C. Wheeler and R. R. Wheaton; negative—Messrs. R. W. Mills and R. J. Allen; won by affirmative; vocal solo by Miss Mae Hunt; judges' decision; critic's remarks; "God Save the King."

"At Home" at Macdonald Hall.

A very enjoyable "At Home" was given at the Hall by the O. A. C. and M. I. Literary Societies on Tuesday, January 22nd, the usual promenades being the leading feature of the evening. A short programme of music was rendered in the drawing-room, by students of the two institutions during the evening. At 9 o'clock lunch was served. A very pleasant evening was spent by all present.

On Friday evening, Feb. 15th, Professor and Mrs. Harcourt entertained the graduating classes of the O. A. C. and Macdonald Institute at their home on Waterloo Avenue. A first class time is reported.

At the regular joint meeting of the Entomological Society and the Wellington Field Naturalist Club, on Jan. 30th, the first part of the evening was devoted to the subject "Symbiosis," or that condition in which two different organisms live together in intimate and mutually helpful relations. Mr. Eastham, in his paper, described a number of interesting examples of this kind of relationship, for instance the licheus. In these a fungus makes the bulk of the body, but among its mycelium, algae is always found growing. Other examples were the nodule-forming bacteria on the roots of the clovers, and certain kinds of trees, such as the firs, where a fungus practically takes

the place of the root-hairs in supplying nourishment. Mr. Barlow mentioned the interesting phenomenon of algae growing in frogs' eggs apparently with mutual advantage to itself and the eggs. Many other examples of symbiosis were given. The rest of the evening was spent in a discussion of the Grosbeaks. Mr. Moore gave an interesting account of the different kinds of Grosbeaks to be found in this district at different times of the year, and other members gave their observations of the habits of these attractive birds.

College Conversazione.

Undoubtedly the leading social event of the college year is the Conversazione given annually by the students of the O. A. C. and Macdonald Institute, the direction and management being in the hands of the members of the junior year as in other colleges. This year the "Conversat" was held on February 13th, a little later than usual, owing to unavoidable circumstances. Macdonald Hall, with its long, broad corridors, its wide stairs, its bright, fresh walls, and its fine drawing-room, dining-room, and gymnasium, was the scene of this gay event. Over thirteen hundred invitations were sent out, of which upwards of three hundred went to Guelph friends of the college. In the vicinity of eight hundred people were present from various parts of the Province.

Guests began to arrive at 7:30, and were received in the drawing-room by President Creelman and the following ladies, who kindly acted as patronesses: Mrs. Creelman, Mrs. Dean, Mrs. Reed, Mrs. G. Day, Mrs. Hutt, Mrs. Reynolds, Mrs. C. A. Zavitz, Mrs. Harcourt, Mrs. Graham, Mrs. W. H. Day, Mrs. E. J. Zavitz, Mrs. Edwards, Miss

Watson, Mrs. Fuller, Mrs. Evans and Mrs. McCready.

From eight to nine o'clock was spent in arranging promenades. At nine sharp two bugles rang out, announcing the commencement of promenades, which were each of ten minutes duration, excepting the concert numbers, which were slightly lengthened to permit guests to gather in the gymnasium before the vocalist, Mr. Johnson, began his selections. Mr. E. P. Johnson, a native of Guelph, but now of New York City, rendered the following selections during numbers 2, 5, 8, 11 and 14 of the promenade programme: Aria, "Ah! Fuyez!" (Manon)—Massenet; "Les Regrets," Barthelemy; "Triste Ritorno," Barthelemy; "Pepita," "Do You Remember," "If I Could Steal Your Wings," Gerrit Smith; "Twilight," Nevin; "The Bony Fidler," Hammond; "Proposal," Hastings. Mr. Johnson is well and favorably known in Guelph, this city having been his home for some years. His singing on this his latest appearance in Guelph, showed great improvement within the last year, and was a rare treat indeed in the way of vocal music. Mr. Johnson enjoys the enviable reputation of being the finest tenor on the continent, and one of the four best tenors in the world to-day. The college was fortunate to have been able to secure the services of so well known and popular an artist.

Refreshments were served in the dining-room from 9:30 to 12. The young ladies of Macdonald Institute who so kindly took entire charge of

the preparation and serving of refreshments are deserving of the greatest credit for the capable manner in which they handled their task.

The decorations in the gymnasium and dining-room were very tastefully arranged and in the glare of the lights produced a very pleasing effect.

It is generally conceded that this year's "Conversat" was a grand success. To this end the committee labored, and it is gratifying indeed to know that all found the evening an enjoyable one.

A banquet was recently given the members of the stock judging team and their friends by Mr. Cameron, of the city.

At the hour appointed the guests repaired to the Royal Hotel, and were received by Mr. Cameron in true Highland fashion. As the strains of the bagpipes pealed through the room, the guests took their places round the festive board. Just here is where Mr. Cameron "did himself grand." To the hungry student it almost seemed like Paradise. The decorations were lovely, and the eatables everything that could be desired. The speeches were good, and it may be safely said that never were toasts drunk so heartily.

Prominent among the guests were Mr. Gosling, Kansas City, and Profs. Day, Graham and Arkell, of the college. As the guests dispersed at the conclusion of the affair, many and generous were the remarks made in appreciation of the kindness of the host.

Y. M. C. A.

THE thirty-fifth convention of the Inter-Provincial Associations of Ontario and Quebec was held in Toronto on February 13th and 14th. The convention was divided into three sections, City Work, Railroad Work and Student Work. The latter was in charge of Frank V. Slack, who visited the O. A. C. the week previous, and his business-like methods and earnest manner contributed in no small measure to the success of that section. About forty student delegates were in attendance from the various colleges in Toronto, Belleville, and from the O. A. C., which sent three delegates. The keynote of the meetings was the responsibility of the individual student during his college course to influence his fellows for good. The point was repeatedly insisted upon that student life offers opportunities for personal influence which are not to be found in any other sphere of activity, and which, when student days are over, will not recur.

Among the strong men of the convention were Dr. Johnson, of Montreal, who conducted the devotional services; Rev. J. A. Macdonald, of the "Globe"; Mr. Ames, M.P., of Montreal, and W. J. Southam, of Hong-Kong, China.

A Canadian Northfield.

One of the agencies of the Y. M. C. A. in its student branch, which has been productive of great results, is the summer conference. The first of these was held some thirty years ago at the invitation of Mr. Moody. Since then "Northfield" has become a word fa-

miliar to students and others through the whole of this continent. So eminently successful have the Northfield conferences been that similar summer schools have arisen in other parts of the States. Some six or seven years ago a conference was started at Lakeside, Ohio, for the benefit of the students at institutions in the northern central States and central Canada.

For some years the Y. M. C. A. of Toronto University have made efforts to establish a student summer conference upon Canadian soil. Circumstances have prevented this being done in the past, but for 1907 the International Y. M. C. A. Committee has decided to hold the conference at Niagara-on-the-Lake instead of at Lakeside. Thus this summer will see the first student summer conference ever held upon Canadian soil.

This conference will of necessity be in the nature of an experiment. If it should prove a success in 1907 there is reason to believe that this conference will become a permanent one. In order that this conference may be a success and that it may be established as a permanency at Niagara it is essential that Canadian students stand under it, and by their attendance, make it a success, for seeing it is in Canada one cannot expect the Americans to be in the majority. But it is the students of the district nearest to the meeting place who must do most for the conference. Toronto is the university centre, nearest to Niagara, and "it is up to" Toronto. However, there are colleges

affiliated to Toronto and easily accessible to Niagara which, too, must help.

The Y. M. C. A. of our own college has for several years past sent one or two men either to Northfield or Lakeside. Both these places, however, are not easily accessible to our students, and for this reason it has been difficult to get men to go to those places. Now that the conference is to be at Niagara the O. A. C. should send a strong delegation there and do its share in insuring a permanent conference in Canada.

This in itself should be a strong inducement in making numbers of men to decide to attend the conference; yet there are other men who may wish to know in a more definite way the benefits they can get at Niagara.

Isolated as the O. A. C. is from other colleges, there is a danger that we may not get a true sense of perspective in college and varsity life and that we may become restricted in our outlook.

To live with and to mix with men from other colleges for two weeks and to meet them upon common ground, free from contest of any description, must do much to enlarge one's horizon. Inter-college sports and debates have their place and do much to establish kindly relations between different institutions, yet in no way can such a

bond be created as by a summer conference. Here is a direct benefit which must accrue to the whole student body. The calibre of the men in charge of the summer conferences is of the highest order. Not a small part of the value of summer conferences is to be found in the personal contact we, the students in attendance, may have with strong men, men who have made student life and its problems a study and a life work. To meet men like Mott, Speer, Bishop, McDowell, Canon Cody, Zwemer, Campbell, Morgan and other giants like them, to talk and to live with them, must create a deep and an ineffable impression upon the life of any student. Most of the men named above will be at the Niagara conference to be held from June 14-23. Then the camp life, the excursions, the afternoon sports, the evening life-work talks under the trees, any one of these features alone is worth the time. Every student should endeavor to plan his summer's work so that he has ten days which he can spend at Niagara-on-the-Lake. The College Y. M. C. A. hope that our college this year may be strongly represented, that other colleges may learn the importance of the Ontario Agricultural College and that its students are up and doing.



The Poultry Institute.

THE second annual meeting of the Poultry Institute was held here on the 5th, 6th, 7th and 8th of February. Among those present were: Mr. Cyphers, of Buffalo; Mr. Nix, of Homer City, Penn.; Prof. Rice, of Cornell; Mr. Baldwin, Toronto; Mr. Elford, of St. Anne, Quebec; Mr. Robertson, of St. Catharines; Miss Yeates and Miss Beardmore, of Toronto.

Prof. Gowell, of the Maine State Experiment Station, was to have been the first speaker, but he, through illness, was unable to be present. Prof. Graham took his place and gave a very able address on the "Selection, Housing and Feeding of Layers." Prof. Graham mentioned an experiment conducted at the Maine State Experiment Station during the season of 1905. Fifty of the quickest maturing, most growthy pullets were taken and placed in fresh air houses for a year. The results have been that these pullets laid 180 eggs in a year, while the ordinary pullets had only 134 eggs to their credit. The final and only true test for the laying hen is the trap-nest. Outward appearance shown in early maturity is second best; all birds must be constitutionally strong.

President Creelman gave an interesting address at the evening meeting, on "The Advancement of Agriculture in Ontario."

The morning sessions were resumed at 9 a.m. Wednesday, and it was then that the greatest treat of the Institute was given. Prof. W. H. Day spoke of

the work that had been carried on at the college during the past year. He emphasized the fact that the accurate results, which had been attained were largely due to the patient and painstaking endeavors of Mr. McKenny, '07, who had carried out the practical end of the experiments.

On Wednesday afternoon Mr. Cyphers spoke at some length on Chinese methods of incubation. Mr. Nix concluded the afternoon session. He corroborated the statements advanced by Prof. Day in the morning, and expressed the hope that such valuable work would be continued at the college. He emphasized the necessity of the introduction of carbon dioxide into the incubators, but how to do it in the presence of fresh air was a question.

Thursday morning was devoted to addresses on brooding by Messrs. Cyphers and Nix. Mr. Cyphers gave a detailed description of his immense brooder houses on his model poultry farm near Buffalo. Mr. Nix gave some valuable hints regarding the construction and operation of the various makes of brooders, which are on the market to-day.

Prof. Rice, of Cornell and Mr. Baldwin, of Toronto, took up the afternoon session. Prof. Rice spoke at some length on the experiments recently conducted at Cornell, concerning the function of grit and the philosophy of the moult.

On Thursday night, Prof. Rice again appeared before the Institute and gave

an illustrated lecture on "Egg Farming in New York State."

Prof. Graham gave an interesting talk on the practical side of artificial incubation on Friday morning. Miss Yeates, of Toronto, followed with a graphic description of several egg-laying competitions, which had been held under her supervision in England.

Friday afternoon was devoted to the fancier's method of breeding, fitting

and scoring exhibition stock. Messrs. McNeil, Oke, Martin, Cosh, Donovan and others were present, and took part in the discussion.

Before closing, a resolution was passed asking that the Ontario Government be petitioned to allow Professors Day and Graham to conclude the valuable experiments of which last year's work was but a beginning.

W. A. Brown.

A RAINY DAY.

The soft, gray rain comes slowly down,
Settling the mists on marshes brown,
Narrowing the world on wood and hill,
Drifting the fog down vale and rill,
The weed stalks bend with pearly drops,
The grasses hang their misty tops,
The clean leaves drip with tiny spheres,
And fence rails run with pleasant tears.

Away with care! I walk to-day
In meadows wet and forests gray;
'Neath heavy trees and branches low,
'Cross splashy fields, where wild things grow;
Past shining reeds, in knee deep tarns;
By soaking crops and black, wet barns;
On mossy stones, in dripping nooks;
Up rainy pools and brimming brooks,
With waterfalls and cascadills,
Fed by the new born grassy rills,
And then return across the lots,
Through all the soft and watery spots.

Away with care! I walk to-day
In meadows wet and forests gray.

L. H. Bailey, in the Century.

Athletics.

Inter-Collegiate Hockey League.

AS related in our February issue, our hockey team was admitted into the Inter-Collegiate Hockey League in the Intermediate series. Our stay in the series was brief, but eventful. The college team met 'Varsity II. and went down before that strong aggregation. In the first game on the Mutual Street Rink, Toronto, the O. A. C. suffered a whitewash, but when the return match was played in Guelph, though defeated, the college team gave an excellent account of themselves. But as to the games themselves. The college hockey team travelled down to Toronto on February 5th, confident that they could at least hold the strong 'Varsity seven down to a pretty decent score. And indeed they should have done so, for the brand of hockey played was by no means so high-class that our boys should have appeared so completely outclassed. Something happened, nobody knows just what; but perhaps the label, stage fright, will describe it as well as any term. None of the team seemed nervous previous to the match, and some fast work was shown in the preliminary warm up, but just as soon as play started everybody just got "dopy." The forward line seemed lost, not a man seemed to know his position, and the fast 'Varsity forwards fairly skated rings around them, while our men seemed to stick to the ice. John-

son and Barton comprised the college defense, but were totally lost on the large, square Mutual Street Rink, and were no match for the fine team work of the 'Varsity forward line. Time and again they worked the puck by pretty combination through our defense and batted the puck in. The goal-tender was completely bewildered by the fusilade of hot shots which beset him, and was totally unable to break up the magnetic affection which the puck seemed to have for the net. But at that our team at times woke up and held their opponents safely for a few brief moments. But these efforts were spasmodic and uncertain, and in the intervals 'Varsity piled up 24 goals to our little 3. The credit for the winners success is due entirely to their lightning forward line. Each man played right in his position, was right after the puck when it came into his territory, and was right on his check when the college had the puck. Their combination was a feature. Down the ice they would swing four abreast, passing swift and sure when checked, and bowing right in on the nets. And that's the style of hockey that counts. Frequently the wing man would take a shot at goal and young Evans was right there to take the rebound from the goal-tender and poke it in. As a team, the Toronto bunch were much the heavier, and were also in much

better condition. At the closing stages of the game they were playing just as strong and fast hockey as at the beginning. They certainly are a fast, aggressive bunch, fast skaters, good stick-handlers, and have the happy faculty of shooting true from the most unexpected positions.

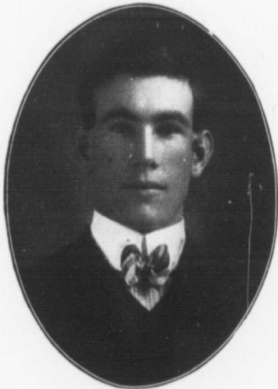
O. A. C. line-up—Goal, Curran; point, Barton; cover, Johnson; rover, Savage; center, Middleton; right, Scott; left, Hodson.

The return match took place the following Friday evening at the Royal City Rink, Guelph, and was a magnificent exhibition of our great winter sport. It was probably the most exciting and closely-contested game seen in Guelph this winter, and enthusiasm ran high among the spectators as one team or the other tied the score or gained the lead. The O. A. C. boys went on the ice determined to show the 'Varsity bunch that the match of a few days before was but a fluky win. And the way they jumped into the game was indeed good to see. Our whole team had received a general shaking up. The redoubtable Foster was back at his old place at center, and was the axis upon which the whole forward line revolved. His individual rushes and shooting were a treat to see, but on the whole he did not have anything on Evans, and it was a battle royal between two game center men. Barton was shifted to rover, where he played one of the hardest and best games of his career, being always in the thick of the play from the beginning to the call of time. Dan Johnson at coverpoint proved to be as reliable as ever, stopping the rushes of the opposing forwards with almost machine-like precision and making his well known zig-zag rushes whenever opportunity offered. Christie at point

proved a tough nut to bump into, while Hoffman in goal stopped some hot shots, labeled counters. Middleton at right wing had a busy night, and his auburn locks were prominent in many a rush. Hodson at left had the fastest man on the ice to cope with, but he held his man well. In fact the whole team played a strong, consistent game, and used their heads to good advantage at critical moments.

Fully 150 college supporters lined the boards when the game started, and they made the air ring with their college yells and songs, the students seemingly expecting great things from their team. Stimulated by this encouragement, the college seven started off at a fast clip, and forced matters from the start, but were away off in their shooting. 'Varsity, by a nice rush, carried the puck up the ice and in a sharp scrimmage Evans batted in the puck after about a minute's play. And then those Toronto players smiled. Gallic smiled so much that he got a kink in his face and was forced to retreat to the corner to have his face rubbed by the trainer, while Evans winked one eye solemnly, and under cover of his hand, silently whispered to his teammates, "Ye gods, another avalanche." But they were soon undeceived, for on a brilliant individual rush Foster almost immediately evened the score. And then it was nip and tuck. The puck travelled from end to end with lightning rapidity, brilliant combination was shown by both sides, and each goal was menaced almost every minute. Both teams checked close and hard, and any individual work was quickly broken up. On a combined rush, the visiting forward line drew our defense out and bored right in on Hoffman for a goal.

The second half produced quite as high class hockey as the first. The pace was swift and strenuous, and everybody was right on the puck, so that no idle moments resulted. The O. A. C. finding that they could hold the fast 'Varsity forwards, played hard to win, and had all the better of this



W. C. McKILLICAN.

half's play. But for wild shooting they should have netted the majority of goals, and it was a piece of hard luck that kept them from tallying oftener. Both teams shot two goals during this period, leaving the final score 4 to 3 in favor of 'Varsity.

The regular 'Varsity team lines up as follows: Goal, Sullivan; point, Gallic; cover, Culver; rover, Kennedy; center, Evans; left, McSloy; right, Campbell.

O. A. C. team: Goal, Hoffman, point, Christie; cover, Johnson; rover, Barton; center, Foster; left, Hodson; right, Middleton.

'Varsity has a strong, aggressive team, with one of the best forward lines in the business, but their defense

is by no means in the same class as their attacking division. The defense is of junior, while the forward line is of senior calibre. During this season 'Varsity has rolled up the huge scores of 17 to 8 against McMaster, 28 to 6 against O. A. C., and 23 to 11 against R. M. C., Kingston, the winners of the eastern division, so that by so doing 'Varsity holds the proud title of inter-collegiate intermediate champions. And right well they have earned it, and we congratulate them heartily on their success. Next year many of this year's champions will doubtless figure on the 'Varsity senior team, so that next year



E. C. HALLMAN.

the competition will be much more keen and interesting.

Stratford vs. Guelph O. A. C.

The college basketball team played the first of their several exhibition games at the gymnasium on Wednesday evening, February 6th, having induced Stratford to come down and try conclusions with us on our own floor.

A fast and exciting game was the result, and although the O. A. C. boys did not win, they played plenty well enough to win the warm appreciation of their supporters. The final score resulted with Stratford in the lead 56 to 45. A feature of the game was the large number of fouls made, the lack of knowledge by our boys of the Canadian Y. M. C. A. rules costing them the game. During the evening some lightning fast work was indulged in, the college boys excelling in passing and combination, while the visitors were away superior in shooting. With a little more practice in the new rules and greater skill in shooting, the O. A. C. would prove a hard nut for any team to crack. Stratford has played together for years, and is one of the best teams in Ontario, so that it was no disgrace to fall down before such doughty opponents. The basketball manager has gone on the assumption that it is better to be beaten by a good team than to defeat a poor one, and this course will result in faster games and more benefit to the game generally.

The inter-year basketball series is in full swing now, and two very good games have been played so far. The first-year trimmed the seniors quite handily, while the second-year, after a very keen struggle, finally succeeded in defeating the juniors by the high score of 57 to 37. By winning this game the second-year have practically cinched the championship, as the other two teams are not regarded as very serious competitors. The game between the sophomores and juniors was the best contest seen here this season.

Both teams played hard, fast basketball, and watched their opponents so closely that numberless fouls were the result. The juniors excelled in team work and combination, and had rather the better of the play, raining a continual fusilade of shots at their opponents' basket, but through wild shooting were unable to score, while on the other hand the sophomore men shot excellently, and scored on nearly every rush. MacKenzie was the star of their outfit, while Weaver and Brown did the best work for the juniors.

The Pringle Cup.

Cups come galore these days. The latest arrival is one presented by Mr. G. D. Pringle, of Guelph, for competition at the annual indoor meet, the champion of the day holding the cup temporarily for the following year. Any student who has been in attendance at the lectures of any regular course since Christmas is eligible to compete. The winner's name is to be engraved on the base of the cup at the expense of the O. A. C. Athletic Association. The cup must be won two years, not necessarily in succession, before it becomes the property of any student. Last month mention was made of the new cross-country cup. This is being given by McKillican and Hallman, whose faces we show on another page. The generosity and interest in the students shown by Mr. Pringle is much appreciated by the student body generally, and is but another indication of the close tie which binds the people of Guelph and the college students and staff so closely to one another.

Our Alumni.

WE present below the faces of three of naughty-seven's brightest members. Jack Baker was not only a general favorite, but a mighty good student, and one who could see things in their proper light. On the farm at his home, Solina, Ont., Jack is putting into practice the thoughts and ideas with which he was scintillating when at college.

His own familiar friend Jack Hark-

picture look as of yore, we could not overlook C. G. Montgomery. During the somewhat tumultuous period of the existence of the class as freshmen "Montie" held the helm and supported it through thick and thin. In the sophomore year when the class was of the despised and rejected, he brought it into prominence by his feats of prowess on the football field and as captain of the hockey team. Just now he is doing his duty to his country and



John Baker.

C. G. Montgomery.

J. Harkness.

A '07 TRIO.

ness is at once framed with remembrances whose deeds were but a counterpart of the man. Like Baker, he took but the Associate course, but it was of sufficient length to verse him in a knowledge of where the best refreshment was to be had. The friends of Harkness were by no means confined to the college. Many and true were those within the city limits. He also is engaged in the noble industry of agriculture on the farm at Annan, Ont.

To complete the trio, and make the

himself on a farm in the far west at Ranfurly, Alta.

Since graduating, N. A. Rudolf, B.S.A., '05, has been living at Rio Magno, Riversdale, Jamaica—that island which has recently been shaken into prominence. The Review is glad to be able to inform his classmates that he and his family are safe in Jamaica, having suffered a slight loss of property only. The following extract from a recent letter of his gives an unadorned account of the disaster, which is of interest.

"On Monday, 14th January, at 3:35 p.m., we experienced a terrific earthquake, which shook the whole island, more or less, but paid special attention to Kingston, our chief town. It only lasted thirty seconds, but so fierce were the shocks that nearly every stone building in Kingston and its suburbs was completely wrecked. There was great loss of life and the death rate will exceed one thousand, including many of our most prominent merchants and professional men.

"Fire swiftly followed the earthquake and completely devastated the business section of the city, about thirty-six acres in extent. This fire was responsible for a large proportion of the deaths, as the debris blocked the streets and transformed them into one vast crematorium. The tales of the survivors are exciting, and when one surveys the ruins of the city it seems a mystery that the percentage of deaths is not greater even than it is. The fire finally burnt itself out in about twenty hours and then efforts were made to restore order, although even while the fire was at its height men had been fighting to save the wounded from the flames and to master the fire. The majority of those who had escaped from the falling buildings had encamped in the different parks and open spaces, where they remained till they obtained shelter in the few surviving wooden buildings or fled to their friends in the country districts, which have not suffered so severely.

"As soon as cable communication was established with other countries, help began to arrive, the first boats to reach us being three U. S. warships, bringing stores and drugs from Cuba. They rendered valuable assistance in tending the wounded, succoring the

destitute, and preventing looting. Other countries followed suit, a Mansion House Fund has been started and Canada has given us a princely and much-appreciated donation. Order has now been restored, the principal streets have been cleared, and we have now to rebuild the city, a stupendous task in our present crippled condition. However if the fire insurance companies pay the fire losses (a thing they seem reluctant to do), it will be a great help to the merchants and a newer and finer Kingston will be built; but it will be a work of time.

"We are commercially crippled temporarily, but our agricultural resources are untouched, and undoubtedly a decade will see us in much the same financial condition as we were before the ill-starred 14th."

A. P. Ketchen; B.S.A., '03, is Minister of Agriculture for Saskatchewan. For some time after graduating, Ketchen was assistant live stock commissioner for Canada. Later he held a responsible position on the editorial staff of the *Nor' West Farmer*, at Winnipeg. The farmers of Saskatchewan are to be congratulated on having a man of Ketchen's ability guiding their destinies.

R. B. Rankin spent two years at the O. A. C. with the class of '05. The field of business possessing strong attractions he accepted a position as traveller for a Toronto firm. Last summer he took a trip west for the benefit of his health, which had not been the best for some time. With restored vigor Rankin is at present in the real estate business in Calgary.

R. B. Birley, '02-'04, is farming near Alexander, Man., and at the same time

gaining a few pounds in weight. Those who were acquainted with Birley while at college will not be surprised to learn that he considers the scarcity of the fair sex one of the greatest disadvantages of the Prairie Province.

Among our ex-students there is no one upon whom we can look with more pride than J. Burns Spencer. Although as yet a comparatively young man, his career has been a very eventful one. He was raised on a farm in that part of our Province which has long been



J. BURNS SPENCER.

famous for its high class stock, South Ontario. The possibilities of higher education appealed to him, and he did the entering and enrolling act in 1891. During his vacation in 1893 he commenced the journalistic grind which wears but develops, in the office of the "Farmer's Advocate." After graduation in 1894 he returned to the Advocate as assistant editor and remained in that capacity until the autumn of 1901, when he assumed the agricultural editorship of the "Family Herald and Weekly Star," Montreal. July,

1905, found him a step higher as assistant live stock commissioner for Canada. This position he now holds under Dr. J. G. Rutherford, who is chief of the united branches of Health of Animals and Live Stock.

L. G. Bell, B.S.A., '93, is a prosperous farmer at Q'Appelle, Sask. Bell was selected by the Dominion Seed Branch as one of the judges in the grain field competitions in the West the past summer.

J. H. Davidson received his Associate Diploma in '03. He farmed for some time on Vancouver Island, later spending a year in the Klondike. He returned to British Columbia, where he has been engaged in ranching in the Kootenay Valley. Davidson has recently taken up land near Daysland, Alta.

J. W. Widdifield, B.S.A., '95, has made a decided success on his farm at Uxbridge, in Ontario County. He visited the Northwest twice during the summer of 1906 with a view to looking over farming conditions there, but expresses himself as well satisfied with the prospects in Ontario. Widdifield is addressing Farmers' Institute meetings this winter.

P. Beveridge Kennedy, B.S.A., '94, as a student took an active part in athletics. While taking postgraduate work at Cornell for the Ph.D. degree he won for that university the quarter mile championship in competition with men from such colleges as Yale and Harvard. Kennedy has charge of Botany, Horticulture and Forestry at Nevada State University, Reno, Nevada.

J. B. Hoodless, B.S.A., '05, is making his influence felt in Uncle Sam's

domain. He is manager of a large farm for the W. W. Wadsworth estate at Geneseo, near Rochester, in New York State. Although his time is pretty fully occupied, Hoodless occasionally treats himself to a day's hunting.

Those who attended the O. A. C. in '01 will remember L. Muir who entered the college in that year. Lorne is not at present intimately connected with agriculture, being in the hardware business at Edmonton, Alta.



"THE DIAMOND HITCH."

H. R. McMillan and Roland Craig on the trail. Craig has made another hitch since this.

The fact that good butter is made in Quebec is due, no doubt, to the efforts of C. M. E. Mortureau, B.S.A., '00. He is connected with the Dominion Department of Agriculture as Inspector of Creameries for Quebec.

D. H. N. Russell, who strayed into the halls of the O. A. C. in '99, was one of Canada's representatives in the South African war. Nothing daunted

by a taste of the strenuous side of military life, Russell made his way to India, where he is a lieutenant in the Sixty-fourth Battery, Royal Field Artillery, Peshawar.

Dairying is a prominent industry in Lambton County and its condition is in a fair way to improve. A. E. Wark, '83-'84, of Wanstead, and H. B. Smith, B.S.A., of last year's graduating class, are organizing a cow-testing association, which gives promise of being broader in its influence than any similar organization previously formed. Wark and Smith purpose buying a high grade dairy sire to be placed at the service of the members.

Ed. Wells, '86-'88, has a controlling interest in a large creamery at Chilliwac, B. C. Ed. is one of the largest and most prosperous farmers in the Pacific Coast Province. He is well known as a breeder of Ayrshires.

A. J. Irving took the first year with the class of '06. He was a general favorite, being class president. For over a year Irving has been in Alberta in the interests of the Massey-Harris Company. He is now

manager of the Collection Department of that firm for Alberta. His office is in Calgary.

T. H. Robertson, an associate of '97, is running a lumbering and contracting business in Alberta.

Norman Ross, B.S.A., '98, who has charge of the work at Indian Head for the Dominion Department of Forestry, was a visitor at the college during the short course in Stock Judging.

Macdonald.

The Growth of Domestic Science.

THERE is usually a new task laid upon each generation, and the reconstruction of educational ideals and methods seems to be the work laid out for the present generation of educators and parents. The ethical theory that every organized body of facts and laws has each a direct bearing on the other seems peculiarly applicable to questions with which education is concerned, as the professional, commercial, industrial and domestic interests are so closely interwoven. A system of education which does not develop the human faculties on the broadest possible basis cannot fulfill its function in producing the highest type of citizen.

As the family is the most ancient of all forms of government and organization, and no institution is of greater value in the establishment and maintenance of high ideals than the home, surely it is not unreasonable to ask that such an important factor in social development should have a place in the councils and educational institutions of the country.

It is said that the home is the social workshop for the making of men; therefore, an education which will create a greater sense of responsibility in the home-maker, establish higher and yet simpler standards of living, and bring into harmony the various forces of society, must, prove of incalculable value to the country at large.

A definition of Domestic Science given by a well-known authority is that it is a combination of household arts or activities based on a number of sciences, and leading to the study of economics. The scope of Domestic Science is as wide as the influence of the home. The chief value lies in the power of such instruction to awaken a consciousness of

the economic evils consequent on ignorance of food principles, water supply, sanitary conditions, business methods of the home, study of child nature, and the relations of the home to the state.

In 1894 the first steps were taken by the Department of Education to introduce Domestic



MRS. HOODLESS.

Science into the schools, by amending the School Act so as to permit trustees to add this subject to the school course. Previous to this time, and as a preparation for the introduction of the subject into the schools, the question had been discussed by the National Council of Women in 1893, at their first meeting held in Ottawa. The need for such instruction had been impressed upon Mrs. Hoodless, at that time President of the Y. W. C. A., and at their first meeting she moved a resolution which placed on record the approval of the women of Canada of such instruction in the schools. The resolution was as follows "That this National Council of Women of Canada do all in its power to further the introduction of Manual Training and Domestic Science into the public schools of Canada, believing that such training will greatly conduce to the welfare of Canadian homes and interests."

Mrs. Hoodless presented the matter to the Minister of Education for Ontario, whose sympathies she enlisted, and from that day to this (Mrs. Hoodless) her sympathies and her associations with the department have been intimate and far-reaching.

Thus schools of cookery were established in Toronto, Hamilton and Ottawa, under the auspices of the Young Women's Association, and the training given was taken as a basis upon which to build some standard of efficiency for teachers of Domestic Science in the schools.

In February, 1900, the Ontario Normal School of Domestic Science and Art was established in Hamilton in affiliation with the Ontario Normal College, and aided by the Department of Education. Being the first school

of its kind in Canada, it was difficult at first to organize the work on distinctly educational lines. In September, 1901, a supervisor of sewing was appointed by the Board of Education, and thus sewing, which had been taught in a haphazard way previously, was given its proper place, and systematic instruction was given.

In April, 1901, classes in Domestic Science were started in Stratford, while in December of the same year it was introduced into both public and high schools of Renfrew. A little later it was taken up in Brantford, London, Toronto, Ottawa, Deaf and Dumb Institute, Technical and Private Schools throughout the Province, the Lillian Massey School of Household Science at Toronto being one of the most complete and best-equipped in every way of the special schools. In order to arouse interest in the question of more practical instruction, the Department of Education arranged that Mrs. Hoodless should address meetings under the auspices of the various school boards, for the purpose of discussing the introduction of Domestic Science into the schools, to explain the object of such instruction, and learn the wishes of the people concerning the matter. In three years Mrs. Hoodless addressed sixty-two meetings in various parts of the Province, and in no Province has such progress been made as in Ontario, although Nova Scotia comes second. In no state or country has a government shown more sympathy or given more practical help than the Government of Ontario.

One of the objections raised by trustees and others to the introduction of Domestic Science into the schools was the absence of Canadian trained teachers, and the objection to employing



ON THE EAST STEPS OF THE HALL.

foreigners. In order to meet this objection Mrs. Hoodless asked the co-operation of the Government in establishing a Canadian training school, of which the Normal School of Domestic Science and Art at Hamilton was the outcome. There were eleven teachers, some of them giving their services, as the Government only paid the Principal's salary. While in England, Mrs. Hoodless aroused the interest of Lord Strathcona, who gave two thousand dollars for equipment. This, with a city grant of one thousand dollars, helped to get the school in proper running order. This school provided the first educationally trained teachers of Domestic Science in Canada. Later on Prof. Robertson, Dr. James Mills and

Mrs. Hoodless laid the matter before Sir William Macdonald, of Montreal, with the result that he provided the building of Macdonald Institute—one of the finest special schools of its kind in the world. It was given upon the condition that the Government maintain the school. The Ontario Normal School of Domestic Science and Art amalgamated with Macdonald Institute. Domestic Science, Nature Study and Manual Training are the three special subjects for which the Institute has been established. In order that this feature of education may be made as valuable as possible as a social factor, the public must be disabused of the idea that Household Science means simply cooking, and is of purely

material consideration, for while cooking is an important branch of the work, it is not the all-important. There is much to be studied about the home as an institution, besides feeding the family. The regulation of income and expenditure, sanitary and hygienic conditions, order, care of the house and furnishings, the social responsibility of the home-maker, and many other subjects, are studied.

That the present results have been accomplished easily is a mistake. There was a solid wall of opposition to the introduction of more subjects in the school, and it meant a regular missionary tour before the wedge could be inserted. A great deal of the credit for the establishment of Household Science is due Mrs. Hoodless. Now, there are twenty-five centers of Domestic Science established in the schools of Ontario, with more in view. The subject is a regular part of the Normal School course of the Normal Colleges, and a course leading to a degree, Bachelor of Household Science, is provided at the University of Toronto.

The Literary Society.

The first meeting of the Literary Society for 1907 was held in the Gymnasium, Friday evening, Feb. 1st. Owing to the departure of last term's short course a few new officers were elected: First vice-president, Miss Irene Allan; convener of Programme Committee, Miss T. D. Ross.

No debate was held, as had been planned, as Miss Rowsome came over to tell us about her trip and took the chief number on the programme. Miss Rowsome is one of the few travellers who can carry her travels right home with her and make her friends enjoy them almost as much as she herself. Starting from Guelph early in April,

she was joined by a sister in Hamilton, and proceeded to Philadelphia, where they spent two days. After a delightful voyage, unbroken even by the regulation sea-sickness, they arrived in Liverpool and London and were charmed with the world's metropolis. After a short stay in England, visiting the principal cities, they crossed over into Germany and spent some time in that most interesting country. Then she carried us, in imagination, down through France and Switzerland. The description of the rugged mountain scenery of the Alps and the beautiful lakes, especially Lake Genoa, contrasted strikingly with Gay Paris. Then we were shown something of Sunny Italy, where we were left wandering. We were loath to come home so quickly, but the hall is not such a bad place on Friday evening. Now we are awaiting in Vienna for Miss Rowsome to call for us and bring us back to Guelph. The next best thing to going travelling is seeing foreign lands through the eyes of others, and our brief time spent with Miss Rowsome was most thoroughly enjoyed by everyone present.

Miss Ina Davidson read a paper on "Home Current Events," in which she reviewed Canadian events for January. Miss Minnie Kent gave the paper on "Foreign Events." Miss Holland sang a solo, and the meeting broke up with the National Anthem.

We were so glad to have many of the old girls back to the Conversat—Miss Bertha Beamer, of Grimsby; Miss Maud Davis, of Berlin; Miss Edna Greening, of Hamilton; Miss Ethel Beckell, of Toronto; Miss Effie Ross, of St. Margaret's, Toronto; Miss Madge Malcolm, of Hamilton; Miss Jessie Murray, of St. Thomas.

Locals.

WHILE wandering around the other day we heard a doleful sound issuing from a room. With anxious hearts we approached and heard the inmate quoting the following:

Old Ox! Old Ox! How came you here?
You've ploughed the field for many
a year,
Through kicks and cuffs and much
abuse,
You now come here for college use.

~ ~
H. H. Ledrew,
The price is due,
For my Review,
I now renew,
And it's up to you,
To send her through.
—E. B. Eddy.

~ ~
At the Dairy Literary Society meeting the judges had just given their decision in favor of the affirmative, when a voice was heard saying, "Say, on what side did the 'confirmative' sit."

~ ~
Young Lady (after Conversat., standing in middle of car track)—
Would you please tell me where I will
get the car for down town?

Young Man—If you don't look out
you'll get it in the small of the back.

~ ~
Why could you not apply the term
"volatile" to a Freshman?

Because he never dries up; he's al-
ways green.

Slater (in despair)—Can anyone
give me a good synonym for "relent-
lessness?"

Coglon (reflectively)—The villain
still pursues her.

~ ~
A few weeks ago we heard that
Moorhouse was open for engagements.
We are now pleased to announce that
since the "Conversat." he is no longer
"on the market," so to speak. This is
a striking example of The Review's
great value as an advertising medium.
(For rates apply to Local Editor.)

~ ~
Cutler claims that he cannot study
in the Library unless ladies are present.

(Ed.—They must have a sort of cata-
lytic action on his brain. But beware,
it is easy to take too much of a
stimulant.)

~ ~
Sirett—They say "Mac" has the
measles. How did he get them?

Coke—Why, man, don't you know
that they are "confectious."

~ ~
Allan—Say, Jimmie, is that bay rum
in that bottle on the table?

Jimmie—Bay rum? No! That's gum.

Allan—Perhaps that's why I can't
take my hat off.

~ ~
Overheard at Conversat.—"Say, can
you tell me where that little fellow
with red hair called—. Oh, here he is.
How are you? This is our promenade,
I think?"

Who Was He?

At the last Conversazion E
 A youth, who was as bold as could B,
 Asked a girl for a spin,
 Which was a great sin,
 For she had never met him, U C.
 "Not dance? Then may I take you to
 T?"

For I want to be sociable by G."
 When the fair one replied,
 While gently she sighed;
 "All my numbers are gone but 6 B."

"O, thank you Miss D, that's all right
 for mE,
 Shall I meet you at rendezvous B?"
 But the poor youth he moped,
 For the maiden she sloped
 And so both of them were badly at C.

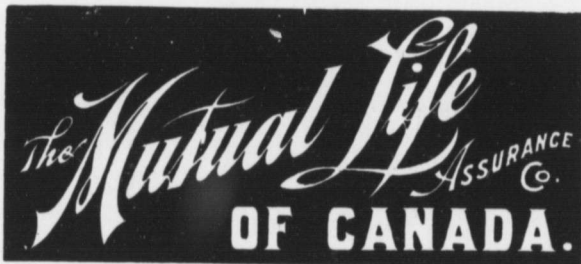
Wanted to play hockey at the O. A.
 C.—Ice.

While the subject of hockey is being discussed, we have been told officially that it is the intention of the Athletic Association to present certain members with hockey emblems. When asked what was their reason for doing this thing, they replied, "To show that they play hockey."

(Ed.—Who will deny that they need them after the Toronto game?)

Another emblem has been suggested. The choir are to be presented with round O's, which will be colored "sky blue," and will be worn on gowns.

St. Valentine made an impression early. Miss McM.— gave a public demonstration on hearts in the practice kitchen a week early. They were all right, too.

THE BUSINESS OF**HEAD OFFICE, WATERLOO, ONT.**

for 1906 shows substantial increases over the previous year, as may be seen from the following figures:

ITEMS	Gains over		
	1905	1906	1905
Assets.....	\$ 9,296,092	\$10,385,539	\$ 1,089,447
Income.....	1,956,518	2,072,423	115,905
Surplus*.....	952,001	1,303,378	249,377
Insurance in force \$..	44,197,954	46,912,407	2,714,453
Expense ratio to income.....	17.8%	16.34%	1.46%

*Company's standard. †All Canadian business.

R. Melvin, Geo. Wegenast,
 President Manager

W. H. Riddell,
 Secretary

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