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The O. A. C. Review

VOL. VIII. ONTARIO AGRICULTURAL COLLEGE, GUELPH, MAY, 1897. No. 8.

AGRICULTURE IN THE PUBLIC SCHOOLS.

If there be one of our modern institutions, which, more than any other, typifies the principles of democracy, that one is the free public school. Supported by public money, and controlled by trustees, who are elected directly by the people, the school opens its doors to the children of all classes. No barrier is raised to exclude those of any nationality, creed, color, or social rank. The poorest day laborer has an equal right with the most opulent citizen to send his children that they may acquire at least the elements of an education. Further than this the state arrogates to itself a part of what was formally considered to be the parent's authority, and makes compulsory an attendance at school of all within a certain age.

Under such a system the interests of the majority must ever be kept in view, and it is highly important that no faction or party should obtain an ascendancy to use it to their own advantage, at the expense of the other members of the community. *Instruction, which* is suited to the requirements of the few, but is of little or no practical benefit to others, cannot properly form a part of the curriculum. The first care must be to provide a proper training for the child that he may understand his obligations to society and to the authority of the state; after this his equipment for a bread-winning occupation should be the most important consideration.

During the last quarter of a century the program of studies in our public schools has undergone considerable change through the remodelling of old, and the introduction of new subjects. But it is still dominated by the traditions of the past, and shows evidences of having been patterned after the earlier English schools, whose pupils were from the higher ranks of society, and were being trained with a view to public or professional service. History was required for those who were to enter law or politics; geography was essential to any who aspired for the naval service, while the technicalities of grammar and arithmetic must be mastered by all since they were considered to be the indispensible rudiments of an education. The idea of educating the laborer was not seriously considered until recent years.

But in a later age, and under another social system, quite different conditions prevail. The educational machine now takes a wider range, and the task of educating the masses is undertaken. The boy is to be prepared for citizenship, and not necessarily for a profession. With the choice of a thousand occupations, the curriculum cannot be modified to fit him for the particular one which he will enter upon. The most he can expect is the means for acquiring a general knowledge which will be of service to him whatever calling he chooses.

The educators who have led the movement for improved methods in our schools have had for their ideal a system of graded classes, extending without a break from the Kindergarten to the University, the controlling idea in each being to prepare the pupils for the grade next higher. The High School Entrance is the goal of the Public School course; the University Matriculation that of the High School course. The energy of the teachers is directed towards the preparation of the pupils for these examinations, since the passing of a goodly number is the popular test of a teacher's ability. This is done in spite of the fact that fully ninety per cent. of those attending the Public School complete their education there and never advance further. The requirements of these should surely receive first consideration, and a curriculum be chosen which would include subjects of general utility to all, and especially to those who will choose industrial occupations.

For the same reason that objection is taken to the preparation of pupils for any particular profession, so must any instruction in agriculture proper be unsuitable for Public Schools. The plea that most of the pupils of rural schools will become farmers does not justify its introduction. It would be an unprofitable task for the prospective lawyer or doctor to be compelled to master the technicalities of the different divisions of agricultural study. It might be well for him to know the points of distinction between a Devon and a Sussex cow, but life is too short to waste any time in acquiring superfluous knowledge which will never be applied.

Though it may appear inconsistent to discourage the teaching of agriculture in the schools, and at the same time to advocate the introduction of a few of the sciences bearing upon it, yet some such scheme seems desirable for the reason that the sciences which help to a proper understanding of agriculture are also of practical value in almost every industrial occupation. Man lives only by utilizing the gifts of nature, and his labors are nothing more than a skilful adaptation of natural forces to the supply of his needs. Hence a knowledge of the principles which underlie the activities of nature is deserving of a place on the list of studies.

Such a study of the natural sciences as will explain some of the more obvious laws by which the wonderful phenomena of life and energy are governed might be undertaken in the higher forms of the public schools, more especially of rural schools. Where the child is surrounded by natural objects, which present an ever changing panorama, it is an easy matter to direct his inquisitiveness and give information of great practical value. The domestic animals, the birds, the insects, the wild flowers of the fields and woods all present a greater attraction to the average school boy than histories and geographies.

In botany there might be a course of instruction illustrating the germination of seeds, the growth of plants as influenced by heat, light and moisture, or by the absence of these essentials. The child's own observations would furnish many illustrations, so that, with the aid

of a few plants brought into the school room, a fair knowledge of plant physiology could be imparted. The ability to recognize the common weeds of the farm, the many species of wild flowers, the different varieties of grasses and grains is possessed by very few persons, even by those who spend their life among them. This could be taught in rural schools by encouraging the pupils to bring specimens to the teacher for identification.

Perhaps in no subject is there such widespread ignorance of facts, that should be patent to all, as in entomology. Many popular errors obtain credence as to the life history of some of the insect forms so numerous about us. These could in some degree be corrected by a study of the subject in the schools, and the same plan could be adopted as with botany. The natural repulsion felt by many children towards bugs and caterpillars could be overcome, and many interesting facts taught concerning the losses or benefits caused by them.

Chemistry presents more difficulties, but even it might be made simple enough and practical enough to admit of its elementary principles being taught to Public School pupils. The rusting of iron, for instance, can be easily explained, and at the same time the properties of the elements, oxygen and iron, may be demonstrated. Allied to this subject is the science of physics, which offers a simple explanation to many familiar phenomena which perplex ordinary people.

But the greatest service the schools are capable of rendering to agriculture is the fostering in the child of a respect for the occupation. Too often the clever scholar is encouraged to look to professional or mercantile life as being the only avenues to distinction. Only by an impartial presentation of the advantages and disadvantages of life in the city as compared with that of the country can the boy make a proper choice of a calling. If a successful business career is held out as worthy of emulation, so should the independent life of the prosperous farmer be shown in its most favorable light.

What has been suggested does not involve any radical change in the present system of education except that the amount of time spent on history be devoted in part to those subjects having a bearing upon agriculture. The extension of the Public School course so as to include one or two grades above what is now known as the fourth class would give increased opportunity for such instruction. If nothing more can be done than to start the pupils thinking, and give them an idea of the possibilies of agricultural pursuits, then an important work has been accomplished. J. C. McD.

Soil-Water and Plant Life.

AMONG the many points of comparison or contrast between the higher plants and animals, there is, perhaps, none more striking than the fact that the former is a fixed while the latter is a motile organism. They are under an equal necessity of procuring food and assimilating it for the sustaining of life, for growth, and for the reproduction of the species. But while the animal goes forth in search of his food, the plant must remain on the spot where nature placed it, making the best of what comes within reach of the leaves which it expands in the air, and the roots with which it penetrates the soil. Then, too, the animal can take its food either as a liquid or a solid, while the plant is further limited by the fact that it can make no use of the most tempting particle unless it be in solution.

The food travels to the plant either by air or by water. From the air, by means of its leaves, it extracts oxygen, hydrogen, and perhaps a little nitrogen; but it is to the soil it must look for the bulk of its nitrogen, hydrogen, oxygen, sulphur, phosphorus, potassium, calcium, magnesium, and iron. These essential elements of plant food are found in the soil combined with each other or with other elements, either as insoluble compounds or as very dilute solutions of salts in the soil water. The amount of plant food in solution at any one time is but a very small proportion of that present in a soil, but as this is withdrawn, together with the water that dissolved it, by some hungry plant, its place is taken by newly liberated food which is constantly being prepared in very warm, moist soil. It is, perhaps, unnecessary to point out that in the absence of moisture this liberation of plant food from the soil must cease; and not only so, but in the absence of moisture liberated food, even if present in abundance, could not possibly move towards the surface where the roots are ready to seize it. Nor is this all, for as we have already mentioned, plants can use food in solution only, hence a plant, even in the richest soil, must of necessity die of starvation if it have not the necessary water to dissolve the food that lies in such abundance around its helpless roots.

Not only does the soil water perform very important functions in preparing and transporting the food in the soil, but as we shall presently see, its usefulness is by no means ended when the food is brought in solution to the minute root-hairs which cover the roots of all land plants. These root-hairs absorb the water, and with it the dissolved food, by the process technically termed *osmosis*. Once within the plant the water continues its good office of transporter, carrying the food to the leaves—the stomach of the plant—where it is used in the production of starch, sugar, cellulose, albumen, and the various other organic compounds which make plants so valuable to man and beast. Up to this point the water has been useful chiefly as a solvent and transporter. It continues these functions in dissolving and transporting the finished products of the plant industry to the points where they are needed for growth or for reserve material, but a comparatively small percentage is required for this purpose. A small portion of the remainder is utilized as "cell sap," which give turgidity to the cells, thus making growth possible, but the bulk of it finds its way to the minute openings (stomata) which may be seen by means of a microscope, on the under side of any leaf. These openings are especially designed for the purpose of excreting the surplus water from the plant economy. The water, however, does not seem to resent this treatment, for its last act as it leaves these tiny doors is to change to vapor, an act of inestimable value to the plant, owing to the fact that a very large amount of heat is required to convert water from a liquid to a vapor state. This heat it takes largely from tissues of the plant, thus preventing the temperature of the plant from becoming dangerously high. It is this throwing off of the surplus water as vapor that makes the air of a leafy grove so delightfully cool on a hot summer day; indeed, were it not for this automatic heat-brake, which acts much the same as do the sweat glands in our own bodies, no plant could long survive the scorching July sun.

We have spoken somewhat of the functions of water in regard to plant life. Let us now glance briefly at the quantity required. We have said that the plant finds its food in *dilute* solutions. This is very true, as is plainly proved by the fact that to produce one pound of dry matter in a crop of barley, 392 lbs. of soil water containing the food in solution must be pumped up through the plant and evaporated from the leaves. Clover requires 452, and oats heads the list requiring 505 lbs. of water to produce one pound of dry matter. From these facts there can be no doubt but that the water supply in any given locality is of first importance in determining the productiveness of the district. The variation in the rainfall—with its distribution in regard to time—is, where Irrigation is not practiced, the chief factor in determining whether a season is going to be "good" or "bad" in all grazing or grain-growing districts, and to a considerable extent in fruit districts also.

It has been determined by careful experiment that plants require varying quantities of water in the soil at different stages of their growth to ensure the best returns. Let us follow the growth of a spring cereal crop, briefly indicating the percentage of soil moisture at the more important periods of development. The best results in germination and early growth will be obtained by seeding when the soil contains 25 to 30 per cent. of saturation. As the young plant becomes firmly rooted and throws out a number of tender leaves the moisture should be increased to 40 or 50 per cent. of saturation. If sufficient water is not available at this time the growth of the young plant will be greatly impaired and its vitality weakened. After this critical period is passed the water content of the soil can be reduced to 25 per cent. with great advantage, as otherwise the formation of leaf will proceed too rapidly, and a large crop of straw with a decreased grain yield will be the result. A little before flowering the percentage of water should be again increased to 45 or 50 per cent of saturation. It is at this time that the presence of weeds, such as wild mustard, is particularly injurious. Mustard plants at the rate of 5 to 10 per square yard (no uncommon crop in some localities) would require at this season from *8 to 16 tons of water per acre per day*, a most serious drain on the land at a time when the rightful crop requires its maximum amount of moisture. Immediately after the fall of the bloom the moisture must be reduced by at least one-half. About 15 per cent. of saturation has been found to give the best results in finally insuring the grain.

The Progress of Invention During the Last Fifty Years

THE last fifty years may be characterized as a half century of thought. The great men of this time have not been men of fancy, but men of action and of thought, inventors and engineers who are triumphing over the forces of nature, and unlocking and unbarring its fortresses, or its observers who are expounding its laws. The former have covered both seas and lands with the works of their hands and brains, and the latter have solved problems insoluble to their predecessors. These discoveries have made a profound impression on the thought of the nation, creating an intellectual revolution as striking and momentous as the Reformation itself.

Fifty years ago it was almost true that man could not travel faster than the Pharoahs; now we find railway systems in all the countries of the civilized world—more than 450,000 miles of railroad, billions of capital, and billions of passengers, giving employment to thousands—all the outcome of inventions in locomotives, rolling stock, signals, couplings, etc., and the many other lesser details, which give quickness and smoothness of travel, safety in transit and luxurious accommodation to passengers. The railways of England, although only one-sixth as long as those of the United States, have a capital exceeding five billion dollars, and conveyed in 1895 over 911 million passengers. This is just one instance in a small country of the importance of steam transit.

Striking, as has been the progress of locomotion on land, the advance on sea has been even more remarkable. The steam fleet of the world, early in the '40's, was but a little over one hundred tons, now the aggregate tonnage is seventeen million gross tons, exclusive of the warships of all nations. When we compare the advance in construction, it is even greater. Engines, screws, construction, have all reached their highest development, as exemplified in many of the huge grey-hounds. For instance, the "Campania," the great Cunarder, has 192 furnaces for her boilers, worked at a pressure of 165 pounds, and each set of engines has five cylinders for expansion of steam. There are two three-bladed propellers, each blade weighing eight tons, and the vessel is able to maintain a durable speed of 21 knots per hour. The St. Louis and St. Paul of the American line, the first great ocean steamers built in America, are of as great ingenuity and interest as the English boats. There are indications that such improvements may be made in the future, (such as the use use of Leshe's oscillator, and use of acetelyene gas) that a day or two will be "knocked" off the passage across the "Herring pond."

Turning now to the progress of invention in electricity, wesee continents, nations and kindreds linked together by cables, telegraphs and telephones, giving uninterrupted communication all over the world. Here the inventor has found a rich field, and the names of Brett, Morse, Edison, Bell, and others, will be ever remembered. In 1858 the first message between Europe and America was transmitted by cable, but it was not until 1866 that communication was constant. The first telegraph in America was set up between Washington and Baltimore in 1844, and now improvements in telegraphy have so far advanced that by means of an ordinary typewriter with an attachment the message is automatically printed at a speed of two hundred words per minute. Amstuty, of Ohio, has devised a machine for transmitting copies of photographs and drawings to a distance by means of the electric wire, and reproducing the same at the receiving station in the form of an engraving ready for printing. In 1877 Bell perfected the telephone and now it is of universal adoption, and on April 1, 1891, the first submarine telephone cables, between London and Paris, were opened to the public.

Electricity is rapidly coming to the front as a locomotive power, and is supplanting steam in many industries where much machinery is used. In our larger cities electric trolley cars furnish rapid transit for busy people, carrying billions annually. Conduit electric railways are also beginning to find favor. The Love conduit system has proved successful in Washington, and Siemens & Halkes system in Buda Pesth

THE O. A. C. REVIEW.

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

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SUBSCRIPTION RATES:

Annual Subscription, 50 cents, 75c. if not paid before 1st February
Single copies, 5 cents.
Advertising rates on application.
Ex-Students are requested to contribute to our columns.

MAY, 1897.

is the oldest and most successful in the world. Electric locomotives are also being used. The Baltimore & Ohio R. R. are using one to handle heavy trains. These engines have certain advantages over the steam locomotive. They will start a greater load, are more economical of coal, need fewer repairs, and can be used a longer time. The Brett rapid transit system promises us a speed of 150 miles per hour, and is asking the United States Senate for privileges, allowing the establishment of a line between Washington and New York. Thus we can confidently believe that the use of electric locomotives will grow with time, as the limit of speed has been reached by the steam locomotive. Nor must we forget the advent of motor carriages, which bid fair to depose the horse. In Europe already many large stores use delivery vans run by electricity.

The oscillator may be expected to do great things. It is designed to convert steam into electric energy by as direct a process as necessary, and is used primarily in electric light plants, although its application is far more extended. It is calculated to save 18% of friction as existing in the steam engine, and 32% of waste of energy, occurring in the usual dynamo.

The thunderous force of Niagara has been harnessed by the genius of man, and its power transmitted to places many hundreds of miles away. Our darkness has been lightened by practical application of its power, due to inventions by Edison, Brush, Siemens, Swan, and others. Its uses in war are various. The powerful search light reveals, even in the darkest night, the presence of another of its scions, the torpedo. Its varied use in this field, or rather, sea, have elevated the standing of the sailor to a very expert mechanic and electrician. Much might be said of its other uses in plating, electro-typing, gilding, welding of metals, regulators, photographs, phonetic phonographs, its medicinal effects, its use in executions, and many others.

Inventions in hydraulics have furnished us with the elevator, hydraulic crane, hydromotors, turbines. The Pelton wheel by a very simple process is able to use the smallest streams of water, and develop great power.

Inventions in pneumatics have given us the pneumatic loom, power transmitters. By means of atmospheric pressure and a vacuum parcels and letters are despatched. Cash systems in stores are an adaptation. The idea of producing motion by pressure was carried out by Rammell in 1857, and perfected by a system invented by Luhrig. Dunlop's invention of pneumatic tires for bicycles in 1889 revolutionized cycling, and created a new and important industry. In mining enterprises compressed air drives the drills, pumps, engines and hoists. It is used for dusting and sweeping, to prevent the banging of doors, and other minor uses. Compressed air is the only satisfactory agent for agitation of asphalt and nitro glycerine during their manufacture. Also a very important industry, the making of cellulose silk, by forcing wood pulp out of microscopic holes by air pressure. The air brake, air cushions and air or pneumatic guns are also examples of the usefulness of compressed air.

Let us now glance at some of the wonderful machinery used to manufacture articles of every day use, and we find that each branch has its own special devices and machines. Space would not permit even a cursory treatment of many of these; all that can be done is to instance the manufacture and allow it to suggest the mechanism which furnishes the finished articles. Machines make watches, the complicated printing press, sugar-making machinery with its huge crushers, vacuum pans, centrifugal machines, and filters. The manufacture of steel by the Bessemer process, of machine tools, of mining machinery, of ice making machinery, of coal handling machinery, of boot making, furniture construction, and book binding. The machinery used in connection with the manufacture of papers, cottons, woollens and silks, and others too numerous to mention.

Notice must also be given to the rapid rise of aluminum, a metal which, on account of its extreme lightness, its tensile strength, its malleability, and its resistence to corrosion, point to its adaptability in the future.

The progress in war material has advanced as fast or faster than the arts of peace. The old struggle between guns and armor for supremacy still continues. The construction of a modern battleship is a revelation: its powers of destruction with heavy breech loading guns, with complicated machinery for sighting and firing, and hydraulic machinery for loading and moving, is immense. The steel clad deck and heavily armored sides make of the vessels a floating fortress. Quick-firing guns and magazine rifles are protected by scores of patents, every nation having its own favorite. Sub-marine boats are the dread of naval authorities, and in the torpedos there are truly vast possibilities.

Turning from this fearsome sight, let us glance at some of the achievements of engineers. Extraordinary bridges have been built; the gigantic canti-lever over the Firth of Forth, in Scotland, with a longest span of 1,710 feet and a cost of thirteen million dollars; Brooklyn bridge, with a span of 1,595 feet, and crossed by more people daily than any other bridge in the world. In tunnelling mountains have been blasted and rivers undermined. The greatest of these facts are

those of the Hoosac, Mount Cenis and St. Gothard tunnels, and in our own country the great St. Clair tunnell. Remarkable canals with locks operated by hydraulic power are among other features accomplished by engineers. The Suez canal, Manchester ship canal, and Sault Ste. Marie canal may be instanced. And then, lastly, there are the big business buildings of iron and steel, dwarfing churches. Many difficulties are to be met with in the building of these, the matter of foundations being especially of hard construction; consequently the ingenuity and inventive faculties of the engineers are often put to severe tests, but these difficulties are always solved.

What progress has invention made among the agricultural population, the most conservative community of the world? Inventions have given them the binder, the mower, the thresuing machine, and numerous other smaller inventions connected with farm work. The wind has been harnessed, and made to pump the farmer's water and grind his corn. His plowing and harrowing have been done by steam power. Inventions in spraying machinery have enabled him to preserve his crop from insect and fungous foes. Discoveries and inventions in biology have increased and improved the quality of his butter and cheese, by the use of microbes, and this new science holds out to him the hope that some day he will be able to liberate the all important nitrogen by supplying cultures of the right kind of bacteria. Surely, this is the highest triumph of the investigator, to handle life and nature so as to be productive of great good. Further, these methods of biology have revolutionized the brewing industry; on the presence of its organisms depends the success or failure of many of the industrial arts, such as the leather industries, the manufacture of wines, vinegars, bread, etc. In addition to this there is an incalculable boon given to mankind, by the work of Pasteur and his associates. Mention might also be made of the great progress of hygenic science, as instanced in the purification of city drinking water. The disposal of sewage, and sanitary plumbing all claim inventors, who have revolutionized past methods and lengthened our lives.

Chemistry has also furnished many inventions, and seems apparently destined to give more. The names of Liebeg, Hyman and others are well known, and arts and manufactures have been greatly helped by their researches. Dyeing received an impetus from the inventions and discoveries of Hoffman. The profitable extraction of sugar from the beet root, the separation of aluminum from its combinations, the making of ice, are all examples of what chemistry and its exponents have done. The invention of the spectroscope by Bunsen & Kerchoff has permitted the astronomer to analyze the composition of the sun, and watch the movements of the distant star.

Then, in conclusion, there are the thousand and one little inventions that make life healthier and easier, living more economical, the home brighter and happier: such inventions as the bicycle, the sewing machine, gas stoves, appliances for heating, the newspaper and magazines with their new proc engravings, the steel pen, the type writer, apparatus used in the canning industries, shorthand writing, and many, many more, so small, yet, how important.

"MARCO POLO."

Locals.

Mr. McIntosh, to Second Year students:

"Well, boys, we might take a few minutes to explain some of the principles of the logarithin rules."

The boys are willing.

Mr. McIntosh—"Do you know anything about them, Ross?"

Ross—"No sir."

Mr. McIntosh—Perfectly ignorant?"

Ross—"Yes, sir."

Mr. McIntosh—"I knew that."

—o—

Cullings from the campus:

It is a great season for dandelions.

Whigham thinks it is a beastly shame that lectures should keep him from his beloved lawn tennis all forenoon.

Allison is losing flesh, since the opening of the football season. E. S. Wilson keeps about the same, thank you.

—o—

The other local editor (reading from Tennyson's Locksley Hall):

"Better fifty years of Europe than a cycle of Cathay."

"Please, Professor, was it this man Cathay's grain sickle that is meant?"

—o—

Kennedy:

A man may smile and smile, and be a villain;
At least you know it may be so on Mills street.

—o—

The College group for 1896-7 has been completed, and now adorns the window of Mr. Briggs. It is proving to be a counter attraction to the millinery displays of the dry goods stores, for at almost any hour of the day a group of girls may be seen admiring the handsome young men, of whom the group contains a large proportion. Mr. Morgan and Sandy Clark come in for a large share of the endearing and complimentary expressions. G. W. takes the medal, while Sandy comes in for the consolation prize.

—o—

Eagle (muttering to himself, as he walks away from the bulletin board): "Well, what does it matter, anyway? I never could do mensuration. That was a hard paper, and I knew I was plucked, so I wrote PLUCKED at the bottom of the page, expecting to get one mark for doing it neatly. But blame that examiner if he didn't give me a goose egg."

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One of the Third Year was observed carrying a lump of salt in his pocket while on his way to the examination hall. On being questioned he explained that on some of the papers he did a lot of guessing, and, therefore, he added a few grains of salt for the use of the examiner.

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Some interesting experiments in animal physiology have been carried on of late by the presiding officer at No. 1 table for the purpose of ascertaining the capacity for protein assimilation of a Quebec monstrosity. The results are as follows: Period of previous fasting, unknown; ration fed, milk and eggs; protein consumption, in excess of the amount fed; quantity of milk and eggs left for the other boys, nil. Conclusions: Chateauguay has reason to feel proud of her representative at the O. A. C.

Personals.

W. A. Kennedy, B. S. A., '95, has completed his year at the School of Practical Science, Toronto, and is now acting as Assistant Chemist in the absence of Prof. Shuttleworth.

—o—

T. F. Patterson, B. S. A., '96, Managing Editor of THE REVIEW last year, has been appointed as Fellow in Biology at this Institution. He will relieve Prof. Panton from a part of the work in lecturing, and devote his spare time to experimental investigations.

—o—

Harry Hutton, '96, has obtained a situation in a Minnesota dairy, and left last month to enter upon his duties. His success is confidently looked for by all his acquaintances.

—o—

In looking over the report of a "Sunlight Soap" competition, in a recent issue of the *Globe*, we noticed the name of Mr. N. F. Wilson, Cumberland, Ont., as having been the winner of a gold watch. Just whether this man is identical with the "N. F." of last year is a little uncertain, but his proverbial reputation for good luck is almost proof positive. Congratulations, Norm.

—o—

We learn that Messrs. I. Devitt, T. T. Gadd, and W. Butler, of last year's class, are likely to grace the next third year. This is good news, and we would be glad to welcome more of the old boys.

—o—

A. H. Christian, B.S.A., '95, has resigned single blessedness, having been married to Miss Bailey, of Owen Sound, in the latter part of March. The newly-wedded couple are residing at Maple Shade, where Mr. Christian is now farm foreman. THE REVIEW joins their many friends in extending congratulations.

—o—

W. J. Thompson, B.S.A., '96, is at present in Mr. Hodson's office, assisting at Institute work.

—o—

G. Y. Payne, '97, is in the office of the York Loan and Savings Co., Confederation Life Building, Toronto.

—o—

Mr. T. H. Tinmy, '89, is ranching at Dunmore, N.W.T. Mr. D. McCrae shipped him some Galloways a short time ago. Judging from this, he believes in progressive methods of stock raising.

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G. P. Duffett, '91, is following grain growing and general farming near Adolphustown, Lennox Co.

—o—

J. A. Kennedy, '96, is on his father's farm in Nassagaweya, Halton Co., and hopes to complete his course at the first opportunity.

—o—

C. W. Tye, '95, is farming at Haysville, Waterloo Co. He was back at the Union last winter, and declared his intention of returning every year.

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G. A. Robertson, B. S. A., '95, has a fine fruit farm near St. Catharines, and is doing well. His specialty is peach growing. Jim. Brickwell is now with him.

Fred. Sissons has gone to Rossland, according to our latest advices, and is busily engaged with the hoarding of the precious stuff.

—o—

John Wheatley, '94, is still at the Bow Park Dairy. Mr. McGillivray, formerly cattleman at the O.A.C. Dairy, is also there.

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A. Kipp writes from British Columbia to say that all the boys there are doing well, and that he has just finished seeding (Apr. 19). He has given up the hope of taking a third year, but intends coming East next winter.

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W. Millichamp, '94, has sold his fruit farm in the Niagara district and gone into business with his father in Toronto.

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Oswald Fairbairn, '91, is in the stove and heavy hardware business with his father in Toronto.

—o—

Prof. C. F. Curtiss, director of the State Experiment Station at Ames, Iowa, visited us last week.

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A. R. Curzon, '93, is likely to be 2nd Lieutenant of "E" Battery this year. The boys are much pleased with this appointment, as "Toddy's" work as a sergeant was such as to win their admiration. There are very few men who can say that they never failed to get their "clean man" off guard, but that is his record. Mr. Harrison is 1st Lieutenant, and by this arrangement the College is well represented in the officers. Mr. Curzon has also been having great success with his horses, having swept everything here in Guelph, and made a good showing at Toronto.

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The advent of spring has brought about some few changes in the location of some of our professors. Prof. Dean has purchased land lying on the south side of the road on the hill between here and the city, and intends to build a fine residence this summer. It may also be added that he has invested in a span of ponies. Mr. Hutt has changed his residence, but still remains in the city. Mr. Green has taken possession of the house built for him last year, and lastly, but not least, Prof. Panton has purchased a wheel and is busy mastering the art of riding the silent steed. It may be added that he bids fair to outstrip some of the younger men before long.

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We commend the following extract from a letter by one of our leading ex-students to the serious consideration of every one concerned:—"It is the duty of every ex-student to report himself at least once a year, and thus keep in touch with the 'old boys.' I think, too, that every ex-student should be an assistant personal editor and do all he could to aid in hunting up the 'lost sheep.' I know fellows who have not been heard from at the College for a long time. If every old boy, in writing to THE REVIEW, would give all the information he could, regarding those other ex-students of whom he knows, there would be a personal column which would be most gratifying. Most fellows, though, leave the College, and are never heard from again, mostly through indifference."

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Mr. Archie Parker, who for seventeen years was in the employ of the sheep department of the O. A. C., and for seven years with the

P. R., is home on a visit to his friends. He is now shepherd in the employ of J. J. Hill, railway magnate of the West, and has over 4,000 sheep to look after. He arrived in Chicago in the forepart of the week with two carloads of sheep, and the longing to visit his old home was so strong that he has extended his trip a week longer. Mr. J. E. Story, lately of the O. A. C., is manager of the farm, and Mr. Carter speaks highly of all the Canadians who are in the different departments. He leaves for the ranch tomorrow.—*Guelph Mercury.*

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The O.A.C. is now represented in the Halls of Parliament, in the person of Dr. Rutherford, the recently elected member for Macdonald, Manitoba, and a long felt want is thus supplied. Mr. Rutherford belongs to the class of '75, having left for the Ontario Veterinary College, Toronto, the following year. At that institution he secured his diploma and the gold medal, and for the next four years practised at Woodstock. His progress since going West has been in every way satisfactory, and after four years in the Manitoba Legislature he comes to Ottawa as a staunch supporter of the Laurier Government. His maiden speech of Friday last marks him as a promising young man, and his rise in public life is confidently looked forward to by all his friends at the College. Mr. Rutherford thus becomes the first of our men to hold a seat in Parliament, but all eyes are now turned to two more of our graduates, one of whom is certain to be in the next Legislature.

Athletics.

THE EVENT OF THE MONTH.

IN speaking of the football match between the officers and the third year students, we may truly say it was the event of the month, or even of the football season. When such well-known men as Messrs. Reynolds, Day, Harrison and Patterson, and such dead-game sports as "Falstaff" Gamble, "Hamlet" Cass, "Cæsar" MacDonald and "Pompey" Bell don the football uniform it is a sure sign of awakened interest in the well-known game. For several days this match was the talk of the institution, and the surprising feature of the game lay in the fact that every player was in first-class condition, especially the goal-keepers. They played well from start to finish. Of the two we think the third year wore the neater uniform, but we may be accused of being prejudiced. When referee Elliott blew his whistle it was rather a fine looking body of men which ranged up for the officers, while on the opposite side of the ball were such well-known veterans in the game as Mark Antony (Jimmy Oastler), and Romeo (Jaky Cunningham). Needless to say the officers felt down hearted and the doughty General Putnam hove a sigh. We will try to be as guarded in our remarks on the game as possible and hope that no sane person will accuse us of partiality. At the commencement of the game the officers determined to score two or three goals at once, but they no sooner started with this end in view than "Pompey" brought those cute little tactics (which are entirely his own) into play and dropped the ball neatly on the officers goal, where it was deftly stopped and returned by the agriculturist. For several seconds the goal keepers exchanged kicks, but finally play settled down at centre and some neat combination was indulged in. This by-play was soon stopped by "Hamlet," who nearly kicked a goal from centre, for which the third year called him down, as no one man was allowed to distinguish himself in this manner, and furthermore, the forwards wished to do the scoring. The third year men, for a few minutes, stormed their opponent's goal and Parker finally scored. The Stars now woke up and exchanged those little nods and glances which are so dreaded by students, and the third year melted. Rush after rush rained down on the third year goal but the three men who defended it rose to the occasion and again and again chased out the ball. This pace soon slackened as several of the rush line lost their wind and had to retreat for it. The third year saw their chance and carried the ball almost through, but now the officers' backs, having had a little practice, returned it in first-class form, till the 'ost was found, and the Stars rushed again. After five or six brilliant and lightening passes by the fossils, forwards they rushed over it and made for Rogers, leaving a splendid chance for a shot on goal. Findlay rose to the occasion and tied the score. This was the prettiest play of the evening and must have been carefully thought out. But these super-human exertions had exhausted the forwards of both sides, consequently play was between the half-backs, while the forwards sucked lemons and milk bottles, which up till now had been carefully concealed. These after a short rest (I mean the forwards) again joined in the game but couldn't score, so the greatest match of the season ended in a draw. Score, 1 to 1.

Heard during the game:

"Body him Cæsar."

"Play up Butter Color."

"Use your weight, Tiny."

"Don't hurt Pompey."

"Reynolds is getting rattled."

"Just look at that man in the officers' goal."

"Say, isn't Falstaff a peach?"

The teams lined up as follows:—

OFFICERS.

Goal Day. Backs—Atkinson and F. MacCallum. Halves—Harrison, Reynolds and Findlay. Forwards—Putnam, Buchanan, Patterson, W. MacCallum and Clark.

THIRD YEAR.

Goal—Rogers. Backs—Gamble and A. C. Wilson. Halves—Bell, Cunningham and Cass. Forwards—Hodgetts, Oastler, Parker MacDonald and T. H. Robertson.

Much enthusiasm has arisen over the matches between the years and work divisions of late. The football division defeated the non-footballers by 1 goal to none, and the second year played a draw with the first year team. At both of these games, in many instances, evidences of practice and team work were noticeable, and much credit is due the boys for going out to practice, but it needs to be rigidly kept up as we want to have the intermediate championship cup here this year, and only hard work will coax it from where it now reposes.

On Thursday, May 6th, the College Football team played that of the city. No one felt at all nervous as to the result, and their opinions were justified, for our boys won at a walk, by the score of 5 to 0. The only thing the city lacked was training, and some one to do the scoring. In describing the game we will not mention any one in particular. All our boys played a good game and also a gentlemanly game. One thing we have to say about the field is that Guelph ought never to ask a team to play in it. There is a telegraph pole in the centre, and you have to shoot down a hill at the lower goal. This accounts for the low score our boys made in the second half. At times the game was quite fast, and our boys got in some nice combination. All the strong kicking was done by our backs. This looks well, boys. One lady says, "My isn't that pretty?" just as our boys were making a nice combined rush. Keep it up; practice hard, and defeat Brantford. The goals were scored by, Mackay, 1; Elliott, 2, 3, 5, and Putnam, 4.

AGAIN VICTORIOUS.

On Monday, May 17, the College Football team defeated the City team, 6 goals to 0. In the first of the game the city played up well and for a while gave our boys plenty of work, but they gradually fell back and finally Elliott scored. During this time our boys should have scored at least four goals. They couldn't get in the scoring swing, apparently. But in the second half they made several fine combined rushes and scored four goals in fine order. The sixth and last was also scored by Elliott. We would like to have seen the score much closer, as it was no practice for the team. They play closer games on the campus than that. We have as good a forward line as we have ever had. Work hard, and keep a little in advance of former years.

A team of ball tossers from Bell's organ factory succumbed to the College nine on Tuesday, the 19th. They were out of practice, and couldn't bat our pitcher successfully. The College made several costly errors, and should never have given the organ grinders more than one run. The score at the end of the first half of the seventh innings was 28—8 in favor of our boys. They batted the town pitchers very hard. One very objectionable feature of the proceedings was the manner in which the crowd of college boys treated the opposing team. Their good plays, when they made any, were not applauded except by a few, and the poor ones were too much noticed altogether. It is not the sportsman spirit to kick a man when he is down. Applaud the good plays, no matter who makes them. "Give credit where it is due," and thus we will uphold the honor and true spirit in the institution. There are others beside college boys. If any deserved hissing it was our own team when we let in five runs in one innings, but the crowd was very silent.

Exchanges.

We quote the following from an article on "The Influence of the College on American life," published in the April issue of *College Chips*, Decorah, Iowa: It may be said that many men might have become great and noble without any college education, from the tutorship of good parents. Still the college has added to their knowledge and education, rich and unique contributions, increased the ability already there, and made it more efficient, made indifferent ability good, good better, and given a superlative excellence to that of a higher degree. Of course, I do not mean to say that every college graduate has knowledge enough to widen the heavens, and take out certain stars that are superfluous, or put in more if necessary, or that he on account of the wisdom he has acquired at college can stop the north west wind, when he thinks it has blown long enough. No, if he is but able to say—after his college sourse as a well known editor said of his college days, that is something. He says: "As I look back, the only thing I can remember and am especially grateful for is the general broadening influence which followed the finding out of what men had done in the world of learning in one department after another, so that by the time I had finished my college course, I had a conception, more or less well proportioned, of the great things the human race has achieved, and I had my curiosity aroused to learn something."

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Speaking of "College types" the *London Athenaeum* has this statement to make: —"In college life to be a champion athlete is to have attained to glory of so permanent a character as to altogether outshine the plodding student. An individual of this type talks, eats, sleeps and dresses to obtain success upon the campus, enduring privations and making exertions which, in another cause would lead him to consider himself a martyr indeed. After the body is sufficiently trained, the Professor may forsooth, attempt to train the mind but alas! Latin mathematics and sciences are trash, compared with the high jump, foot ball and bicycle. A soldier may receive honorable wounds on the field of battle, but what are these compared with the scars and bruises obtained in the field of sports. The college athlete will gladly lay his body on the altar of sports and count life and limb as nothing if only the first fifteen of his beloved College is victorious. The sound of the College yell and lusty cheers is far sweeter in his ears than *ad gradum Baccalaureum in Artibus.*

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AS YOU LIKE IT.

Two drooping eyes,
Two pouting lips,
Two angry teeth;
Bite finger tips.
Two ruddy cheeks
Flush more and more,
Two dainty feet.
Chastise the floor.
The maid is mad.

Two merry eyes,
Two laughing lips;
Two rows of pearls
Touch finger tips.
Two cheeks aglow,
With love galors;
Two fairy feet
Trip o'er the floor.
The maid is glad.—Ex.

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Acta Victoriana for April is a splendid issue. Besides articles on "Rudyard Kipling" and "Geological Field Work," they have devoted considerable space to Mr. Frank L. Pollock, of Gorrie, one of our rising young Canadian poets.

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The Institute, of Strathroy, is one of our model exchanges, and has evidently come to stay. Speaking of the "Decadence of War" in the last issue, they use the following words of our dead Laureate, and we echo their fervent hope that we shall soon see that day when:—

"Every tiger madness muzzled,
Every serpent passion killed,
Every grim ravine a garden,
Every blazing desert tilled.

Robed in universal harvest
Up to either pole she smiles.
Universal ocean softly washing
All her war-less isles.

Till the war drum throbbed no longer,
And the battle flags were furl
In the parliament of man,
The federation of the world.

Then the common sense of most
Shall hold a fretful realm in awe,
And the universe shall slumber,
Lapped in universal law.

Would that hopes for that day would brighten just now.

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At a lecture recently delivered in a New England town, admission was by the following tickets:

LECTURE ON FOOLS.
ADMIT ONE.

—Ex.

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Cornell has abolished the degrees of Ph.B., B.S. and B.L., and has coalesced the four general courses into one, leading to the degree of A.B. All work in that course is to be made elective during the entire four years.

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The Cadet, of Nashville, Tenn., Military Institute, is another of our young exchanges, and it, too, is strictly up-to-date; the more especially so when we learn that their editor-in-chief is but fifteen years old. Their last number is devoted to the Tennessee Centennial Exposition, and some very fine cuts are given.

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There's meter spondaic, dactylic,
There's meter for style and for tone
But the meter that's far more idylic,
Is to meter by moonlight alone.—Ex.