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The Canada School Journal.

AND WEEKLY REVIEW.

VOL. X. TORONTO, OCT. 1, 1885. No 35.

Table of Contents.

The Canada School Journal and Weekly Review.

An Educational Journal devoted to the advancement of Literature, Science, and the teaching profession in Canada.

—o—TERMS.—o—

THE SUBSCRIPTION price for THE CANADA SCHOOL JOURNAL is $2.00 per annum, *strictly in advance.*

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The World.

Once more the war cloud lowers on the horizon of Europe. The Eastern question is re-opened. At the close of the last war between Russia and Turkey all the country since known as Roumelia was made a part of Bulgaria. This arrangement, which was forced upon Turkey by Russia, was, mainly at the instance and under the pressure of Lord Beaconsfield, broken up, and Eastern Roumelia was constituted a separate State under the suzerainty of Turkey. The people of Roumelia have now, with singular suddenness and unanimity, renounced Turkish supremacy, and annexed their State to Bulgaria. Prince Alexander of Bulgaria has as promptly accepted the trust, and the combined States are preparing, with great enthusiasm, to defend themselves if attacked. It was at first suspected that Russia and Austria, for purposes of their own, had intrigued for this result, and would support the movement. But later advices represent Austria as deprecating the change and desiring peace. Russian officers in Bulgarian service are also said to be resigning, much to the disgust of Prince Alexander. The Porte has appealed to the Great Powers to maintain the treaty, and another great conference will probably be the result if Turkish action does not precipitate matters. Whether Turkey will attempt to assert her rights by force or wait the slow issue of a conference remains to be seen. She can hardly afford to be driven from the Balkans without a struggle. It seems almost a fatality that Lord Salisbury should find the house of cards which Lord Beaconsfield and he constructed falling to pieces about his ears within a few weeks after his accession to office.

History is being made and geography changed every month. The true teacher will keep an intelligent eye upon the great movements which are continually taking place amongst various nations of the world. Within the last week or two the state of parties in Great Britain has developed some new features of interest. The event whose importance, for the moment at least, overshadows all others, is Mr. Gladstone's manifesto. Our readers will no doubt, have seen the abstracts of it in the political papers. Just at the moment when many were predicting that the sun of the great statesman was going down under eclipse, he has electrified the nation with what may very probably prove the masterpiece of his political handiwork. Its chief characteristic is that it outlines the most radical reforms in the most conservative spirit. We need not take space to enumerate its points, but in declaring for free transfer of land, full land taxation, the abolition of primogeniture and entail, and in contemplating calmly church disestablishment as a possibility of the future, it clearly shows that the political eyesight of the veteran statesman has not waxed dim nor his mental force abated.

A movement is going on in still another quarter of the world which attracts less attention by reason of the obscurity of the place and the quietness with which the work is carried on, but which is, nevertheless, far from unimportant. We refer to the French aggressions in Madagascar. This island is blocked by a French fleet, whose admiral says he is trying "to starve out Madagascar." The object was pithily expressed by a deputy a few weeks ago. "We can make Madagascar play the *role* of a Hong Kong for the eastern coast of Africa" The task will not be an easy one, for not only will the climate fight against the French, but a million and a half of brave Hovas will not be easily subdued. The spirit in which they are likely to fight is shown by the words of their queen (Ranavalona II) at her coronation last year, and the manner in which they were received. With her hand upon the Bible, she said: "We ask you now, O people, to defend our just cause, for God gave this island of Madagascar to my ancestors and to yours It was left as an inheritance to us Malagasy, but the French will take it away by force, they say, therefore I declare unto you: I shall fulfil, my people, the share in the defence of the land which belongs to me as Queen. Though I am a woman, I have the heart of a man, and I stand up to lead you forth to prevent and oppose

those who seek to take our land. For God forbid, my people' that we should become the servants of foreigners." As to the effect, the Rev. J. Richardson writes:—"I never saw such a wild scene. Cannons, swords, spears, shields, rifles, and hundreds of thousands of throats gave forth the wild assent."

It has been observed that the death of Jumbo in the railway accident attracted much more attention than that of the man who shared his fate. Mr. R. W. Sawtell, of Woodstock, who was a witness of the killing of a brakeman the other day at Stratford, in coupling cars, writes to the *Globe* warmly denouncing the indifference of railway managers on the one hand and the legislatures on the other to the constant slaughter of brakemen in coupling cars. It is astonishing how callous we become to such fatalities when they are of frequent occurrence. Every newspaper and every humane man in the country ought to take up the case of these poor men and insist on the passage of laws compelling the use of automatic couplers on all cars of whatever description. If such couplers are not yet sufficiently perfected they soon would be under the operation of such a law.

The School.

We give this week the first of a series of papers on the Entrance Literature prescribed for next examination. We are making arrangements to secure for this department the services of a competent and scholarly annotator. We expect also to commence very soon a valuable set of papers upon the Literature of the High School course.

In our Practical Department will be found under the head of "School Work," a specimen of a mode of teaching multiplication which we commend to the attention of readers. We do not know to what extent the old mechanical system of "carrying" is still taught, without explanation, in the primary classes. It may be that the logical method given by the correspondent of the *Moderator* is the one now in common use. We hope so, for it is the only one which is consistent with intelligent work by pupils.

The cause of higher education for woman recently achieved a notable triumph in England. At the matriculation examination of the University of London, the honors list was headed by a lady, and of the thirty-five candidates who reached the prize grade eight were women. Of the 1,100 who took the examinations only 150 were women, but of these 100 were successful as against 515 of the men. Of this 100, thirty were placed in the honors division, which numbered 136. The university is only an examining and degree-conferring body, but the examinations are exceptionally rigid and are open to candidates from all parts of the country.

It is not universally true that people in these days read nothing but fiction. The library of the Friends in Germantown, Philadelphia, permits no work of fiction upon its shelves, yet it loans nearly 15,000 volumes a year, and about 25,000 people go annually to read in its rooms.

Arthur Helps says, in his "Hints for Essays," that "Mankind is always in extremes." There is reason to think that the doctrine is doubly true of educators or rather of many of them who aspire to speak at educational gatherings and write for Educational journals. It would be easy to fill columns with sentences and passages in which these persons say what they cannot mean, if they have any "sense of the balance or fitness of things." For example, one learned professor tells us in effect that all books on Grammar should be swept out of existence. Does he mean that there is no Science of Language, or that all who have attempted to develop such a science have utterly failed? "All this talk about methods," says another, "is of no value whatever. Everything depends upon the teacher himself." "The methods of instruction hitherto in vogue," says another, "have served only to stultify and paralyze, instead of developing the child's mind." Of course, literally understood, both the above extremes of statement are sheer nonsense. When will speakers and writers on Educational topics learn to eschew what some one has fittingly dubbed "the pedagogical superlative," and come down to simple truth?

In another column will be found a spicy article from our New York namesake on "Uniformity of Text-Books." We suppose it is educational heresy, but we confess, nevertheless, to a strong sympathy with the views so racily set forth. There are, of course, arguments of some weight on the side of uniformity besides the economical one, which alone is noticed by our contemporary. But we doubt the conclusiveness of any or all of them. It is even open to question whether in Ontario parents do not pay more in the course of a few years for school books than they would under a system of free choice and unrestricted competition. Freedom is, in the end, always cheaper as well as healthier than absolutism. The one-book system leads almost inevitably not only to favoritism and monopoly, but to even worse abuses. The temptations it presents seem too great for ordinary human virtue. It tempts authors and publishers to tempt Superintendents and Ministers of Education. It tempts examiners to become authors, and to make examinations a means of booming text-books. When to these evils are added those of enterprise repressed, and originality in author and teacher discouraged, and when one of the first effects is to set in motion a perpetual series of vexations and uncalled-for changes of text-books, the one-book system proves itself one of the costliest, in addition to being one of the worst in every other respect.

In connection with the article from the *N. Y. School Journal*, let the companion article, in the shape of the *Mail's* summary of Max Muller's views on examinations, be carefully read. Some of the most plausible arguments in favor of alleged uniformity are drawn from their supposed necessity under a system of examinations. With all due respect to so high authority, we do not think the evils the great philologist deplores are a necessary, though they are undoubtedly a too common effect of examinations. Everything depends upon the kind and end of the examination. As a means of enabling both teacher and pupil to test the extent and thoroughness of the latter's progress, it would be hard to find a substitute for the written examination.

The time spent in answering a set of properly prepared questions is most profitable in its educative effect. The student is called on to summon all his energies and concentrate them upon the work in hand. If examinations were strictly upon subjects rather than text-books, the root of the mischief would be reached. Such papers demand much skill in preparation and much wisdom in estimating results. But they are surely possible, and being so, they render such modes of teaching as the *N. Y. School Journal* recommends not only possible but highly desirable. We venture to predict a great reaction at no distant day against the extremes to which both the examination and the uniformity crazes are being carried in our vaunted school systems.

Dr. Vincent says:—"If I wanted to make a blacksmith of a boy, I would first give him his college education. In this country, a man is never intended to be only a blacksmith—he is to be a citizen. There is not a subject in a college curriculum which a blacksmith, as an American citizen, does not need to study. We want citizens in this country who will not vote as designing men tell them—we want independent voters. The blacksmith is to be a husband and father, and a reliable and influential man everywhere. If all our artisans were educated, the prevalent ideas of the degrading tendency of trades and labor would quickly disappear."

These are golden words. There is no valid reason, apart from the question of ways and means, why the artisan and the farmer should not be as well educated as the lawyer and the doctor. If in that case the lawyer and the doctor would find their occupations, in part, gone, so much the better. Half of them might become artizans and farmers with profit to themselves and others. It should never be forgotten, and we trust Canadian teachers will never forget that the highest and chief end of all education is to make intelligent, useful, broadminded citizens; to make, in a word, men and women of the right stamp. Apart from religion, education adds more than anything else to the means of human happiness. It lifts the possessor to a higher plane of thought and feeling, opens up before him avenues to keen and elevated enjoyment which are closed to the uncultivated mind and, better still, enlarges tenfold his power for good. With the multiplication of labor-saving inventions and the gradual shortening of the hours of daily toil, the time is coming when almost every one who works with the hands can, if so disposed, redeem at least an hour or two of every day for more intellectual pursuits. There is altogether too much tendency in these ultra-practical days to regard education as a means to an end, instead of its own highest end.

Dr. Dawson, President of McGill University, has been elected President of the British Association for the Advancement of Science, for the ensuing year. This appointment is an honor to Canada and a well-merited compliment to the discoverer of the *Eozoon Canadensis*, the oldest known form of animal life. Probably few men now living have done more for science in the way both of writing and of painstaking investigation, than Dr. Dawson. He too, is one of the number, unhappily too small, of modern scientific explorers, who has not suffered his delight in tracing the operations of natural law to blind him to the necessity for a great Law-giver. In holding fast his faith in the unseen and the supernatural, he has but maintained, amidst the whirls and gyrations of enthusiasts, the rational position towards which the sober second thought of modern science is gradually tending. Christian philosophy bids fair to live and flourish long after all the little systems of scientific skepticism have had their day and ceased to be.

The visit of Canan Farrar to Canada is one of the events of the season. Crowded houses greeted the eloquent preacher and lecturer in Montreal and Toronto. He paid his audience in the latter city the high compliment of giving them the first presentation of his lecture on Browning, a paper which, from the nature of the subject, is adapted only for intellectual and cultured audiences and which he had intended delivering only in Boston and New York. Canon Farrar is a noble modern representative of broad and enlightened Christianity. The spirit which everywhere infuses itself into his speech and writing is in striking contrast with that which must have contracted the minds and hearts of those episcopal clergymen who refused to hear him in Montreal because he preached in a Presbyterian chapel.

We do not often criticise other journals but we have often wondered and regretted that the *Week*, or its leading writer, does not pay some attention to educational questions. As our leading weekly, and ablest exponent of matured thought on politics and legislation, it would naturally be expected to have pronounced opinions on such questions as those of cast-iron uniformity in text-books and departmental copyrighting. Surely these and other educational topics are worthy of discussion in its columns. We should like to hear its opinion of the policy which makes the Superintendent of Education a political partisan.

A decision of interest to trustees and teachers was given at the last sitting of the Division Court at Norwich. Mr. A. S. Brown had been engaged as teacher for a year, from Aug. 18, 1884, subject to the right of either party to terminate the agreement on a month's notice. Notice of termination was given by the Trustees on the first of June, 1885. Mr. Brown accepted the notice, but claimed payment for a portion of the holidays proportionate to the length of time he had taught. To this he was clearly entitled under the Act, but for some reason the Trustees saw fit to refuse. Mr. Brown brought a suit and recovered not only the amount claimed for holidays, $51.37, but also a further sum of $2.45 per day for teaching days from June 1st, the date of notice, until his claim was settled.

The following passage from a report of proceedings at the public meeting at the opening of a new School House in Omemee is significant and a part of it hard to understand:

"Col. Deacon was enthusiastically received by an audience who were thinking of Batoche and Fish Creek. He made a most emphatic protest against the Kaleidoscopic state of the Ed. Department, and voiced the popular feeling on school book changes. Dr. McLellan then made his bow and apolo-

gized for the absence of the Minister of Education, Hon. G. W. Ross. In reply to Col. Deacon he said that personally he was opposed to changes in programme and regulations, as was also Mr. Ross. However the new regulations were of the Medo-Persian character."

We can well conceive how a thoughtful and experienced Educator, like Dr. McLellan, should be opposed to the unnecessary and retrogressive changes in programme and regulations. But how it can be said that Mr. Ross is personally opposed to changes for the most of which he is *personally* responsible, we fail to see. Will somebody explain?

Some of the recommendations of the deputation from the Agricultural College Graduates' Association, which recently waited upon Hon. A. M. Ross. Commissioner of Agriculture, are worthy of serious consideration. To remove it from the arena of politics is certainly most desirable, whether the plan of putting it under the control of an Election Board would be found practicable or not. An Advisory Board of practical farmers to aid the Commissioner in its management, should be of great service and seems perfectly feasible. A large place should be given to Agricultural Science in the High School programme, though we should doubt the expediency of converting a part of those schools into semi-Agricultural Colleges. It is encouraging to see that the importance of scientific knowledge in farming is coming to be recognized more clearly year by year. Ontario is above everything an agricultural country, and the schools should foster agricultural knowledge and taste.

We have been requested to publish a corrected list of those who were successful in securing First Class Certificates at the recent examinations. We cannot do so, as the Department will not furnish corrected lists for the press. The deficiencies in our former list are caused, no doubt, by changes that have since been made by the Department. Any individual affected can get information by writing to the Department.

Special.

ELEMENTARY CHEMISTRY.

CHAPTER III.—(*Continued.*)

70. Whence comes the Hydrogen? The hydrogen must either come from the zinc, the water, or the sulphuric acid. It cannot come from the zinc for that is an element; nor can it come from the water for that is not decomposed by zinc alone and besides it remains in the bottle unchanged when the experiment is finished. It must, therefore, come from the sulphuric acid. Now a molecule of sulphuric acid is represented by the formula, H_2SO_4. There remains in the flask, when all the hydrogen has come off, water and zinc sulphate, and the formula of the latter is $ZnSO_4$. It appears, therefore, that one atom of zinc has *replaced* two atoms of hydrogen to form a molecule of zinc sulphate. The molecule of zinc, like the molecule of mercury, is supposed to contain only one atom; hence the reaction is expressed by the following equation:—

$$Zn + H_2SO_4 = ZnSO_4 + H_2$$

Zinc. Sulphuric acid. Zinc Sulphate. Hydrogen.

71. Use of the Water. In the preceding equation no account has been taken of the water which was added. The water remains unchanged in the flask after the experiment is finished. Had no water been present, the zinc sulphate formed would have coated the surface of the metal, and thus have protected it from further action of the acid.

PROPERTIES OF HYDROGEN.

72. Combustibility.

Exp. 4.—Fill a test-tube with the gas, and observe that it is colorless, and that it has a disagreeable smell. This is almost always the case with hydrogen prepared by this method. The smell is caused by the presence of minute quantities of compounds of hydrogen with sulphur, arsenic, and carbon; but the gas prepared with pure zinc and pure sulphuric acid is quite free from smell. Take a bottle of hydrogen, hold its mouth downwards, and apply a lighted taper to its mouth; the gas takes fire, and burns with a pale, almost invisible flame. Pass the taper further up into the jar; it is extinguished. Draw it out slowly; it is rekindled. Now turn the mouth of the bottle upwards; the flame will pass quickly down the jar, and the gas will be found to have entirely disappeared.

Hence we see that *Hydrogen is a combustible gas, but does not support combustion in the ordinary sense of the term.*

73 Levity.

Exp. 5.—Take two bottles of hydrogen, place one on the table, mouth upwards, and hold the other in the left hand, mouth downwards. After about ten seconds, apply the burning taper to the bottle in the left hand; the hydrogen takes fire, with a slight explosion, and burns, showing that the gas still remains in the bottle. Lift the other bottle from the table, invert it, and thrust the taper into it, the taper burns as in the outer air, showing that the gas has escaped.

Exp. 6.—Take an empty bottle and hold it mouth downwards in the left hand. Take a bottle of hydrogen in the right hand, and bring its mouth close to the edge of the first bottle, slowly depressing the closed end till its mouth is brought under the empty bottle. Place the bottle in the left hand on the table, mouth downwards. Thrust a burning taper into the mouth of the bottle in the right hand; the gas will be found to have escaped. Now raise the other bottle and bring the burning taper to its mouth; the gas will take fire with a slight explosion, showing that the hydrogen has ascended, and displaced the air in the bottle just as it displaces the water in filling a bottle at the pneumatic trough.

Hence we see that *Hydrogen is much lighter than air.*

74. Displacement.

Exp. 7.—Owing to the lightness of the hydrogen, it may be collected by *upward displacement.* Hold a bottle mouth downwards, and put the delivery tube in it so that it may reach nearly to the bottom. In a short time the gas will have displaced the heavier air, and the bottle will be found full of hydrogen. To ascertain when the bottle is full, hold a piece of smoking paper under it; the smoke readily ascends through the air, but not through the lighter hydrogen.

Exp. 8.—HYDROGEN SOAP-BUBBLES. The lightness of hydrogen may also be shown as follows: Cut a little castile-

soap into thin shavings, and dissolve it in rain-water, making a saturated solution. To two volumes of this solution add one volume of glycerine. Attach to the delivery-tube of the hydrogen flask, by a piece of rubber tubing, the stem of a tobacco pipe. Pour some of the soap-solution into a saucer, dip the bowl of the pipe into it, and let the gas blow a bubble. While the bubble is small, turn the mouth of the pipe upwards. The bubble, having attained a diameter of several inches, will break away, or else may be easily detached by a sudden movement of the pipe downwards. It will then rapidly rise.

75. *Explosive Mixture of Hydrogen and Air.*

Exp. 9.—Take a soda-water bottle and fit it to a perforated cork without a tube, or with only a quill, so that, if it flies to the ceiling and falls, it will do no harm. Place some granulated zinc in it, pour in some cold dilute sulphuric acid (about 1 of acid to 8 of water), and insert the cork, but not too tightly. Hold a lighted taper to the orifice, and in a short time a loud explosion will occur. Allow sufficient time to elapse so that the air may be expelled. No explosion occurs, but the gas burns quietly at the orifice.

Exp. 10.—Take a wide-mouthed bottle, and bend a glass tube in the form of a siphon, so that the shorter arm may be a little longer than the bottle. Support the bottle, mouth downwards, on one of the rings of the retort stand. Place the shorter arm in the bottle, the longer arm extending upwards and tied to the retort-stand. Cover the mouth of the bottle with a piece of brown paper gummed on to the glass, the siphon-tube passing through it. Connect the longer arm by rubber-tubing with the generating flask, and fill the bottle by upward displacement. Remove the rubber tubing, and the hydrogen being lighter than air, will be siphoned upwards, just as water is siphoned downwards. Apply a light to the end of the longer arm, and hydrogen is seen to burn with its usual, non-luminous flame. After a short time, however, this flame flickers, emits a musical note, at first shrill, but gradually deepens to a bass sound, until after a time distinct beats are heard, and at last, when the exact proportions between the hydrogen and the air, which enters through the pores of the paper, have been reached, the flame is seen to pass down the tube, enter the bottle, and the whole mass unites with a sudden and violent explosion, but quite harmless if the mouth of the bottle is sufficiently wide. Explosions are only dangerous when the gases are so confined that when expanded by heat they cannot easily get out. Hence bottles should be wide-mouthed, and thin glass vessels should not be used.

76. Precautions.

From the preceding experiments we see that no light should ever be brought in contact with the contents of the bottle in which hydrogen is generated, nor with any large quantity of the gas, until its non-explosive character has been demonstrated. This may be done by bringing the delivery-tube within the mouth of the test-tube. We have seen that hydrogen can be poured upwards, therefore, the tube will soon fill with the gas. After about ten seconds, remove it, *still holding it mouth* downwards, and apply a light to its mouth. If the hydrogen burns tranquilly at the mouth of the tube, the gas may be considered pure, but if it explodes with a whistling pop, further time must be allowed.

77. Cause of Explosions.

The explosion of the mixture of hydrogen and air is due to the sudden expansion caused by the heat generated in the combination of the hydrogen with the oxygen through the mixture. After the explosion of the mixture of hydrogen and air (oxygen and nitrogen), the substances present are steam and nitrogen, which are expanded by the heat developed in the combination to a volume far greater than the vessel can contain, so that a portion of the gas and vapor issues very suddenly into the air around, the collision with which produces the report.

78. Heat of Combustion.

Exp. 11.—Take a test-tube 6 in. by 1 in., fit it with a cork through which pass two tubes bent at right-angles, one of them reaching nearly to the bottom of the tube, the other just passing through the cork. Twist a short piece of copper-wire into a spiral and put it in the bottom of the tube, and nearly fill the tube with pumice stone, moistened with sulphuric acid, which readily absorbes moisture, and will thoroughly dry the gas. Attach the longer tube to the generating flask by means of a cork, and to the other tube attach a small glass tube, about 20 centimetres long, drawn out so as to form a rather fine jet, and supported in vertical position. If the hydrogen is not coming off with sufficient rapidity, add a little sulphuric acid, and before applying a light to the jet, ascertain that the hydrogen is not mixed with air, kindle the gas and note that the flame at first is of a pale bluish color, but soon becomes a bright golden, owing to the sodium in the glass. Twist a small piece of thin sheet tin into a funnel and place it over the jet; the flame becomes nearly colorless. Hold a fine platinium wire in it; the wire becomes nearly white hot and emits much light. Hold in it a small piece of caustic lime or chalk, with a fine point or edge; it soon produces a brilliant white light.

79. Product of Combustion.

Exp. 12.—Invert over the burning jet a large dry, wide-mouthed bottle, the inner surface is quickly bedewed with moisture, and presently drops of liquid trickle down the sides *and collect at the shoulder. When some drops of the liquid* have been collected, test it with blue and reddened litmus paper; it is neutral, that is, it has neither an acid nor an alkaline reaction. Throw a little bit of potassium upon it; the potassium bursts into flame. Water is the only neutral liquid on the surface of which potassium will burn. Now, since the drying-tube completely removes moisture from the unburnt gas, and the latter does not bedew a cold surface against which it may be allowed to impinge, the liquid we observe to be deposited from the flame must be a product of the combustion of hydrogen in air. It is from this property that hydrogen derives its name (Greek, *hudor*, water, and *gennao*, I gave rise to).

(To be Continued.)

EXAMINATIONS.

There is no more eminent authority on education than Professor Max Muller, the philologist. For besides having an experience of 35 years at Oxford he is quite familiar with the methods of teaching employed in the Continental schools and universities, being himself a graduate of Leipsic, and coming of what Carlyle called a dominie stock. Muller believes that even in England, with her splendid fountains of learning, there is a tendency towards a dead level of uniformity and shallowness, the existence of which he attributes to the examinations system. He contends that examinations are, in effect, lotteries. The examiner may discover what a candidate does not know, but he seldom finds out all he knows; and even if he succeeds in ascertaining all the lad knows, he can never find out how he knows it. The system is productive of a species of downright dishonesty in pupils as well as in teachers. Thus Muller tells of a candidate, who after giving most glibly the dates and the titles of the principal works of Cobbet, Gibbon, Burke, Adam Smith, and David Hume, was asked whether he had ever seen or read any of their writings, and was compelled to answer, No. "There are two kinds of knowledge," says this illustrious veteran, "the one that enters our very blood, the other which we carry about in our pockets." The scholar who is crammed for an examination has an abundance of the pocket learning, but it is a poor commodity, and never remains long in its owner's possession. The striving after omniscience is the bane of the modern school in England; and we may add that in Canada it is the curse. Muller says his experience as an examiner and as one who has been examined has taught him two things:—(1) All examinations are a means to ascertain how pupils have been taught; they ought never to be allowed to become the end for which pupils are taught; (2) Teaching with a view to examinations lowers the teacher in the eyes of his pupils; learning with a view to examinations is apt to produce confusion, ignorance, and a pretentiousness in itself dishonest. In this country, unfortunately, the principal aim of the system is to propagate the very evils which Muller is warning England against. With us the examination is the be-all and end-all of school life. Text-books, endowed with the imprimatur of the Department before they have been written, are compiled by favorites of the Minister by no means conspicuous either for learning or for ability to teach. A multitude of these are put in the hands of the pupil, and changed from time to time as the whims of the Minister or his political exigencies may dictate.

Muller says that modern education even in its simplest form is neither more nor less than placing, in a systematized form, on the shoulders of every generation the ever-increasing mass of knowledge, experience, custom and tradition that has been accumulated by former generations; hence the necessity for avoiding complicated methods and overlooked curricula. He would not dispense with examinations, but he would have England adopt the Continental system, in which not the mere result of the examination, but the report of the teachers on the pupil's work during the term carries the day. "I know," he adds, "that I shall be told that it would be impossible to trust the masters, and to be guided by their opinion, because they are interested parties. Now, first of all, there are far more honest men in the world than dishonest, and it does not answer to legislate as if all school masters were rogues. It is enough they should know that their reports would be scrutinized (by competent Government inspectors) to keep even the most reprobate of teachers from bearing false witness in favor of their pupils." Muller's complaint against the English system is a complete impeachment of ours; but with us reform is out of the question so long as the Department remains a political machine. —*Mail.*

Practical Department.

SCHOOL WORK.

The following is a specimen of the work done by a pupil in a class of 25, which Reporter heard recite in the fourth grade of Big Rapids' schools. All the pupils did similar work, and when called upon to explain the example, gave substantially the following:

"Multiply 89246 by 129. For convenience the multiplier is written under the multiplicand, units under units, tens under tens, hundreds under hundreds, etc. Beginning at the right, multiply each figure of the multiplicand by each significant figure of the multiplier successively, beginning with units. Thus 9 units times 89,246 equals 803,214 units. Thus 2 tens times 89,246 equals 178,492 tens, or 1,784,920 units. Thus 1 hundred times 89,246 equals 89,246 hundreds, or 892,460 tens, or 8,924,600 units. Adding the partial products the true product is 11,512,739.

ARTHUR BAKER.
Feb. 24, 1885."

[NOTE.—The above was written by this pupil at request of Reporter, and furnished immediately after the recitation. No correction or amendments have been made by the printer.]—*The Moderator.*

Mr. Alexander J. Ellis writes as follows to the *Academy* on "prim'er" or "pri'mer." To my *Speech in Song*, forming one of Messrs. Novello's "Music Primer," the circumstance of having heard several of their writers call them "Pri'mers," induced me to prefix a note: "Pronounce the word *Primer* to rhyme with *simmer*, and not with *rhymer*. It is an old English word, *liber primerarius*, and is not formed from the word to *prime*." As an A B C book, orginally containing short prayers for teaching to read, the pronunciation *prim'er* is given by Walker, Smart, Ogilvie (Cull), Hyde, Clarke, Webster, Worcester, Soule, and Wheeler, although in another sense, some dictionaries also *pri'mer*. Only Chambers gives both *prim'er* and *pri'mer* for the A B C book. For a type all printers say *long prim'er*, though I do not find this in dictionaries. A gentleman who said *pri'mer* wrote to me about the word lately, and said he had consulted a "Cambridge M.A.," on the subject, who asked "What else could *pri'mus* give but *prīmer*?" They do not teach English pronunciation at Cambridge, and so there is some excuse for this M.A. not knowing the usual pronunciation, of *prim'*, *prim'rose*, and *prim'itive*. Perhaps he said *crīme* and *cri'minal*, *ē'quity* and *inī'quity*, just as I was once approached for not saying *inimī'cāl* in an *amī'cable* conversation. The change of pronunciation of words having *ī*, when derived from both Latin and Anglo-Saxon, from the Italian long *i* sound to the present English dipthongal sound, took place during the fifteenth and sixteenth centuries in England, and at the same time for indigenous words in Germany and Holland. It has never taken place in Scandinavia, Italy, Spain, or France. See my *Early English Pronunciation* (part 1, pp. 270-97), for most of the history of the change; the end of it will be given in my *Existing Phonology of the English Dialects*, on which I am now at work, where the missing links of the change are shown to be still in existence. But, whenever Latin *ī* or Anglo-Saxon *i* is shortened in pronunciation the old sound is retained. Compare *chīld, chīldren* to *wīnd a windlass, wīld, wilderness, kīnder* to *kīnder, kīnd, kīndred*, (in all of which the *ī* is a modernism), and in names *Wīld-, Wich-, Whit-, Swīn-, Wīg-* where the *i* was originally a long vowel). As for our English pronunciation of Latin itself in this respect it is purely frightful in its inconsistency. We say *Sīc vōs nōn vōbis*, marking three perfectly unnecessary false quantities, and most English Latinists would make two more in continuing the line as *nīdificatis āves*. The late Prof. Hewitt Key in-

sisted that, though our diphthongal sound of long *i* in Latin was, of course, purely English (no other nation having ventured on this frightful pronunciation in Latin), yet it was justifiable as marking the quantity to English ears; and he himself pronounced *quis* (for *quibus*) to rhyme with *ice*. Yet I cannot recollect his saying *sic* as a rhyme to *pike*, though of course he said *sicut*, rhyming to *my cut*, which in both vowels would have been unintelligible to a Latin. It is hopeless to reform our English pronunciation of English, and absurd to attempt that reformation on the basis of the English mispronunciation of Latin; but there were hopes a few years ago of reforming the latter, and I endeavoured then to give its principles in my *Practical Hints on the Quantitative Pronunciation of Latin* (Macmillan). I am afraid, however, that the inertia of schools and "Cambridge M.A.'s," who only know *prī'mus* (rhyming to the cockney *Lime'us*), have rendered all such attempts abortive, while Greek pronunciation remains a still more horrible quagmire. I trust, however, that I have shown good ground for *prim'er* as an A B C book in the universal testimony of pronouncing dictionaries. *Prī'mer* is one who *primes*, as a gun was primed before central fire came in. And one must distinguish very carefully between a *prime* minister and a *prīm* minister, though both are ultimately *prīmus*.

"OH, SIT DOWN."

They were analyzing. The sentence under consideration was, "In Africa lives the gorilla." The pupil stood on one foot and held to a desk with one hand, and said, "This is a sentence, because it expresses a thought in words. *In* is the subject, because it names that of which something is thought. Africa is the pred——" "Oh, sit down," said the teacher. He sat down. It did not trouble him much. All he had to do was to let go of the desk and relax his muscles just a little more, and down he went. The teacher then called on some one who she kn. had more "back-bone." He stood up like a gentleman, and put out his words with a snap that showed he was wide-awake. He disposed of the sentence satisfactorily and "*beautifully.*" But what became of the boy who sat down. He simply *sat*. He sat as far *down* as possible. The back of his head touched the back of the desk behind him, and his feet reached so far under the desk in front of him that he amused himself and annoyed a sensitive girl who sat in front of him by kicking her feet.

"Did he discover his mistake in analysis?" No. The teacher did not tell him to. He was told to sit. "They that are sick need a physician.' This boy was sick. His case should have been diagnosed. His teacher should have felt his pulse, and looked at his tongue, any how. The boy who did not need to recite is the one that did the reciting. The teacher did not teach. We often say that a teacher must know the individual peculiarities of the pupils. Why must these peculiarities be known? That the individual may be taught. It is common to say, "Teach the pupils to think." "To think" does not mean to recite. If this boy had been told to "stand up" instead of to "sit down," it would have been better. It would have been still better for the teacher to have taken him in his crooked condition and questioned him in regard to the sentence until his activity of thought would have made him straighten up. It is the business of the teacher to take the pupil where he is and lead him on. When this boy said, "*In* is the subject," etc., the teacher should have asked, "What *is* a subject?" If the pupil does not know, tell him. He is then ready for this question: "*What* lives in Africa?" He now has something to think about. If he answers the question he must *think*. He reads the sentence, and *judges* what word names the thing that lives in Africa. By this means he might get some good out of analysis. But given as a mere form—as a something to say, it is worse than nothing. Analysis, parsing, etc., are not the ends, but means to gain an end; viz., the cultivation of the power to think.—*Indiana School Journal.*

ENTRANCE LITERATURE.

I.—TOM BROWN.

BY THE EDITOR.

Page 1, Fourth Ontario Reader.

The full title of the volume from which this extract is taken is "Tom Brown at Rugby." Rugby is a market town in Warwickshire, England. It is pleasantly situated on the left bank of the Avon, and is fifteen miles north-east of the town of Warwick. Rugby derives its importance and celebrity wholly from its famous grammar-schools. Rugby school was founded in 1567 by Lawrence Sheriff, a London merchant, or shop-keeper as he would be called in England. The school buildings are arranged so as to form a quadrangle and are in the Elizabethan style, containing cloisters and an elegant detached chapel. They are of brick with stone facings. The grounds are extensive, a park of eleven acres being set apart for foot-ball, cricket and other games. The school has a permanent income from its endowment of about $25,000 a year, a considerable portion of which is expended in "exhibitions," or scholarships. The school has sometimes had in attendance as many as 500 pupils.

1st Paragraph. A picture of the boys at prayers, and what the picture suggested to Tom Brown, the hero of the story. This paragraph affords a good example of the merits and defects of the author's style. One of its chief merits is its great simplicity and directness. There is no attempt at ornament. The preponderance of words of one syllable and words of Anglo-Saxon origin is remarkable. It would be a good exercise for pupils to analyze one or more paragraphs with reference to these two characteristics, pointing out all words of Saxon and Latin derivation, and comparing the two with reference to the number of syllables. A marked blemish in the author's writings is the frequent want of precision, which is less noticeable, however, from the fact that his meaning can seldom be mistaken, the connection making it clear.

Like young bears: In what respect? If the reference is to the sorts and sizes, why compare with bears rather than any other animal? It is not easy to see the exact force of the simile.

With all their troubles to come.—Whose troubles?

When he was in the same position.—To whom does the *he* refer, and what position is meant by "the same"? This looseness of expression would be a grave blemish in less simple sentences. It is a serious defect here in so far as it leaves any room for doubt as to the author's meaning.

2nd. The bed-room described. *Huge, high,* &c. Notice the alliteration of which Mr. Hughes is fond and by means of which he often produces pleasant effects as we shall see. Notice the distinctness with which one scene, or incident, is brought out in this and each succeeding paragraph. This renders the style very clear as well as simple.

Fags.—This term is, happily, unknown in Canadian schools. "Fagging" is a most singular custom, and is peculiar to the great public schools of England,—Rugby, Eton, Harrow, Westminster, and Winchester. Its origin is uncertain, though it may not improbably have taken its rise as a substitute for the services of poor boys who were originally employed to work for the colleges. No boy below the bottom of the first one or two forms may fag, and no

one above the last four or five of the lowest forms may be fagged. The services the fag has to perform are of two kinds. For the whole of the upper boys he has to attend the games, standing behind the wickets to stop balls while his seniors are practising, retrieving balls which have been "skyed" out of the racket courts, &c. But worse than these are the tasks he has to do for the special master to whom he is assigned, such as preparing his breakfast, replenishing his fire, carrying his messages, &c., and also often bearing his punishment and abuse. A nice distinction made by the apologists of this custom, which is now almost obsolete, is that the services required of the fag are not *menial*, i.e., are only such as each boy would, in the absence of a fag, naturally perform for himself. Numerous arguments are still urged by some of the old time High School boys in support of fagging, such as that it corrects "bumptiousness," prevents "bullying," &c., but no such practice could be tolerated in a democratic country. The next paragraph presents in a touching manner the nervousness and timidity of the little new-comer, in the midst of so strange surroundings.

Staring. Why?

1st paragraph, 19th page. "*The light burned clear; the noise went on.*" Why are these particulars introduced? How do they affect the situation? There was no hush, no solemn shadow, nothing to help the faithful lad in his devotions, or to harmonize with them.

"*The tender child, and the strong man in agony.*" A beautiful and effective antithesis.

Heareth and *beareth.*—Old forms used in solemn discourse as being more reverent.

The next two or three paragraphs set forth in clear outline three marked types of boy character. The coarse-natured sneerer, lacking in reverence, in nice perception, and in tender feeling; Tom, of much nobler mould, full of good impulses and physically brave, but weakened by moral cowardice; and little Arthur, of still higher type, who bravely triumphs over constitutional timidity in the determination to do right.

Verger.—Properly, an official who used to carry the mace, the emblem of authority, before bishops, justices, magistrates, etc.; also, as here, an officer in a college or cathedral, having charge of the rooms, furniture, etc.

Big, brutal; slipper, shied, snivelling, shaver, &c.—Note how this sentence abounds in alliterations.

In the following paragraphs the effect of little Arthur's act upon the minds and consciences of other boys is well told. Arthur was conscious of no special merit. He simply did his duty, obeyed his conscience, and, no doubt, despised himself for any hesitation or tremor he felt. But, in contrast with the cowardice of other boys who had failed under the same trial, his act appears one of moral heroism. The effect of faithfulness to conscience is well brought out. Arthur's simple act wrought more powerfully on many natures than a dozen sermons could have done.

The lesson is a valuable one, and, in the hands of a good teacher, should be effective. Moral cowardice, such as that of Tom and the other boys, is the most common and the worst form of cowardice. Many a boy who would stand up bravely in an unmanly fight, or even face necessary pain and danger manfully, is made an abject coward by fear of ridicule. The same is equally true of thousands of grown up men and women. How many fear vastly more doing an odd or unusual thing which they know to be right, but liable to ridicule, than doing a mean or selfish one which they know to be wrong, but which "everybody does."

The struggle which goes on in Tom's mind, the victory he achieves, and the way in which he afterwards finds that he had exaggerated both the act and its effect, is told naturally, and bears its lesson also.

Arnold's manly piety, page 20.—The reference is to Dr. Arnold, of Rugby. It would occupy too much space to sketch fittingly the life of this noble man. Those who read the whole of Tom Brown, as pupils should be encouraged to do, will get a better conception of his character than any we could give here. For fourteen years (1828-1842) he was head master of Rugby. Few men, if any, have ever exerted a more powerful influence in changing methods of education and discipline in schools. He left a lasting impress, not only upon Rugby, but upon many other institutions in England and America. He was a most manly man, and a genuine Christian. He had the tact to make himself both loved and feared. He made it his aim to form and guide the public opinion of the school, and succeeded admirably in creating a high moral and religious tone, which made discipline easy and study and instruction delightful. "In the higher forms," says his biographer, "any attempt at further proof of an assertion was immediately checked. 'If you say so, that is quite enough; of course, I believe your word;' and there grew up in consequence a general feeling that it was a shame to tell Dr Arnold a lie—he always believes one." On one occasion, when he had been compelled to send away several boys, he said: "It is *not* necessary that this should be a school of 300, or 100, or of 50 boys, but it *is* necessary that it should be a school of Christian gentlemen."

Dr. Arnold was also an able and prolific writer, and took a prominent part in the discussion of all the great questions of the day, political and theological. His principal works are: five volumes of sermons, an edition of Thucydides, and a History of Rome, which was broken off at the end of the second Punic War by his sudden death in 1842, shortly after his acceptance of a Regius Professorship of Modern History at Oxford.

Matthew Arnold, one of the most distinguished writers on philosophical questions of the present day, and equally noted as a profound thinker, and as a master of the best style of English, is a son of Dr. Arnold. He is unhappily destitute of his father's strong Christian faith, much of his writing being of a sceptical character.

For Friday Afternoons.

LEARN A LITTLE EVERY DAY.

Little rills make wider streamlets,
Streamlets swell the rivers' flow;
Rivers join the mountain billows,
Onward, onward as they go!
Life is made of smallest fragments,
Shade and sunshine, work and play;
So we may with greatest profit,
Learn a little every day.

Tiny seeds make countless harvests,
Drops of rain compose the showers,
Seconds make the flying minutes,
And the minutes make the hours!
Let us hasten, then, and catch them
As they pass us on the way!
And with honest, true endeavor,
Learn a little every day.

Let us read some striking passage;
Cull a verse from every page;
Here a line and there a sentence,
'Gainst the lonely time of age!
At our work, or by the wayside,
While the sunshine's making hay;
Then we may by help of study,
Learn a little every day.

—*Our Country and Village Schools.*

THE HERITAGE.

BY JAMES RUSSELL LOWELL.

The Rich Man's Son inherits lands,
And piles of brick, and stone, and gold;
And he inherits soft, white hands,
And tender flesh that fears the cold—
Nor dares to wear a garment old;
A heritage, it seems to me,
One scarce would wish to hold in fee.
The Rich Man's Son inherits cares;
The bank may break—the factory burn,
A breath may burst his bubble shares;
And soft, white hands could hardly earn
A living that would serve his turn.
The Rich Man's Son inherits wants;
His stomach craves for dainty fare,
With sated heart, he hears the pants
Of toiling hands, with brown arms bare—
And wearies in his easy-chair.

What does the Poor Man's Son inherit?
Stout muscles, and a sinewy heart,
A hardy frame, a hardier spirit?
King of two hands, he does his part
In every useful toil and art;
A heritage, it seems to me,
A king might wish to hold in fee.
What doth the Poor Man's Son inherit?
Wishes o'erjoyed with humble things;
A rank adjudged by toil-worn merit,
Content from that employment springs
A heart that in his labor sings!
What doth the Poor Man's Son inherit?
A patience learnt by being poor;
Courage, if sorrow comes, to bear it;
A fellow-feeling that is sure
To make the Outcast bless his door.

Oh! Rich Man's Son, there is a toil
That with all others level stands;
Large charity doth never soil,
But only whiten soft white hands—
This is the best crop from thy lands.
A heritage, it seems to me,
Worth being rich to hold in fee.

* * * * *

Oh! Poor Man's Son, scorn not thy state;
There is worse weariness than thine,
In merely being rich and great;
Toil only gives the soul to shine,
And makes rest fragrant and benign;
Both, heirs to some six feet of sod,
Are equal in the earth at last;
Both children of the same great God;
Prove title to your heirship vast
By record of a well-spent past.
A heritage, it seems to me,
Well worth a life to hold in fee.

HOW STEEL PENS ARE MADE.

It was at first doubted that steel pens could be made in this country, but it was soon learned that the requisite skilled labor could be obtained for high wages, and the success of the pioneers led one manufacturer after another into the business, until now the field is pretty well supplied. Most of the work on these little instruments is done with the aid of very nice machinery worked by women and girls. The steel used is imported, because it is believed that the quality is more uniform than American steel. This uniformity of quality is necessary because of the very delicate tempering required in the manufacture of the pens. That mysterious quality of steel which gives different grades of elasticity and brittleness to different colors of steel is a quality that requires expert manipulation on the part of the workman who does the tempering. He must know the nature of the material with which he works, and with that knowledge must exercise a celerity and skill that seizes upon the proper instant to fasten the steel at a heat which insures the requisite quality.

First the steel is rolled into big sheets. This is cut into strips about three inches wide. These strips are annealed; that is, they are heated to a red heat and permitted to cool very gradually, so that the brittleness is all removed and the steel is soft enough to be easily worked. Then the strips are again rolled to the required thickness, or, rather, thinness, for the average steel pen is not thicker than a sheet of thin letter paper. Next the blank pen is cut out of the flat strip. On this the name of the maker or of the brand is stamped. The last is a very important factor. There are numbers that have come to be a valuable property to manufacturers. Many clerks say they cannot work to advantage unless they have particular styles of pens. The result is that by passing the word from one writer to another a market is soon created for a favorite style. Each steel pen has therefore to be stamped with sufficient reading matter to identify it thoroughly. The stamping is done with very nicely cut sharp dies that cut deep and clean, so that the reading matter will not be obliterated by the finishing process. Next the pen is moulded in a form which combines gracefulness with strength. The rounding enables the pen to hold the requisite ink, and to distribute it more gradually than could be done with a flat blade.

The little hole which is cut at the end of the slit serves to regulate the elasticity, and also facilitate the running of the ink. Then comes the process of hardening and tempering. The steel is heated to a cherry-red, and then plunged suddenly into some cool substance. This at once changes the quality of the metal from that of a soft, lead-like substance to a brittle, springy one. Then the temper of the steel must be drawn, for without this process it would be too brittle. The drawing consists of heating the pen until it reaches a certain color. The quality of the temper varies according to the color to which the steel is permitted to run. It is the quick eye for color and the quick hand to fasten it that constitutes the skill of the temperer of steel. When the steel is heated for tempering, it is bright. The first color that appears is a straw color. This changes rapidly to a blue. The elasticity of the metal varies with the color, and is fastened at any point by instant plunging in cold water.

The processes of slitting, polishing, pointing and finishing the pens are operations requiring dexterity, but by long practice the workmen and workwomen become very expert. There have been few changes of late years, and the process of manufacture is much the same that it was twenty years ago, and the prices are rather uniform, ranging from 75 cents to $4 a gross, according to the quality of the finish. The boxes sold almost universally contain a gross.

Fancies come and go in the styles of pens as in other fashions. One American maker alone turns out about 350 different patterns. Some are very odd, such as the stub pens, the draughtsman's pen, which makes two parallel lines at once; the mammoth pen, suited to use on rough paper; and the pen with the turned-up point, that writes a thick mark, yet runs smoothly over the paper. Then there are delicate pens for ladies, pens that make a fine hair line and yet can spring out to a heavy shading. Already the American steel pens have become famous abroad, and many are exported. Many pens are made of other metals besides steel. One kind is the German silver non-corrosive pen for red ink. Another is an imitation gold pen made of non-corrosive metal. There are pens of all colors and sizes for all trades and professions.—*New York Sun.*

Departmental Regulations.

REGULATIONS RESPECTING COUNTY MODEL SCHOOLS.

113. The County Board of Examiners for each county or group of counties shall set apart at least one Public School as a Model School for the professional training of Third Class Teachers, subject to the approval of the Education Department.

114. In order to entitle a Public School to be ranked and used for Model School purposes, the following conditions must be complied with :-

(1) The Principal must hold a First Class Provincial Certificate and have at least three years' experience as a Public School teacher.

(2) There must be at least three assistants holding Second Class Provincial Certificates.

(3) The equipment of the school must be equal to that required by the regulations for the fourth class of a Public School.

(4) A room for Model School purposes, in addition to the accommodation required for the Public School, must be provided, either in the same building or elsewhere.

(5) An assistant must be employed to relieve the Principal of Public School work during at least half the day while the Model School is in session.

115. The teachers in training shall attend regularly and punctually during the whole Model School term, and shall be subject to the discipline of the Principal, with an appeal, in case of dispute, to the Chairman of the County Board of Examiners.

116. The Principal shall report at the close of the session as to status of each teacher in training, as shown by the daily register.

117. The teachers in training shall be subjected to an examination in practical teaching at the close of the session, and also to a written examination on papers prepared by the Department.

118. In any county where there are two or more Model Schools the County Board shall distribute the students equally among the different schools, and in case where there may be a deficiency of room in any Model School to accommodate all the students, the County Board may give the preference of admission to such as have gained the highest number of marks at the non-professional examination.

119. Boards of Trustees may impose a fee of not more than five dollars on each teacher in training, and in addition thereto the County Board of Examiners may impose a fee not exceeding two dollars per student as an examination fee in lieu of the amount chargeable against the county for conducting the professional examination.

120. There shall be one session of thirteen weeks in each Model School during the year, beginning on the second Tuesday in September.

121. Each Model School shall be visited at least once during the session by the Departmental Inspector

Course of Study.

122 The course of Study in County Model Schools shall embrace the following :-

(1) *Principles of Education.*—School organization, management, discipline, methods of instruction, and practice in teaching.

(2) *Practical Teaching.*—Such practice in teaching as will cultivate correct methods of presenting subjects to a class and develope the art of school government.

(3) *Physiology and Hygiene.*—(*a*)—Laws of health, temperance, cleanliness, hours for study, rest, recreation, and sleep. (*b*)—Heating and ventilation of the school-room. (*c*)—Functions of the brain, eye, stomach, heart and lungs.

(4) *Music, Drawing and Calisthenics*, as prescribed for the Fourth Class in Public Schools.

(5) *Review of Non-Professional Work.*—A review of the principal subjects in the Public School curriculum, such as composition, grammar, arithmetic, and literature.

(6) *School Law.*—A knowledge of school law, so far as it relates to the duties of teachers and pupils.

Text Books.

123. Every teacher in training shall supply himself with the following text books:—1. A complete set of all the text books prescribed for use in the first four classes of a Public School. 2. Baldwin's Art of School Management. 3. Oscar Browning's Educational Theories.

Final Examination.

124. At the close of the term an examination shall be held by the County Board of Examiners, who shall also determine the minimum marks of each candidate, subject to an appeal to the Education Department. The results of this examination, together with the report of the Principal, will determine the final standing of each student. Although music and drill are optional, the Board of Examiners shall see that due credit is given for attainments in these subjects. The final examination shall be conducted on the following subjects :—

	Marks.
Education (theory)	100
Education (methods)	100
Practical Teaching	100
Physiology and Hygiene	100
School Law and Regulations	50
Drawing	50
Music (optional)	50
Drill and Calisthenics (optional)	50

The Department will not submit a paper in drawing. A candidate will get his standing from the inspection of his drawing books by the Board of Examiners at the final examination.

School Term.

The County Model School Term for 1885 begins on Tuesday, September 8th. The Syllabus of Lectures for 1884 contains all needful details as to organization and management.

Educational Notes and News.

Mr. W. S. Milner, B.A., a Toronto gold-medallist in Classics, has been appointed Classical Master in Lindsay High School.

Over fifty applications for rooms in Albert College, Belleville, have been received, including applicants from British Columbia, Manitoba, Michigan, Ontario, Quebec and New Brunswick.—*Intelligencer.*

We notice that Aylmer, a village of 2,000 inhabitants, has voted $8,000 towards the building of a new high school. It pays its head-master $1,200 a year, and employs besides two good assistants. Well done, Aylmer !—*Dufferin Post.*

The Chatham High School opened on Monday with an attendance of about 100, and the following teaching staff : Mr. Finlay, head master, Mr. Twohey, classical master ; Mr. Chisholm, English master, and Mr. Short, junior assistant. Mr. Deeks, mathematical master, during vacation met with a serious accident. He, we understand, was thrown from a buggy, sustaining a fracture of a limb. Mr. Rafferty is filling his place, temporarily. —*Planet.*

At the recent teachers' examinations Toronto had 75 successful candidates ; St. Thomas, 49 ; Brantford. 47 ; London, 47 ; Stratford, 32 ; St. Catharines, 32 ; Ottawa, 30 ; Belleville, 21 ; Hamilton, 20 ; Guelph, 18 , Kingston, 16.

Alma College re-opened on Thursday, 10th inst. We understand the attendance this term will be very large, and that the Board of Management, which meets on the 17th inst., will consider the advisability of enlarging the building.—St. Thomas *Journal.*

The Ontario Agricultural College reopens on Thursday, Oct. 1.

Strathroy Collegiate Institute has a gymnasium connected with it.

The Perth Board of Education have to settle the nice question whether Hydrostatics belongs to the domain of Science or of Mathematics.

Miss M. P. Symington, late teacher of Mathematics in Brighton High School, has been appointed to the position of Mathematical and English teacher in the Brantford Ladies' College.

The Rev. Dr. Laing and Mr. Thomas, a deputation from the Dundas School Board, visited Galt Public Schools lately for the purpose of inspecting the half time department, with a view of introducing the system into the Public Schools of Dundas. The visitors expressed themselves very highly pleased with the system as it is being carried out in Galt.—St. Thomas *Journal.*

Ridgetown High School commenced the Term with 100 pupils.

Mr. W. H. Huston, M.A., has been appointed English Master in Toronto Collegiate Institute. Mr. Huston is a graduate of the University of Toronto, and was for some time Principal of Pickering College.

Mr. A. Weir is headmaster of the Essex Centre High School.

The Lindsay *Warder* speaks in glowing terms of the prospects of Omemee High School. The former buildings of this school were destroyed by fire last year, but through the efforts of the Board of Education in the village, liberally assisted by other residents, new and handsome buildings, the best in that part of the country, have been erected. The *Warder* compliments the new Head Master, J. A. Tanner, M.A., very highly.

The next meeting of the Elgin Teachers' Association will be held Oct. 8th and 9th. Dr. McLellan is to be in attendance, and an interesting programme is promised.

The attendance at Whitby Collegiate Institute is larger than for many years. The same is true of the Institute at Galt, and we believe, of several others.

Ingersoll and Ridgetown High Schools expect soon to attain to the rank of Collegiate Institutes.

Mr. Armstrong, late Principal of Durham Public and Model School, is now Principal of the Orangeville Public School.

Mr. J. D. Bissonette, M.A., Principal of Dundas High School, receives $1000 a year, and Mr. Kennedy, Principal of the Public School in the same town, $650.

The opening of the new school building at Omemee was celebrated a week or two since with a public meeting and a banquet. Dr. McLellan, Col. Deacon, and several other prominent gentlemen were speakers at the former and guests at the latter. The school promises well under the management of Mr. J. A. Tanner, M.A.

Elgin Teachers' Association meets on the 8th and 9th of October. The following subjects will be discussed. Those whose names are connected with the different subjects will lead in the discussion :—"The A B C of Arithmetic," "English Grammar and Reading," Dr. McLellan; "Science of Education," Mr. A. F. Ames, B.A.; "Orthoëpy and Orthography," Miss Steele; "History," Mr. N. M. Campbell; "Geography," Mr. W. E. Orton; "How to Secure and Retain Attention," Mr. J. W. Edy. On the evening of the 8th Dr. McLellan will lecture on "Education in Ontario."

The St. Thomas Board of Education have decided that it would be inadvisable to hold municipal and school elections on the same day.

The Oshawa *Reformer* says that the pupils from Oshawa High School, obtained more second class certificates at the recent Examinations, than were awarded to the pupils of any High School in this section of the Province.

According to the estimates made by the Public School Board, the town will have to levy a rate sufficient to raise the sum of $1,585 for all school purposes, over and above the following receipts: $167 received from Government, $171.25, Clergy Reserve interest, and $526.75 from the School Section in Trafalgar, adjoining the town of Milton. Total required for school purposes $2,800.—*Milton Champion.*

Mr. J. M. Kenneday, who has been business manager of the CANADA SCHOOL JOURNAL retires, and Mr. J. L. Robertson has accepted the position.—*London Free Press, Sept. 24, 1885.*

At the Teachers' Convention in Toronto, the Public School Section in Committee of the Whole discussed the proposed regulations, and resolved to recommend the following changes. By comparing with the regulations as published, it may be seen to what extent their recommendations were adopted :—

1st. That a regulation should be introduced requiring that the space allotted to play-grounds in cities, towns, and villages bear a certain proportion to the size of the school.

2nd. That every stairway in a school-house shall be at least six feet wide, and have no curvation—a square landing to make a turn not to be considered a curvation.

3rd. That the regulation in reference to "area to pupil" be so amended as to read, at least 20 square feet on the floor.

4th. That regulation No. 7 be altered as follows:—The seats should be so arranged that the pupils may sit facing the teacher, and have the light coming in on their left and rear, and they should not seat more than two pupils.

5th. That in regulation No. 4, the words "half a dozen" be struck out.

6th. That a set of drawing models be added to the school apparatus.

7th. That regulation No. 22 should end.—"and a suitable supply of proper drinking vessels should be furnished by the trustee board."

8th. That in first class programme under writing "or paper," be added.

9th. That the arithmetic for third class should be: greatest common measure, least common multiple, reduction, compound rules, vulgar fractions, and mental arithmetic.

10th. That the arithmetic for the fourth class be: vulgar fractions continued, decimal fractions, elementary percentage, interest, and mental arithmetic.

11th. That in fourth class grammar that the word "easy" be substituted for the word "simple" in simple sentences.

12th. That the history for the fourth class be, the leading features of Canadian history and one period of English history, to be changed from time to time.

13th. That in fourth class geography, p. 9, principal railways be substituted for "railway systems."

14th. That after paragraph 4, Duties of Pupils, the following be inserted, "and then only with the consent of the teacher."

15th. That graduates, in order to qualify as Public School Inspectors, shall have not less than five years' experience in teaching, three of which shall have been obtained in a Public School.

16th. That presiding examiners at Departmental examinations, and members of County Boards of Examiners other than Inspectors, should be selected from teachers actively engaged in the profession.

Literary Chit-Chat.

A biography of Charles Darwin, the renowned, is to be published the coming winter. Mr. F. Darwin, his son, is the author.

Baker & Taylor of New York, are about to publish a new twenty-five volume edition of the Waverley Novels.

Edward Greey has translated another Japanese romance, and will shortly publish it under the title "A Captive Love." Lee & Shepard are the publishers.

A number of the friends of Walter Whitman recently surprised him with the present of a handsome horse and phaeton.

Correspondence of great historical value has been discovered by a French savant to the State Library at Monaco. In the archives are many documents of the greatest interest, as well as some 20,000 letters, including many written by successive Kings of France, and by Richelieu, Mazarin, Catherine de Médicis, Louvois, Calvert, and Montaigne.

Houghton, Mifflin & Co. have just issued tasteful and cheap editions of "Uncle Tom's Cabin," and "The Scarlet Letter."

The London *Dramatic News* claims to have discovered another poem by Robert Burns, before unknown. The poem is entitled "Youth."

In the October "Century," the space commonly taken up with the War Series has been devoted to articles and illustrations relating in a timely and important way to the life and services of General Grant. Other illustrated articles of the October number are Lieutenant Schwatka's second and concluding paper on his explorations in Alaska; Mrs. Lizzie W. Champney's description of "The country studios; and Mr. Howell's "Tuscan Cities," illustrated with Haunts of American Artists," profusely illustrated with pictures of numerous etchings by Pennell.

St. Nicholas for October completes the current volume. This number contains the usual variety of interesting, clever and amusing pieces, and brings to an end the two fascinating serials "His Own Fault," and "Driven back to Eden."

Miscellaneous

MY OWN FOUR WALLS.

THOMAS CARLYLE.

The storm and night is on the waste,
Wild through the wind the herdsman calls,
As fast on willing nag I haste
Home to my own four walls.

Black tossing clouds with scarce a glimmer
Envelope earth like sevenfold palls;
But wifekin watches, coffee-pot doth simmer,
Home in my own four walls.

A home and a wife I too have got,
A hearth to blaze whate'er befalls;
What needs a man that I have not
Within my own four walls?

King George has palaces of pride
And armed grooms must ward those halls;
With one stout bolt I safe abide
Within my own four walls.

Not all his men may sever this,
It yields to friends' not monarchs', calls;
My whinstone house my castle is—
I have my own four walls.

When fools or knaves do make a rout
With gigmen, dinners, balls, cabals,
I turn my back and shut them out;
These are my own four walls.

The moorland house, though rude it be,
May stand the brunt when prouder falls;
'Twill screen my wife, my books, and me,
All in my own four walls.

NOTE.—The only poem, perhaps, that Carlyle ever wrote that is characteristic of him.—*J. A. Froude.*

Teachers' Association.

WATERLOO.—The Waterloo County Teachers' Association held its semi-annual meeting in Berlin, on Sept. 10th and 11th, at which the following was adopted.

"In view of the facts that the frequent change of teachers is caused by the insufficient financial remuneration, and is detrimental to the educational interests we beg leave to make the following suggestions:—

I. That all candidates presenting themselves for the Professional Third Class Examinations, be required to pay a fee of Twenty-five Dollars, said money to be disposed of by the Education Department for educational purposes.

II. That the Minister of Education refund all moneys, with interest at six per cent., paid by teachers into the Superannuation Fund, provided they have withdrawn or wish to withdraw their payments.

III. That a committee be appointed annually whose duties shall be to investigate charges preferred against any teacher who attempts to oust a fellow-teacher by any means whatever, and should such preferred charges in the judgment of the investigating committee be proven, then it shall be the duty of the said committee to report to the Association the offender and the offence.

IV. That a teacher on resigning his position in a school shall immediately notify the aforesaid committee of the fact that they may be in a position to assist intending applicants as to the probable salary, etc.

M. DRIPPEL, SEC'Y-TREAS.

Question Drawer.

QUESTIONS.

Will it be necessary for pupils writing for entrance to H. S., to write on the Drawing paper, providing they submit No. 2 or 3 to the examiners. P.P.

I. Kindly inform me through SCHOOL JOURNAL, if the Superannuation Fund regulations have been changed within the past two years, and if each male teacher is obliged to pay the yearly sum of $4.

2. Inflect *which*. And oblige a

NORTHUMBERLAND TEACHER.

1. Is "Heat" prescribed for 1st C. exam. (non profess.) for 1886?

2. Is "Dynamics?" "Hydrostatics?"

3. If possible at all outline the work on Physics and name some of most suitable books to use for 1st C.

4. Outline the work on "Botany" for 1st C. for '86?

5. Is Arithmetic prescribed for 1st C. for '86?

ANONYMOUS.

How would you proceed to get back half of what you have paid into the School Superannuation Fund? H. W

In Pott's Euclid in Note to the 8th Proposition, Book 1. the following statement is made.

A direct demonstration may be given to this proposition, and proposition VII. may be dispensed with altogether.

Let the triangles ABC, and DEF, be so placed that the base BC may coincide with the base EF, and the vertices A and D may be on opposite sides of EF. Join AD. Then because EAD is an isosceles triangle, the angle EAD is equal to the angle EDA; and because CDA is an isosceles triangle, the angle CAD is equal to the angle CDA. Hence the angle EAF is equal to the angle EDF. Ax. 2 or 3, or the angle BDC is equal to the angle EDF.

What I want to know is, how the triangles may be placed, so that A and D may be on opposite sides of EF, and two isosceles triangles produced. SHUSWAP PRAIRIE, B.C.

ANSWERS.

P. P.—No, the Drawing Books seem to be taken as an option.

A NORTHUMBERLAND TEACHER.—1. Yes. The law in regard to Superannuation was changed at the last session of the Legislature. No new subscriptions are received and former subscribers have the option of *discontinuing payments, and having half of the money* they have paid refunded.

The new law will shortly be in the hands of all trustees.

2. Nom. *which*; Poss. *whose*; Obj. *whom*. I suppose you are in doubt about the possession form, but this use of *whose* may now be considered established by the usage of the best writers which is the only law in such a case. Mr. Houston, in the Chicago *Current*, advocates the disuse of the objective inflection; that is, he thinks grammarians might as well drop the "m" in inflection as the tendency to do so is very strong in speech, and often shows itself in writing.

ANONYMOUS.—1. "Heat" is not prescribed.

2. "Dynamics" and "Hydrostatics" are.

4. "Physics" is outlined in the University Curriculum as follows, for Junior Matriculation. Definitions of Velocity, Acceleration, Mass, Momentum, Force, Moment, Couple, Energy, Work, Centre of Inertia; Statement of Newton's Laws of Motion; Composition and Resolution of Forces; Conditions for Equilibrium of Forces in One Plane.

Definition of a fluid, Fluid Pressure at a Point, Transmission of Fluid Pressure, Resultant Fluid Pressure, Specific Gravity, Boyle's Law, the Barometer, Air Pump, Water Pump, Siphon.

Only definitions and statement of principles, with easy illustrations, will be required.

The University Curriculum says:—

4. Elements of Structure and Classification of Canadian Flowering Plants.

5. No.

H. W.—Write to Secretary of Education Department, for blank form of Application.

Literary Review.

NEW AND COMPLETE ENGLISH-GERMAN, GERMAN-ENGLISH POCKET DICTIONARY, with the Pronunciation of both Languages, enriched with the Technical Terms of the Arts and Sciences, for the use of Business men and schools, 874 pages, by Dr. J. F. Leonard. Tafel and Louis H. Tafel, A.B.

This useful and comprehensive little work, now before the public in a new (tenth) edition, in good binding, and reduced to $1.00 retail, is certainly a cheap as well as excellent little work. Every one who reads and uses German, should have a copy at his elbow. It is published by J. G. Kohler. 911 Arch St., Philadelphia.

We have received from Williamson & Co., King St., a copy of Hall and Knight's ELEMENTARY ALGEBRA for schools, which will be reviewed in a *future number. Judging from the standing and experience of the authors* and the attractive make-up of the volume, the book should be a good one. It is published by Macmillan & Co., London.

TEACHING AS A BUSINESS FOR MEN. THE TEACHERS' COMMERCIAL VALUE. The above are the titles of two racy, and sparkling addresses read by C. W. Bardeen, Editor of "*The School Bulletin*," the one before the National Educational Association at Saratoga Springs, N. Y., the other before the New York State Teachers' Association at the same place, in July last, Both addresses are full of fact and suggestion. Our columns being just now overcrowded we have laid them aside for future quotation.