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# The Canada School Journal.

## AND WEEKLY REVIEW.

VOL. X.

TORONTO, OCT. 22, 1885.

No. 38.

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### The Canada School Journal and Weekly Review.

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

—TERMS.—

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### The World.

The latest advices, as we are preparing for press, are that a large force of Servians, with King Milan at their head, have crossed the Bulgarian frontier from Nissa, and that a detachment of the Turkish army is ordered to march in the direction of Nissa. Thus a conflict is imminent, and in affairs connected with the Eastern question, the beginning of strife is like tapping the embankment of a reservoir. The ostensible ground of Serbia's movement is alleged inroads into her territory by Bulgarian brigands. The real motive, no doubt, is the desire to turn the Roumelian revolution to some practical account for Serbia. It may be that the efforts of the diplomatists will yet be successful in averting a struggle, but the war cloud is ominously dark just now. The situation is complicated by the uncertainty in regard to the designs and intentions of the great powers most intimately related to the disturbed principalities. No one can tell just what course even Turkey will take, much less Austria and Russia.

Most of those who enjoy the blessings of freedom will sympathise with the impulse which has brought about the Roume-

lian movement. So spontaneous a transition on the part of a whole people has few parallels in history. The Roumelians seem to have been literally all of one mind, and the transfer of authority was effected without a blow. The fact itself is the best justification of the change. On the other hand it would seem that Turkey really loses nothing, save perhaps a little prestige. The eastern part of Bulgaria, under the name of Roumelia, was placed nominally under Turkish suzerainty by the Treaty of Berlin, but the arrangement seems to have carried little or no practical supremacy with it. The Sultan of Turkey, we are told, could not appoint a Mussulman Governor of Eastern Roumelia, nor could he levy tribute or recruit his army in that province. If, as seems probable, united Bulgaria is willing still to recognize the nominal suzerainty of the Sultan, not even prestige need be lost. Still, in spite of great national decadence, the Moslem spirit is intensely haughty and warlike, and it is quite possible that the Porte may choose to risk the issues of a great conflict rather than meekly submit to have even her nominal authority set at naught.

The struggle between the civil authorities and Mormonism is still being carried on vigorously in Utah. One of the most important trials yet held was that which resulted in the sentencing of Bishop Clawson to a term of imprisonment for polygamy. The Bishop eloquently pleaded that after having lived in his present marriage relations for over thirty years he should not be now asked to renounce those ties which he believed, and still believes, to be right and to inure to his benefit in the life to come. But the court was inexorable, Judge Zane replying that polygamy was as unlawful thirty years ago, when the Bishop entered into those polygamous relations, as it is now, and that Bishop Clawson, like every other citizen, was bound to know the law and respect it. Meanwhile it is said that the importation of Mormon converts from Europe is being vigorously carried on, and that the number thus brought in far exceeds the number of converts from Mormonism by all the Protestant missions put together.

### The School.

It was once said by a great and good man. "He that makes a little child happier for a single hour is a co-worker with God." What abundant opportunities are enjoyed by the public school teacher of earning this great distinction!

The West Bruce Teachers' Association holds its Autumn meeting in Kincardine on the 22nd and 23rd inst. Durham Teachers' Association holds its half-yearly meeting at Port Hope on the 23rd and 24th inst., and that of North York at Newmarket on the 29th and 30th inst. All publish full programmes.

"Of all motives," says Dr. Lyman Abbott, in a recent number of the *Christian Union*, "fear is the lowest, and of all forms of fear, fear of physical pain is the lowest. Of all motives, fear of bodily suffering is the least efficacious in changing the heart or affecting the character." These words, if true, as most persons will readily admit, are of special interest to teachers. We commend them to the study of those teachers who are perpetually flinging threats across the school-room, and who enforce every order and regulation at the point of the ferule. He can scarcely be a good character-builder who appeals habitually to the lowest and least efficacious of motives.

"Blundering in the right direction is infinitely better than persistently going in the wrong direction," So says the *Practical Teacher* in answer to the suggestion that fearful blundering would be a result of enfranchising the teachers who are now, in so many cases, playing the part of *automata* in the Government machine shops. Col. Parker is undoubtedly right. Never will our modern schools approach any high educational ideal until each school, or section of a school, comes to have a living individuality imparted to it by the presence and power of one cultivated and earnest mind, free to do its own work in its own way.

A writer in the Illinois *School Journal* is in favor of the old method of requiring children to learn by rote rules of Syntax and similar exercises to be understood, if ever, at some future day. We had thought such methods dead on this continent and buried beyond hope of resurrection. The writer asks how many children comprehend the 23rd Psalm when committing it to memory. We should say that whoever compels a child to memorize that or any other portion of Scripture before he is able to comprehend its meaning, is incurring a heavy responsibility. He is associating the sacred book in the child's mind with the dreary task-work, and is in danger of thus creating a distaste and prejudice which may follow the pupil through life. But he must be a very young or very dull child who cannot, with the aid of suitable explanations, understand the meaning of that simple and sublime song. Children who are taught to look for the meaning of what they read will generally be found able to understand much more than teachers of the ilk of the correspondent referred to, suppose.

The teacher who compels a child to commit to memory a fanagore of words whose meaning it cannot grasp, sins against the child in at least three ways. He deprives it of the legitimate benefits of study in mental expansion, for the mere strengthening of the verbal memory can scarcely be considered an enlargement of mind. He encourages it in the formation of a vicious mental habit, whose pernicious effects will be felt in after life—the habit of taking in a string of words without thinking of the ideas they represent. And, worst of all, he robs it of the pleasure which Nature bestows as the high reward of all healthful mental exertion,—the delight which attends the conscious exercise of reason, judgment and all the higher faculties, and which is never keener than in the school days. It is true that the meaning of some sentence or formula, which may

have lain for years as dry rubbish in the brain, may flash upon one in after years like a revelation. But the revelation will usually be accompanied with a feeling akin to indignation against the teacher who could permit the germ of a useful thought to be put into the mind encased in a crust of dry words, which is dissolved only after so many long years.

The Wisconsin *Journal of Education* for October contains an interesting article by A. F. North upon Indian Education in Wisconsin. There have, it seems, been Government schools in Kishena, the headquarters of the reservation of the Menominee, the Stockbridge and Munsee, and the Oneida Indians, who number altogether over 3,000, for twenty or thirty years. How little these schools have accomplished is apparent from the fact that not more than twenty of those who receive supplies from Government agents can sign their names to the receipts. A new era seems now to be dawning. Within the past two years the Government has erected a very fine school building having the capacity for boarding and instructing 120 scholars. The dimensions are as follows:—Main building, 108 ft. x 40, with a wing 45x25, both two stories in height, with capacious attics. There are, at the present time, about eighty scholars in attendance, with the prospect of the whole being fully occupied within a week or two. The intention of the Government is to make these *industrial* schools, in the best sense of the word, and to have every child there so master the English language as to be able to think in it. There is also in the same place another school under the care of the Franciscan Brothers and the Sisters after the order of St. Joseph. The buildings for the male and female departments of this school will together accommodate about 120 pupils. There were at the time the article was written about 80 occupants, with the prospect of full buildings in a very short time. In addition to the arrangements for industrial training, these institutions have a beautiful flower garden attached. The foregoing is one of many indications that better days are in store for the poor Indian.

#### THE TRUE END OF PUBLIC SCHOOL EDUCATION.

The London *School Guardian* of Sept. 25th, in its Notes of the Week, gives prominence to this intrepid statement: "Nowhere, on the Continent, or in the Queen's dominions, are the schools so inefficient, so badly attended, and so unsatisfactory in all their results as in the American Union." This rather startling opinion is supposed to find confirmation in the recent letter of an occasional correspondent of the *Times*, who declares that the one universal but ignoble result is that the child emerging from the American Common School has only one idea before him,—“How can I make money?”

"In the Common School education of the States there is, in general, nothing taught that is not directly, and to the commonest perception, available in making money. And this central idea remains, to a greater extent than in any other of the educating countries, the motive of the higher education—when there is any higher education. The farm-boy goes to the District School to learn to write, cipher, and spell correctly, and learns geography as a useful branch of study because he does not always mean to remain on a farm. He looks forward to a translation to city life and a money-making business."

Nor is this brave correspondent without a theory to explain this deplorable lowness of aim in the Schools of the Great Republic. It is the immediate consequence of the fact that the masses control their own education—*i.e.*, the blind lead the blind.

Were we controversially disposed we might feel tempted to say a good many things by way of rejoinder to these and other remarkable assertions of the *Times* correspondent. We might refer to Canon Farrar's address at the opening of the Johns Hopkins' University, a sentence or two of which we quoted last week, to show the blessings resulting a few years ago to the youth of England, under a school system in which we may fairly infer the blind were not led by the blind, but by the men of vision. We might ask whether it may not be as high an end, viewed from the standpoint of a sound morality, to teach the children of the masses to become wide-awake, independent citizens, as to use the public means to impress upon them the duty of being content with the state in which they were born, aiming at nothing better than toilsome, if not grovelling poverty, and yielding due reverence to their betters? Or we might boldly challenge both the *Guardian* and *Times'* writers to the proof, meeting their sweeping assertions by counter-assertions to the effect that for all the higher purposes of school education the American Public Schools are at least equal in efficiency to those of England. But both these writers are so evidently blinded themselves, either by ignorance of the real character and work of the American Public School, or by prejudice, that comment seems useless. In the United States there are to be found, no doubt, many varieties of schools, and wonderful degrees of badness as well as of excellence. This is inevitable under the free, flexible system which prevails. But that the country is blessed with a goodly proportion of teachers of the young who realize fully the great responsibilities and possibilities of their noble calling, and are daily doing their high duties as in the Master's eye, is beyond question. The insinuation conveyed by the *Times'* writer in the clause, "when there is any higher education," is on a par with the other contents of his article. We doubt if there is any country in the world, Germany perhaps excepted, where a larger percentage of the Public School pupils proceed to higher Schools and Colleges, than in the States, and we feel quite sure there is none where higher ideals are set before those pursuing Collegiate courses, than in a great many of both the State supported and the voluntary Colleges which abound all over the Union.

But what is the true end of Public School instruction? This large and ever-recurring question is directly raised by the tenor of the *Guardian* and *Times'* articles. It would be well if every teacher in Canada should put the question to himself and keep pressing it until he found a clear and satisfactory answer. No doubt there is too much truth underlying the gross exaggerations of the *Times'* correspondent. But what should the farm boy be taught if not to write, cipher and spell correctly? These are bread-and-butter subjects of course—but, with reading, they constitute the condition and instrument of all culture of whatever kind. Consequently the fact that the pupil's time during

the first few years of his school life is mainly occupied with these is no evidence either that he is, or is not, being trained in all the "elements that produce greatness of minds, high sense of duty, and continuous progress in culture and religion."

Those are certainly the all-important results to be wrought out. But success in attaining them depends, we fancy, far more upon the *how* than the *what* of the teaching. A teacher who has moral power and spiritual insight, will unconsciously infuse these subtle influences into every lesson. A virtue will perpetually go out of him. At every point of contact with the child's nature his own high aims and motives will permeate all the daily routine. Whether the average British teacher has more of this moral magnetism than the average American may well be doubted. But, and this is the point we wish to make, and to leave with every reader, it is a thing which can be cultivated, by cultivating the high aims and aspirations from which it springs. It would be well if every Canadian teacher could be brought to put to himself daily the question, What is the great end I should keep constantly before me in my school work?

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## Special.

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### ELEMENTARY CHEMISTRY.

#### CHAPTER IV.

##### SECTION II.

#### CARBON.

*Symbol C. Atomic Weight, 12 (11.97), Molecular Unknown.*

94. Carbon exists in three allotropic states:—1. Charcoal, of which there are several varieties; 2. Graphite; 3. The Diamond.

**Def.**—When an elementary body is capable of making its appearance in the form of two or more bodies having different properties, these are said to be *allotropic* modifications of the element.

##### I. CHARCOAL PREPARATION.

#### 95. From Wood.

**Exp. 1.**—Light a thin splint of wood and plunge it into a test-tube, held with its mouth downwards. The tube prevents the air from getting freely to the wood, so causing a smothered burning and thus a slender piece of charcoal is produced.

Wood consists substantially of carbon, hydrogen and oxygen. The heat drives the hydrogen and oxygen off in the form of water, leaving the carbon behind.

96. **Preparation on the large scale.**—Charcoal is prepared by covering a pile of wood with earth or sods, in which openings are made at the top and bottom to admit a small amount of air. The wood is then set on fire, and some of it slowly burns. The heat from the burning wood is used to drive off the hydrogen and oxygen from the rest of the logs, care being taken that sufficient heat is not produced to cause the whole mass of wood to burn. Since carbon is, under all circumstances, infusible and non-volatile, the charcoal retains the

form of the wood but the bulk has been much reduced, and its weight does not exceed one-fourth the weight of the wood.

### 97. From Vegetable Substances.

**Exp. 2.**—Take a small piece of writing paper crush it into a lump, and put it into a narrow test-tube. Take a slip of blue and a slip of reddened litmus paper slightly moisten them and ignite the paper by holding the end of the tube in the lamp. As soon as a white smoke appears in the tube, dip into it the blue test-paper. After a moment take out the blue paper and put in the red one. Observe (1) that the white paper heated in the tube is converted into a black substance, preserving the same size and shape; (2) that a brown oily liquid is deposited on the sides of the tube; (3) that the blue test-paper turns red, and the red test-paper remains unchanged in the volatile matter given off during the ignition; (4) that the black substance in the tube, when placed on platinum foil and strongly heated, burns away without flame, leaving nothing but a very small quantity of incombustible white ash. The black substance is charcoal.

From these experiments we infer (1) *That vegetable substances contain charcoal.* (2) *That they contain the elements of a volatile acid, which acid they produce when subjected to a red heat in close vessels.*

### 98. From Animal Substances.

**Exp. 3.**—Take a bit of woollen cloth, put it into a small test-tube. Prepare moistened slips of test-papers as in the preceding experiments. Hold the tube in the flame of the spirit-lamp, and put into it first the blue paper and then the red one. Observe (1) that the woollen cloth is converted into a black substance like charcoal; (2) that a brown oily liquid is deposited on the sides of the tube; (3) that the blue paper remains unaltered, and the red paper turns blue; (4) that the black substance taken from the tube, placed on platinum foil, and held in the flame of the spirit-lamp, burns away without flame, leaving only a very small quantity of white ash.

From these experiments we infer (1) *That animal bodies contain charcoal.* (2) *That they contain the elements of a volatile alkali, which alkali they produce when subjected to a red heat in a close vessel.*

#### PROPERTIES OF CHARCOAL.

### 99. Absorptive power.

**Exp. 4.**—Take a narrow-necked bottle and fit it with a good sound cork, previously steeped in paraffine. Fill the bottle with ammonia gas. This may be done either by putting a few drops of ammonia into the bottle and shaking it well, or by placing it, mouth downwards for a few minutes, over the mouth of a bottle containing strong ammonia. Place in it a few pieces of newly-burned charcoal and cork it up. After a few hours withdraw the cork, and it will be found that there is no odor remaining; the whole of the ammonia has been absorbed.

This power of absorbing gases depends upon the fact that all gases condense in greater or less degree on the surface of solid bodies with which they come in contact, and as charcoal is very porous, or possesses a large surface to a given mass, its absorbent power is proportionately great.

### 100. Decolorizing Power.

**Exp. 5.**—Take three tumblers and place in each a table-spoonful of bone-black. Into the first tumbler put some blue or reddened litmus solution, into the second a solution of log-wood or any other vegetable coloring matter, into the third a solution of potassium permanganate. Stir the solutions well with a glass rod. Fold three pieces of filtering or white blotting paper, so as to fit into a funnel. Pour the contents of each tumbler on a filter; observe that the filtrate is in each instance colorless or nearly so. In case the first portions of the filtrate happens to come through colored, they may be poured back upon the filter and allowed to pass again through the charcoal.

In the purification of brown sugar the coloring matters are removed in a manner similar to the foregoing, the colored syrup being filtered through layers of bone-black.

Beer or ale, thus treated, lose not only their color but their bitter taste. A solution of quinine sulphate filtered thus through bone black, is deprived of its bitter taste.

### 101. Dedorizing Power.

**Exp. 6.**—Put a few drops of a sulphuretted hydrogen solution into a test-tube, add a little animal charcoal and shake the mixture thoroughly for half a minute; the liquid has now lost all the offensive smell of the gas which has been absorbed by the charcoal.

Charcoal not only absorbs unpleasant effluvia evolved in the process of decay and putrefaction, but has the power, especially in contact with air, of oxidizing and destroying them. This property is retained by charcoal for a long time, and when lost, it may be renewed by ignition. Hence charcoal filters are largely used for preventing foul sewer gases from polluting the air of houses, and charcoal respirators have been used to prevent the ingress of deleterious gases into the lungs. Trays filled with heated wood charcoal, placed in infected apartments have proved very effective in absorbing noxious emanations. Charcoal filters are also largely employed for filtering water for drinking purposes. In its passage through the charcoal the water has not only the organic and soluble coloring matters removed but also undergoes aeration.

(To be Continued.)

#### ENTRANCE LITERATURE.

PREPARED SPECIALLY FOR THE SCHOOL JOURNAL.

#### BOADICEA.

Page 85—4th Book, Ontario Readers.

I.—GENERAL NOTES.—A short account of the author of this ode is given in the Reader. For a fuller account see some work on English Literature. It will be sufficient to add here that Cowper was educated at Westminster School. At eighteen he entered an attorney's office, and was called to the bar in 1754. He did not practise his profession, but spent his time, when in possession of his faculties, in sauntering with his dog along the reedy banks of the placid Ouse, or in writing a little for the serials of the day. He was, during middle life, much troubled with a mental disease, a sort of religious melancholy, and it was not till he was fifty years of age that he sat down seriously to write a book of poems. The first

volume was issued in 1782. His principal work, "The Task," in 1785. Cowper, in addition to his fame as a poet, is said to have been the best of English letter-writers. He died in 1800, having during the last years of his life, received a pension of £300 a year.

Have a map of the Eastern hemisphere before the class while studying this poem. Trace on it the possessions of the Roman Empire at that time, about A.D. 60, noting carefully the position of Gaul, now France, with respect to Britain—how separated, and at what distance. Give a short account of the religions of the Romans, the Gauls, and the Britons. State why the Romans visited Britain, in what state they found the country, to what extent they improved it, and why they left it.

Stanzas 1, 10 and 11 give a vivid picture of the wrongs the British queen, Boadicea, suffered at the hands of her oppressors, her superstitious belief in the wisdom and power of her country's gods and her bold, dashing valor in war.

Stanzas 2 and 9 represent the aged Druid chief, with locks long since silvered, sitting under the scared oak, doubtless with a mistle toe growing on it, and receiving his inspiration chiefly from the sacredness of his surroundings, pouring forth burning words of rage against the enemies of his country, the Romans.

The other stanzas are the prophetic words of the Sage, which are rendered doubly solemn and awful, being accompanied by the lyre, a kind of harp which was the peculiar instrument of Apollo, the presiding deity of archery, prophecy and music.

*British Warrior-queen.*—Buddug, whose name was improved by the Romans into Boadicea (Boadicé-a), was the widow of the king of the Norfolk and Suffolk people. She is generally mentioned as the warrior-queen of the Iceni, a tribe inhabiting the Eastern coast of Britain in the time of the Romans. Her husband at his death, in the hope of saving his kingdom from oppression, left his wealth to the Roman Emperor, Nero, and his own two daughters. The Roman soldiery, taking advantage of the defenceless condition of the country, plundered it unscrupulously. Boadicea was scourged, that is whipped with rods, by order of Catus, a Roman officer, her two daughters shamefully insulted in her presence, and the noblest of the Iceni sold as slaves.

*Indignant mien.*—Gildas, who wrote a history of those times, calls her "a deceitful lioness," and her people "crafty foxes," but he no doubt wrote to please the Romans. She was evidently a great heroine, who being publicly whipped with the Roman rods, resented the wrong and the cruelty with all the indignation of her fiery nature.

*Country's gods.*—The Druids. The Britons had a strange and terrible religion, called the "Religion of the Druids." It seems to have been brought over in very early times, from France, then called Gaul, and to have had mixed up with it the worship of the serpent, the sun, the moon, the running stream, and many of the gods and goddesses of surrounding countries.

Most of the services were kept secret by the Druids, who pretended to be enchanters, and who carried magicians' wands, and wore, each of them, about his neck, what he told the ignorant people was a serpent's egg in a golden case. They sacrificed human victims, and on particular occasions burned alive, in immense wicker cages, a number of men and animals together. They met together in dark woods, called sacred groves, to instruct young men in their mysterious art and for meditation.

*Spreading oak.*—The oak was held in great reverence by the Britons, and especially one with the sacred mistletoe growing on it. Whenever the mistletoe was found on an oak tree there was a grand ceremony. A solemn procession was formed, two white bulls were sacrificed, and the sacred plant cut with a knife of gold.

*Sat the Druid.*—The hoary chief, is here represented as being in his most sacred retreat, under the spreading oak.

*If our aged eyes weep, &c.*—An admission that grave wrongs existed among his people, which even the Druids were unable to remove.

*Resentment ties all the terrors.*—Perhaps the resentment was on the part of the queen or the people in not offering freely enough, even their sons and daughters, to the gods. Or it may be that the rage and grief in his own breast, unfitted him to have power with the gods.

*Rome shall perish.*—A threat, hence *shall* instead of *will*. The Western Roman Empire fell in 476, and the Eastern more than a thousand years later.

*Deep in ruin as in guilt.* The guilt was *matchless*, hence the ruin is to be *unequaled*.

*Far renowned.*—The whole of the then known world, except the Parthian Empire, was embraced within the Roman dominions.

*Tramples on a thousand states.*—Rules them without regard to justice. At this time Rome had subdued all the countries around the Mediterranean Sea.

*Kiss the ground.*—Be humbled.

*The Gaul is at the gate.*—No doubt Alaric is meant. He was a Visigoth of noble race and Christian faith, and was the first to lead a hostile force into Rome, 410. The Visigothic kingdom, at one time embraced the whole of Spain, and all of Gaul south of the Loire and west of the Rhone. The present tense is used here with a future meaning.

*Other Romans shall arise.*—Probably the Italians, who excel in music, sculpture, &c.

*Sounds not arms.*—Music and the fine arts, not military glory.

*Progeny that springs.*—Ships, built of the English oak.

*Thunder-wings.*—Cannon, sails.

*Wider world.*—The seas. Perhaps their possessions and influence throughout the world may also be included. Her Queen is Empress of India, and Britain has long since been "Mistress of the Seas."

Point out her possessions on the Map of the World and contrast them with those of Rome, especially in the sense of being a *wider world*. See map of ancient world for the Roman possessions.

*Regions Caesar never knew.*—The new world. Canada and the United States. This stanza may refer altogether to the United States; the last stanza including all the colonies.

*Eagles.*—The eagle was an Assyrian symbol. It was adopted by the Persians and by the Romans. It is also in the Coat of Arms of the United States.

*Invincible as they.*—Referring to the great strength and wealth of the United States.

*Bards.*—The Druids were the priests, teachers, historians, and musicians or bards.

*Felt them, &c.*—She perhaps misunderstood the prophecy, at least as to the time of its fulfilment.

*Rushed to battle.*—Boadicea's wrongs roused the Britons. They rose in all their might and rage. They laid waste the Roman possessions in the south and east of Britain and slew 70,000 in a few days. The fates of war soon turned. The Britons were defeated and 80,000 killed. The Queen, overwhelmed with despair, rather than fall into the hands of her enemies, poisoned herself.

*Ruffians.*—(Ruf'-yans).—The Queen's estimate of the Romans.

*Heaven awards the vengeance.*—She still had faith in the words of her gods. The empire did suffer the vengeance here predicted, before its final and hopeless overthrow, from the Goths under Alaric, the Huns under Attila, the Vandals under Genseric, and

the other tribes that poured in upon her from the northern swamps and forests.

*Empire is on us.*—On the British nation. Her people, the ancient Britons, were nearly all driven out of the country by the English shortly after the Romans withdrew. Boadicea ruled over only a small part of what is now called Britain.

#### GRAMMATICAL CONSTRUCTIONS.

*When.*—Conjunctive adverb, introducing the adverbial proposition ending with gods.

*Sage.*—Adj. qualifying Druid.

Prep. relation, *sage* beneath oak : or *sat* beneath oak.

*Beneath.*—If the prophetic power was due to the sacred surrounding then the former ; if not the latter

(*Which*) *he spoke.*—An adj. prop., qualifying word.

*That.*—Object of *has spn.*

*Hopeless and abhorred.*—Adjectives attributive to Rome.

*Deep.*—Adj. also attributive to Rome.

*For.*—Relation, renowned for empire.

*Soon.*—Adv. mod. shall kiss.

*Hark.*—Verb, imp. mood.

*Is*—Present tense with a future reference.

*Hedless.*—Adj. attributive to Romans.

*Not arms.*—Relation, *arms shall rot.*

*Harmony.*—Subj. of shall be understood.

*Then.*—Adv. = at that time.

*Armed—clad.*—Adjectives, attributives to progeny.

*Shall commend.*—Subj. progeny.

*World.*—Object of shall command.

*Regions.*—Object of shall sway.

(*Which*) *Cæsar never knew.*—Adj. prop. to *Regions.*

*Where.*—Conj. adv. introducing the adv. sent. ending with *few.*

*None.*—Indet. pronoun, subj. shall be understood.

*Invincible.*—Pred. adj. qual. none.

*They.*—Subj. of will be understood.

*Such.*—Indef. pron. subj. of were.

*Pregnant.*—Adj. qual. words.

*Bending.*—Prest. part. attribute of *Bard.*

*Dying.*—Pres. part. attribute of *she.*

*Wait*—Plural, its subj. being two sing. nouns connected by *and.*

#### THE HISTORICAL DEVELOPMENT OF EDUCATION.

BY DAVID ALLISON, LL.D., SUPERINTENDENT OF EDUCATION  
FOR NOVA SCOTIA.

(Continued.)

One glance at the history of education is enough to dispel the illusion which, however, is a very widespread one—that from the earliest ages men have jogged along in one unvarying routine of studies. On the contrary, in the conflict between the old and the new, to which I have alluded, "history repeats itself." The history of education is the history of revolutions. If we view time as made up, not of minute fragments, but of reasonably extended periods, we see that there has always been an "old education" and a "new education." The advocates of the latter no doubt often display unnecessary aggressiveness in pushing themselves forward as the representatives of new conditions and ideas, while the friends of the former in defending their hereditary preserve, are often tempted to make themselves the champions of the prescriptive, the traditional, and the stereotyped.

All the essential conditions of the great educational revolution which is going on before our own eyes were anticipated in Greece more than two thousand years ago. The history of the remarkable movement to which I refer is preserved on the page of comedy, but it is none the less true and trustworthy on that account. A new era had dawned on Athens. The advance of civilization had developed new intellectual conditions. Mathematical and philosophical studies were knocking at the door of the schools, and threatening the old-fashioned instruction, which, in the eyes of all intelligent men, had become a palpable anachronism. With the conservative instincts of a poet, Aristophanes, a writer of the keenest wit and of almost unrivalled lyric genius, undertook to champion the cause of the traditional culture. The new studies were spoiling the manners and corrupting the morals of the youth. As compared with the olden times, boys doffed their caps less reverently, girls

curtsied less modestly, while both alike were being unfitted to continue the honest toil of their parents. These incoming studies were the invention of pestilent busybodies and crack-brained innovators. Athens had become great and glorious without them, and did not need them then. The true policy was to abide by the old time-tested, time-honored standards, shunning the work of iconoclasts and impostors, and particularly avoiding the danger of over-educating the children of carpenters and cobblers. Were Aristophanes living and writing now, we could not pronounce him a very original thinker. He could assuredly be charged with plagiarizing from Richard Grant White, and might not unfairly be suspected of stealing an idea now and then from a certain school of Canadian writers on the subject of popular education. But of what avail was even the genius of a great poet when enlisted in behalf of a lost cause? Ridicule however polished, and lyric fervor however lofty, could not keep back the tides of a mighty intellectual revolution. The new studies might be travestied, they could not be kept back.

In fact it may be said that all history is a protest against the folly of assuming finalities in the instruments of education. Who, during the course of long centuries, would have been wild enough to even hint that Aristotle would ever lose his imperial sway over the human intellect, and over the whole length and breadth of human learning? And yet to-day it would be just as possible to do any other impossible thing as to restore to his famous categories and syllogisms the supremacy they so long maintained in the schools of Europe. This, I say, while yielding to none in profound reverence for "the strongest man of the ancients," and in true and loving regard for the "doctors angelic, doctors graphic, doctors invincible, and doctors irrefragable," who hang with rapture on his minutest word, and gathered around the central points of his philosophy the vast and curious treasures of the Scholastic literature. Let us remember, too, that Aristotle neither owed his pre-eminence originally to accident nor retained it by the mere force of prescription. Undoubtedly, towards the end of his career, in the schools, men continued to adhere to him when it would have been the part of wisdom to let him go, when the fall of Constantinople and the dispersion of her scholars, the crusades and the contact of European mind with Oriental learning, the dawn of the inductive philosophy and the birth of the experimental sciences, had placed something better within their reach. But during the greater part of his long reign he sat on his throne by right. When we abuse the scholars of Western Europe for deferring to his authority, we most unreasonably abuse them, for they built their system on the best basis of knowledge within their reach. But it became no longer true that Aristotle "treated every subject coming within the range of ancient thought better than anyone else," the foundations of the great master's kingdom were shaken, and in its ultimate overthrow we have a most impressive proof of the powerlessness of mere prescriptive authority to resist the pressure of new conditions of intellectual activity.

Let us glance for a moment at the history of Greek as a subject of instruction in the schools. Who, in the glorious noon of the Renaissance, could have dreamed that the day would come when a renowned writer on education would refer to the quantity of the penultimate syllable of Iphigenia as a trivial matter, when a famous graduate of Oxford would affirm the study of Greek to be defensible only on the theory that studies are valuable in proportion to their uselessness, or when an American scholar with an historical name would boldly pronounce that study to be a "college fetiche"? For my own part, I cherish the hope that the language of Demosthenes and Plato will for many generations yet vindicate for itself a place in the recognized circle of useful studies, but we must frankly admit that we are not living in the days of the Renaissance, and that to modern collegians Greek cannot be exactly what it was to the youth who sat at the feet of Erasmus. But its history as a study strikingly illustrates the principle which I am seeking to unfold. Whatever shall be the time or the manner of its "going out," its "coming in" was the means of one of the most marvellous of all intellectual revolutions. Those who speak of Latin and Greek as the studies over which men dozed and dreamed during "the Dark Ages" display strange ignorance of the plainest historical fact. Greek is a modern rather than an ancient study. It forced its way into the European universities in some cases after centuries of obstinate resistance from the entrenched culture, and candor compels the acknowledgment that its final triumph was due to practical and utilitarian reasons, rather than such as are now urged in favor of its retention in our school and college programmes. These last

are based on the excellent mental drill involved in the mastery of its highly philosophical syntax, on its adaptation to philological research, on the power of its literary treasures to stimulate the imagination and cultivate the taste. But such were not the circumstances which gained for it its original admission to the seats of learning in Europe. Greek was the *practical* study of those times. It commended itself on positively utilitarian ground. It revealed knowledge which could not be obtained from the imperfectly Latinized Aristotle. It furnished the key to all that was best and wisest in human thought, not excepting even the words of him "Who spake as never man spake," thus inducing men to study it just as English scholars study German, not so much for the sake of the language as for the sake of the treasures it unlocks.

My purpose does not require any attempt at forecasting the future of this noble language in our schools. The determining principle is a plain one, and that principle is not *prescription*, but *utility*. Greek came in as a *supplanter*, because it was a better instrument than the studies it displaced, and it will go out supplanted in turn, whenever it shall cease to answer some one of the really important ends of education better than anything else. We cannot be depended on for any length of time to lumber up our courses of study with mere fossils and mummies, or to use a poor piece of machinery when a good one is within our reach. In a recent paper, the foremost Greek scholar of America, Professor Goodwin, of Harvard, after referring to the accredited place of Greek in university courses, observes: "But neither this nor any other study can occupy this responsible position except at the price of eternal vigilance. It must be wide awake, too, to see that its methods are not antiquated. . . . The foundations which it lays must be solid and lasting, or something better will take its place." These sagacious observations both state and illustrate the principle I have been trying to unfold.

Other illustrations of changes in educational subjects and methods consequent on changes in society and advances in civilization suggest themselves beyond my power to use them. When Aquaviva, in education the great organizing genius of the Jesuit Order, was planning the policy which ultimately brought the schools of Europe under his sway, he was wise enough to see that he was living in a new age, and that the *Trivium* and *Quadrivium* of the mediæval schools had outlived their usefulness. His *ratio atque institutio studiorum* was the product of a profound appreciation of the tendency of events and the practical demands of the age, and perhaps did as much as religious zeal in extending the influence of the famous Order.

It would make this part of my paper disproportionately long were I to refer, as I properly might do, to the recognition reluctantly accorded in these last days to science and her multiferm applications, first, in the universities, and then, in respect to more elementary principles, in the institutions for secondary and primary education. Suffice it to say, regarding the general subject, that I by no means wish to convey the meaning that historical references will enable us infallibly to decide the claim of rival studies or rival groups of studies. By such references, however, we learn to rebuke the dogmatism which condemns a study simply because it was not to the front a century ago, or applauds another which ages ago answered conditions that have passed away never to return. They teach us that in the studies of the school as in other things,

"Our little systems have their day,  
They have their day, and cease to be,"

while, in view of the almost alarming multiplication of new sciences, and arts based upon them, we increasingly appreciate the knowledge of such a principle, that we may be saved from utter bewilderment and despair. Life is too short to enable us to learn all that our forefathers learned and that vaster knowledge of which they knew nothing, in addition. If we are sometimes led to fear that the old idea of culture in the abstract, of mental discipline and development, pure and simple, is in danger of becoming extinct, we must encourage ourselves with the conviction that studies which enrich and adorn life will also train and develop mind.

2. A closely connected inquiry, and one in reference to which it would be profitable, if time permitted, to elicit the true teaching of history, is *how* shall the various branches be taught, *how*, in respect both of the ends aimed at, and the methods adapted to those ends? Though this is in fact a more important question than that which has thus far occupied us, its consideration here must be confined within narrower limits. It is impossible to compress into the few pages at my disposal the substance of the rapidly extending literature of educational science. At most I could only hope to

touch on a few leading phenomena and principles, and that in a cursory and superficial manner. The subjects taught in our schools are not only various, but to a large extent they stand related to different faculties, thus in the very nature of things, rendering it impossible to discuss under present limitations, either the underlying laws or practical methods of successful teaching, with any breadth or fulness of treatment.

We are professing, however, to view the subject in the light of historical inquiry. Well, so far as much of the past is concerned, the value of the results of such inquiry is of a purely negative character. We learn the importance of truly philosophical theories and methods of education by observing what has taken place where they have been absent, just as we learn the value of scientific systems of agriculture by noticing the sterility and desolation to which empirical farming always leads. It ought, however, to be a cause of real gratification that through the slow and often almost untraceable evolution of the ages, we have reached in these last days at least an approximation to a definitely formulated *SCIENCE OF EDUCATION*. It must be admitted that of the educating races of the world, our own has had perhaps the least to do with aiding this development, and is by no means among the foremost in recognizing its importance now. Many highly educated Englishmen, and some highly educated Canadians, too, I fear, are prepared to smile incredulously when told that psychological research has brought to light a science of whose laws all rational methods of instruction are simply the practical applications. But it is obvious that unless the human mind is utterly without law in respect to the operation of its faculties, such a science must exist *potentially*, and we have reason to be grateful for the degree of fulness and precision with which its principles have been *actually developed*.

A recent writer expresses the opinion that, "in spite of the great advances which have been made of late years, the *Science* of education is still far in advance of the *Art*, schoolmasters still teaching subjects which have been universally condemned by educational authorities for the last two hundred years, and the education of every public school being a farrago of rules, principles, and customs belonging to every age of teaching." To this we may say that it is a great thing to have the science, even if the art yet lags so far behind. Something like this might with some truth be said of the relation of every art to its kindred science. But if this be specially true in respect of the science and art of education, the reasons are not far to seek. Education is young; the sciences with which the comparison is concerned are old. The correct application of their principles has been carefully studied out by long processes of induction, meaning centuries in their sweep. Law, medicine, and theology have thus been patiently investigated amid the inspirations and opportunities of famous universities. It may indeed be said that some of the particular problems connected with education excited attention even in the earliest times. So they did. The acute and perspicacious intellect of that great speculative thinker, Plato, anticipated some of the positive conclusions of modern educational science. Aristotle and Quintilian grasped and enunciated valuable principles worthy of being incorporated in "the body of sound doctrine." But these early attempts at systematizing the principles of education were lost sight of during that long period of dense obscurity when men with difficulty retained in their vision even the rudimentary shapes of learning. With reviving culture naturally the first question was, "*What shall we study?*" not "*How shall we study?*" But in time the inductive spirit generated by Bacon did its work. Patient minds traced out the idea of education as something having a definable scientific basis, something immeasurably transcending routine varied only by empirical gropings in the dark. Unfortunately this new theory received but scant countenance at the great seats of learning. The universities had lost the freshness of the Renaissance impulse, and too generally had given themselves up to the spirit of ease. Individual names of great eminence consecrated the new science, but the task of evolving its principles and methods fell chiefly to the lot of a few lonely investigators, working apart and often repeating each other's discoveries, without in many cases proper opportunities for broad, reliable inductions, and thus led to propound as educational axioms absurd paradoxes which fuller observation would have reduced to the limits and proportions of reason.

(To be continued.)

It is said that the engravings for *Harper's Monthly* cost \$100,000 a year, and that the *Century* has spent as much as \$6,000 for illustrations for one article

## Examination Papers.

EDUCATION DEPARTMENT, ONTARIO,  
JULY EXAMINATIONS, 1885.

FIRST CLASS TEACHERS — GRADES A AND B.

## ANCIENT HISTORY AND GEOGRAPHY.

Examiner—*Cornelius Donovan.*

1. Briefly describe Xerxes' invasion of Greece, from the passage of the Hellespont to the battle of Salamis, inclusive.
2. State the causes which led to the preeminence of Athens among the Grecian states; and show how this preeminence affected the welfare of Greece.
3. Give a short description of the condition of the Roman Republic after the conquest of Carthage and Greece.
4. Sketch the leading events in the life of Julius Caesar, and show the influence of his career on the era in which he flourished.
5. Write notes on—Aeopagus, Socrates, Achaean League, Licinian Law, Cato, Mithridates.
6. Draw an outline map of *Mare Mediterraneum*, marking the locations and the ancient names of its islands, and of the principal countries and cities on its shores.
7. What and where were the following;—Propontis, Iberus, Euboea, Sequana, Utica, Coreyra, Jura, Chersonesus, Lugdunum, Gades?

## MECHANICS.

Examiner—*J. C. Glashan.*

1. Prove that the moment of any two coplanar forces with respect to any point in their plane is equal to the algebraic sum of the moments of the forces with respect to the same point.  
Four rods jointed at their extremities and forming a quadrilateral capable of being inscribed in a circle are kept in equilibrium by two strings joining the opposite angular points. Show that the tensions of the strings and the stresses along the rods are inversely proportional to the lengths of the respective strings and rods along which they act.
2. Assuming the truth of the parallelogram of forces for the magnitude, prove it for the direction of the resultant.  
A roof weighing 20 lbs. per square foot and having a pitch of 60°, rests on side walls 24 ft. apart. Determine the magnitude and direction of the pressure on the foot of each rafter, they being 4 ft. apart.
3. Two heavy particles of masses,  $M$  and  $m$  respectively, are connected by a perfectly flexible string of insensible mass, passing over a smooth peg. Determine the motion of each particle and the space passed over by it in the first  $t$  seconds after the beginning of the motion.  
A balloon which with its attachments and load weighs 1,200 lbs., and which is capable of sustaining 300 lbs. additional but no more, is allowed to rise freely through the air. What would be the weight if the balloon were not ascending, of a mass which in the car of the ascending balloon weighs 10 lbs on a spring balance?
4. State the principal laws of friction and briefly describe how they may be verified experimentally.  
A body of mass,  $M$ , is caused to slide on a rough horizontal plane by a force of  $n$  pounds weight. After acting for  $t$  seconds, the force is suddenly withdrawn and the body is allowed to slide on till brought to rest by friction, when it is found that the whole length described from rest to rest again is  $s$  feet. Determine the coefficient of friction.
5. Enunciate the Second Law of Motion, and show that "change of motion" may be interpreted either as time-rate of change of momentum, or as space rate of change of kinetic energy.  
Hence show that if the force be constant  $fs = \frac{1}{2}mv^2$ .  
A particle of mass  $m$ , projected with velocity  $v$ , at an angle of elevation  $\alpha$ , strikes at right angles a plane inclined at an angle  $\theta$  to the horizon. Find the energy of impact.

6. Enunciate the Third Law of Motion, and show that it may be regarded as a statement of, —1st, the equality of the forces constituting a stress; 2nd, the conservation of momentum; 3rd, the conservation of energy.

$A$ ,  $B$ , and  $C$  are homogeneous spheres whose masses are 4, 2, and 1 respectively, whose common elasticity is  $\frac{1}{2}$ , and whose centres are in a straight line.  $B$  and  $C$  are at rest touching each other.  $A$  moving with a velocity of 1 ft. per second impinges on  $B$ . Determine the positions and velocities of the spheres one second after contact.

7. A particle of mass  $m$ , describes a circle of radius  $r$ , with uniform velocity  $v$ , under the action of a force  $f$  directed towards the centre. Show that  $fr = mv^2$ .

Find the weight of a railway train travelling due west at the rate of 60 miles per hour in the latitude of 45°, the train when at rest weighing 200 tons.

## CHAUCER, POPE, AND WORDSWORTH.

Examiner—*John Seath, B.A.*

## I.

1. Name the chief characters of Chaucer's Prologue other than the Person, quoting from Chaucer a descriptive phrase suitable to each.
2. A good man was ther of religioun,  
And was a poure Persouh of a toun;  
But riche he was of holy thought and werk.  
He was also a lerned man, a clerk  
That Cristes gospel trewly wolde preche;  
His parisschons devoutly wolde he teche.  
Benigne he was, and wonder diligent,  
And in adversite ful pacient;  
And such he was i-proved ofte sithes.  
Ful loth were him to curse for his tythes,  
But rather wolde he geven out of dowte,  
Unto his poure parisschens aboute,  
Of his offrynge, and eek of his substaunce.  
He cowde in litel thing han suffisaunce.  
Wyd was his parissche, and houses fer asouder,  
But he ne lafte not for royne ne thonder,  
In sicknesse nor in mischief to visite  
The ferreste in his parissche, moche and lite,  
Upon his feet, and in his hond a staf.  
This noble ensample to his sheep he gaf  
That first he wroughte, and afterward he taughte.....  
He was a scheperde and no mercenarie.  
And though he holy were, and vertuous,  
He was to sinful man naught despitous,  
Ne of his speche dangerous ne digne,  
But in his teaching discret and benigne.  
To drawe folk to heven by fairnesse  
By good ensample, this was his busynesse:  
But it were eny persone obstinat,  
What so he were, of high or lowe estat,  
Him wold he snybbe scharly for the nones,  
A bettre preest I trowe, ther nowher non is.  
He waytede after no pomps and reverence,  
Ne maked him a spiced sentence,  
But Cristes lore, and his apostles twelve,  
He taughte, but first he folwede it himselfe.  
(a) Write in modern literary English the preceding extract.  
(b) By means of this extract, illustrate the differences (one illustration for each difference) between Chaucer's English and modern English, explaining, when possible, the origin of Chaucer's peculiar forms.  
(c) Illustrate from the above what Matthew Arnold calls "the lovely charm of Chaucer's movement."

## II.

3. The "Prologue to the Satires" has been described as a poetical apology by Pope for his life. Discuss this statement.
4. Peace to all such, but were there one whose fires  
True genius kindles, and fair fame inspires;  
Blest with each talent and each art to please,  
And born to write, converse, and live with ease;

Should such a man, too fond to rule alone,  
 Bear, like the Turk, no brother near the throne,  
 View him with scornful, yet jealous eyes,  
 And hate for arts that caused himself to rise;  
 Damn with faint praise, assent with civil leer,  
 And without sneering, teach the rest to sneer;  
 Willing to wound, yet afraid to strike,  
 Just hint a fault, and hesitate dislike;  
 Alike reserved to blame, or to commend,  
 A timorous foe, and a suspicious friend;  
 Dreading even fools, by flatterers besieged,  
 And so obliging that he ne'er oblig'd;  
 Like Cato, give his little Senate laws,  
 And sit attentive to his own applause;  
 While wits and templars every sentence raise,  
 And wonder with a foolish face of praise—  
 Who but must laugh, if such a man th  
 Who would not laugh, if Atticus were

- (a) Write explanatory notes on this extract.  
 (b) This description is said to illustrate Pope's characteristic excellences. Justify the statement.

## Practical Department.

### DRAWING.

BY WILLIAM BURNS, DRAWING MASTER, HIGH SCHOOL, BRAMPTON.

(The Editor of this Department will be glad to answer questions for information addressed to him in care of the SCHOOL JOURNAL.)

#### V.

We will next consider the drawing of such figures as can be used in covering spaces. These figures will test the accuracy of a pupil better than any other exercise, as unless the greatest care is used in drawing the first figure, the multiplied error soon becomes painfully evident. They also practise the pupil in the invention of shorter modes of accomplishing the wished-for result, and thus also becomes ultimately a benefit. In giving these exercises, it is as well to select such sizes as will prevent the space being occupied exactly by the figure given; thus, if in a space of six inches square we require squares of  $1\frac{1}{2}$  inches to be placed, the pupil will see that the work cannot be done irregularly, but must proceed from one given side, and left incomplete at the opposite one. The pupil will observe that, of simple figures, squares and hexagons alone will completely cover any space, and that a mixture of squares and octagons will do so also. Let any given space be first covered with squares whose sides are parallel to those of surrounding border, and then with those whose sides are diagonally placed. Next let a similar space be covered with hexagons (called the "bee-hive pattern"). This is most easily drawn by placing one hexagon in the centre of one side; then, by producing sides and diagonals, it will be evident that a series of points can be found which will assist in construction of other figures. Let the same be done with an octagon, when it will be seen that the intervening spaces will be regular squares if properly drawn. An excellent exercise in this work is to make the pupil divide a page of the drawing-book into four or six equal parts, according to its size, and then to require these portions to be covered each with a different pattern—but be sure that the space is of a tolerable size, as minute work too easily conceals errors in construction. One of the prettiest of these patterns is the "star-cross"; it is very frequently used in patterns for canvas, carpets, etc., and is the best "straight-line" answer to the question set at a late entrance examination: "Give a pattern for a floor-cloth." To draw a "star-cross" pattern:—Draw first a square with its diameters, produce these diameters, and make them equal to the diagonals; join the points thus found, which will give two

squares overlying each other, and whose diagonals include an angle of 45 degrees; by strengthening the outline of these squares we obtain an octagonal star. If a repetition of these figures is made, the result will be octagonal stars with a cross between, producing a most effective pattern; and will also exercise pupils the ingenuity in finding shorter modes of doing it than by making each figure separately. Numerous varieties of these patterns can be drawn and intermixed,—the good drawing in every case depending on the care taken in making the first figure as exact as possible. Leave the pupils to invent for themselves some new combinations of forms, or to copy them from some carpet or canvas which they may have seen. This will develop observation at any rate.

We must next proceed to curved lines and curve-line figures. In drawing these, the teacher must be content with even a less degree of accuracy than in straight-lines; still, if there is any improvement made from day to day, there is no reason to be dissatisfied with the result. Short lessons and frequently repeated exercises will be the best way to overcome the difficulty. Naturally we commence with the circle. As a mathematically exact figure, this curve is least artistic and least pleasing to the eye, at the same time that it is most difficult to draw. Specially note that no mechanical means of drawing it are used, as this will spoil every advantage that otherwise might be gained. One simple way to draw a circle by free-hand is to draw a square of one side equal to the given diameter, draw its diameters and diagonals; then, as the circle must pass through end of diameters, eight points are obtained. This is shown in First Reader, Part II., second page of drawing—a plan which is quite impossible to be done by the children of six or seven years' old, such as are supposed to be using this book, and which would be far better placed at end of Third Reader, where there would be some probability of its being useful. Similarly connected patterns of arcs can be made by forming a series of squares, and then describing semi-circles on their sides or diameters; these forms can readily be copied from the First Reader, Part II. The teacher will find that the prevalent error in the first drawn free-hand circles is the pointing of the figure at the ends of the diameters, or the flattening of it in the centre of the quadrant—this error can easily be rectified by a little care. In no work is it more necessary to prevent frequent use of eraser. Let the paper be untouched by it until the figure is completed, and then use the eraser once for all in clearing out these errors. If it is constantly used in the progress of the work, the paper becomes rough and unfit for use. A piece of stale bread forms an excellent eraser, especially for heavy lines.

Exercise.—Divide a page of drawing-book into four parts. Fill the first with squares of 1 inch side, drawn parallel to its sides; the next with squares of 1 inch side, diagonally placed; the third with hexagons of  $\frac{2}{3}$  inch side; the last with octagons of  $\frac{1}{2}$  inch side.

Draw a square of  $2\frac{1}{2}$  inch side. In it inscribe a circle. Surround this square with four other squares, and inscribe another circle in each. Surround whole figure by a circle.

### HOW CAN WE INTEREST PUPILS?

To interest pupils the teacher must be an inventor and devise many ways and means adapted to different cases. I shall only submit a few that I have tried:—

Have some cheerful opening exercises in the morning, such as singing.

Give them plenty of work. Keep them busy.

Give them plenty of written work. Do not let them sit and study in groups. Arouse their anxiety. Get them to ask questions.

Have a query box. A query box, if properly made use of, will develop a wonderful interest in a school.

Have them recite selections and speak dialogues.

Give them short oral lessons in science. Occasionally read them a short sketch from such papers as *Treasure Trove*.

Never tell a scholar anything he can find out for himself, but teach him how to study. Show him that he is not sent to school as a punishment, but show him why he goes to school. Show him why he learns each lesson, and how he may apply it practically. To interest pupils in any one study apply the rule just given. Show him why he studies that specific study. Also bring out points connected with the lesson outside of the text-book. In reading, question the pupil regarding his lesson, that he may learn how to study and remember it. Have them write reproductions of their lessons occasionally. Fourth and higher reader pupils may also be interested by their attention being called to the beauties of different authors.

In all reading classes do not skip any words without finding their meanings. If we make a lot of machines of our pupils, to stand and simply reiterate mere sounds without comprehending their meaning or use, they soon lose all interest in the most important branch of all study.

In language, grammar, writing, and spelling, interest the pupils by urging the use of writing decent letters and composition. To arouse an interest in letter writing, procure a lot of cheap paper and envelopes. Have each child old enough to write letters, write a letter to another pupil and place the same in a box called the post-office. Mark mistakes in these and hand them back to the authors. After having been re-written, the letter may be replaced in the post-office, and the one to whom it is addressed receives, when he, in return, answers it in the same way.

In arithmetic, we should take special care, lest the students become disinterested by learning only the "how" and not the "why."

Therefore, in addition to work in the book, have them frame examples of their own, which demonstrate the rules under which they work, and which are practical illustrations of such examples as are liable to occur in the vocation they or their parents are pursuing. The class in oral numbers can be kept busy by adding, subtracting, multiplying, and dividing with small sticks (such as tooth-picks, for instance) as well in their seats as in the class.—*From Essay of J. W. Olson.*

## WHISPERING.

### A CONVERSATION WITH AN OLD TEACHER.

How do you stop whispering?

I don't stop it. I regulate it.

Please tell me what methods you use.

The principal one is *interest*. I stop one fire by building another. When I see a pupil addicted to communication, I first discover whether it is about school work or not. If it is not, I inquire of myself why he likes to talk of things outside the school-room rather than things inside; in fact, I begin a sort of self-examination as to the reason why I have failed to interest him sufficiently in his studies to lead him willingly to attend to school thoughts inside the school-house.

Do you consider yourself responsible for the interests pupils take in their studies?

If I am not, who is? My duty is not done until I can influence each pupil willingly to study his lessons. Forcing pupils to do what they don't want to do is the prime cause of criminal whispering. I say *criminal*, for I do not consider that communicating about lessons with an honest spirit of inquiry is a great crime. The fact is, it is

an excellent symptom in an indifferent scholar to find him anxious to find out something concerning school work that he cannot find out for himself. Many times I have rejoiced to find a pupil whispering about his work, for it gave evidence that his mind was *voluntarily* commencing to work. The best sign a pupil can give of progress is a spirit of enquiry. I am careful never to repress it when once it begins to be active. Frequently I have been obliged to quietly hint in a private way that he must be careful about his S's, suggesting that they are hissing sibilants. Generally this is sufficient, but if not, I talk to him alone, being very careful to keep his confidence, and urge on the spirit of inquiry awakened into activity.

Some teachers seem to be more anxious to keep order and stop whispering than rousing into action the sleeping energies of the children. Activity is the only evidence of life. A whispering, and even whistling, boy is worth a thousand times as much as a sleepy dolt who hasn't energy enough to kill a mosquito. I have seen a dull pupil so perfectly trained by a "first-class disciplinarian" (?) that he would sit for five minutes with folded hands, eyes fixed on vacuity, and let a mosquito bite him on his nose, and not dare to raise a hand to brush it off. I wouldn't give a fig for such a pupil as that, or the twentieth part of a fig for such a teacher.

A teacher has something else to do than to spend his time in continually talking about order. I have heard such an address as this at the opening of a school:

"Now, pupils, be careful to keep very quiet to-day. I am expecting visitors, and it would disgrace us for them to see any of you whispering. Don't laugh, move very quietly, and when you are out at recess *make no noise*. Remember our motto: 'Order is heaven's first law.'"

Isn't that a good maxim? I have always been taught that it lay at the foundation of all school government.

It is the most pernicious maxim ever posted on the walls of a school-room. The thought is right, if interpreted properly, but most teachers understand it to mean that classes must move in exact military precision, and that every recitation must be guided by the law of *suppression* rather than activity and growth. The maxim should read,

"System is heaven's first law."

The worst teaching I ever saw was in a most "orderly" school. Everything moved like clock-work. Each question was asked with wonderful precision, and the answers were given with text-book certainty. There was no whispering in this school. The teacher told me that it was entirely banished. I believed her, but I wanted to say: "So is everything else worth anything." I didn't, but left her believing that she was teaching the most wonderful school in the state, while the fact is *she wasn't teaching school at all*.

What would you say to young teachers about whispering?

In answering this question I will give you some of the "points" in an address before our last county teachers' association. They will answer your question as well as I am able.

The duty of a teacher is to teach.

Good government comes through good teaching.

Disorder coming from attention to school work is easily regulated.

Disorder coming from want of attention to school work can be banished by securing interest in studies.

When it is proved that a pupil *cannot* be interested in what pertains to the school, steps should be taken to remove him from the school.

INCENTIVES are the most powerful governmental forces. The best teachers make great use of them.

All good government is self government, both as it relates to the teacher and the pupil.—*Exchange.*

## For Friday Afternoons.

## THE IRON GATE.

O. W. HOLMES.

Where is this patriarch you are kindly greeting?  
 Not unfamiliar to my ear his name,  
 Nor yet unknown to many a joyous meeting  
 In days long vanished,—is he still the same?

Or changed by years, forgotten and forgetting,  
 Dull-eared, dim-sighted, slow of speech and thought;  
 Still o'er the sad, degenerate present fretting,  
 Where all goes wrong, and nothing as it ought?

Old age—the graybeard—well indeed I know him,  
 Shrunk, tottering, bent, of aches and ills the prey,  
 In sermon, story, fable, picture, poem—  
 Oft have I met him from my earliest day.

In my old Æsop, toiling with his bundle,  
 His load of sticks, politely asking Death—  
 Who comes when called for—would he lug or trundle  
 His fagot for him? He was scant of breath.

And sad "Ecclesiastes, or the Preacher,"  
 Has he not stamped the image on my soul  
 In that last chapter, where the worn-out teacher  
 Sighs o'er the loosened cord—the broken bowl?

Yes, long indeed I've known him, at a distance;  
 And now my lifted door-latch shows him here;  
 I take his shriveled hand without resistance,  
 And find him smiling as his step draws near.

What though of gilded baubles he bereaves us,  
 Dear to the heart of youth, to manhood's prime,  
 Think of the calm he brings, the wealth he leaves us,  
 The hoarded spoils, the legacies of time.

Altars once flaming, still with incense fragrant,  
 Passion's uneasy nurslings rocked asleep,  
 Hope's anchor faster, wild desire less vagrant,  
 Life's flow less noisy, but the stream—how deep!

Still, as the silver cord gets worn and slender,  
 Its lightened task-work tugs with lessening strain;  
 Hands get more helpful, voices grow more tender—  
 Soothe with their softened tones the slumbering brain.

Youth longs and manhood strives, but age remembers—  
 Sits by the raked-up ashes of the past;  
 Spreads its thin hands above the whitening embers  
 That warm its creeping life-blood till the last.

Dear to its heart is every loving token  
 That comes unbidden ere its pulse grows cold;  
 Ere the last lingering ties of life are broken,  
 Its labors ended and its story told.

Ah! when around us rosy youth rejoices,  
 For us the sorrow-laden breezes sigh,  
 And through the chorus of its jocund voices  
 Throbs the sharp notes of misery's hopeless cry.

As on the gauzy wings of fancy flying  
 From some far orb I track our watery sphere—  
 Home of the struggling, suffering, doubting, dying—  
 The silvered globule seems a glistening tear.

But nature lends her mirror of illusion  
 To win from saddening scenes our age-dimmed eyes,  
 And misty day-dreams blend in sweet confusion  
 The wintry landscape and the summer skies.

So when the iron portal shuts behind us,  
 And life forgets us in its noise and whirl,  
 Visions that shunned the glaring noonday find us,  
 And glimmering starlight shows the gates of pearl.

I come not here your morning hour to sadden,  
 A limping pilgrim leaning on his staff—  
 I, who have never deemed it sin to gladden  
 This vale of sorrows with a wholesome laugh.

If word of mine another's gloom has brightened,  
 Through my dumb lips the heaven-sent message came;  
 If hand of mine another's task has lightened,  
 It felt the guidance that it dares not claim.

But O my gentle sisters! O my brothers!  
 These thick-sown snow-flakes hint of toil's release;  
 These feebler pulses bid me leave to others  
 The tasks once welcome, — evening asks for peace.

Time claims his tribute, since now is golden;  
 Let me not vex the too long-suffering lyre;  
 Though to your love untiring still beholden,  
 The curfew tells me—cover up the fire.

And now, with grateful smile and accents cheerful,  
 And warmer heart than look or word can tell,  
 In simplest phrase—these traitorous eyes are tearful—  
 Thanks—brothers, sisters, children—and farewell.

## Educational Notes and News.

Mrs. Quiney A. Shaw now supports at Boston 22 free kindergartens, with 42 trained teachers, and 1,200 children in attendance.

Mr. R. K. Row has been appointed to succeed Mr. Van Slyke as principal of the Ingersoll Public Schools.

Mr. Knox has been appointed to the position in the Wallacetown school recently held by Mr. James O. Black.

The Ontario School of Art re-opened at the Toronto Normal School on the 12th inst. Arrangements are being made to provide more commodious apartments.

The Windsor School Board is again wrestling with the question whether to maintain a separate colored school or allow colored children to attend the Public Schools.—*St. Thomas Journal*.

Mr. W. L. Wickett, teacher at Yarmouth Centre, has passed successfully the first year examination in Toronto University. This is another example of what young men of industrious habits can accomplish.—*St. Thomas Journal*.

The schools at Shedden and Clachaw have outgrown their buildings and the capacities of their present teaching staffs of one each, consequently the buildings are to be enlarged and assistant teachers employed.

Mr. Louis N. Thibaudeau, teacher, of Little Current, Algoma District, has been elected member of the Municipal Council of Howland. This is an evidence that teachers are beginning to be thought something more than peripatetic instruction machines.

The total number of pupils on the roll of the Perth Collegiate Institute for the month of September was 104, of whom 39 were non-residents of the town. Average at the Public School for same month, 355.

Dr. Tassie, of the Peterboro' Collegiate Institute, complains of the irregular attendance of pupils, who absent themselves with permission of parents, but against the wish of their teachers, during the latter days of session, when examinations are approaching.

The Peterboro' School Board has passed a resolution to the effect that \$3 and \$5 per day, respectively, be deducted from the salaries of teachers who are absent from their duties without the written sanction of the chairman. The principals are instructed to report.

There are about 400,000 persons engaged in the instruction of 10,000,000 of the children and youth of the United States. The teachers outnumber the other learned professions united about two to one.

A Saturday class for the benefit of the county teachers reading Mathematics and English for first-class certificates has been formed in the Woodstock High School. Seven teachers have already joined it, and others are expected.

We observe that Mr. Head, Modern Language master in the Lindsay High School for the past five years, passed in all subjects at the recent Queen's College examination at Kingston. Mr. Head stood high especially in English, French, German, and History.—*Victoria Warrier*.

In the recent Senior Matriculation Examination of Toronto University, Huron county has come notably to the front. Out of four first class honors and two scholarships, Seaforth High School won three first class honors and one scholarship. The remainder were

taken by students from Goderich High School. Mr. T. M. Higgins of Seaforth, gained first class in Classics and the same in English (Both these branches are taught by E. W. Hagarty, B.A.) Mr. W. Prendergast, of Seaforth, gained first class in Mathematics and the scholarship in that department. Mr. J. D. Swanson, of Goderich, gained the classical scholarship. In a competition of that nature Huron may well be proud of her boys. The teachers of the respective High Schools must also feel gratified at such a practical record of their good work.

By request we re-publish the following corrected list of successful candidates for first class certificates at the recent examinations :

## NON-PROFESSIONAL.

## Grade C.

Jennie Louise Cuzner, David A. Nesbitt, Allan C. Smith, Alex. Wheeny, Guy Ambrose Andrews, Albert Barber, Martha Boddy, Herbert H. Burgess, Harry Boseley, Thomas James Collins, Elizabeth J. Cox, James B. Davidson, Chas. S. Falcover, Lewis K. Fallis, Thos. T. Guardhouse, Fannie L. Gillespie, Albert E. Jewett, Jesse B. Kaiser, Edwin Loftus, William E. Long, Edwin Longman, Jessie McLrae, Wilson S. Morden, James W. Morgan, James Norris, Henry R. A. O'Malley, Sidney Philp, John Ritchie, Samuel B. Sinclair, Wilson R. Smith, Fred L. Sawyer, Joseph A. Snell, Jas. R. Stuart, David R. Weir, David J. Wright, Robert B. Watson, David Young.

## Grade B.

George Baird, sr., Neil W. Campbell, William W. Ireland, Hugh S. McLean, David Robb, Robert K. Row.

## Grade A.

William H. Harlton, William Irwin, Joseph A. Snell.

## Correspondence.

## THE BIBLE IN SCHOOLS.

Although it is uncertain that a perfunctory reading of the Scriptures anywhere is attended with spiritual advantage, yet, there is, just now, a need for fixing the habit of reading them in private families. The Book may be found in almost every house, yet, strange though true, it is comparatively an unknown book.

To correct this state of things was, I suppose, the primary motive in introducing it into Common Schools.

I like the motive better than the place, for the good Book is very irreverently read and handled in many of them. Veneration not being innate must be taught and insisted upon; few things are more desirable and as few rarer. It is positively painful to see, almost everywhere, the rapid growth of juvenile impudence. This is an excrescence on the "Tree of Liberty" that should be lopped off close to the trunk. This necessity, together with the poverty both mental and financial, incident to all new countries, in which one thing is made to serve several purposes, should be received as a sufficient apology for bringing the Volume at all into schools of secular learning. These disabilities under which we have so long labored and do yet labor, will certainly disappear before the march of time and successful industry, but it would be unwise as well as ungrateful to endanger that certainty by our remissness in enforcing a becoming veneration for that Being upon whom it depends.

JOHN IRELAND, Fergus.

## Question Drawer.

## QUESTIONS.

A teacher engaged with a Board of Trustees (October 1st, 1884), for 1885, at the rate of \$500 per annum. The following clauses are inserted in the agreement:—

"The trustees and the teacher may at their option respectively terminate this agreement by giving notice in writing to the other of them, at least three calendar months previous to the 31st day of December, 1885."

"This agreement shall also be construed to continue in force from year to year, unless and until it is terminated by the notice herein before prescribed."

(a) If neither party gives required notice is the teacher legally hired for 1886 at the same salary (\$500)?

(b) Would it affect the force of the agreement if only one of the three trustees, who signed said agreement is a member of the board for this year, the other two being elected since the said agreement was signed?

A SUBSCRIBER.

Two straight railroads make an angle of 30°; 100 miles from the angle the "Samson" is scudding past the mile post at the rate of 40 miles an hour, towards the angle or depot. At the same moment the "Elk" is sweeping past the depot on the other track at the speed of 30 miles an hour. Now, as the trains will, for a while, approach one another, what is the shortest line between them as they pass? What is the area of the triangle made by the trains and the depot when they are on the minimum line? Where are the trains when the area is a maximum?

JOHN IRELAND,  
Fergus.

## ANSWERS.

A SUBSCRIBER.—(a) Yes, most clearly so, we should say, so far as the terms of the agreement are concerned.

(b) No, surely not. The agreement is with the Board not with the individual members who may happen to compose it. A School Board, like any other corporation, must be bound by the action of its predecessors until it has annulled that action in the regular way.

We assume, however, in the above answer, that the first Board had legal power to make such a contract as that quoted. If they exceeded their legitimate authority the validity of the engagement might be affected. That is a question on which a legal opinion might be desirable.

## Literary Chit-Chat.

The Wisconsin Journal of Education comes to us this month in an entirely new dress, and is greatly improved in appearance.

The volume of James Russell Lowell's poems—the duodecimo edition of 1869—from which Thomas Hughes reads his selections in his lectures, was a present from the author, and is well-thumbed and worn. The fly-leaf bears the lines in Mr. Lowell's hand, "To Thomas Hughes, with all possible everything, from the author."

The "Journals of Jonathan Swift," edited by Mr. Poor, for the Parchment Library, will soon be published.

Lady Brassey is about to publish an account of Mr. Gladstone's recent trip to Norway, in the yacht "Sunbeam."

Lovers of Oriental poetry will be glad to note the announcement by Dodd, Mead & Co., of an American edition of the "Sakountala."

"The Greek Archipelago, with a Look at Turkey after the War," by Dr. Henry M. Field, will be welcomed by students of Eastern affairs. It is now in the press of Charles Scribner's Sons.

Mr. Swinton is about to publish a "Victor Hugo." This will be the third biography of the great Frenchman, that has appeared in England since his death.

We anticipate with pleasure the forthcoming New Princeton Review which is to succeed the old, and bids fair to surpass even it in ability and interest. The new review is to be a bi-monthly, devoted to the interests of literature and scholarship in their higher departments. There is a grand field for such a magazine, prepared to treat all literary, social and moral topics with breadth of view and from the highest standpoint.

Electra, published at Louisville, Kentucky, and edited by ladies, is a bright, readable magazine for the home circle. Its editors only ask for its further success that the interest, especially of women, be enlisted. The Electra has no corporation, no capital stock to back it. It has been, until this juncture, based entirely upon the individual labor and enterprise of two women, though not especially for women. The October number contains among other interesting papers the last instalment of "Canadian Land and Water," which has given its readers a pleasant summer trip, at small expense of time and money.

A true story, "The Professor's Last Skate," by J. Macdonald Oxley, will appear among the attractions of Wide Awake, the bright Boston magazine for 1886. Mr. J. E. Collins, of Ottawa, will appear in the same monthly with his "Saved by a Kite,"—also a true story of adventure. In the August number of this favorite magazine for young folks, Mr. Collins has a delightful tale entitled "Hunted by a Wild Stallion," which treats in a thrilling way of an exciting episode at Island Head, Newfoundland. Mr. Charles G. D. Roberts, of New Brunswick, has also been levied on for a story for the same publication. He will write "Bear versus Birch-bark," and judging from this writer's well-known reputation in fiction, we may be sure that he will present a pleasant and readable tale. Mr. Roberts has a poem in the current Century magazine, which may be ranked among his best verses.—Quebec Chronicle.