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THE CANADA

# EDUCATIONAL MONTHLY

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PHYSICAL CULTURE IN SCHOOLS AND COLLEGES.

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**T**HERE is a word in the English language which appears to express very well the actions it is supposed to represent, the word is "fad." A new "fad" may have sprung up in society. The fad may be a tendency to wearing tight or loose trousers by men, short or long dress sleeves by women. But fads are not confined to changes in dress, they may arise about the manner in which schools are conducted, or respecting some new branch of study. A certain class of specialists have lately begun an agitation for what they are pleased to term "physical culture." The question naturally arises, Is this only a new fad, or is it an absolute necessity of humanity which has, in some circumstances and localities, been neglected? A fad, we should have said, is a mere arbitrary convention of society, not at all necessary, and often ridiculous as well as useless.

The Divine Revelation theory of the origin of humanity, shows that man was made and placed in such circumstances as compelled him to exert his bodily powers in order to satisfy his wants. The evolution

theory of the origin of man shows that a certain activity of any organ or organism is the chief condition of both health and life; inactivity produces first, weakness, and ultimately death or extinction. All other animals except man appear to be guided by instinct and inclination respecting bodily activity and the selection of food. Human beings, while possessing intellects which, if properly used, would guide them correctly in all circumstances of life, are too often overruled by a very injurious fad. Then, too, there is something peculiar about human inclinations. It is said of a simpleton—and he must have dwelt in the land of "brown heath and shaggy wood"—that when asked what he would like best to eat and do, he said he "would like milk porridge and milk to them, and swing on a gate all day." If we allow each to substitute something to suit individual taste in place of "milk porridge and milk to them," and allow a variety of means of producing pleasant sensations such as are produced by swinging on a gate, we have in this simpleton's wish the exact desire of 99 per cent. of hu-

manity, "whether Jew or Gentile, Scythian, bond or free."

By the differentiation of occupations, which is the result of diversity of intellectual taste and inclination, we have fallen into a large number of fallacies respecting the word "work." The clergyman sitting day after day works; the student sitting grinding out Greek works; the president of a bank sitting examining papers works; the clerk at the books works; the sexton who sweeps and dusts the church works; the woman who scrubs the bank floor works; and a car-horse works. This diversity of occupation has existed in some communities during generations, and has produced results which physical educators say demand the introduction into our educational institutions of the special department called "physical culture." The writer believes that, irrespective of occupation or social standing, bodily activity is indispensable as a means of maintaining health. In looking further into the subject we shall instance only the requirements of students of various ages, other cases may be compared by the readers.

#### IN SCHOOLS.

The term physical culture evidently includes more than mere bodily activity, hence we must begin by advocating gymnasiums, because in them the greatest variety of exercises may be obtained, and special deformities may be counteracted.

Why is physical culture necessary for children while attending school? The answer is because, first, the length of time during which children must remain quiet in school is positively injurious to the bodily health of the child; second, so much sitting produces special deformities of the bones which must be counteracted by special exercise and apparatus. At this point it may be suitable to define our subject. "Physical culture is the

obtaining and maintaining of a properly formed, normal sized, healthy body." This includes the theoretical and practical knowledge of three conditions, viz.: proper activity of body in both kind and amount, the right amount of proper food, and a sufficient length of time spent in rest of body, especially sound sleep. We shall in this article be able to speak of only the first of the three named conditions. What is proper activity in kind and amount? Without examining technically the various theories of its nature and production, we can say there is a power in our bodies by which they move and continue their being. Respecting its quantum we require a certain amount of good muscular tissue, daily use of such tissue, a certain amount of rest each twenty-four hours, and a regular supply of food to replace waste tissue. Both the size of an organ and the power to perform its function are dependent on the amount of strength supplied to it each day.

This brings us to the question to be discussed, viz.: Are the children who attend schools from 9 to 12 a.m., and from 1 to 3 or 4 p.m., as healthy as children who do not go to school? There are several difficulties in the way of answering this question. The first is age. A child four, five or six years old should not be kept sitting and quiet as long a time as one ten, eleven or twelve years old; and children of these ages should not be treated respecting bodily quiescence as boys and girls over sixteen years of age are. Then, again, there are children of different dispositions. Some quite young may be able to sit and study a longer time without injury than those who are older. Assuming then that even if school hours are not injuriously long, yet they should be counteracted by and interspersed with time devoted to bodily activity, let us discuss what should be

done. Two conditions meet us here, these are age and advantages for special bodily exercise. Let us instance first a school which has neither playground nor gymnasium. Every teacher will notice a tendency to uneasiness after the children have been sitting a certain length of time. This is caused by the natural expression of bodily strength in the average healthy child. Such a condition should be taken advantage of by putting the pupils through some kind of bodily exercise. The result would be a much quieter school, consequently better discipline, and certainly better attention to study. Much of the difficulty in maintaining discipline is due to the impossibility of a child's continuing inactive too long a time. We should suggest opening the windows of the rooms, and while the children are active, walking or skipping about, the room could be well ventilated. There is not any need of specifying the kind of movements. That may, in such a simple case, be left to the ingenuity of the teacher. A simple but beneficial exercise could be got in many city schools by the following in climbing stairs. Generally when people climb stairs they pound each step with the foot as if they were trying how heavily they could tread. This makes stair climbing a tiresome task. When children are walking up a stair, especially in classes as they must do in many schools, they should be taught to fold the arms across the chest, raise the head, place the front half of the foot on the step and bring the whole body up to the level of the step by straightening the leg. For developing the leg and strengthening the back we do not know of a better exercise than this. While little physical culture can be acquired in a school without either playground or gymnasium, these hints may show the necessity of doing something, and also suggest what may be done.

Next, take the case of a school which has a gymnasium but no playground. The chief difficulties which are encountered in this case are the necessity of discipline and unsuitable clothing. For little children who get only from five to fifteen minutes in the gymnasium each day it makes no difference whatever about clothing, but boys over twelve years of age and girls also should be allowed time to make some change in dress. The feet especially should be allowed to expand to the natural size. This is very well done by wearing some kind of canvas slippers. The girls should by all means be required to put off their corsets. Ten minutes exercise without corsets are worth twenty with them on. As, however, this branch of instruction has not been accepted by the people as absolutely necessary, but is taken like oatmeal mush, in small doses and well sugar-coated at that, neither principals of schools nor physical educators can be very imperative in their demands as to clothing, etc. The chief bug-a-boo in the way at present is this nightmare called discipline. In education, as in all other branches of art, professional skill overshadows utility. How often we go to look at a picture, but there is nothing in it for the common eye, it merely displays to an artist the skill of the artist in some particular line of professional work. The same thing may be said of music, and a similar error is (quickly) creeping into physical education. Go into almost any gymnasium and class after class will be seen going through a series of military movements. They will march and counter-march, form different figures with soldier-like precision, but what is the practical use of it? An anecdote is related of a country swain who was taken by a waiting-maid to see a grand table all ready to receive the guests. After gazing at it with open-mouthed astonishment the un-

washed exclaimed, "It is very nice, Kate, but who eats the flowers?" If one looks at the posture of the back and shoulders during much of this marching, both of these parts will be found in a stiff, unnatural position. Besides, the legs come in for a goodly share of exercise each day in conveying the body hither and thither, so when a gymnasium can be used most of such training should be devoted to the part of the body above the small of the back. Marching and such exercises are excellent for maintaining discipline, hence their popularity.

The following personal experience may be of use in guiding to one conclusion respecting the most necessary kind of exercise for growing people. While teaching in a New York city Grammar School gymnasium, the writer made as careful observations as possible respecting the most beneficial kinds of exercise. Three days each week were devoted to class work with Indian clubs, dumb bells, wands, etc., and two days were set apart for promiscuous work. During class exercise it was necessary that all should be quiet so that each could hear the counting and word of command to change the motion. On promiscuous days talking of a conversational tone was allowed. Besides calisthenic apparatus there were horizontal bars, parallel bars, trapeze, flying rings and travelling rings. The travelling rings were the most popular. When the pupils came into the gymnasium they generally went first to the swinging apparatus. There is certainly something due to the pleasant sensation of swinging through space, but the chief inducement seemed to be an instinctive impulse to use muscles which had been neglected. All the muscles of the upper part of the trunk having been quiescent during some hours, these appeared to impel to the exercise for their relief. This shows how, if left to themselves, children would

guide themselves about the care of the body. This, too, the writer noticed. Any boy or girl under fourteen years of age and over seven could easily swing from ring to ring and travel along a series of six or eight without dropping off, but very few students over twenty years of age could do it, and not one young lady in fifty over sixteen years of age could so sustain the body—this, of course, refers to those who have not previously had physical training. From this, it is evident that bodily strength is below the normal in the average advanced student.

Allowing the pupils, however, to select their own exercise is not popular with school faculties, because there is not enough of discipline about it. Gymnasiums are so near to the recitation rooms of schools that any loud noise made in them disturbs the school. Let us look at what is really required by the pupils in the gymnasium department. The philosophical statement respecting imparting instruction is that "a teacher who cannot make the study of a subject pleasant to a pupil has missed his calling." We are still, for various reasons, very far from this ideal about the enjoyment by the pupil of mental work, and consequently 95 per centum of our pupils break away from mental tasks to bodily activity with the most unbounded delight. We know that no other single condition is more beneficial to the bodily health than delight in the mind.

If, then, children when they go to the gymnasium simply repeat a few bodily movements in a stiff, soldier-like posture of body, and pass out of the room, we cannot help asking what relaxation has been given to either body or mind? Such may please a school faculty, but does such a faculty understand physical culture, or the end to be reached by such exercise? Compare such a class drill with fifteen minutes' romp-

ing and shouting—yes, we say shouting. When the ideal gymnasium is built, it will be so arranged that a certain length of time each day will be allowed the pupils to express and exercise their lung power as well as any other in the body. If a school has a playground besides a gymnasium the quiet kind of exercise may be used. Let physical educators look upon their department as the health and enjoyment-producing one. As children are under restraint during all intellectual work, the physical culture teacher should make it his special duty to relieve the mind and enliven the body of the pupil while in the gymnasium. If pupils are so treated during their school-days, they will be properly developed as to both size and shape of body.

#### PHYSICAL CULTURE IN COLLEGES.

During the earlier years of children's lives they are either commanded or induced to perform certain tasks. Having reached the age when they are able to graduate into a college, they no longer expect to be forced or manipulated, but must be reasoned with. Generally they are too anxious to go through the college intellectual course because both social standing and a future respectable, lucrative occupation may depend on such course of study. Here, however, begins the physical educator's task, because young people fail to see any connection between bodily activity and mental training. They are under the influence of the high tide of youthful vitality, and it is very difficult to induce them to anticipate the consequences of present neglect in the care of the body. From fourteen to twenty-one years of age is the time when they should be paying special attention to both the size and shape of the body, and if this work is neglected during these years the opportunity is lost forever. The mind may be

aroused to vigorous action late in life and do well, as did Bunyan, Grant, etc. There is but one time when the body can be prepared for a vigorous life.

It is one of the commonest of experiences that a healthy human being over sixteen years of age can endure ten hours bodily work each twenty-four, and develop to the normal size and shape, and during such hours maintain bodily health and vigour during fifty years. After a person has worked with the body all day he feels like resting the body and using the mind. This is, when performed in the open air, a natural mode of using one's time, and faculties.

With the student this condition of things is reversed. The day is devoted largely to sedentary work and bodily activity is reserved till the evening. This brings us face to face with the question at issue, viz. : is it possible to arrange a system of exercise which, performed within a couple of hours each day, will produce in four years a properly developed body? The answer is yes ; it is being done continually in such colleges as Yale, Harvard, Princeton, the crews of Columbia, etc. Almost numberless instances can be given of young men who have gone into college inferior in bodily development to what they should have been for sixteen years of age. But having taken the course of exercise arranged for crews during four years, they were found to be perfectly developed. A man five feet eight inches high, and nineteen to twenty-one years of age would be found to measure as follows : weight, 160 to 180 lbs. ; girth of chest, 42 inches ; waist, 36 inches ; hips, 36 inches ; thigh, 22 inches ; calf, 15 inches ; upper arm, 15 inches ; forearm, 12 inches.

Now, besides a well-trained mind, we do not know anything more desirable to insure success in life than such

a healthy physique with which to begin a professional career. Compare such a body with that of the average student: who graduates from our colleges. If two hours during four days each week will produce such a physique in four years, is the time not well spent?

Let us look at some more important reasons why even purely intellectual workers should have strong, well-developed bodies. The first is that in this world we are liable at any time to meet a circumstance which demands bodily strength. The late blizzard in New York city is a case in point. Even as late as last month—September—we hear of people who are either dying or only recovering from the effects of a storm which occurred last March.

The most important reason of all is the fact that only by muscular activity can nerve stimulus be acquired. The absolute, undisputed, physiological, or more properly, histological facts have not yet been discovered, but it is true in every one's experience that the proper use of muscular tissue is the only natural means of producing quiescence of the nerves, which is sleep, and only by exercise and sleep do we get the strength needed for the coming day. During muscular activity we expend nerve energy and use also muscular tissue; during sleep we gather nerve energy. It appears, therefore, that there is an absolute connection between the disintegration of good muscular tissue and the generating of nervous energy. The writer has, during years, watched both men and animals in many circumstances of life. The consequences of all kinds of stimulants and medicines have been noted, and whether it was tobacco, hypophosphites, or any other helper, all have ended injuriously to the user, sooner or later. Only one means has been found infallible for the maintenance of a sound nervous

system, and that means is proper muscular activity.

As soon as a pupil is able to comprehend it, he should be taught the relation between mental concentration and bodily injury. When the mind is concentrated upon a subject there is a partial suspension of the distribution of nerve stimulus throughout the body. If such mental work is continued the various organs of the body may be seriously injured. The stomach stops acting before the food is digested, hence dyspepsia; the intestines become clogged, hence constipation, and so on with every vital function. When, however, daily muscular activity is promoted, the sluggish organs are so operated as to clear themselves of obstructing matter, and the surplus stimulus is so powerful as to operate many of the organs even while the mind is concentrated and the body inactive. The power to endure mental work depends upon the amount of surplus nerve stimulus in store, and this surplus depends upon the amount of time devoted to muscular activity each day.

When a gymnasium teacher sees a number of young men going out of the place after a good course of daily exercise, he can say, with scientific and practical meaning, "wound up and warranted to go twenty-four hours." A great benefit to young men has been acquired when they get the habit of depending on such a means of regulating the bodily organs.

The most important consideration about physical education at present is the quality of the teachers. Years ago in this country the chief qualifications of a school teacher were some intelligence and muscular power to apply the strap. All this has now been changed to a thoroughly graded system with well-trained and qualified teachers.

At present, if a man has been a good circus performer, a boxer, or

athlete, he is considered a good enough physical educator. He may do very well for his special department, because he teaches only strong men. When we consider children, or young men and women who have been neglecting bodily activity during years the case is quite different. The experience of the writer is that not one woman in fifty over sixteen years of age who is attending school or college can pull herself up with both hands and bring the chin to the horizontal bar, and very few men who have lived sedentary lives can do the same thing more than twice or three times in succession without previous training.

The reason for this inability becomes apparent when we reflect that if a woman weighs 120 lbs. she is sustaining 60 lbs. with each hand, and if a man weighs 150 lbs. he is sustaining 75 lbs., such an effort is not muscular exercise but a violent strain. After a man has been in a gymnasium during a few weeks he will be able to chin the bar ten times and such an effort will be beneficial. The writer has been in a gymnasium fitted up for theological students, and the various machines were so constructed that it was impossible to grade the weights to be light enough for such men. Not long since a rather delicate D.D. was showing a physical educator friend his dumbbells with which he took his exercise, "but" said his reverence, "Professor, I am ashamed to tell you, I go to my exercise with reluctance." "No wonder," said the man of muscle, "for your bells are iron and weigh eight pounds each, while for such work I use only wooden ones weighing two pounds each!"

The properly qualified teacher in the physical culture department of schools and colleges should be well

trained in the practical experience of teaching such pupils. These, whether male or female, should understand the structure and function of the various organs of the body, and, above all, the nervous and digestive systems. The teacher in this department should have some knowledge of the relation between the body and the mind, and understand how these act each upon the other, and know whether the mind is retarding the function of the body, or some bodily injury colouring the thoughts in the mind. That is, a gymnasium teacher should have more skill at diagnosing a case than did Cuddy Headrig's mother in Sir Walter Scott's novel, "Old Mortality." The mother said her son could not perform certain duties because he had been sick all night; she did not know whether he had colic or a qualm of conscience. Untrained people frequently mistake the evidences of one of these for the other.

This, we know, is asking a high standard for this department. But when we reflect that the future health and consequently success of the professional part—the cream—of humanity depends on the instruction which they receive about the care of the body, we see that we must ask what the requirements of the circumstances demand. Bodily health is the greatest earthly blessing which any one can possess, hence a knowledge of how to preserve it is of the first importance.

Proper physical culture then is that which, in kind, will produce a properly formed, normally developed, healthy body; and in amount that will maintain such a body in health, shape, and size, and cause it to take eight hours sound sleep each twenty-four hours, which, in turn, will enable it to perform, or admit of its performing the maximum amount of perfect work, whether mental or physical.



## A VISIT TO TWO NEW STATES.

BY AN UNDERGRADUATE OF TORONTO UNIVERSITY.

THE Canadian Pacific Railway has, during the season now drawing to a close, been offering temptingly cheap excursion rates over the Great Lakes. Besides, your correspondent had friends who, allured by the prospect of a distant paradise in Dakota, had left their old homes in Ontario, and with their household gods had gone to make new homes in the midst of the western prairies. So it happened that he was induced to start on his journey over the great water highway which stretches half across the Continent to its western terminus at Duluth.

As we steamed out of the fair harbour of Owen Sound, drenching torrents of rain and gusts of wind prevented us from seeing to advantage what we could imagine must, under favourable weather, be a very beautiful prospect. But this was more than made up, when we were able to gaze on that triumph of Canadian ship-building—the new iron steamship *Manitoba*—which was then in dock fast approaching completion, and appeared no mean companion for the splendid Clyde-built *Athabaska* moored opposite. Our own boat was the *Cambria*, one of the local steamers plying between Owen Sound and Saul Ste. Marie, which call on their way at various points on Manitoulin Island and the north shore of Lake Huron.

As the vessel passed out into the Georgian Bay we saw the mist gathering in white patches on the water, and soon we were enveloped in a white drenching spray and the air became icy cold; but overhead, as night came on, we could see the stars shining. While the fog lasted the steamer had to feel her way along slowly, the whistle giving forth shrill screams every few

seconds. Occasionally another vessel would pass us, and the answering whistles sounded very weird indeed across the misty water. Luckily, the air cleared up in a short time, and our vessel was able to pursue her voyage safely.

Early next morning when we got on deck we found the vessel moving about among the various places—some of them of fair size, considering the barren shore on which they are placed—which are set down as stations on the vessel's time-table. The land on the Island and neighbouring shore is not generally much elevated above the level of the lake, but, as on Lake Ontario, we see traces of higher ridges running along inland, apparently marking former coast lines. The principal industries of the district are lumbering and fishing. We were told the number of thousands of feet of nets then spread in the Georgian Bay, but it was too great to remember.

The summers here are usually warm, but the present, at least the early part of it, was an exception, and we found the air somewhat chilly, although for the rest of our voyage it was bright and pleasant. A certain amount of farming is carried on, but there is so much more rock than soil that agriculture is at a serious disadvantage. Most of the country is timbered, and large areas of this have been passed over by forest fires, leaving the blackened skeletons of the old trees as funeral monuments to the dead forest. But these are fast being covered up by a rapid growth of willow and poplar, which seems to spring up everywhere under similar circumstances. Willow and poplar certainly give a fresher tint and brighter colour to the landscape, but are of very little value

in comparison with the dark-coloured pines they replace. When about half way on our journey through the channel the landscape changes. The country had been rocky before, but now we come to a district where there is nothing but rock. Islands like solid boulders from a few feet to many miles across. Solid rock shelving down as far as we could see into the water, and rising in irregular undulating forms sometimes to a height of hundreds of feet. The surfaces are fissured here and there, and in the fissures some enterprising though scraggy trees have obtained a foothold; yet in many places the bare stones cannot boast the covering of even a lichen or a moss. The good ship keeps steadily on, however, ploughing her way through the narrow channels, often passing spots of exquisite beauty, and this cold spring we saw all the hues of Indian summer on the trees in June.

At length open water appears before us, and we find ourselves coming near the place where Michigan pours her waters into Huron. This point the vessel passes during the night, and next morning we find ourselves entering the narrow channel of the Garden River, which leads up to the rapids of Sault Ste. Marie, and thence into Lake Superior. Through this channel, and by way of the canal at the "Soo," as it is always called, all vessels bound from and to the upper lake must pass, and we are told that the daily tonnage of this canal is greater than that passing through the Suez. Immense barges laden with grain, lumber, coal, or products of the mine, and often with a number of schooners in tow, pass up and down the river and through the locks in a never-ceasing stream. The passage is, however, unsafe at night, and at all times impracticable for sailing vessels, hence the necessity of towing schooners through it.

The rapids, which are over a mile long, and I should say three-quarters of a mile in width, are a really beautiful sight, and it is a favourite amusement of tourists to hire an Indian guide and enjoy the thrilling pleasure of shooting the rapids in a canoe. It adds considerably to the interest of the rapids that a number of Indians are generally to be seen dexterously holding their canoes half way up and busily employed in spearing fish. There are two pretty villages just below the rapids—one on each side of the river, the American one slightly the larger. A railway bridge spans the river between the places, and a number of noisy little ferry boats ply their trade in carrying passengers back and forward across the river. In the American "Soo" I was told that the week previous a thousand men were counted out of employment. The town had a boom some years ago and is now suffering the reaction. It is a great resort for sailors, and drinking-houses outnumber the churches ten to one, perhaps more. From this point we continued our journey by the Lake Superior Transit Company's boats, passing along the south shore of the lake and visiting numbers of mining stations situated there. Some of these are fair-sized towns, but as yet the most of the country is primeval forest belonging to the great timber belt of Northern Michigan and Wisconsin. Lumbering is carried on here to a certain extent, but hardly so much as on Lake Huron. The chief attacks on this great forest region are directed from the south, along the tributaries of the Mississippi. But the mining of iron and copper is pursued here with great energy and enterprise. Some of the most powerful engines and machinery in the world are employed. At one establishment we had the opportunity of seeing, the ground for hundreds of feet around could be felt trembling beneath our feet with

the crash of the steam-hammers used in crushing the ore.

The scenery along the shore is interesting though not very remarkable. The ground rises to a moderate height from the water with but few irregularities in outline, the whole being densely wooded. Towards the western end there is a number of islands; one group, about twenty in number, is known as the Apostles. Two days after leaving Sault Ste. Marie, we find ourselves coming within sight of Duluth, "the Zenith City of the unsalted seas." The city is built on a hill, which slopes rapidly from a considerable height down almost to the water's edge. The harbour is large and commodious. The great elevators, the piers stretching far out into the bay, and the many fine buildings, together with the extent of ground the city covers, although it is not closely built up as yet, all unite to give an air of decidedly western enterprise to the place. However, I found business men complaining that everything was terribly dull there at present. St. Paul and Minneapolis and other centres have no intention of giving up their hold on the grain trade without a struggle, and at present I think they have the upper hand.

From Duluth we travelled by the Northern Pacific Railway. Between Duluth and Brainerd, a distance of one hundred miles, we pass through the "lake and forest" region. Here are the headwaters of the Mississippi, of the St. Lawrence, and of rivers flowing north into Hudson's Bay. Settlement here is very sparse, and the country is heavily timbered, and is I believe an excellent place for hunting and fishing. After leaving Brainerd, which is situated on the Mississippi River, we enter on the great prairie region, and a strange appearance it presents to the new-comer, especially when he gets his first glimpse of it, as we did, after night-

fall. In the gloom it was hard to distinguish between the distant prairie and the sky, and occasionally it became difficult to escape the notion that we were passing along the shores of some great lake. When daylight appeared the country was seen to be simply an unlimited, slightly rolling grass field, and we were surprised to notice that we could not find a place where houses were not to be seen here and there in the distance. Over a very large part of the West this has been a season of unusual drought, and while we left the farmers of Ontario praying that the rain would stop, we found the denizens of the prairie in an agony of suspense, waiting for the rain to come. The rain did come in time to save the crops in Minnesota, Eastern Dakota, and corresponding parts of Manitoba; but for a thousand miles west, right to the Pacific Slope, the drought has been very destructive. When we passed through, the country had a rather bare and barren looking appearance, as is naturally the case in a dry summer. But at no time does the country at all resemble the East. There are no trees, no fences, no hills, nothing to give one an estimate of height or distance. The air too is very clear, and distances are deceptive. The *mirage* is a common phenomenon in spring and fall. I must qualify my assertion as to the trees and hills, for there are usually a few trees along the larger rivers, which however are a long way apart. There are also certain hilly districts of considerable extent passing across the prairie, especially as we approach the Rocky Mountains. These usually represent a rise to a higher level of prairie land, and are the edges, so to speak, of what are called in Montana "bench lands."

In my next letter I shall give some account of Dakota, its prospects and its people, and shall also describe a short trip in Montana.

## COLLEGIANS vs. APPRENTICES.

A REPLY BY A BUSINESS MAN.

AN article from a mercantile paper headed "Collegians vs. Apprentices," which appeared in the last number of this journal, needs a passing notice. It was evidently written by one whose appreciation of the real wants of a large mercantile establishment was as limited as his experience of the effects of a college education on the mental grasp of young men.

To assume that young men having mercantile life in view do not need more than the merest common school education is unfair to the young men and to the career they have chosen. The business man undoubtedly requires a special training, equally with the professional man; but up to the point where the special work commences there is every reason why in each case the training should be the same.

There has been an idea prevalent that colleges were only intended for young men entering the professions; but the value of mental training as a help in the general battle of life is now being better appreciated. And what in the past has been the experience with the generality of youths who present themselves for business employment? Every merchant knows that when a young man of sixteen or seventeen enters his office, he is fit for little else than to turn the wheel of the copying press and to run messages, and that at that work he is always kept during his year of probation. Even afterwards, sometimes for two or three years, his work is of the simplest kind. In the larger cities there is always an abundance of young men to be had at a few dollars per month to do such work, but for all the business training that this gives these young men, they

would be much better at the High School or College acquiring a general mental discipline. Further, every merchant equally knows that too many of the young men in his office are quite incapable of writing an ordinary business letter without grave errors, and his daily correspondence received convinces him that there is throughout the country something lacking in the common and High School systems of education in this respect.

It is idle to talk of the pushing business man not being particularly impressed with the value of a college degree in forecasting the market or determining the value of job lots. He never allows his young clerks to interfere with that important part of his business. It is equally idle to take as an illustration the street Arab, or bootblack, or newsboy. His mental activity runs in but one groove and results from but one cause—the fight for bare existence—with too often little regard for the means employed. A true comparison would be in after years between him and youths of education.

The knowledge of accounts, of goods, and of markets is quickly acquired by the young man whose tastes lie in these directions, and whose mental training has made him quick in perception and able to think for himself. It is a long road between the positions of office-boy and partner, but it need not be so long if parents able to give their sons a higher education would realize that the business man judges his clerks by their capacity, and that a young man with a high mental training and strong common sense, desirous of a business life, will, as a rule, grasp the details of an office in far less time than he who has

not had such training, and will be correspondingly appreciated. The earlier years of most young men in business offices are generally so much time spent in acquiring what other young men of high mental training can grapple with almost at once, and the latter have the additional satisfaction of knowing that they have

been preparing themselves for higher tastes in their leisure hours, and for being better members of society and more useful citizens.

Collegians have no reason to be ashamed of their record. Already from among the college alumni have come some of the ablest men Canada has in finance and trade.

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### KINGSTON COLLEGIATE INSTITUTE.

BY C. E. E.

THE men who laid the foundations of Kingston round the old French fort of Frontenac were United Empire Loyalists of the staunchest kind. What their quality was may be attested by the following fact :

“During the American war seventy-five undisciplined loyalists, in a paltry block-house, near Pawles’ Hook, on the New Jersey shore, beat off after a conflict of several hours’ duration, General Wayne with upwards of two thousand American regular troops and six pieces of artillery. The Americans had a considerable number of men killed and wounded on this occasion. This incident gave rise to a ludicrous poem, by the unfortunate Major André, called the ‘Cow Charge.’ Some of these brave fellows belong to the Frontenac militia.”

That they were not only brave but intelligent, is shown by their anxiety to provide education for their children. Scarcely had they provided the first rudiments of shelter and support for their families, than the necessity of providing mental training became an object of desire.

Some sort of education seems to have been provided at an early date ; since in a letter from the magistrates of Cataraqui, of the date 22nd December, 1787, addressed to Sir John Johnson, they speak of the Government having already been pleased to

provide for the establishment of a clergyman and school at this place. This school was, however, merely a teacher of the “three R’s,” and did not aspire to the dignity of a High School, for in 1789 we find a leading citizen of Kingston writing to a Mr. Collins, who was apparently attached to Lord Dorchester’s staff, and suggesting “the appropriation of a tract of land for the *future* establishment of a decent seminary of education for this district, on some of the islands contiguous, such as Grand Isle, P’le aux Forrets, or the island next below Mr. Hector McLean’s.”

On the 31st of May, 1790, Lord Dorchester, through Mr. Henry Motz, in a circular letter to the magistrates suggests that a competent establishment of respectable clergymen and schoolmasters in their settlements might be effected by gradually improving the glebes allotted by the Crown in every township, by the voluntary labour of the people. In their reply to this, the Kingston magistrates mention “that the great majority of the settlers were of persuasions different from the Established Church, and it is not to be expected that different religious sects should unite in a labour by which provision is to be made for the minister of one only.” Still, so great was the anxiety for education prevalent among the

people, that they had in every township, in the least degree populous, at least one, and, in some, two schools.

In 1797, George III. expressed his intention to establish free Grammar Schools in those districts of Upper Canada in which they were called for. In the following year the Executive Council declared that while four schools were desirable—at Kingston, Cornwall, Newark and Sandwich—two, one of which should be at Kingston, were of pressing necessity; and suggested £3,000 as the sum requisite for the building, and £180 per annum for the salaries of the master and his assistant at each of these schools. These generous intentions, however, were destined to remain unrealized by the Kingston school, since the whole of these endowments was a few years later diverted to Toronto for the erection of Upper Canada College and King's College.

There was, no doubt, a school of some sort in Kingston at this period, but that it was elementary only and not at all competent to afford anything approaching a classical education is manifest from the following facts. In the first place, a Kingston gentleman, writing in 1799 to the Rev. G. Hamilton, of Gladsuir, says: "I shall at all times most cheerfully part with any money that I can afford for a purpose so necessary and important as the education of my children. With such qualifications as you describe I do not think Mr. Strachan's salary too high," etc. These are expressions scarcely to be used if any facilities for high school training existed in Kingston. Secondly, the same gentleman, in 1805, recommends Mr. Strachan, then resident at Cornwall, as a suitable custodian for some mechanical and scientific apparatus he hoped the Government would procure. This he was unlikely to have urged had Kingston possessed at this time any decent educational institute.

However, in 1807 an Act was passed for the endowment of Grammar Schools by an annual grant of one hundred pounds currency to each master; ten boys, appointed by the trustees, to be free scholars on the foundation. At first Kingston Grammar School seems to have enjoyed an additional grant of two hundred pounds sterling as a Royal Grammar School, which enabled the trustees to secure the services of able masters, Rev. John Wilson, possibly the first of these, resigning in 1824 to take "an official position in the University of Oxford." Mr. Wilson, at the time of his departure, estimates the school as worth £350 currency per annum, less the salary of the assistant master. He was, after a short delay, during which the trustees endeavoured without success to secure the services of an ordained clergyman, a graduate of an English University, succeeded by Mr. George Banter, who had been for seven years Mr. Wilson's assistant.

In 1829 we find that the grant of £200 sterling to Kingston as a Royal Grammar School had been withdrawn and transferred to the master of York Grammar School. The boy is said to be the father of the man, and the acute observer will perceive the family likeness of Little York to the future Toronto. Mr. Banter held the position of head master for fifteen years, and was succeeded in 1839 by the Rev. R. V. Rogers, who however only remained for eighteen months and resigned in 1841, when Stafford Lightbourne, M.A., Trin. Coll., Dublin, was appointed and held the position for eight years. Up to this time the school had been held in a frame building erected in 1792 as a Court house. Naturally, as it had never been repaired, it was then in a ruinous condition. The clapboards being rent off on the outside and the plaster knocked off on the inside, a view of the playground was open to the wan-

dering eyes of the student within, while a juicy thistle reared its head through the holes in the flooring. In consequence, when the school assembled under its next head, William Irwin, M.A., of Cambridge, it met in a wing of Archdeacon Stuart's residence, now occupied by some of the faculty of Queen's University. Mr. Irwin held the post ten years and was succeeded by Rev. Mr. Mair, but the school was now feeling keenly the competition of the Preparatory School attached to Queen's, and its attendance fell away to a very scanty showing. In consequence, in September, 1861, negotiations were opened for amalgamation, and in February, 1862, these were completed, Mr. J. May being head master. He, however, resigned almost immediately, and was succeeded by Mr. Samuel Woods, M.A., (Tor.), now head of the Collegiate Institute at London, Ont. He continued to manage the school with success for fourteen years, when he resigned to go into business, and Mr. A. P. Knight, M.A. (Queen's), M.D. (Victoria), the present Principal, himself a former pupil of the Institute, was installed.

Kingston School cannot boast much

of its buildings, in which respect more than one of the common schools of the city surpass it, but it may claim some fame for the number of public men it has supplied to Canada. Sir John A. Macdonald and Sir Alexander Campbell under Wilson, Oliver Mowat under Mr. Banter, Sir R. Cartwright under Lightbourne and Irwin, Hon. G. A. Kirkpatrick under Irwin, were all pupils of the old school, with others whom it would be tedious to enumerate. Far and wide over the world are scattered former pupils, or, alas, their graves. Australia, Chili, California, have representatives, living or dead, of the Limestone City, who learned their delectus at the feet of some of those who swayed the cane or the raw-hide from behind the old railed desk. Not a few found their way to the Old Country seats of learning, and won academic honours in their halls. And we well believe there are few, if any, of all who ever played in the grounds of Kingston's Grammar School, who would not be ready to wish success to the Kingston Collegiate Institute. *Floreat Etona. Nomine mutato de te fabula.* The quotation will not do, it is no fable but solemn truth.

## EXAMINATIONS IN COLLEGES AND SCHOOLS.

BY BARR FERREE.

**E**XAMINATIONS for ascertaining knowledge. It is a question of some moment whether an examination based on written questions and with written answers really accomplishes its desired end. These examinations invariably rest heaviest on the best students, who feel the necessity of preparation and realize the danger and the disgrace of failure. These men enter the examination hall fully realizing the responsibilities before them. It is absurd to talk of no

cramming, or of reducing it to a minimum. No examination has yet taken place of which due notice has been given, for which the best, the most careful and studious, the most attentive and quick have not made weeks of preparation in the way of review and in memorizing certain facts. The traditions of many colleges abound with stories of particular questions the professors are sure to ask, and no matter how careful a student may be, nor how thorough and wide his gen-

eral knowledge, the very fact that he is possessed of these qualities and is anxious to make a good mark, concentrates his attention upon these points. As a natural consequence he is apt to fail on other and perhaps more essential particulars. The weeks prior to an examination in any medical or law school are devoted to the hardest kind of study, and it is so in most of the collegiate departments of the universities.

A written examination with marks is not, in truth, an attempt to ascertain general knowledge, but specific. A student in history, for example, may be well acquainted with the general sequence of events; he may have a fair knowledge of the philosophy of the subject; he may know the date of the founding of Rome, or of the fall of Constantinople; he may have a fair idea of the life of Cæsar and its relations to the Roman Empire, but be quite incapable of giving the exact date of his death, or even particulars of his victories. It is important to know that Cæsar conquered Gaul, but not particularly essential to know when these conquests were made. In an examination calling for minute details—and very many are such—the student may fail, and fail grievously, though his general knowledge be fairly accurate.

While such is the condition of things with the attentive students, a very different state of affairs obtains with the indifferent ones. These latter gentlemen exhibit cramming in its fullest development. The indifferent student undertakes to compress into a few weeks the work of months, and the methods by which he accomplishes this end are both numerous and singular. Not unfrequently he will actually undertake to study and review whole text-books in a week that really require months for a thorough mastering. This is the real cram, the genuine article, the dread of the teacher.

Sometimes a tutor is called in, and the operation conducted under organized direction. More frequently—in the ordinary colleges at all events—the student will make his preparation in a truly wonderful manner. He will take his geometry or his conic sections, for example, and spend an entire night—more if necessary—in copying out all the problems on small rolls of paper. His Cæsar, or his German reader, will be carefully interlined, if not entirely, at least in the most difficult parts. Other text-books, which do not permit of either of these modes of treatment, have their covers removed, the superfluous sheets thrown out, the margins cut down, and the whole reduced to a convenient size for an inner pocket. Armed with these weapons, the delinquent boldly faces his examiner if he finds it impossible to hide behind his back, and passes the ordeal as best he may. One other preparation is necessary, and that is to secure a seat near the best man. The absorption of water by the sun on a hot day is not more direct or powerful than the absorption of knowledge that follows this masterpiece. By a proper and careful use of these means, or as many of them as can be used, the most careless student is enabled to pass a tolerable examination.

So general and thorough is the practice of cheating in very many of our colleges and universities, that any comparison of students by marks is grossly unfair. It is so generally expected that the better students shall help their less industrious companions, that it is almost impossible to reform the system. The result is disastrous in many ways. Knowledge that it has taken one man months to gain, is transferred in five minutes to others who may never have opened a text-book. Opportunities are offered for a duplication of papers, and as all are marked on an arithmetical basis, the



relative position of the most attentive and the most indifferent may be identical.

The question of cheating in examinations is a very grave one, and the extent to which it is carried on is quite unknown by the average teacher. In many cases they refuse to acknowledge that it is as general as it really is, and will close their eyes to it. Yet the present writer has attended examinations in which the object seemed to be, not who would write the best paper, but who could cheat the most without being detected. He has seen the professor who was conducting the examination take out a book and begin to read, and it is needless to add that simultaneously there were numerous other books taken out, and some very hard and careful reading ensued, in which all the participants save one made copious notes.

In no part of an undergraduate's career does so much duplicity, so much fraud, so much absolute theft occur, as during an examination. A teacher will spend six months in teaching the elements of moral science. He may illustrate his subject with a wealth of illustration taken from all time and all sources. He may bring it vividly before his students and impress firmly upon their minds the importance of the precepts laid down, and yet when he begins an examination he will have his most elementary law violated. Just so long as there are written examinations with set questions and marks, just so long will the laws of moral science be thrust to one side, and our young men familiarize themselves with methods of throwing dust and of fraud they will not be apt to forget in after life. It may be somewhat novel to advocate the abolition of examinations on moral grounds, but there are certainly reasons for so doing. Leaving aside all questions of religious or sectarian influence the fact remains that it is

thoroughly inconsistent with modern ideas of correct morality to afford young men such ample and complete facilities for the practice of deceit as are furnished by an ordinary collegiate course. And in these days when fraud and corruption are rampant on every side, and are rapidly eating away our social and political life, every element that tends in this direction, in ever so small a degree, should be at once abolished.

To return once more, however, to the original question: Do written examinations afford a safe criterion of knowledge? it may safely be affirmed that with set questions they do not. As has been remarked, the good and the bad students are not unfrequently on the same footing. Papers are exchanged and answers copied with a surprising facility. Nor is this all, for while one's general knowledge may be very complete, a date or a specific piece of information may be forgotten in the heat and worry of the final test.

In a subject like history, for illustration, the teacher may have spent some time on the philosophy of the branch—a part having peculiar fascination for the better class of students—while the examination paper, being prepared for the average student—a term frequently synonymous with the worst—is made up of subjects which, being in the text-book, may have been but lightly touched upon, and which may, therefore, have been overlooked by the very men who have followed the teacher most attentively. In examinations of this kind, therefore, we do not obtain information as to a student's general knowledge, nor do we learn whether one man knows more than another. All that is ascertained, at the best, is that some men know some facts. As to their general knowledge or even as to the identity of the particular student—owing to the various methods in

vogue for passing an examination—we are in ignorance.

Oral examinations are not open to so many objections. At all events they give the teacher an opportunity of testing the student's knowledge, and by a few brief questions, he can readily ascertain whether the student really knows anything about the subject or not, or whether he has studied or crammed. Oral examinations with marks are, however, very different things. If written examinations with marks should be abolished for injuring the morals of the students, oral examinations with marks should be done away with for the harm they do the morals of the teacher. Theoretically, a teacher is a thoroughly just and fair man; in reality he is very frail and human, and easily affected by the annoying events of the day. It is a physical impossibility for any man to conduct an oral examination of twenty-five or fifty men and mark them to a uniform scale with any degree of fairness. Doubtless there are men who consider themselves fully equal to the task. There are men whose consciences are such delicate apparatuses that they will lie awake half the night debating whether A. is entitled to 9

or 10 for a certain answer. There are men who will prepare for an examination with fasting and with prayer, and with a solemn self-consecration to the task, and who will weigh each answer as carefully as though the safety of their souls depended on reaching the truth. Yet with all this they fail when brought face to face with an oral examination of an ordinary sized class. At the end of the first hour the instructor will be beginning to feel harassed, for students are never so backward as in an examination. At the end of the second hour his nerves will be disordered; by the third, his sense of justice, his accuracy of judgment, and his care in marking will have vanished, and if by chance there are any victims left they will be rushed through in order to make an end. And these marks which are all intended to be compared with each other will have been made by several different persons. Yet there are men who delude themselves with their fairness!

Examinations for marks, either written with set questions or oral, must be rejected on the simple grounds of not showing any general or absolute knowledge, and as incompatible with the laws of morality.—*Education.*

(To be continued.)

## MEANS OF PRODUCING COLD.

THE approach of summer, with a possible accompaniment of heat, induces ideas respecting the production of cold. Of the many uses of refrigeration during a torrid, sultry, tropical state of the atmosphere it is needless here to speak; those who work with gelatine plates, and especially those who have to manufacture them when the thermometer is in the vicinity of the nineties, appreciate full well the desirableness of being able to convert dog day heat into hyperborean chill, and the great value of

any means by which such conversion may be effected. The production of cold is merely the abstraction of heat from the body that is being operated upon. The means for effecting this have of late been undergoing advances toward perfection. It is only the other day since we saw in a well-heated manufacturing engineering shop a considerable quantity of mercury frozen quite solid while it was exposed to the warm atmosphere of the workshop. This, it must be admitted, indicates a high advance in

the art of congelation. Concerning methods of producing cold, there are three of which we shall here speak. The first is the well known one of imparting cold to water by dissolving in it certain substances, of which there are none which in our estimation can vie with nitrate of ammonia for general efficiency and undoubted convenience. In addition to this, it is also the most economical of all saline bodies, as it is not wasted during use, but may be employed over and over again. If a thermometer is placed in a tumbler of water, at say 50° Fahr., and some crushed crystals of the nitrate of ammonia are then thrown into the water, the column of mercury will be found to descend with singular rapidity until it reaches 26° to 27° below the freezing point, or about 5° Fahr. There are several mixtures which can be made by which a much greater degree of cold can be obtained, but these when once used cannot be used again. But with the ammonium nitrate it merely suffices to pour the solution out into an evaporating dish after being done with, and having driven the water off by heat, or otherwise, place the crystals into a bottle, when they are ready for future use in a similar way.

We here give an illustration of one way by which the knowledge of the above mentioned fact may be serviceable. We had once some gelatine plates to develop in a semi-tropical country at a time when the heat was intense and the water so warm as to endanger the film during development. We placed the developing solution in a japanned tin developing tray, and placed that tray inside of another slightly larger, and in the bottom of which we scattered a few crystals of nitrate of ammonia, afterward pouring in a little water. This reduced the previously high temperature of the developer to one that could

not possibly affect the too soluble gelatine of which the film was composed. A second system for the production of cold consists in the compression of air. Thus compressed, and forced into a reservoir, it becomes heated, as every one knows who is familiar with the working of an air gun. But when cooled down again, before it is suffered to escape, its expansion is attended by great cold. "If when compressed it is allowed to cool down to the ordinary temperature and then to escape, it will be cooled below that temperature just as much as it was heated by compression. Thus, if in being compressed it had been heated 100°, say from 60° to 160°, and then allowed to cool to 60°, on escaping it will be cooled 100° below 60°, or to 40° below zero, which is the temperature at which mercury freezes."

This is the principle of the cold air chambers now so extensively employed on shipboard for the transport of frozen provisions from Australia and New Zealand. The ingenious photographer who dreads the preparation of gelatine plates in hot weather will in this discover the means by which he may be enabled to keep his coating room at fifty degrees or sixty degrees during the most sultry months of the summer, aided by a small gas or petroleum engine. We have devised a most perfect means of effecting this, by manual power if desired, and that only applied at occasional intervals, but a detailed description of it would be out of place in this article. It is well known, by some at any rate, that the condensation of certain vapours is attended by extreme cold. On the principles actuating this phenomenon we do not here enter, but confine ourselves to giving a brief description of one of the machines—if machine it may be called—by which the principle has obtained its latest outcome. This

apparatus, which has received the trade name of "The Arktos," consists, roughly speaking, of a tube bent  $\cap$ -shaped, at the end of one limb being a reservoir which contains strong liquor ammonia. This ammonia should be as strong as possible; although that so well known among photographers as 880 will do, yet Mr. Loftus Perkins, the inventor of the apparatus, informs us that he prefers it much stronger, say 875, a strength he certainly manages to obtain. This bent tube has its air abstracted and is hermetically sealed, and heat is applied to the ammonia reservoir, by which the ammonia liquid parts with its gas. When the source of heat is removed and the gas re-enters the water, the cold is produced at the farther limb of the apparatus in a degree of such intensity as to cause a deposition of the moisture in the atmosphere in the form of dry snow. So great is the cold produced that, as previously hinted, we have seen, and

that too, in a warm room, the solidification of mercury in the vessel into which the end of the tube was dipped. One end of this tube may be called the boiler, and the other the refrigerator, and a condition of success is that the connecting pipe between the two shall be kept cooled while the boiler is being heated, so that all gas passing to the refrigerator may enter it in a comparatively cool state. When this is used on a large scale, it suffices that a fire be applied for two or three hours once a day, by which the refrigeration is rendered singularly perfect. There are minor mechanical details connected with this apparatus, but the general principle is as above stated.

Thus is solved the problem of a process for attaining cold and ice without mechanical aid, and, as the inventor says, "Its abounding efficacy is made evident in its freezing of mercury in the open air."—*British Journal of Photography.*

## POLITICS AND SCHOOLS.

A NEW illustration of the need for dealing with the political problem in its bearing on our schools is offered by the defeat of Dr. E. E. White, of Cincinnati, one of the ablest school superintendents in the country. We suggest this as a subject for discussion at the State and National Association meetings, to devise ways and means to rid our school systems of this incubus. In the face of all the evidence that may be collected to show what a great evil this is, it seems a proper subject. Political influence is everywhere felt from the smallest rural school-house to the high school and college. Merit is nothing when weighed against influence. The places where this is most felt are in cities where there is an aggregation of politi-

cal influence which exists simply as a stumbling block to all progress and reform. No illustrations are needed to attest this fact. The sooner the people will recognize it and make up their minds to put the schools beyond its reach, the better it will be for all concerned. This is the problem of the hour for the public to solve. The corruption of politics must not get into the schools. Our common schools must be directed by educators and not by politicians. It is demonstrated beyond a doubt that politicians do not direct the schools for the benefit of the schools but for themselves. Now, if the schools are to be carried on according to rational methods and in spirit with the progress of the time, they must be given

over entirely to the hands of educators, and educators of the highest standing must have the chief direction. This is what the *Evening Post*, New York City, says of the superintendent who supersedes Dr. White :

"The case of the Cincinnati public schools, since the defeat of Mr. E. E. White as superintendent, is worse than at first appeared. The new superintendent, Mr. Morgan, may be called a teacher only by great courtesy. He has not taught for the last twenty years, which twenty years really include a great part of the practical and promising advance in American education. Then he taught as assistant in a Cincinnati grammar-school for a few years, and was for a time principal of a district school composed of the five primary grades. He has been a member of the Board of Education for several years, and being

also an examiner of teachers, has thus kept in some contact with teachers and members of the Board. His life-insurance business has also brought him into personal and business relations with teachers and school officers. In all this time he has not, so far as known, written an article or delivered an address on teaching. This is the man whom, to oversee and direct her whole public school system, Cincinnati is about to substitute for one who during thirty years has been actively engaged in the work of teaching and supervising. It is easy to see what the influences may have been which contributed to this election, but it is not easy to see where the new superintendent is to evolve the experience and information necessary to any man who undertakes to control a great system of schools." — *The Teacher.*

### THE TEACHER'S DREAM.

THE last lesson had been given, and the school dismissed. For years I had been at the school. Children had come who were little more than babes, and they had grown, and, having passed step by step through the school, had left it to enter on the struggle of life. During these years I had been exerting my influence on these children for good or for evil. I had always a high ideal of a teacher's duty. There was something grander in a teacher's duty than the teaching of the three R's. The children had to be fitted to earn their bread. They had to be so trained that they might be fit to run the race of life. My ideal, however, was higher than that. It was the very lowest work of the teacher, I thought, to instil into the child's mind the three R's. To draw out such intelligence as might enable the child to earn an

honest living was but a fraction of the work of education. The highest work of the faculties and instincts of the child's higher nature, which, when brought to perfection and exhibited in after life, should make those he came in contact with feel that he was every inch a "man." No meanness would have place there. No selfishness would be found in his nature. Every word uttered would be a word upon which every man could rely. Life to him would not be a matter of food and raiment, but having in it a higher and grander purpose. It would be his object to make man happier, the world brighter, and thus he would be an honour to his country and race. But the last lesson to those children had been given, and my thoughts wandered back over the past, and my memory brought my work under review! Had I succeeded or failed

in my labours? What years of toil they had been! Under what discouragements had I laboured! Many a time my hands had hung by my side as I had striven to work out my plans, when I found that the parents' influence and example were undoing what had been done with such labour. At times the irritation of the work of the school had made me impatient, and my own example had injured the work I was doing. How thick and fast the thoughts came up as I looked back. What a gloom settled upon the work. True, there were gleams of light here and there. Once one of my boys, having gone to a distant city to earn his bread, wrote to me:—"I knew it must be you who had written, for you were always trying to do something for us young fellows." I had written to a friend about him, and the friend had hunted him up. Little things like this had encouraged me at times. As I now look back over the past, however, it seemed as if my high ideal had not been reached, and my heart was sad. It is not pleasant to look back over your life's work and feel that your strength had been spent for nought. The toil seemed to be endured once again by the pain which the want of success brought. Where were the nobler beings I had hoped my training would produce? Where? I could not answer. The darkness deepened. My heart sank within me. The past seemed to become one confused mass, until sympathetic nature came to my aid, and I slept, and in my sleep I dreamt. Lo! One stood by my side whose countenance was radiant with beams from a bright world. "Well

done, toiler," the watcher said. At his touch the vision of the past once more came up before me. It was not now the toil that I saw. There were the smiles from little faces whose hearts had been gladdened by my words. There were the difficulties which had been surmounted by my encouragement. There was the spirit of self-reliance which my training had brought out. The nobler manhood of the child was showing itself as it advanced in years, in spite of the influence exerted elsewhere. The ideal was not there. Perfection was not reached. But a grander, nobler manhood was there than otherwise would have been. The evil within had been dwarfed, while the good had been developed. But the work did not end there. Just as wheat in its wild state, unfit for human food, may be found which, cultivated year after year, ultimately attains the perfection in which we find it; so the future generations passed before me, in which the nobler manhood was developed until perfection was reached, and, as I looked on this, I felt gladdened. The seed sown would bear fruit. I might not reap the harvest. It sufficed me to see the blade. It needed time for its growth. The influence for good would go on, until a better and nobler manhood was developed. It had been my lot to toil, but I foresaw that by-and-by the toiler and the reaper would rejoice together. My dream passed away, but the remembrance gladdened my heart and cheered my spirits; and, as I bade farewell to the old school, I felt my labour had not been in vain.  
— *Wodonga Sentinel.*

THE greatest boon possible on earth comes to the soul when it finds rest in God. The celestial life then begins as the foretaste of what awaits that soul in the life to come.

There is no earthly sorrow which this boon will not mitigate. All men need it, and all must have it, or be strangers to real rest. God himself is man's only resting-place.

## THE MAN AND THE SCHOOL.

IT is the man that makes the school. The kind of teacher a school has outweighs all other considerations whatever. The architecture, the apparatus, the methods, the course of study—all these are of no consequence compared with the question, Who is the man in charge of the school? This is an age of machinery and of faith in machinery. The genius of the American people is devoted to finding out new ways of doing old things. It is a time of wonderful contrivances and appliances. And now so many surprising results have been attained by ingenuity in the method, that we are beginning to have a superstitious reliance on ingenious methods. We have come to think too much of machinery and too little of men. We are apt to forget that it was in the realm of material things that invention worked such miracles. When it comes to affairs involving the work of mind with mind, and character with character, the human element is the all-important one. In all the affairs of life, in government, in education, there are no methods that supersede the necessity for men. Indeed, this is truer than people think, in all matters. No amount of new tools will build the house well. No perfection of modern improvements will fill it with peace. In all matters we are liable to the same mistake. We invent excellent governmental machinery, but it goes all wrong because we forget to see about the men. We build enormous telescopes without any fit astronomer, and meantime some trained observer is making all the discoveries with his imperfect glass.

I say people become superstitious about appliances. They come to think that ingenious mechanism or methods can supersede natural talent, energy, patient training, experience—all those

human powers that alone can move the stubborn world. The peddler brings to your door a patent drawing apparatus, promising that with five minutes' practice the clumsiest hand shall make perfect pictures. The boy believes that with his new pen he will at once write a beautiful hand; or he is deluded into thinking that the new system of mnemonics which the lecturer taught is going to supersede memory altogether. What is the need of paying a physician when the little box of pills, with its book of instructions, is warranted to make the most ignorant blunderer wise and skilful? Why study the languages for years, when you may master them in six easy lessons for twenty five cents and stamp enclosed?

The public school system is the source of most American ideas, weak as well as sound. "Let me make the songs of a people," it was said, "and I care not who makes the laws." We might better say, "Let me make the schools, and I care not who makes the laws." Now, the school system is one great embodiment of this excessive faith in machinery. There are patent blackboards, and patent desks, and the patent new name of educator for teacher, and patent new normal methods of making trained teachers in six months, and patent plans for them to teach reading and arithmetic by. But somehow the results do not seem to be so perfectly satisfactory as all this fine machinery would lead us to expect. What is the matter? There is the elegant new school-house, furnished with every ingenious piece of apparatus which the American mind has yet elaborated; and there is the elegant new teacher, trained with the utmost skill and celerity by the most rapid new methods, certified to after the most elaborate system of modern

examinations, who dips his patent pen in a patent inkstand, and keeps his record in an improved register, and has all manner of surprising methods of instruction and discipline—and yet the results are not, perhaps, perfectly satisfactory. Insomuch that some ancient men, remembering the old battered desk and hacked benches of their boyhood, shake their heads and venture to doubt whether boys get a much better education than they did in old times. They are not always justified in their doubt, but they are justified whenever it is their good fortune to remember as presiding at that old battered desk, the vigorous mind and mellow heart of a really good teacher.

Who would not be glad to have sat in ever so bare a room under the plain instruction of Arnold, of Rugby? Who would not like to have had a winter's schooling in the Puritan house where Milton taught when he returned, a vigorous young scholar, from his travels on the continent? Perhaps we might not consider it a hard fate to have learned "small Latin and less Greek" at the rusty old school house a little out of Stratford, where Shakespeare is said to have taught school. I repeat, it is the man that makes the school, not the apparatus nor the methods. You can no more prevent the mind and character of a large-souled man from irradiating and inspiring the little people on whom they shine than you can put out the sun. Nor can all the educational machinery—past, present, and to come—make anything of a dull and dishonest teacher but a stupefying poison to every child within his reach.

The education is what the mind of the teacher can do for the mind of the child; all else is accessory and unimportant. We must come back from our mooning after appliances and methods, and remember this.

We have thought too little of the men. There is madness in our methods. It is the mistake of a young country that has accomplished great material results by its ingenuity, and has been patted and praised for it by its neighbours. It is the mistake of a time whose proudest blossom is the industrial exhibition. In Greece the Olympic games were not for the competition of sewing machines and bonnet decorations, but of men. The truth simply is that material progress has absorbed the attention of the world. We gaze in admiration at the new steam engine; the man that made it is an old story—he was invented long ago. And when we see, after all, how little can be done for us by mechanisms and devices and ingenious methods, while men are lacking, we get a feeling that our boasted progress has not set the world so much farther ahead than it used to be. What advantage, we say, has the locomotive over the stage coach, if the man it carries is a clod or a churl? . . .

I would not be thought to overlook the fact that there are better methods than of old. But we must cease to hope that such methods, however admirable, will be of much avail without the best men and women as teachers. We can do most for the schools by uniting our efforts to secure the best teachers. I mean to say that we must not stop short of an earnest effort to have the schools filled with the best men and women in the community. Certainly, in theory, every community ought to select the choicest and highest of their number to guide the destinies of the children. It is of comparatively small importance who are the physicians and ministers and judges: the question that determines the whole character of society is, Who are the teachers? No doubt, it would be of some use to raise the salaries of teachers. If in any case the present salary seems too high, it is not the



fault of the salary. As a distinguished gentleman lately remarked to me, the proper way is not to lower the salaries to the teachers, but to raise the teachers to the salaries. Nor do I refer merely to the money salary. Money is not the only wage for which men work, nor the chief wage. They work for honour, for influence, for esteem in the community. And these higher wages will belong to the teachers whenever they are universally deserved. The profession of teaching

ought to be so high and so honourable that it would be sought without regard to money profit. Till then we must expect to see the best talent go where it can earn more money with a modicum of those higher wages besides. It is for us to do our utmost that the schools may not have a man or woman for teacher or for officer who is not worthy, in every respect, of the highest honour and esteem of the community.—*From an address by the late Edward Rowland Hill.*

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### PUBLIC OPINION.

THOSE who make their way through college and attain success in professional life are frequently pointed to as "self-made men." They deserve all praise, for they have done more than is common in the way of self-help. But they have by no means done all themselves. All the facilities which they have used—the outfit of apparatus, books and teachers—in the schools where they studied, were provided by some one at a cost but a trifle of which they have ever paid. Every man who goes through college is a beneficiary.—*The Sunday School Times.*

"HE believed that there was more and better religious teaching to-day than at any time during this century. (Hear, hear.) There was an irreligious England nearly a century ago when Joseph Lancaster began to teach children to read and spell texts; but now there were 4,600,000 children under instruction, and almost every child was receiving good, solid, religious instruction. (Cheers.) A clergyman of the Church of England, a member of the School Board Committee, had written a letter to him stating that the religious instruction of the School Board in London was at least equal

to, and in most cases better than, the religious instruction of the Voluntary Schools; and that was the case throughout the country. There were, in proportion to the population, 40 per cent. more in Sunday Schools than there were in 1851, and the number on the register was 5,200 000, or 500,000 more than on the register of day schools."—*Mr. Mundella's Speech in the English House of Commons on the Debate on the Education Estimates.*

THE stupid scholar usually has few friends, because he is considered altogether foolish. Now this is frequently a wrong conclusion, for stupidity in one branch does not suppose stupidity in all branches. It is best to look on all sides of a boy before he is condemned. It may be that the dark side is turned toward the teacher. It would be foolish, indeed, to conclude that because one side of the moon is dark, the other side is dark also. As long as the sun shines it is safe to conclude that if one side is dark, the other side *must* be light. So it is with a stupid boy; the dark side has been looked at. Turn him around, or better, get around to his other side, and he will be found light enough. There is a right side and a wrong side

to every human being. The wisdom of teachers consists in getting on the right side of their pupils.—*The New York School Journal*.

A LINE OF SUCCESS.—It is not many years since that few steamers visited the port of Halifax. They preferred to go round to Boston, to New York, or up to Montreal, rather than to the chief port in Nova Scotia. But the case is far different now. As many as eight steamers arrive there in the course of a week, and the departures are correspondingly large. The opening of the new short line of railway is beginning to tell already, and if the Grand Trunk carries out the intention that is attributed to it, and builds still another line to Halifax, the result cannot be otherwise than favourable. And the combined influences will raise the Nova Scotia port to one of great consideration. And the reason of this is to be found not only in the growing business that is being done as regards Canada itself,

but on account of the trans-Pacific trade that is springing up along the line of the Canadian Pacific Railway. Indeed, the course of trade seems about to undergo a marked change, so that Canada will become a highway amongst nations. This gratifying state of things is owing to the favourable geographical position that this country occupies, and to the fact that Parliament under the guidance of the present Ministers seized upon opportunities that presented themselves, and secured the construction of the Canadian Pacific, after it had been pronounced an impossibility, financial and mechanical. And the Nova Scotians are not unmindful of this. The progress of our country during the last five years may be said to be phenomenal, as shewn in fifty different ways, and is the result of that line of action which, though cried down at one time from one end of the country to the other, has come out triumphant in the end."—*Free Press*, London, Ont.

#### NOTES FOR TEACHERS.

As the traveller approaches London from the East or South, he is struck by the way in which the Board Schools tower above the squalid houses, which but for them would stretch away to the very horizon. What the school is to the material, the teacher is to the intellectual, prospect. He is the one object that relieves its monotony, the one embodiment to thousands of children of culture, of organization, of discipline, of decency.—*The London Spectator*.

THE Bishop of Chester, in the course of an address to the boys of King Henry VIII.'s School at Chester, spoke of the undoubted disadvantages boys experienced who were

educated under private tuition. He also said that England was proud, and rightly proud, of her public boarding schools, and he, for one, should be utterly ungrateful if he did not render his testimony to their merits. But they had one radical defect—they were all to a very great extent unnatural. Did nature ever mean that boys should be taken away from home as early as twelve, nine, or even eight years of age, and separated altogether from the influences of home-life, and, above all, from the society of their mothers and sisters and girl companions, and put into barrack life? However good that barrack life might be, with all the admirable characteristics of these schools, with all the con-

scientiousness of the masters, the system had upon it indelibly the stamp of unnaturalness.

#### AUSTRALIAN UNIVERSITIES.—

Australia appears to be keeping well abreast of the age as regards the education of women. The Universities of Melbourne, Sydney, and Adelaide are open to women; and, although the advantages thus presented seemed at first to be little appreciated, the number of lady students, past and present, now amounts to nearly a hundred. No special inducements are offered; the same conditions must be observed as those which govern the admission of male students. Excepting membership in the Senate, women are eligible for all posts of learning and distinction. The University of Adelaide claims the honour of commencing the new departure in 1876; Melbourne followed, and then Sydney. The registrars report that, in a general way, the female aspirants go through the course with as much credit as the men. At Adelaide a woman scored a more brilliant success in the Science Division than any of her competitors; whilst Melbourne has now nine lady graduates, and Sydney ten, of whom three have won the M.A. degree. These first fruits of a wise and liberal policy in the administration of the Australian Universities will, we trust, lead to a large extension of educational advantages throughout the colonies.—*The Publishers' Circular* (London).

THE COST OF A MAN-OF-WAR, 1789-1889.—A hundred years ago the expense of building a ship-of-the-line of 100 guns in the Royal dockyards was £67,600. This included the cost of coppering and copper bolting, and of masts, yards, rigging, sails, anchors, cables, and all other boatswain's and carpenter's stores. This

was the original expense of the *Royal George*, a 100-gun ship, launched in 1788 at Chatham. She was 2,286 tons, and was 190 ft. long, and 52 ft. 5½ in. broad. The modern equivalent to the old wooden line-of-battle ship of the first rate is the first-class ironclad battle-ship, and the *Trajan* may be regarded as a good specimen of the finest and most recent vessels of this type. Her original cost, exclusive of armament, was no less than £862,794. She is of 11,940 tons displacement, and is 345 ft. long and 73 ft. broad. Thus, while the first-class battle-ship of a hundred years ago cost only about £29 11s. 4d. per ton, the first-class battle-ship of to-day costs over £72 5s. per ton.

THE SPEED OF BIRDS.—It has been found that the swallow can fly at the rate of ninety-two miles an hour, and the rapidity of the swift to be not less than two hundred and fifty miles an hour. If it can move at this rate even a short distance, the swift must be ranked as the swiftest of birds. The common crow can make about twenty-five miles, the eider duck ninety miles, the eagle one hundred and forty miles, the hawk and many other birds one hundred and fifty miles per hour. The flight of migratory birds does not probably exceed fifty miles within the hour. A falcon belonging to Henry IV. of France escaped from Fontainebleau and was found at Malta, having made at least 1,530 miles within twenty-four hours. Sir John Ross, on the 6th of October, 1860, despatched from Assistance Bay two young carrier pigeons, and on October the 13th, one of them reached its dovecot, in Ayrshire, Scotland. The direct distance being about 2,000 miles, the speed was comparatively slow. Birds whose flights have excited astonishment have been generally assisted by favourable aerial currents.

SIR WILLIAM DAWSON, in referring to the special classes for the higher education of women, at the late Convocation, said:—"I am concerned as to the further development of our Donalds special course for women, in accordance with the expressed intention of the founder, that it should become an independent affiliated college. To those who think of this special course as a thing of yesterday, its development may seem rapid; but to those who, like myself, have been working toward it since the establishment of the McGill Normal School, in 1857, it is the slow growth of more than thirty years, first in the provision for higher education of women in the Normal School itself, and the preparation of a high class of qualified female teachers; next in the organization of the Ladies' Educational Association in 1871, and its noble work for fourteen years; next in the institution of the Girls' High School in 1874, and in the admission of women to the examinations for associate in Arts in 1877, and to that for senior associate in 1880. Those who are familiar with this history and the struggles and efforts with which it was accompanied, up to the time of the endowment by Sir Donald Smith, know how much our present position implies. On the other hand, those who are acquainted with such institutions as Girton, Newnham, Vassar and Wellesley, know how far it falls short in its present form of those higher social and æsthetic surroundings which there encompass and refine the education of women. For my own part, I have always maintained that a college for women should stand on a higher plane than one for men, because it could be emancipated from some of those traditional and professional hindrances which embarrass our ordinary colleges, and because it should aim not merely to fit professional and business persons for the

struggle of life, but to form the minds and characters of the mothers of a cultivated and progressive people. I had hoped that before this time the liberal founder of our Donalds course would have been able to carry out his purpose to develop his scheme farther in this direction; but hindrances, have been thrown in his way which, for the time at least, have prevented his liberal intentions being carried into effect. May we hope that these may soon be removed, and that the Royal Victoria College for Women may complete our long series of efforts in this direction. I should hail such a consummation as a crowning educational triumph for McGill, and should then be prepared contentedly to terminate my educational work."

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#### HALF A CENTURY OF INVENTIONS.

—Those of us not yet fifty years of age have probably lived in the most important and intellectually progressive period of human history. Within this half century the following inventions and discoveries have been among the number: Ocean steamships, street railways, telegraph lines, ocean cables, telephones, phonograph, photography, and a score of new methods of picture making, aniline colours, kerosene oil, electric lights, steam fire engines, chemical fire extinguishers, anæsthetics and painless surgery; gun cotton, nitro-glycerine, dynamite, giant powder; aluminum, magnesium, and other new metals; electro-plating, spectrum analysis and spectroscopy; audiphone, pneumatic tubes, electric motor, electric railway, electric bells, typewriter, cheap postal system, steam heating, steam and hydraulic elevators, vestibule cars, cantilever bridges. These are only a part. All positive knowledge of the physical constitution of planetary and stellar worlds has been attained within this period.

## CORRESPONDENCE.

## SPECIALISTS.

*To the Editor of THE MONTHLY:*

SIR,—With your permission I wish to draw particular attention to the serious and continued injustice done by the Departmental Regulations to a considerable number of experienced and successful High School teachers. I refer to the clauses defining the qualification of specialists in Collegiate Institutes.

The changes in the Regulations have been so frequent and varied (I might add unnecessary) that it is not easy to recall with certainty when they were made. If I remember rightly, however, no attempt was made till 1887 to define precisely the qualifications required for the rank of specialist, the Department undertaking to judge each case on its merits. In that year the possession of a First A., or proof of having passed an examination regarded by the Department as its equivalent, was suddenly made imperative for all that wished to obtain the standing; while the fortunate individuals who, whatever their university honours or grade of certificate, had been already accepted as specialists, and were then engaged in teaching as such, were confirmed in their rank.

Now I have no fault to find with the Department for wishing to insist on a high standard of education, and even to raise it, if necessary; but I do most strongly object to the sudden promulgation of resolutions which are virtually retroactive in their character, and which, if strictly enforced, debar from a certain rank men who up to that time had had reason to believe themselves entitled to claim it if they wished. Let the Department if it chooses give notice that after a certain date (allowing a reasonable time) all

teachers wishing to be recognized as specialists will be required to possess certain qualifications, and few, if any, will be found to object; but suddenly and without any warning, to interpose a barrier, and say to A., "Your university standing or your certificate may be just as good as B.'s, your experience and success as a teacher just as great, and your ranking on inspection just as high; but because he applied for recognition he was accepted, and now retains his rank for all time; while you, having failed to present your claim, must now abandon all hope of the desired standing, unless you are willing to submit to an examination of such a nature, at such a time, and under such circumstances as the Department may prescribe."

But not only are the Regulations unfair and objectionable in that they drew an arbitrary line of distinction between teachers of equal qualifications and efficiency, I hold that they lay an undue stress on mere scholarship, as tested by success at university or other examinations, in comparison with experience and success as a teacher. Which of us has not known instances of men who had taken the highest university honours, and whose scholarship in their special department was unquestioned, but who proved, if not absolute failures, at least far from successful as teachers? Is it fair or reasonable then that certain university honours, followed by three months and examination at a training institute, should entitle one man to rank for all time as a specialist, while another (his former teacher it may be) who has taught ten or fifteen years with marked success, as shown by the University and Departmental class lists, is told that no matter how much he may have read, and studied,

and learned, he must not hope to be considered a specialist, and all because he did not take a certain standing in honours at the university.

It is true that provision was afterwards made by which such teachers can obtain the desired certificate on passing certain examinations. But what shall be said or thought of the consideration that would send a graduate back, it may be twenty years afterwards, to pass a certain examination over again; or of the judgment which professes to regard success in obtaining honours at such an examination as a better proof of a man's fitness to rank as a specialist than ten or fifteen years of successful experience as a teacher?

Besides, look at the nature and restrictions of the examination:

1. The applicant must undergo examination in work which he will never be called on or even allowed to teach in his school.

2. He must take the examination in the month of May, about the very worst time for him in the year to leave his classes, or to make any special preparation for it.

3. He must be absent from his school for ten days or a fortnight, at a time when he can ill afford to spend a day from his classes.

4. If a natural science man he must make up his mind to be absent from his school for at least a college term, in order to do the practical work required for the examination.

5. He must submit to the indignity (in common with the university examiners, to be sure) of having the H. S. Inspectors sit in judgment on the examination papers and marks, and then, if successful, be left in doubt whether he has won his standing on his merits or received it as a favour.

It is not to be wondered at then, when all these considerations are taken into account, that strong protests have been made from time to

time against these arbitrary and unjust resolutions, and that pressure has been brought to bear on the Department to modify them so far as to provide for special cases. I believe I am not violating any confidence in stating that at the close of their work as examiners in August a deputation of masters injuriously affected by the regulation waited on the Minister, and laid their grievances before him; and that after hearing their statement and noting the grounds on which their claims were based, he virtually admitted the injustice done them, and gave them reason to hope that a clause would be framed sufficiently liberal and flexible to include not only them but other deserving applicants. For myself I believe that if left to himself the Minister would have framed such a regulation, but unfortunately some sinister influence overruled his liberal intentions, and the result is the insertion of a proviso (see Regulation 60) which seems to have been carefully framed to allow a favoured few to pass, and to exclude others equally deserving—a proviso which is at once unfair, illiberal and absurd. If any one thinks these epithets unwarranted let him briefly consider the restrictions.

In the first place, why are undergraduates excluded from benefiting by the proviso? If none but graduates were ranked as specialists there would at least be consistency though not justice in the ruling, but when undergraduates are allowed to qualify under the General Regulation, why are they excluded from this? Can it be that the restriction had a special object in view?

Again, look at the unfairness of the senior matriculation test. A master may have been prevented by the circumstances of his school from undertaking to prepare candidates for senior matriculation with honours. In how many "two or three master schools" are teachers in a position to undertake

such work with advantage? Is it not a fact that not only have the H. S. Inspectors repeatedly dissuaded masters of such schools from undertaking it, but that the Department has had under consideration the advisability of forbidding even the Collegiate Institutes to engage in it, and of making pass senior the highest limit of school work? Then, no matter how willing or even anxious a master may have been to do such work, he may not have been able to get any pupils to undertake it, or he may have had pupils whom even a H. S. Inspector could not have enabled to take first class honours.

Again, take the time limit, what peculiar virtue is there in ten years that that length of experience should be rigidly insisted on? Who does not know that six years in one school may be easily worth ten years in another? Observe the effect: A. is a graduate, ranks first class in inspection, has sent up one candidate who obtained the required honors. He is

accordingly granted a certificate, while B., who is also a graduate, ranks equally high on inspection, and has perhaps three times as many of the required honours to point to, is hopelessly debarred from a certificate, solely because he has taught only eight or nine years in a High School instead of the magic ten. Could anything be more absurd in its unfairness?

Lastly, what shall be said of the unfortunate natural science man who, had he been ever so willing and able, could not have complied with the requirement, simply because there were no such honours for his pupils to prepare for, and who, if he ventures to apply, will be told that the proviso doesn't cover his case, and that therefore nothing can be done for him?

I think I have said enough to justify my assertion that the Regulations are arbitrary, unjust and absurd, and I ask, therefore, that *THE MONTHLY* and its readers will lend us their aid in obtaining justice.

NEMO.

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### EDITORIAL NOTES.

It is a cause of surprise to masters and teachers to see the persistency with which the Minister of Education issues every year, at the beginning of the school year, new rules and regulations for the conduct of the schools. No time is given for consideration nor for making suggestions by those who are most competent to advise upon questions so technical and so delicate as courses of study in our secondary schools. Most people would say that an administrator would be only too ready to consult and to receive information from those more immediately affected by the laws and rules adopted by his department. This long-expected day has not yet risen on Ontario. Our correspondent "Nemo" directs

attention to a matter which deserves the careful attention of the profession; and, we add, no regulations should take effect till at least a year has elapsed after they are adopted, and in no case should they be retroactive.

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### OBITUARY.

ON the first of September, at Niagara-on-the-Lake, there passed away one in the first rank of educational workers in the Province of Ontario. Mr. Donald C. McHenry, M.A., was born in Napanee, Ontario, in 1840. He was educated in the schools of that town, and entered a printing office at the age of thirteen.

He did not, however, give up his studies, but fitted himself to enter the Napance Academy and ultimately the teaching profession. Mr. McHenry matriculated at Victoria University in 1869, and after a distinguished course graduated with honours in 1873. During the last sixteen years he has held the position, and ably and faith-

fully discharged the duties, of Principal of Cobourg Collegiate Institute. His influence, like that of all true workers, is deathless, and his life will be lived over again in the lives of those whom he has helped and instructed. We sincerely sympathize with Mr. McHenry's aged mother, and with his bereaved wife and family.

## SCHOOL WORK.

### MATHEMATICS.

ARCHIBALD MACMURCHY, M.A., TORONTO.  
EDITOR.

#### AN APPLICATION OF HORNER'S DIVISION TO ARITHMETIC.

R. A. Gray, B.A., Math. Master, Collegiate Institute, London.

Vulgar fractions whose denominators are of the form  $10a - 1$  may be reduced to decimals very easily, when "a" is not a large integer. Take for example  $\frac{7}{29}$ . This may

be written  $\frac{7}{3 \times 10 - 1}$ . Write down the numerator in the form 7 units + 0 tenths + 0 hundredths + 0 thousandths + etc., and the divisor 3 tens - 1 unit.

Now as 3 does not divide 7 exactly, we may write for 7, 6 units + 10 tenths, and the first step in the division will be

$$\begin{array}{r} 3 \overline{) 6 + 10 + 0 + \dots} \\ + 1 \overline{) \quad + 2 + 4} \\ \hline 2 + 4 \end{array}$$

The 4 in the hundredths place may be changed to 3 hundredths + 10 thousandths, and we obtain still further

$$\begin{array}{r} 3 \overline{) 6 + 10 + 0 + 10} \\ + 1 \overline{) \quad + 2 + 3 + 1} \\ \hline 2 + 4 + 1. \end{array}$$

The 11 thousandths may likewise be changed to 9 thousandths + 20 ten-thousandths, and the operation continued to the 28 recurring places with little trouble.

In the quotient the 2 represents tenths; the 4, hundredths, and so on, or .2413 . . .

This operation is plainly nothing more than dividing the numerator 7 by 3 and carrying over each remainder to be used with

the previous figure in the quotient, thus: 3 into 7, 2 with remainder 1; 3 into 12, 4; into 4, 1 with remainder 1; into 11, 3 with remainder 2; into 23, 7 with remainder 2; into 27, 9; into 9, 3, and so on. The quotient is thus .24137931 . . . . .

In many cases, as in the above, the operation is mental. As an additional example take  $\frac{10}{8}$ . We divide 10 by 8 and write down the quotient in this way: 8 into 10, 1; into 21, 2; into 52, 6; into 46, 5; into 65, 8; into 18, 2, etc.; the decimal is thus .126582 . . . . .

Many denominators not of the form  $10a - 1$  may be reduced to that form by multiplication, as  $\frac{1}{8} = \frac{125}{1000}$ .

A similar method may be adopted with denominators of the form  $10a + 1$ , and as vulgar fractions that give a large number of recurring places may be reduced to one of these forms, the reduction of many vulgar fractions to decimals is a matter of very little labour.

## CLASS-R.COM.

EDUCATION DEPARTMENT,  
ONTARIO.

JULY EXAMINATIONS, 1889.

High School Entrance.

READING.

Examiners: John Seath, B.A.; W. H. Ballard, M.A.

In the examination in reading, the local examiners shall use one or more of the following passages, paying special attention to pronunciation, emphasis, intonation, and



pause. They shall also satisfy themselves by an examination on the meaning of the reading selection, that the candidate reads intelligently as well as intelligibly. Twenty lines, at least, should be read by each candidate

Lochinvar, pp. 169-170; Before Sedan, pp. 199-200; A Christmas Carol, pp. 207-211.

## LITERATURE.

NOTE.—A maximum of five marks may be allowed for neatness.

## I.

Clear and cool, clear and cool,

Play by me, bathe in me, mother and child.

1. Give a title for the foregoing poem that will shew its subject fully. [3]

2. What part of the river's course is described in each of the stanzas? [9]

3. Explain the meaning of the parts printed in italics. [24]

4. Write out lines 1 and 2, supplying whatever words may be necessary to make the meaning complete. [3]

5. Point out any resemblances you notice in the stanzas. [5]

6. What is Kingsley's object in asking the question in l. 15? How does this river resemble "a soul that has sinned and is pardoned again," l. 24? [6]

## II.

The next morning, being the 24th June, at break of day, the battle began in terrible earnest. . . . *down i. great numbers* by the Scottish horsemen, and thrown into total confusion.

1. What is the subject of each of the foregoing paragraphs? [6]

2. Substitute an equivalent expression for each of the italicized expressions. [15]

3. Explain fully what is meant by saying that the arrows were "like flakes of snow on a Christmas Day." [5]

4. State, with reasons, where the chief passage should be made in the first sentence, and how "being the 24th June" should be read. How else may the parts of this sentence be arranged? [6]

5. Explain the meaning of "getting into line," "men-at-arms"; and the difference in meaning between "exhorted" and "asked," and "weapons" and "arms." [8]

## III.

Quote one of the following poems:  
Before Sedan. To Mary in Heaven  
The Death of the Flowers. [10]

## ARITHMETIC.

NOTE.—Only six questions are to be attempted. A maximum of five marks may be allowed for neatness.

1. A bushel of wheat weighs 60 lbs. and a barrel of flour weighs 196 lbs. If 3 lbs. wheat make 2 lbs. of flour, how many barrels of flour can be made from 343 bushels of wheat? [17]

2. Find the interest on \$597.50 for 2 yrs. 5 mos. 12 dys. at 8 per cent. per annum [17].

3. *A* and *B* start together and walk in the same direction, *A* at the rate of 4 miles an hour, and *B* at the rate of 3 miles an hour. At the end of 7 hours *A* turns and goes back. How many miles will *B* have gone when he meets *A*? [17]

4. The circumference of a wheel is  $\frac{3}{4}$  of its diameter; find the diameter of a waggon wheel which makes 360 revolutions in going a mile. [17]

5. A town whose population was 10,000 increased 10 per cent. every year for 3 years; what was its population at the end of that period? [17]

6. The map of Ontario recently issued by the Crown Lands Department is drawn on a scale of 8 miles to an inch. On this map the Township of Scott measures  $1\frac{1}{8}$  inches in length and  $1\frac{1}{2}$  inches in width; how many acres does it contain? [17]

7. If for \$7 I can have the use of \$35 for 3 yrs. 4 mos., how much a month shall I have to pay for the use of \$8,750? [17]

8. It is required to build a sidewalk a quarter of a mile in length, 8 ft. wide and 2 in. thick, supported by three continuous lines of scantling 4 inches square; what will the lumber cost at \$17 per thousand feet? [17]

9. Write down neatly the following statement of six weeks' cash receipts; add the

amounts vertically and horizontally, and prove the correctness of the work by adding your results: [17]

	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	
1	28 79 34	71 35 33	30 10 27	97 47 81			
2	23 87 30	03 29 38	33 84 26	77 48 77			
3	16 99 27	09 28 77	30 16 24	95 43 07			
4	29 13 33	72 30 81	39 17 28	47 50 05			
5	18 47 32	29 26 73	34 45 25	88 54 39			
6	19 02 27	06 29 04	29 89 29	51 61 93			

(No marks will be allowed for this question unless all the work is correctly done.)

GEOGRAPHY.

NOTE.—Only five questions are to be attempted. A maximum of five marks may be allowed for neatness.

1. Give the boundaries of Nova Scotia; describe its physical features; name its principal exports and the occupations of its people. [15]
2. Through what bodies of water would you pass in sailing along the coast line of Europe from Holland to Sicily? [15]
3. Name the lakes of Africa, and trace the course of the rivers through which their waters reach the sea. [15]
4. Draw an outline map of North America, showing the positions of the mountains, and the chief rivers and lakes. [15]
5. Draw a map showing a group of any five counties in Ontario; name, and mark the position of, the county town of each; also name and mark the position of any two lines of railroad in the counties. [15]
6. What causes affect the size of a river? Its length? The rapidity of its current? Its windings? Its width? Its depth? [15]
7. A ship is sailing with a cargo of wheat: from what countries may it have come? With cotton? With meat? With hides? A ship sails from Halifax; what is its probable cargo? From Chicago? From Canton? [15]
8. Name three large manufacturing cities, tell where they are situated and the manufacture for which each is best known.

Name three great commercial cities, tell where they are situated and upon what the greatness of each depends. [15]

ENGLISH PROSE LITERATURE AND COMPOSITION.

Examiners: J. E. Hodgson, M.A.; John Seath, B.A.

NOTE.—Candidates will take Sections II. and III., the first three questions in Section I., and any one of the remaining questions in Section I.

I.

The plague of locusts, . . . and they manage to destroy many more by their death than in their life.

1. What is the main subject of each of these paragraphs? What are the subordinate subjects, and what sentences are included under each?

2. Give for the italicized parts equivalent expressions which may be substituted for those in the text, without destroying the literary form.

3. Give the terms that describe the style and exemplify their application from the extract.

4. Shewing in each case which is preferable, discriminate between the meanings of "awful visitations," l. 1, and "dreadful visits"; "devastating," l. 5, and "ravaging"; "range," l. 7, and "extent"; "vast," l. 15, and "large"; "characteristic," l. 21, and "quality"; "foliage," l. 26, and "leaves"; "succeeded," l. 30, and "followed"; and "pestilence," l. 37, and "visitation."

5. State, with reasons, which of the following is preferable; "The plague—Asia Minor," ll. 1-4, or "The plague of locusts extended over many of the countries included in the Roman Empire"; "It is—territory," ll. 7 and 8, or "It is also numerous in its species"; "And so ubiquitous are they," ll. 18, 19, or "They are also so ubiquitous"; "They simply cover or clothe," ll. 19-20, or "they clothe"; "even to gnaw," l. 28, or "to gnaw even"; and "Like the Harpies, they smear," ll. 31-32, or "They smear."

6. By means of four well-marked instances, shew how the quality of Strength (or Force)

has been secured; and, by means of two well-marked instances, shew how the quality of Melody has been secured.

## II.

1. Point out what you consider the five chief defects in the literary form of either (a) or (b).

2. Rewrite either (a) or (b) in good literary form, using indirect narration in the case of (b):

(a) King Alfred, who was the most learned of the English, while quite a youth had visited the Southern European countries, and had observed closely their manners, and he was conversant with the learned languages, and with most of the writings of antiquity. His superior knowledge created a certain degree of contempt for the nation he governed in the mind of the king, who had small respect for the information or intelligence of the great national council, the Assembly of Wise Men, and was full of the ideas of absolute power which so frequently recur again and again in the Roman writers. Having an ardent desire for political reforms in the state, he framed infinite plans, which we may perhaps concede were better in themselves than the ancient Anglo-Saxon practices they were destined to replace, but wanting that essential and indispensable requisite, the sanction of a people, who neither understood nor desired them. Some severe features of Alfred's government have vaguely been preserved by tradition; and they used to speak of the excessive rigour he applied to the punishment of evil judges long after his death, which severity was far from agreeable to a people who valued the life of a freeman at that time more highly than regularity in the administration of public affairs, although it had for its object the good of the Anglo-Saxon nation.

(b) Mr. Clarke relates the following anecdote: "It was my father's usual custom to hear me repeat to him the lesson I was learning and expected to say the next morning at school when I was a boy. I was learning my Greek grammar at the time I refer to, the part which I had to repeat being the active voice of the verb; and I went up to

him just before bed-time as usual; but, although I started well, I could not say it, and was sent to bed in disgrace. Going his rounds, as my father always did with much uniformity, to the children's bed-rooms, to see that all was right, and coming as usual to my room, and hearing my voice, it was soon plain that I was talking in my sleep, in fact, conjugating the verb, to which he listened attentively till I had gone through it all without a mistake. Coming down next morning, he summoned me to say my lesson, but I was ignorant of it as I had been the night before; and though he told me, which he did to encourage me, that he had heard me say it quite perfectly in my sleep, I was still unable to say my lesson."

## III.

Candidates will write on any one subject.

(a) The Final Scene at Waterloo: The charge of the French Reserves; their reception by the Guards; the result.

(b) The Trial by Combat: The preparations; the combat; the victor's treatment.

(c) A Real or Imaginary Visit to a Friend (described in the form of a letter). The journey; his home and the surrounding grounds; a fishing or boating excursion and a slight accident connected therewith; the return home. Insert any other items of interest you please.

## ENGLISH POETICAL LITERATURE.

NOTE.—Candidates will take Sections IV. and V., and any one of Sections I., II. and III.

## I.

*Portia.* The quality of mercy is not strained  
I crave the law,  
The penalty and forfeit of my bond,

1. Shew how this extract is connected in sense with the preceding context.

2. Explain fully the meaning of the italicized expressions, and the different points of the contrast indicated by "But," l. 10.

3. Outline the appeal which Portia makes "to mitigate the justice" of the Jew's "plea." Explain why she makes this appeal, when, as the result shows, it was unnecessary; justify your answer.

4. Shew, by means of five well-made

examples, wherein consists the literary excellence of this passage.

5. (a) What feelings actuate Portia and Shylock respectively? Explain how these should be brought out in reading.

(b) State, with reasons, which should receive more emphasis: "not" or "strain'd," l. 1; "twice" or "bles'd," l. 3; "sit" or "dread and fear," l. 9; "mercy" or "above," l. 10, "justice" or "plea," l. 15; "law" or "penalty and forfeit," ll. 23-24.

(c) How should the climax in ll. 10-12 be shewn in reading?

## II.

Sweet day, so cool, so calm, so bright,  
 . . . . . Then chiefly lives.

1. State

(a) The circumstances under which this poem is represented as having been composed;

(b) The subject of each of the stanzas;

(c) The connection in sense between the third and the preceding stanzas and between the last and the preceding stanzas; and

(d) The subject of the poem.

2. Explain the meaning of the italicized expressions.

3. A writer, commenting on this poem, says: "Even in this poem we find what mars all the poetry of Herbert, ridiculous conceits and unpleasant similes." Discuss this statement, giving reasons for the view you take.

4. Shew, by means of five well-marked examples, how Herbert has given force and beauty to his language.

5. (a) What is the difference in feeling between ll. 1-2 and ll. 3-4, stanza I., and how should this be brought out in reading?

(b) State, with reasons, which should receive more emphasis: "bridal" or "earth and sky," l. 2: "thou" or "must die," l. 4; "thou" or "must die," l. 8; "virtuous" or "soul," l. 13; "season'd" or "timber," l. 14.

## III.

I bring fresh showers for the thirsting flowers

*While he is dissolving in rains*

1. (a) By reference to ll. 5-8, explain the poetical value of Personification.

(b) State concisely, in the order in the poem, the natural phenomena which Shelley here represents poetically; discussing his representations in ll. 17-28.

(c) Explain the meaning of the italicized parts.

2. State, with reasons, which of the following is preferable in the foregoing: "dews," l. 5, or "rains"; "noon-day," l. 4, or "mid-day"; "dances," l. 8, or "whirls"; "wield," l. 9, or "swing"; "dissolve," l. 11, or "melt"; "great pines," l. 14, or "large oaks"; "lured," l. 23, or "led"; "dream," l. 27, or "dreams."

3. Develop the aptness of "rocked to rest" and "Mother's breast," l. 7; "laugh," l. 12; "sift," l. 13; and "skyeey bowers," l. 17.

4. By reference to ll. 13-16 and 19-26, shew how the Melody and the Harmony of the poem have been secured.

5. (a) Explain the movement (or rate), tone, and force needed for the proper reading of this poem.

(b) What difference should be made between the reading of ll. 19-20, and ll. 21-24?

(c) Assigning reasons, mark, with vertical lines, the pauses to be made in reading ll. 12, 27, and 28.

## IV.

Reproduce the substance of either of the following selections in a prose composition, displaying suitable taste and feeling:

(1) "The Lord of Burleigh"; (2) "The Revenge."

## V.

Quote any one of the following:

(1) "To Daffodils"; (2) "As Ships becalmed at Eve";

(3) The last three stanzas of "The Cloud Confines."

"DRAWING."

Examiners: M. J. Kelly, M.D., LL.B.;  
 W. H. Ballard, M.A.

NOTE.—Only two questions are to be attempted.

1. Draw a book in a vertical position, shewing its side, back and end finish. [13]

2. Give a perspective drawing of a cube, 2 in. to a side and represent it as being divided, by means of faint lines, into 64 smaller cubes each  $\frac{1}{2}$  in. to a side. [13]

3. Sketch a vertical and a horizontal line, not less than 4 inches long, for the diagonals of a square. Draw the square. Bisect each side of the square and sketch its diameters. Connect the ends of the diameters by horizontal and vertical lines to form a second square. Divide each side of the second square into four equal parts. Draw oblique lines connecting the upper angle of the first square with the first and third points of division in the upper side of the second square. Draw oblique lines from these points to the centre of the square. Repeat this in each of the other three angles of the first square. [13]

4. Sketch a square (each side to be not less than 4 in. in length). Sketch its diagonals and diameters. Join the ends of the diameters forming an inner square. On each side of the outer square sketch a semicircle passing through the centre of the square. On each side of the inner square sketch a semicircle curving outward. Bisect the semi-diameters of the inner square. Sketch a circle through these points of bisection. Line in all the curves. [13]

#### WRITING.

Examiners—J. E. Hodgson, M.A.; M. J. Kelly, M.D., LL.B.

1. Write the following stanza once :—  
The dew was falling fast, the stars began to blink ;  
I heard a voice ; it said, " Drink, pretty creature, drink !"  
And, looking o'er the hedge, before me I espied  
A snow-white mountain lamb with a maiden  
at its side. [12]

2. Write each of the following three times:—

January 16th, 1890; XLV., sch, mld, ooo, ddd, unk, W, S. [8]

#### ENGLISH GRAMMAR.

NOTE.—Candidates will take the first six questions and either No. 7 or 8. A maxi-

mum of five marks may be added for neatness.

1. Show, by examples, that each of the following words may be used as different parts of speech. Tell the part of speech in each example: only, that, above, which, summer. [15]

2. Write the third person singular of each tense of the verb "strive" in the indicative active voice (or conjugation).

Where there are different forms of the same tense, give the force of each form. [15]

3 (a) "The *most ancient* of profane historians *has told* us that the Scythians of his time were a very warlike people, and *that* they elevated an old scimitar upon a platform as a symbol of Mars; for *to Mars alone*, I believe, they built altars and offered sacrifices."

(b) "The night is *long that* never finds the day."

State the part of speech and give the grammatical relation of each of the italicized expressions in the above. [18]

4. Re-write the following sentences, making such corrections as you think necessary:

(a) Who should I meet the other day but my old friend?

(b) A variety of pleasing objects charm the eye.

(c) Are either of those pens yours?

(d) The secretary and the treasurer was present.

(e) Will I be late at school?

(f) Now therefore come thou, let us make a covenant, thou and I.

(g) His belly not his brains this impulse give. [14]

5. Illustrate, by examples, the different ways in which the feminine is distinguished from the masculine in nouns and in pronouns. [9]

6. (a) Distinguish between the case and the relation of a noun.

(b) How is the possessive case indicated?

(c) How do we determine whether or not a noun is in the objective case? [9]

7. Appalled by the greatness and *nearness* of the crisis, distrusting his captains, dreading *every* approaching soldier, dreading *to be left alone*, he sat gloomily *in* his tent, haunted

by the furies of the prisoners suffocated in the Black Hole.

(a) Analyze the above sentence.

(b) Give the relations of the italicized portions. [20]

8. Breezes of the South !  
Who toss the golden and the flame-like  
flowers,  
And pass the prairie-hawk that, *poised* on  
high,  
Flaps his broad wings, yet moves not, ye  
have played

Among the pines of Mexico and vines  
Of Texas, and have crisped the limpid brooks  
That from the fountains of Sonora glide  
Into the calm Pacific, have ye fanned  
A nobler or a lovelier scene?

(a) Write out the subordinate clauses in the above, and state their relations.

(b) Parse the words printed in italics. [20]

#### COMPOSITION.

NOTE —Candidates will take the first four questions, and either No. 5 or 6. A maximum of five marks may be allowed for neatness.

1. Combine the following (a) into a compound, and (b) into a complex sentence :

(a) The snow is still a foot or two deep in the woods. The ox-sled is taken out to make a road to the sugar camp. The campaign begins.

(b) The sap-buckets are brought down. The sap-buckets are set out on the south side of the house. The sap-buckets are scalded. The sap-buckets have been stored in the garret over the wood house. [22]

2. Change (a) from the direct to the oblique, and (b) from the oblique to the direct form of narration :

(a) "The best hearts," Trim, "are ever the bravest," replied my uncle Toby.

(b) My uncle Toby cried, interrupted the Corporal, that a soldier was no more exempt from saying a foolish thing than a man of letters. [14]

3. Rearrange the following so as to express the sense intended :

Strayed or stolen a bay colt with a white star on its forehead two years old and with two white hind feet with a long dark tail.

One of our city sports shot twenty brace of partridges along with a friend last week. [14]

4. In the following passage substitute other and appropriate words for those printed in italics :

"It was maddening to see their *grand project thwarted* by a few French and Indians *ensconced in a paltry redoubt*, but they were *forced to digest the affront as best they might*. *Meanwhile, crouched* behind trees and logs, they *beset* the fort, *harassing its defenders day and night* with a *spattering* fire and a *constant menace* of attack." [20]

5. Express in your own words the substance of one of the following lessons : "The Battle of Bannockburn"; "Dora." [30]

6. Write a letter to a friend, describing (a) Your schoolhouse, (b) The equipment of the schoolroom, (c) The appearance of the school grounds, (d) The work you do and the games you play. [30]

## CONTEMPORARY LITERATURE

A GREAT variety of contents appears in the *Popular Science Monthly* for this month. A General writes plainly about "Pensions for All." Herr Exner treats of the "Origin of Some General Errors." Prof. McAnally deals with "Industrial Family Names"; while others discuss "The Art of Prolonging Life," "The Old and the New Phrenology," "The Home of the Ferns," etc.

THE "Wimbledon Number" of *The Dominion Illustrated* was an excellent one, and

shows the interest taken in militia affairs. The numbers of the *Illustrated* for September 7th and 14th are both interesting. The object of this weekly is to illustrate and give information about the resources, scenery and national life of Canada. Such an undertaking is worthy of all encouragement and success.

ANY magazine for young people that numbers Margaret Sidney and Susan Coolidge among those who tell stories for its readers

is sure of being popular. Both these authors are represented in the September *Wide-Awake*. Mrs. Henry Sandham writes a sketch of a Canadian experience called "A Voyage on a Raft," for the same number, which contains as well several other good contributions and the usual departments.

*The Bookbuyer*, published by Charles Scribner's Sons is one of the most readable magazines on one's table. The portraits and biographies of living authors form a leading feature, and another is the interesting newsletters from London, Paris, Boston, and other literary centres.

*The Classical Review*. The July number of this magazine is replete with classical lore. Departments are devoted to "Correspondence," "Notes," and "Archæology." Among the articles are "Cicero de Officiis," by R. Sabbadini, and "The Ion of Euripides in English Verse," the former written by Mr. H. A. Holden, and the latter by A. Sidgwick, M.A.

*Education* for September is No. 1 of Volume X. of that excellent magazine. The chief contributors are teachers who know well of what they write. A stimulating article is that entitled "Spots of Weakness in Training," in which Adeline A. Knight shows that there is no royal road to a strong hold upon pupils. We all—our lives long—are secretly or openly influenced by those who sacrifice themselves for us." Other articles, Editorials, Foreign Notes, etc., complete the contents.

DR. COOKE'S address, entitled "Harvard of To-day," delivered at the commencement dinner at Harvard this summer, is published in *Science* for September 13th. Dr. Cook has lectured at Harvard since 1849. "An Unknown Organ of Sense" deals with the recent discovery that the semicircular canals in the internal ear are the seat of sensation for certain motions of the body and the head. "Health Matters," and "Notes and News," two of the regular departments of *Science*, present a wide variety of scientific information.

*The Week*, now under the editorial management of "Seranus" (Mrs. Harrison), is

in its sixth year, and has long ago established a good claim to the hearty support of all Canadians who desire the success of a high-class literary journal among us. Among the contributors to the last issue are Mr. Mercer Adam, the Hon. John Macdonald and others.

THE first article in *Scribner's* for September is "Alexandre Dumas," by Andrew Lang; and the last, "Three Dream Heroines," by Justin McCarthy. The reader may well infer from these that this is a good number. A clever short story by T. R. Sullivan, entitled "Out of New England Granite," and instalments of two serials, articles on "Safety in Railroad Travel" and "The Small Arms of European Armies," and "The Place of the Fitting-School in American Education," and three or four poems, form with these the principal contents of the magazine.

#### BOOKS RECEIVED.

"McGill University, Faculty of Medicine, Annual Calendar."

"Reports of the Public School Inspectors of North and South Hastings, 1888."

1. *Elementary Theological Class-Books*. An Introduction to the Creeds. By the Rev. G. F. Maclear, D.D.

2. *A Graduated Course of Natural Science*. Part I. By Benjamin Loewy, F.R.A.S. (London: Macmillan & Co.)

1. *A Reader in Botany*. By J. H. Newell.

2. *Anglo-Saxon Poems*—Elene, Judith, Athelstan, Byrhtnoth. Translated by Prof. Garnett, of the University of Virginia.

3. *Cynewulf's Elene*. Edited by Prof. Kent, of the University of Tennessee. (Boston: Ginn & Co.)

*The Life and Times of the Rt. Hon. John Bright*. By William Robertson. (London and New York: Cassell & Co.)—Few among the statesmen and public men of our time deserve better at the hands of the biographer than John Bright; few there are whose life is more valuable to the student of the history of our time, and it is in all respects satisfactory to find so good a life written as the one mentioned above. Mr. Robertson has performed his task well, and has treated his subject in an able and sympathetic manner.

Many extracts are given from Mr. Bright's speeches, and the chief events of his life are graphically portrayed.

*English Literature for 1890*—for University and Departmental Examinations:

*Selections from Byron and Addison.* With Biographical and Critical Notices of the Writers, Notes, etc. By H. I. Strang, B.A., and A. J. Moore, B.A., of Goderich High School. (Toronto: The Copp, Clark Co.)—We are glad to hear that the first edition of this useful text-book is already exhausted and a second edition issued. Our readers will please note that Mr. Moore's name should have appeared in our notice of last month as one of the editors.

*John Lothrop Motley.* A Memoir. By Oliver Wendell Holmes. (Boston: Houghton, Mifflin & Co.)—The biographical sketch prepared by Dr. Holmes at the request of the Massachusetts Historical Society was afterwards expanded into this charming little book, issued first in 1878, and since re-issued several times. All who have read Mr. Motley's historical works will do well to peruse this story of his life. No one could write it better than Oliver Wendell Holmes.

1. *Practical Latin Composition.* By William C. Collar, A.M.

2. *The Irregular Verbs of Attic Prose.* By Prof. Hogue, of the University of Mississippi.

3. *The College Series of Greek Authors*—Plato, Protagoras. By Principal James A. Towle, B.A.

4. *Euripides, Iphigenia.* By Isaac Flagg. \$1.50. (Boston and London: Ginn & Co.)—The enterprise shown by this firm in publishing such books as those mentioned above is worthy of high praise. The works issued from the press of Messrs. Ginn & Co. are marked by excellence, both as regards material and execution. (1) Mr. Collar's work is the most sensible book on Latin Composition we have seen. It proceeds on the principle that writing and reading Latin should not be separated in early lessons. (2) The student of Greek will be grateful to the author of this book, and many will doubtless avail themselves of the aid afforded by

it. The forms, prominent meanings, and important compounds of the verbs are given, together with lists of related words and English derivatives. (3) In regard to the two volumes of "The College Series of Greek Authors" we have pleasure in emphasizing the favourable estimate previously expressed of this series.

*The Girls' Own Outdoor Book.* Edited by Charles Peters. (London: The Religious Tract Society.)—The aim of this volume—to give practical help to girls on matters relating to outdoor occupation and recreation—is a good one. Such a book, we think, might well find a place on any girl's bookshelf. A large part of the contents has already appeared in the favourite girls' magazine—"The Girls' Own"—it is none the worse for that. "Social Amusements," "Travelling," "Summer Holidays," "Photography," are among the titles of the chapters—eighteen in number altogether. We are glad to see that one chapter bears the name "Work for the Master." Numerous attractive illustrations adorn the book.

*Les Chansons De Béranger.* Par Docteur Lambert Sauveur. (New York: F. W. Christern and W. R. Jenkins. Boston: Carl Schoenhof.)—Dr. Sauveur's high reputation and experience in preparing educational works render extended comment on this book unnecessary. The Notes are, we need not say, valuable, while press-work, binding, etc., are all that could be desired.

*The Structure of English Prose.* By Prof. McElroy, of the University of Pennsylvania. (New York: A. C. Armstrong & Son. 90c.)—The present is the third American edition of a work which has already become a favourite text-book of composition and rhetoric. It is clear, thorough and systematically arranged, and although the contents are condensed, much room is devoted to illustrations and citations; altogether, it is a practical work and likely to be very useful to teachers and students.

*The British Empire.* By Dr. Geffcken. Translated by S. J. MacMullan, M.A. (London: Sampson Low, Marston, Searle, & Rivington.)—It occurs to one in reading this



handsome volume that perhaps there is some danger of the Germans presently understanding us scientifically better than we understand ourselves. The author presents, in an essay of some hundred pages or more, a mass of correct and interesting information, with some advice, about the long story of the British Empire. The remaining two hundred pages or so are devoted to essays on Prince Albert, Lord Palmerston, Lord Beaconsfield, Mr. Gladstone and Reform of the House of Lords. It is difficult in a brief review to give an adequate idea of the value of this book. We commend it to our readers, especially to those who have classes in history and geography. Dr. Geffcken has evidently seen and thought much and wisely of our Empire.

*A Lecture on the Teaching of Composition.* By A. Sidgwick, M.A. (London: Rivingtons.)—Mr. Sidgwick taught classical composition for twenty-four years, and for this and other reasons is well-qualified to speak on the subject. Teachers will find valuable hints in this little book.

*An Historical Geography of the British Colonies.* Vol. I. By C. P. Lucas, B.A. (Oxford: At the Clarendon Press.)—Our readers will probably remember the "Introduction to an Historical Geography of the British Colonies," by the same author, published some time since and very well received. The larger work, of which this is the first volume, will be, we think, the authority on this subject. Mr. Lucas has

availed himself of special local knowledge, and, it would seem, almost everything else, which was likely to aid him, and the result is certainly very satisfactory. In this volume there are three sections: I.—The European Dependencies; II.—The Minor Asiatic Dependencies; III.—The Dependencies in the Indian Ocean.

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