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The Canada School Journal.

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THE CANADA SCHOOL JOURNAL.

Edited by J. E. WELLS, M.A.
and a staff of competent Provincial editors.

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

—TERMS.—

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CANADA SCHOOL JOURNAL PUB. CO. (Limited),

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J. L. ROBERTSON,

Secretary-Treasurer.

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The World.

Mr. Moody is about to establish a great training School for city lay missionaries in Chicago. An endowment of a quarter of a million dollars, to which Mr. Moody will contribute liberally, is to be raised.

One of the latest uses for paper is said to be the manufacture of counterpanes. The cheapness of the material, its neatness and its well-known heat-retaining properties, promise to make the new bedding a boon to the poor.

The New York *Herald* has ascertained and proved that thirty cents per dozen is the munificent price sometimes paid in New York for making shirts. And this is a Christian country, and we are in the last quarter of the Nineteenth Century.

Manitoba, which a little ago imported its meat from Ontario, is this winter sending first class beeves to Ontario markets. There are said to be at the present time 50,000 head of cattle, 8,000 of horses, and 15,000 to 20,000 of sheep on Canadian ranges in the North-West.

Not only the Methodist denomination at Hamilton, but the people of Ontario have suffered a severe loss in the death of the late Dr. Rice. The deceased was a man of exceptional ability, a clear thinker, with the courage of his opinions on religious and other questions, and a man of the highest Christian character.

Mr. John H. Stratford, of Brantford, deserves a place on the roll of public benefactors. He has made a free gift to that city of a fine building to be used as a hospital. It is constructed on the best sanitary principles and contains ample accommodation for forty-four patients. The building, which cost the donor \$20,000, is to be formally opened this month.

Mr. Gladstone celebrated the seventy-sixth anniversary of his birthday, a few days since. This wonderful man and statesman is still in full physical and intellectual vigour, and finds time in the intervals of cares and responsibilities of statecraft such as have rarely been borne by one man, to write numerous articles on the classical and religious topics of the day.

Recently published statistics place the total arrivals of immigrants in the Dominion for the eleven months ending November 30th at 114,842, but of these only 84,198 were intending settlers. We shall be a long time in overtaking our neighbours at that rate, especially if even this increase is largely offset by a stream of Canadian emigration across the border.

The difficulties encountered by the Nile expeditionary force seem to be even greater than were anticipated. Latest accounts indicate that several weeks, if not months, must yet elapse before the destination can be reached. Lieut. Col. Kennedy writes to the *Winnipeg Times* that all the Canadians are trying to do their duty and maintain the credit of Canada.

The Redistribution Bill introduced in the British Parliament raises the rate of representation in the counties more nearly to a level with that in the boroughs. Hitherto the latter have had one member to about 41,000 of the population, and the former only one to 78,000. Many of the small burghs are to be merged in the counties. On the whole, the bill is a great step in the direction of equal rights of representation.

Imagination fails in the attempt to forecast the practical uses to which electricity will yet be applied. A Russian naval officer named Kostovich, suggests the use of the electric light for signalling at night, especially at sea. The plan seems eminently simple and feasible. By attaching an Edison burner to a small captive balloon, connected by wires with an operat-

ing machine, the lamp may be extinguished and rekindled at any intervals, and so made to convey the words or signs of any desired code.

The year just closed will be badly famous in history for the development of the wicked and cowardly attempts at wholesale assassination and destruction of property by the use of dynamite. Happily in almost every instance the results have been far less horrible than the dastardly perpetrators evidently expected. There seems now reason to hope that the United States will take some action to put a stop to the open plotting and raising of funds for the avowed purpose of slaughtering innocent men, women and children in a friendly country.

One cannot but sympathize with China in its difficulty with France. Mr. Chester Holcombe, Secretary of the United States Legation at Peking, says that there is no such thing as a war party in China. The Empress, the Government, the Mandarins and the people, all want peace with France. They would give up Tonquin, but the French want money, an "indemnity" of some \$20,000,000 or thereabouts. China would give this too if she had it, but she has not the money, and has not credit to enable her to raise it on her bonds.

The newspapers are divided in opinion as to the merits of the Grand Winter Carnivals, which are now a Montreal institution. Exception is taken by some patriotic journals on the ground that these exhibitions are likely to injure the country abroad by advertising its Arctic characteristics, and stamping it as a second Siberia or Greenland. But any effects of this kind will probably be more than counteracted by the practical illustration of the extent to which a Canadian winter may be rendered enjoyable, and even ice and snow made to minister alike to the lovers of sport and of art. It would be a pity to spoil a really beautiful and enjoyable celebration, lest some foreigner should draw a wrong conclusion in regard to our climate.

The civil war for the Presidency of the United States is over. But the tug of war with the new President has not yet commenced. He is understood to be in favour of civil service reform. His honesty and courage will be put to a terrible test when he assumes the chair and finds himself assailed by the thousands of expectant and hungry Democratic office-seekers, who believe that "to the victors belong the spoils." The struggle will be rendered fiercer by the fact that the Democrats have been so long in the cold shade, while their political opponents have been in sunshine, and enjoying a feast of fat things. Cleveland's New York record is a good one, and gives much promise of greater things. If he withstands and survives the storm and bases the tenure of public office on the new foundation of merit he will deserve immortal honours.

There is some danger of an international question being raised between the United States and Great Britain by the Nicaraguan Treaty, under which the American Government undertakes to build a canal across Nicaragua. By the

terms of the Clayton-Bulwer Treaty, the United States is precluded from building a canal across the Isthmus. But it seems improbable that the British Government will interpose any serious obstacle to this great project, though she may require better securities for its free use in commerce than appear in the new treaty. But after all, it is not easy to see what is to be gained by such treaties. They are likely to be observed only in times of peace. In case of war each nation would be pretty sure to resort to the right of the stronger, and either could probably render the canal useless to the other. Such a canal would be of vast service to the Americans, if they but had a commercial fleet to use it.

A Washington despatch a week or two since represented the "learned scientists of the Smithsonian Institution" as puzzled by the colossal statues "discovered" by the officers of the German gunboat *Hyena*. The New York *Herald* says "if the officers of the German gunboat *Hyena* are under the delusion that they have made a 'find' they should be taken away from sea and sent to school." We suppose it would give the same advice in regard to the learned scientists of the Smithsonian Institute. The prehistoric stone structures and colossal statuary of Easter Island were written about more than a century ago. But they are very remarkable and mysterious nevertheless. The size of the statues may be conceived from the fact that some of them wear crowns sixty-six inches in diameter and fifty-two feet in height. How these crowns, made of single blocks of red lava, were put upon the heads of statues from eighteen to thirty-seven feet in height is one of the mysteries.

Few modern cases have elicited greater contrarieties of opinion, or rather of sentiment, than that of the Cannibals of the *Mignonette*. It is reassuring to find that British justice proves staunch, and that the higher view of the sacredness of human life has prevailed. Murder has been declared murder still, even when done to save the perpetrators from starvation. Their temptation was, no doubt, horrible almost beyond the powers of conception of those who have not undergone it. Possibly not many could have withstood it under the pressure of a torture so awful. But it will be an evil day for humanity when either the judges or the people degrade the standard of justice and right to the low level of average achievement, and adopt, as a principle of law and of morals that excessive temptation justifies or excuses crime. Human nature needs all the strength which dread of reprobation and punishment can superadd to the restraints of conscience to help it in such a case. And, after all, every great crime is the outcome of horrible temptation of some kind. The difference is but one of degree.

Under the caption "A Faithless World" Frances Power Cobbe contributes a suggestive paper to the last contemporary Review. Referring to the speculations of Mathew Arnold and many other modern sceptics, she attempts to picture some of the changes that would result in Christendom from the abolition of the Christian religion. The suppression of public and private worship and of preaching; the secularization or destruc-

tion of all cathedrals, churches and chapels, the extinction of the clerical profession; the abolition of the seventh-day rest, or, at least, the substitution for it of fifty-two public holidays in addition to those we now have, are amongst the most obvious of the changes that must immediately take place. The Bible too would be reduced to the rank of "a historical and literary curiosity." In reference to this the writer observes, "could everything else remain unchanged after the extinction of religion in England, it seems to me that the unravelling of this Syrian thread from the tissue of our minds will altogether alter their texture." But more deplorable moral results would be those wrought in individual characters. Human life would be irredeemably belittled. Repentance and aspiration would disappear under the snow of atheism. Private prayer, confession, thanksgiving, all effort of the finite spirit at communion with the Infinite, must cease. So too all the multiiform and beneficent activities which are the outcome of Christian charity would stop. In reference to a remark of Mathew Arnold to the effect that he must be a poor creature who cannot enjoy a life of business activity conjoined with literary and artistic pursuits &c., Miss Cobbe observes that one need not be either very unfortunate or a very poor creature "to feel that the wrongs and agonies of this world of pain are absolutely intolerable, unless we can be assured that they will be righted hereafter," but that he must be a very poor creature indeed who is "able to satisfy the hunger of the soul after justice, the yearning of the heart for mercy, with such pursuits as money-getting and scientific research and the writing of clever books, and painting of pretty pictures."

The December number of the *Atlantic Monthly* contains an article by Edward Stanwood on "Canada and the British Connection." The subject is treaded avowedly from an American point of view, but the tone of the paper is moderate and friendly to a degree. The writer accepts at once, as "probably true," the broad assertion made a few months ago by Sir Francis Hincks in a Montreal paper, that "at the present time there is not the slightest ground for believing that the subsisting connection with Great Britain is in the least danger of being dissolved." Mr. Stanwood says that on the other hand there would inevitably be a strong opposition to the acquisition of Canada were she to solicit admission to the Union and that the least symptom of unwillingness to be annexed would reduce the number of those who would favour the acquisition to the merest handful. He goes on to point out what he conceives to be the weakness of Canada's position, viz., her inability to inaugurate and pursue a foreign policy of her own. He argues that Canada's connection with the mother country is the great obstacle in the way of advantageous terms of reciprocity with the United States and contends that were she independent the observation of the "most favoured nation" usage would not hinder her from deriving great commercial advantages from intercourse with her next neighbour. Referring to the familiar war argument he says.—"It would be insulting to Canada to suppose that she would reject independence on account of a fear that the changed relation would leave her defenceless against the at-

tacks of a powerful neighbour. but it would be no less injurious to the United States to think that this country covets more territory or has any but the most friendly feeling toward Canada, or cherishes the most remote thought of assailing the Dominion." The whole article, while containing nothing specially new or striking is worth reading if only for the sake of helping us to "see ourselves as others see us."

The School.

The series of Bible readings prepared for use in the public schools will not solve the problem of moral and religious instruction. Any such prescribed exercise is sure in nine cases out of ten to degenerate into a dry and dead formality. Moreover many will object to this dismembering of the books of Scripture, as detrimental to the intelligent study and apprehension of their teachings.

Changes are the order of the day in the Toronto Normal School. Dr. Davies so well and favourably known for nearly twenty years past as Principal, retires, and Mr. Thos. Kirkland, M.A., who has for some time occupied the position of Science Master, is promoted to take the place. Mr. Samuel Clare, who for seventeen years has been writing master, also retires. No third master is to be at present appointed.

The *American* says:—"It is impossible not to believe that some day the good sense of the American people will refuse to tolerate the slightest interference of politics in matters pertaining to the public schools. Upon the whole, the omens are suspicious."

Many of the best friends of education in Canada cherish the same faith and the same hope, though it is to be feared the auspicious omens have not yet come.

Considering its infancy and the many and formidable obstacles encountered, the movement in the direction of University education for women is making satisfactory progress. A Vanguard of seven are attending lectures in University College, Toronto. Twenty-one are now enrolled on the books of McGill, twelve of whom are taking "full course." We have not at hand the numbers in attendance at Queen's and other Universities, but the whole would, no doubt, give a very respectable total, under the circumstances.

Apropos to the crying want of money to place Toronto University on a proper footing, and to build and equip a University College for women, one's thoughts naturally revert to the large sums annually spent in maintaining in Toronto an institution which is now generally admitted to be an illogical survival, is an unnecessary excrescence on our educational system. It will be useless to ask the people of Ontario through their representatives to give more money for University endowment, so long as Upper Canada College continues to represent a large amount of educational capital unprofitably invested. The sooner the Education Department or the Government plucks up courage to propose a radical change the better for all concerned.

"No teacher should have under his charge a greater number of pupils than he can know personally and thoroughly. He should know each character as well as he does the subject upon which he is giving instruction, and should be able to lay his hand upon its every motive spring." So says an American educational writer in a recent article. Another writer controverts the position, claiming that it is not necessary that a teacher should know each pupil intimately, and that moral development depends upon the parent rather than the teacher. Passing over many exceptions that might be taken to the last proposition, we doubt seriously whether it is possible for the teacher to achieve the highest success in the more purely intellectual part of his work, or teaching proper, without an intimate knowledge of the mental habits and traits of his respective pupils.

The *Chicago Current* of Nov. 1st, says:—"The law of supply and demand does not operate among lawyers and physicians. It should not operate among teachers but they should be paid such wages as shall insure them a comfortable, cheerful existence whether there be a hundred clamorous teachers for every vacancy, or one teacher for a hundred vacancies. The State can, as it ought, abolish the law of supply and demand 'so far as teachers are concerned.'"

Whether or not the *Current* has indicated the true remedy, there can be no doubt that the starvation salaries, decreed by the school boards, are the bane of the public school system. It is these which more than any other, or all other causes combined, degrade the work to the low level of a stepping-stone to other professions in which "the law of supply and demand does not operate."

Miss E. P. Gould, in the *Boston Journal of Education*, cites a good illustration of the way in which a necessary punishment may sometimes be made to enforce a useful lesson. A lady teacher overheard one of her boys swearing at another in words that made her blood curdle. She immediately led him into a corner of the room to remain there until the school had been duly opened. Then, before a lesson was recited, she took him out before all the scholars and, then and there, washed out his mouth with a sponge wet in pure castile soap-suds which she had prepared; after which she urged earnestly and tenderly upon the boys the duty of keeping their mouths clean. Truly an effective way of converting an act of discipline into a moral object lesson.

"How can I preserve order in my class room, while going on with my teaching?" is an ever-recurring question, especially in the case of young teachers. One of the best answers we have seen in a sentence is, "See to it that each pupil has something to do and a motive for doing it." It will, no doubt, be found much easier to furnish the work than to apply the effectual motive. In order to do this the character of the individual pupil will have to be carefully studied. The conscientious teacher will aim always to use the highest and best motives that can be made available. The child's innate love of knowledge seems to be nature's own stimulus to study, and in the hands of a skilful teacher, can often be made wonderfully effective.

A recent writer argues in favor of the voice, as opposed to the bell, as an instrument for commanding attention in the school room. Much depends, we should say, upon the kind of voice, and this depends upon the kind of man or woman behind it. The human voice is a wonderfully expressive instrument. There is in its tones and inflections an indescribable something which reveals to the shrewd urchin's ear exactly what amount of mind and will power underlies it. It is not necessarily the loud, nor the high pitched, nor the threatening tone which carries weight, but the modulation which is born of conscious strength and quiet determination. The only way to attain this quality of voice is to cultivate the mental and moral qualities of which it is the natural expression. All blustering, scolding, shouting and threatening are the outcome and confession of weakness on the part of the teacher, and are soon so understood and estimated.

During his visit to England to attend the meeting of the British Association in 1883, Dr. Dawson, the Principal of McGill College, Montreal, made a thorough study of the work of higher education for women, in connection with the British Universities. He has given the results of his inquiries to the public in a recent pamphlet. These results so far show that the women distribute themselves over the honor subjects very much as their male compeers do, and are equally fond of the older classical and mathematical studies. Of forty-eight Girton students forty-seven became teachers, to one entering another profession. Sir William says that the feeling among young ladies is rather against than in favour of co-education. We have no doubt the same would be true in Canada and elsewhere, but for the very reasonable fear on the part of lady students of being put off with inferior professors and appliances.

Prof. Tyndall, in the course of a recent lecture at the Birbeck Institution, on "My Schools and Schoolmasters," referring to his own experience as a teacher in Queenwood College, Hampshire, says:—

"At Queenwood I learned, by practical experience, that two factors went to the formation of a teacher. In regard to knowledge he must of course, be master of his work. But knowledge is not all. There may be knowledge without power—the ability to inform without the ability to stimulate. Both go together in the true teacher. A power of character must underlie and enforce the work of the intellect. There are men who can so rouse and energize their pupils—so call forth their strength and the pleasure of its exercise—as to make the hardest work agreeable. Without this power it is questionable whether the teacher can even really enjoy his vocation; with it I do not know a higher, nobler, more blessed calling than that of the man who, scorning the "cramming" so prevalent in our day, converts the knowledge he imparts into a lever to lift, exercise and strengthen the growing mind committed to his care."

Those are golden words. Every teacher may profitably ponder them, and ask himself to what extent he possesses that "power of character," and what he is doing daily to cultivate it.

Many teachers who will not fail to note and profit by some of the good things in Mr. Houston's paper in another column, will hesitate long before accepting his estimate of the value of "good spelling." No unusual courage would we fancy be needed to take up his challenge "to give a single reason for regarding ability to spell English words in the ordinary way as either a fair test of literary culture or a mark of a well-trained and well-informed mind." Whatever strange things may come to pass in the future, written or printed words are now much more than the symbols of certain sounds. Each word has a physiognomy of its own, which is associated in the mind of the scholar, not only with a certain idea but with the origin and history of the idea. In many cases several words of very diverse meanings, indicate the same sounds, but the reader readily distinguishes them by the individuality of their faces. It is hard to conceive how either literary culture, or a well-trained mind, could exist apart from the ability to spell ordinary words in the way in which they have been spelt by the writers and thinkers, whose works are the instruments of the culture and the training. Not to know the faces of the words, would argue a singular defect in the training of the perceptive faculties, of not utter ignorance of the thoughts and ideas those words are used to convey. Occasional instances of variation in the spelling of particular words by classical writers prove nothing, save as the exception proves the rule.

It is announced that the Education Department in Ontario is about to prescribe a course of professional training for First Class Teachers and assistants in High Schools. The scheme proposed is, we believe, to set apart four or five Collegiate Institutes, to be known as Training Institutes, and to require every candidate before he can rank as a first-class teacher or assistant master of a High School, to spend at least four months at one of these institutes, and to teach under the direction of the Principal; also to pass an examination on prescribed professional works. An examination on some standard educational works as a test of the attention the candidate has paid to the science of education is no doubt desirable. But many of the candidates for assistant masterships are either experienced teachers who have already had a professional training, or University graduates. What one of either of these classes may be expected to gain by a perfunctory attendance for four months at some school not necessary superior, and quite possibly inferior, to those with whose modes of working he is perfectly familiar, it is not easy to see. Every unpracticed teacher must experiment somewhere but we fail to see why, given the requisite educational qualification, he may not better experiment in a field where his salary and reputation are at stake, than in one where the consciousness that he is experimenting must be ever present to embarrass him and give to all his efforts a flavour of unreality.

No man, no woman lives, or has ever lived who can begin to give his or her own untried capacity. It is immeasurable as the universe. Trust it as you trust God, and launch yourself unflinchingly upon its vast possibilities.

Special Articles.

ENGLISH SPELLING.

In a recent number of THE CANADA SCHOOL JOURNAL, under the heading "An Essential Thing," I find the following:—

"Pupils must be trained to read and write their mother tongue correctly. Teach them to do this so that every scholar at fifteen years of age shall be able to read a newspaper readily; shall be able to spell common words correctly; shall be able to converse free from provincialism in pronunciation; shall be able to write a legible letter in correct English. In reading, teach them not merely to pronounce words, but to get at the meaning of what they read. There must be no sham scholarship here. Good spelling is a conventional test of education, and even a spelling lesson may be made the means of valuable mental training."

Some of this advice I can heartily endorse. If by "writing their mother tongue correctly" the author means making correct use of it in composition, he has given only due prominence to an accomplishment as important as it is rare, for there are few, even of our best speakers and writers, who do not at times perpetrate inexcusable blunders. For instance, I happened to be consulting May's "Constitutional History of England" a few minutes ago, and found in his chapter on "Party" the following sentence:—"The two first years after the Reform Act formed the most glorious period in the annals of the Whig party." Stubbs, in the preface to his great work, says constitutional history "reads the exploits and characters of men by a different light from that shed by the false glare of arms, and interprets positions and facts in words that are voiceless to those who have only listened to the trumpet of fame." Such errors are common in speech, but they should not be so frequent in writing. Froude is a flagrant sinner against the Queen's English, and Goldwin Smith is almost the only living writer I know of who is at once elegant in diction and perfect in syntax.

I agree with the author of the above advice also in attaching just importance to correct pronunciation, to facility in reading, and to the faculty of understanding what is read. Too little attention is paid to all these accomplishments in our schools, and especially to pronunciation. Where I differ from him is as to the importance to be attached to what he calls "good spelling," which in the same sentence he admits to be "a conventional test of education." Because it is "conventional," he seems to think it worthy of acceptance; just because it is conventional, I would have its importance as a test of educational attainments enormously diminished. If our spelling were strictly phonetic, to spell a word wrongly would argue on the part of the speller either an imperfect knowledge of the spoken language—the real language—or carelessness in making use of his knowledge. In that case bad spelling might fairly be regarded as a sign of inferior English scholarship. At present, if a man spell common words differently from his neighbors, the most reasonable inference is that he has paid more attention to pronunciation than they have, and has shaken himself clear of a superstition by which they are still enthralled. In short, if I may be permitted the use of a paradox, our worst spellers are really our best spellers.

Let me repeat here a challenge which I have made in the most public manner over and over again. I ask any of the advocates of "good spelling" to give a single reason for regarding ability to spell English words in the ordinary way as either a fair test of literary culture or a mark of a well-trained and well-informed mind. If any reason can be given, I would like to hear or see it; if none can be given, then those who choose in despite of phonetic laws, to apply this test are themselves not merely worshippers of a fetic, but would be persecutors of men whom they know to be, in many instances, better English scholars than themselves. The day is

fast approaching when the persistent stickler for "good spelling" will be generally laughed at as a survival, and if the teachers of England, the United States, and Canada take the matter up in earnest as a body, they can greatly hasten so desirable a consummation. They have more to gain by the victory over orthographical intolerance than any other class. They have in their hands the means of crushing it if they will only make use of their opportunities. Once this spelling bogey is out of the way, there will be time in our schools for the proper study of English, which, beyond all question, may be made one of the most valuable means of mental training.

WM. HOUSTON

COBOURG COUNTY MODEL SCHOOL.

The following is a synopsis of an address delivered by Mr. Scarlett, P. S. I., to the candidates at the opening of the County Model School at Cobourg, on Tuesday, September 9th. It is published at the request of the class, and we trust will prove interesting and instructive to many of our readers.

"I am pleased to have the honor of welcoming you to our County Model School, where you will further prepare yourselves for the important work upon which you are about to enter.

The various vocations arising from a division of labor in civilized society require careful preparation for the performance of the duties connected with them; and the success of any individual in any important calling is in direct proportion to the power of observation, energy and skill which it may be his pleasure to exercise. Nine-tenths of the failures of professional men of to-day are due to a lack of innate perception and aptitude, the possession of which is peculiar to success in every calling in life, and to none more than to *public school teaching*, on which depends the gravest and most momentous results.

The object will be not only to teach, or, rather, to improve you in the best methods of organization, school-government, and the art of imparting instruction, but also to ascertain who possesses the genius of a live teacher. The teacher's certificate should now be a sufficient guarantee to trustees that the bearer is a *teacher*, and to the exact extent represented on the face of such certificate.

The influence you may exert for failure or success rests largely with yourselves. Your school will be very much as you are, polite or vulgar, neat or indifferent, thoughtful or otherwise—very much as you may direct. Without seeing the teacher, I can obtain a very good photograph from the manner of the children, the appearance of the school-room and its surroundings; and, again, show me a school-house, its furnishings and equipments, and I will tell you what kind of people live in the section.

Consider the circumstances of a pupil before you are too exacting or severe. You may not find it the best policy to have set visiting places. However, if you think that the welfare of a section would be better promoted by what would please the parson best, let your communication be "yea, yea," or "nay, nay," for 'Wero't done when 'tis done, then 'twere well it were done quickly."

You will find it to your advantage to read some good school journal in order to make you familiar with new methods of instruction, conversant with the doings of the educational world, and cognizant of the changes peculiar to our present transition. Preserve your individuality, and do not take charge of school as a second edition of somebody else.

Children are very imitative; and the school-room exercises a powerful influence over habits, manners, and tastes. I would not recommend you to acquire the habit of *lecturing*, when a few words will express what you wish to convey. The best taught schools in our country to-day are in the hands of teachers who talk but little.

Your object should be rather to keep your pupils busy than to appear to be very busy yourselves. It is not so much what teachers do for pupils as what pupils do for themselves that gives potency and progress to our public schools.

Many of you are comparatively young, and perhaps do not know how to value good health. I do not know that I could give a more healthful receipt than faithful discharge of duty, plenty of out-door exercise, and a clear conscience. I would have you give especial attention to the instruction given by the Principal and his assistants, to prepare cheerfully whatever lessons may be assigned, to watch critically the teaching done during the term, acquit yourselves creditably, and so to conduct yourselves that in time to come it may be a pleasure to those in any way associated with this institution to refer to the class of '84.

I again welcome you to our Model School, where you have my warmest wishes for your welfare.

AUTUMN LEAVES.

KINDLY CONTRIBUTED TO THE CANADA SCHOOL JOURNAL BY G. W. JOHNSON,
M. S. HAMILTON.

I gathered these leaves of the forest to-day
When the Autumn winds whispering through them,
Sent them pattering down, golden, purple and brown—
As an emblem of life I send you them.

They grew side by side on the same pleasant bough;
And I said with a feeling of sorrow,
As they scattering fell, "So the friends of to-day,
May be parted forever to-morrow."

Some fell in the river, it hurried them past
As I turned from its banks with a shiver,
And murmured, "So vanish the friends of my youth
As the leaves float away on the river."

Some fair ones that fell from the bough last week
In a hollow lay faded and rotten;
I said with a sigh, "So we mortals soon die
And are hidden away and forgotten."

To leaf and to life there are spring-time and death;
To each autumn beauty is given—
The leaf to die out with the tints of the sky,
Life, into the glories of heaven.

Contemporary Opinion.

A decided advance in educational literature and journalism is the projected publication weekly instead of monthly of the *Canada School Journal*, of Toronto. In its new capacity it will be doubly useful. It can, with a little effort at establishing corresponding agencies, be much more "newsy" than school papers have been hitherto.—*Kingston Whig*.

The *Canada School Journal* has become a weekly publication. The prospectus number has just been received. It is a neatly printed sheet of 12 pages, and contains a variety of matter interesting to teachers and valuable to all who take an interest in education. The *Journal* is now issued by a company, of which Jacob M. Kennedy, Toronto, is Business Manager. Price \$2 a year.—*Charlottetown (P.E.I.) Patriot*.

The *Canada School Journal* is now issued weekly. It is neatly arranged, well printed, and replete with highly interesting matter. The *Journal* should find a place on every teacher's desk. The instructors of the youth of our land will find much to interest and instruct them in it, and can scarcely fail to be benefited to the full amount of the subscription price, \$2 per year. Address *Canada School Journal*, Toronto.—*Brampton Conservator*.

Correspondence.

TO CORRESPONDENTS:—We shall be glad to insert advertisements for teachers in want of situations &c. But advertisers must note that either full names or P.O. box numbers must be given as the P.O. authorities will not forward letters to initials.

As now arranged the Normal School has two terms, one beginning in January, and ending in May; the other beginning in August, and ending in December.

A teacher who is in doubt as to the best method of constructing some of the sentences in Gage's False Syntax, sends us the following for correction. We invite teachers to correct giving reasons in the fewest possible words, and we will publish so far as space may permit.

(1.) Pronouns, as will be seen hereafter, have a distinct nominative, possessive and objective case. Ex. I.

(2.) A people that jeopardised their lives even unto death. Ex. I.

(3.) But they overwhelm whosoever is ignorant of them. Ex. II.

(4.) Gentlemen's houses are seldom without variety of company. Ex. II.

(5.) I saw on the table of the saloon Blair's sermons, and somebody else (I forget who's) sermons, and a set of noisy children. Ex. II.

(6.) England's and France's armies fought side by side in the Crimea. Ex. II.

To the Editor of THE CANADA SCHOOL JOURNAL.

SIR,—I saw, with much surprise, in the last issue of THE JOURNAL, that it was contemplated to withdraw from teachers the privilege of paying arrears to the Superannuation Fund for the time they taught previous to 1871. I can scarcely believe that the Minister of Education would recommend such a measure, at least without giving ample notice. Many teachers with but small salaries, and having besides, many dependent on them, would find it impossible to comply with the demand of immediate payment of arrears. However, sufficient notice being given, I believe it would be a good thing to have those arrears collected. I trust that some satisfactory plan of carrying out the scheme of superannuation may be devised. Many teachers of my acquaintance, who were bitterly opposed to it a few years ago, are now, when they see they are likely to continue in the profession, very strongly in favor of it. Excessive competition, caused chiefly by young men intending to use the profession merely as a stepping stone, keeps down salaries, and thus renders it impossible for men having families to support, to lay up for old age. Many old teachers too continue to teach when they are almost worn out, as they have no other resource. This is not beneficial for either teacher or taught, but School boards hesitate about dismissing old servants, when such a step would leave them destitute. With a properly regulated Superannuation Fund this difficulty would be obviated.

AN OLD TEACHER.

Practical Department.

THE SCHOOL TEACHER.

"Were the schoolmaster," says Prof. David Swing, "as noisy as a politician, or as visible as an orator, or as charming as an artist in a studio, the public would hasten to crown with laurels at least all those great in this calling; but they live and die in a world where those who lay the mighty foundations of a cathedral are forgotten, compared with those who carve its columns or design its colored glass." It is true that the teacher is not a Queen Anne structure, planted by the roadside, gabled and painted and stained to attract the gaze of the passers-by. He is back in the groves of the academy, rarely seen, doing contentedly his divine work.

TACT.—Encourage much and never point out a minor defect to a beginner, who has, perhaps, labored more diligently and anxiously than any of the others in the class to have his maps perfect. The teacher cannot praise the map, but he may, however, commend the efforts; and if, in addition to this, he "will notice without seeming to," when mistakes have been made, and will himself draw an outline on the board, making the same mistakes, exaggerating them, and will request the criticism of the class, he will find the very pupils criticising his work, who have made the same mistakes. The teacher should then explain how the map may be made correctly next time; and also call the attention of each one in the class to his own map, to see if he has not made similar errors. The pupil should not be required to tell his failing, for he will see it himself, and it will not be likely to appear on the next map.—Exchange.

PRINCIPLES.

The teacher should put solid principles under his art; he should build his art on these principles. Most teachers will spend an hour studying to know a lesson, say in arithmetic, but give not a moment to studying the art of teaching the pupil when that lesson comes up. He trusts to luck, to inspiration, to anything. This accustoms him to admitting that teaching amounts to little; and when this point is reached that teacher's downward course is sure. The teacher should strive against this. He should study the lesson with reference to presenting the matter to the pupils.

One of the best examples to cite is the case of Matthew Arnold. This eminent man came to this country and proceeded to lecture before the American public. They heard him patiently, and then said: "His matter may be good, but his mode of presenting it is bad." Mr. Arnold put himself in the hands of those who know more about the art of speaking than he did, and it was soon seen that he was a better speaker. His mistake was that he over-estimated the matter, and under-estimated the art of presenting it—a fault of most teachers.—N. Y. School Journal.

HEALTH NOTES.—EYE SIGHT.

Milton's blindness was the result of overwork and dyspepsia.

Dr. Albert Barnes, one of the most eminent American divines, author of Notes on N. T., was compelled to forego the pleasure of reading, spent thousands of dollars in vain, and lost years of time, in consequence of getting up several hours before day, and studying by artificial light. His eyes never got well.

Multitudes of men and women have made their eyes weak for life by the too free use of the eyesight in reading small print, and doing fine sewing. In view of these things, it is well to observe the following rules in the use of the eyes:—

Avoid all sudden changes between light and darkness.

Never begin to read or write, or sew, for several minutes after coming from darkness to a bright light.

Never read by twilight, or moonlight, or on a very cloudy day.

Never read or sew directly in front of the light, or window, or door.

It is best to have the light fall from above, obliquely over the left shoulder.

Never sleep so that on first awaking, the eyes shall open on the light of a window.

Do not use the eyesight by light so scant, that it requires an effort to discriminate.

Too much light creates a glare, and pains and confuses the sight. The moment you are sensible of an effort to distinguish, that moment cease, and take a walk or ride.

As the sky is blue and the earth green, it would seem that the ceiling should be of a bluish tinge, and the carpet green, and walls of some mellow tint.

The moment you are instinctively prompted to rub the eyes, that moment cease using them.

If the eyelids are glued together on waking up, do not forcibly open them; but apply the saliva with the finger—it is the speediest diluent in the world—then wash eyes in warm water.

HARD TO PRONOUNCE.

At a pronouncing contest, held in a Chicago Church, the following sentences were given to contestants for pronunciation:

The root of the difficulty was a pile of soot allowed to accumulate on the roof.

The rise of the waters has injured the ricecrop, and it may be expected that the price will rise.

He had moved his goods to the depot, but his friends bade him not be discouraged, as he would soon be acclimated if he would only stay.

He is an aspirant for Asiatic honours.

The disputants seemed to be conversant with the question, and, if not good financiers, they are, at least, familiar with the problem of finance.

The irrefragable evidence that he was the sole cause of the alteration indisputably fastened on him the responsibility for the irreparable damage.

His conduct was indicative of the blatant blackguard, but his complaisant coadjutor, with his incomparable complacency, was even more dangerous.

The physician, after a careful diagnosis, pronounces the patient to be suffering from bronchitis, gastritis, peritonitis and meningitis, caused by the prevalence of nephritis, and has prescribed morphine.

Educational Notes.

The following is a list of the successful students at the December Professional Examinations, at the Toronto Normal School:—
Males.—Anderson, Allingham, Allen, Burrows, Brown, E. R. Black, Braithwaite, Cook, Dickenson, Davidson, Delratty, Ellerby, P. W. Fairman, R. Fairman, Fletcher, Gunby, Galbraith, Huggill, Hay, D. Johnston, Jones, T. Johnston, Kee, Kernan, Knight, Lyon, Longford, Leslie, Letcherdale, Moore, Montgomery, R. McDonald, McCarthy, McKechnie, G. McDonald, Neagle, Rooney, Smith, Strath, Small, Taylor, Thompson, Teney, Winter, Wilkinson.

Females.—Bremner, Baillie, Beam, Beckott, Chisholm, Cole-ridge, Cleater, Duncan, Drew, Eadie, Fyfe, Greer, L. Graham, E. Graham, Heath, Husband, Hobson, Henry, Hesslop, Killaran, Knox, Kirkpatrick, Lennox, Malone, Morrison, J. St. C. Macdonald, N. McDonald, McNaughton, Pringle, Pearson, Philip, Ross, Riach, Maud Reede, Slater, Sanders, Sutton, L. Sturrette, B. Starrett, Spence, Sutherland, Woolley, Williams, Wyatt, Walton, Winnacutt, and Wood.

The certificates of the following students were raised from Grade B to Grade A:—Females—Duncan, N. McDonald, Lennox, Kirkpatrick, McNaughton, Knox, and Killoran.

Males.—Winter, Cook, Knight, Dickenson, and Strath.

The following students who hold either grade A or first class, are worthy of special mention:—Misses Fyfe, Maud Reede, Bremner, Sutherland, Morrison, and Messrs. Taylor, McCarthy, Neagle, and Leslie. Gold Medalist—Wilson Taylor. Mr. Taylor studied at the High School in Ingersoll, under Mr. Merchant, before attending the Normal School.

The Newcastle High School, under the Mastership of M. H. Jardine, B. A., shows a very good record for last summer. Of five prepared for Second Class, all passed, four getting grade A. One candidate, a lady, was prepared for II and III, and obtained both. Eight passed the Intermediate.

The wife of Mr. A. Smirle, Inspector of Public Schools of the County of Carleton, died suddenly a week or two since.

Mr. A. McKee, who has been for many years a teacher in the Peterborough Collegiate Institute, has been appointed Head Master of the Uxbridge Public Schools. Mr. McKee won for himself a good reputation in Peterborough, and will, no doubt, prove himself thoroughly qualified for the duties of his new position.

Hellmuth Ladies' College, London, closed for the holidays on the 18th December, with a rich musical entertainment, given to a very large gathering of friends and citizens.

There are only about thirty-five of the teachers in Huntington, Chateauquay, and Beauharnois Counties in Quebec, who have not changed their places this term. Over fifty changes have been made since the schools closed last June.

Efforts are being made to establish a model school at Bryson, Quebec.

At the last meeting of the Protestant committee of the Council of Public Instruction for Quebec, it was agreed to request the Hon. the Superintendent of Public Instruction to recommend His Honor the Lieutenant-Governor in Council to appoint the Rev. Robert Thou, Rector of Trinity Church, Quebec, a member of the Board of Examiners, Quebec, in the room of the Rev. C. W. Rawson, resigned.

East Farnham, Quebec, can boast of a fine new school house.

Miss Hattie Freel, of Thamesford, has been forced, on account of sickness, to give up her duties at the London Model School.

In a recent circular published by the Cornell University, it is said that young women bear the strain of mental work quite as well as young men, and there is no more sickness among them; moreover, a larger percentage of them complete the course and graduate, and the average of scholarships among them is higher than among young men. This fact does not imply mental superiority, it results doubtless from the greater regularity with which the gentler sex apply themselves to their tasks.

The following are the Regulations respecting Religious Instruction, recently issued by the Department of Education for Ontario.

1. Every Public and High School shall be opened with the Lord's Prayer, and closed with the reading of the Scriptures and the Lord's Prayer, or the prayer sanctioned by the Department of Education.

2. The portions of Scripture used shall be taken from selections authorized for that purpose by the Department of Education, and shall be read without comment or explanation.

3. Where a teacher claims to have conscientious scruples against opening and closing the school as herein provided, he shall notify the trustees to that effect in writing.

4. No pupil shall be obliged to take part in the exercises above referred to against the wish of his parents or guardian, expressed in writing to the master of the school.

5. When required by the Trustees the Ten Commandments shall be repeated at least once a week.

6. The Trustees shall place a copy of the authorized Readings in each department of the Public and High Schools under their jurisdiction, within one year from the date hereof.

7. The clergy of any denomination or their authorized representatives, shall have the right to give religious instruction to the pupils of their own church, in each school-house at least once a week, after the hour of closing of the school in the afternoon; and if the clergy of more than one denomination apply to give religious instruction in the same school house, the School Board or trustees shall decide on what day of the week the school-house shall be at the disposal of the clergyman of each denomination, at the time above stated. But it shall be lawful for the School Board or trustees and clergyman of any denomination to agree upon any hour of the day at which a clergyman, or his authorized representative, may give religious instruction to the pupils of his own church, provided it be not during the regular hours of the school.

PRINCE EDWARD ISLAND.

About forty candidates were successful in passing the recent examinations for entrance to the Prince Edward Island Normal School. About three-fourths of the number were ladies. Candidates for entrance to the Normal School are required to make 200 marks out of a possible 400, and not less than 50 per cent. of each

of the English and Arithmetic papers. Those who obtain 200 marks in the aggregate, but fail to reach the minimum required in English and Arithmetic can, unless they are candidates for teachers' license, be admitted to the Prince of Wales College, as general students, upon passing an additional examination in Latin, Algebra, and Geometry. Two or three of the number are of this class. The College and Normal School will re-open on the 6th of January.

MANITOBA.

The Council of the University has lately had under consideration a scheme for the utilization of the Isbister bequest of over eighty thousand dollars. The plan proposed will shortly be submitted for consideration to the sections of the Board of Education for their suggestions, as to the disposal of such part of the bequest as may be made for primary education. Arrangements are also being made to receive the magnificent library bequeathed by the late Mr. Isbister to the University.

At a meeting of the Board of Education (Prot. Sect.) held on the 9th of December, the Principal of the Normal School presented a report of the work done by him in training third class teachers during the five summer months; by this it appears that eighty-six students have received instruction, and all of them immediately entered into the work of teaching. The inspectors are very emphatic as to the results of these institutes, as seen in the improved teaching in the schools of those who attended. The people in the different localities where they were held, visited them frequently, and showed much interest in the work, as well as personal kindness to Mr. Goggin, who succeeded in thoroughly popularizing the institution. Mr. Goggin has now a class of about twenty-five second and first class teachers undergoing training for permanent certificates. The session for these extends from 1st November to 1st April following.

The Board of Education is engaged at present in considering a revision of the regulation, submitted by the Superintendent and by the several committees. The principal matters dealt with as yet are Text Books, Supplementary Reading and Literature, School Houses and Furnishing, Certification of Teachers, and Scripture Reading in Schools. The reports, embodying the proposed changes are ordered to be printed for final consideration early in January.

Persons!

W. D. Johnson, B.A. (Toronto), has been re-engaged for the sixth year as head master of the Alexandria High School. Miss Kate Grant, of Newcastle, who holds a first class Provincial certificate, has been appointed assistant. This school is beginning to do good work, ten pupils having passed the departmental examinations in July, as follows:—1 second-class grade A, 1 second class grade B, 4 third class, 4 intermediate; 3 matriculated in medicine.

Mr. D. Yule (First C.), who has been teaching in No. 1, Colborne, takes charge of Lucknow Public School at a salary of \$600.

Caledonia High School begins the year 1885 with the following staff of teachers:—L. A. Kennedy, B.A., head master; John Elliott and G. S. Deeks, B.A., assistants. This thriving school claims to have taken a front place among the High Schools at the last examinations, having passed 10 A's, 9 B's, 6 thirds, and 6 intermediates, all pupils of the school.

Mr. Jas. Murray, who taught in Oneida, County of Haldimand, for the last two years, will attend the Ottawa Normal School.

Mr. S. A. Thompson, of Caledonia, who has been acting as book-keeper in that place, has returned to the teaching profession. He takes charge of the school at Selkirk, Haldimand county.

Mr. Robert Balmer, B.A. (Toronto), has been visiting London and Brussels, and is now taking a course in the University of Paris and pursuing his studies in the National Library. He intends continuing in Paris until spring or summer, then staying a couple of months in Germany, and returning to Canada by September.

Mr. S. S. McCormack, who was for twelve years Principal of the Dufferin Public School, and resigned that position a year ago to engage in mercantile business, died in that place on Tuesday, Dec. 2nd. The deceased was an elder of the Presbyterian church and superintendent of the Sabbath School, and was highly respected.

Mr. H. S. McLean has been re-engaged to teach the Clinton, Ont., Public School at a considerable increase in salary.

The following resolution was passed by the London (Ont.) Board of Education in reference to the late Mr. Thomas Peel:—"That this Board desire to express their unfeigned regret at the death of their late fellow-member, Thomas Peel, which occurred this morning; and they also desire to add this well-deserved tribute to his memory, that during the long period he served the city as alderman, and more recently as a High School representative, appointed by the Board of Aldermen, he was a faithful, zealous, and efficient servant, and a valuable co-worker in the cause of city government and of education. They further beg to convey to the afflicted widow and family the assurance of their heartfelt sympathy with them in the grievous loss and affliction caused to them by his death."

Mr. John A. Goth, teacher of the Greenbush School, Blakoney, has been engaged as first assistant in the Carleton Place Public School for 1885.

Mr. P. M. McEachern, Principal of Public Schools in Lucknow, was presented with a handsome edition of Chambers' Encyclopaedia by the pupils of his school. Mr. McEachern has been appointed head master of the Bayfield schools. We wish him success.

Mr. John Finlayson, teacher in S. S. No. 15, Southwold, Ont., was presented by his pupils with Macaulay's "History of England" and "Political and Miscellaneous Essays."

A. Crichton, B.A., late of Oranoville High School, has accepted the head mastership of Waterdown High School, vacated by D. H. Hunter, B.A. Mr. Crichton has a high reputation for energy and ability, and we have no doubt that he will sustain the advanced position of the school of which he has taken charge.

One day last week Miss Mary Hart, a young lady of Almonte, who has been attending the High School for some time, was taken to the Perth gaol, having been committed by Jas. Rosamond, J.P., as an insane.—*Almonte Exchange*.

A. W. Burt, B.A., has resigned his position in the Perth Collegiate Institute, he having accepted the head mastership of the Brockville High School.

William Bothwell, B.A., head master of the Perth Collegiate Institute, recently submitted a report of that school to the Board of Education, which is very creditable to the staff of teachers.

Mr. S. Burwash, our late head master, left town on Tuesday with his family for Cobourg, his former home, where he will remain until a suitable position is found. * * * Mr. S. Code, who taught school in Montague for a number of years, on retiring from the profession made all of his pupils a very nice Christmas present, and he was made the recipient of a valuable book, "The Royal Path of Life," and a silver pencil by the scholars.—*Smith's Falls Independent*.

Mr. O. L. Schmidt has been appointed teacher of modern languages in the Perth Collegiate Institute at a good salary.

Miss Dowdall, late teacher in the Perth Separate School, has been appointed teacher of the Pembroke R. C. Separate School. Miss Dowdall will be succeeded in Perth by Mr. T. J. Noonan, with Mrs. Edward Lee as assistant.

N. Robertson, M.A., late classical master in the Perth Collegiate Institute, has been appointed head master of the Smith's Falls High School. J. G. Little, B.A., is mathematical master. We wish Messrs. Robertson and Little every success.

Mr. Neil W. Campbell, late head master of Alliston Public Schools, has been appointed English and Science master in the Whitby Collegiate Institute. No better choice could have been made. Mr. Campbell is an excellent teacher, and has been successful because he deserved success.

Mr. W. N. Stevenson, for some years past head master of Waterdown Public School, was married on Christmas Eve to Miss H. I. McMonnies, teacher in the second division of the same school.

Mr. R. M. Watson, Principal of the Palermo Public School, was married during the holidays, and now their many friends wish the happy pair "much joy," as well as the usual "Happy New Year." We wish them both.

Miss Reid, who has for many years taught the Public School in Section No. 9, Saltfleet, has resigned, and Miss Bella Ptolemy has been appointed to the position. Miss Ptolemy holds an "A," and is a pupil of Waterdown High School.

Miss Drury has resigned her position as teacher in the Ingersoll High School.

Mr. L. H. Luck has been re-engaged as head master of the Public Schools in Beeton. When Mr. L. went to Beeton two years ago not a pupil had ever passed the entrance examination there. The first year Mr. Luck passed six pupils for entrance and the next two for entrance and four for intermediate, one of the intermediate pupils being only twelve years of age.

Mr. James Paris, Public School teacher in Almonte, is about to retire from the profession.

Mr. W. A. Smith, late head master of the R. C. Separate Schools in Almonte, has been appointed to a similar position in the Renfrew Separate Schools. Before leaving Almonte Mr. Smith was tendered a complimentary supper by his many friends.

Mr. Geo. Lister, for three years teacher in Almonte, has been engaged to teach at McDonald's Corners, vice Mr. A. Wilson resigned.

We are pleased to learn that Mr. Wilson Taylor took the Prince of Wales gold medal at the recent Normal School examination held at Toronto. He studied for a first A certificate under Mr. Merchant, and last July took the highest aggregate ever obtained in Ontario by any first-class candidate, taking 2,104 marks out of a total 2,300. We congratulate our young friend on his remarkable success in education, and can safely say that he has a great future before him.—*Ingersoll Sun*.

Some change will be made in the arrangement of the work in the Whitby Collegiate Institute. Mr. Embree, the Principal, will take English Language and Literature, French and German; Mr. T. G. Campbell, mathematics and part of the science; Mr. Fotheringham, classics; Mr. Henderson, history and geography, drawing, commercial subjects, including phonography; Mr. N. W. Campbell, English and science.

The trustees of Greensville Public School, (No. 5, West Flamboro',) have erected during the last summer a magnificent new brick school house, of which the whole section are justly proud. It has been built on the most approved model, at a cost of \$3,000. Mr. J. B. Morrow, who so ably managed the school during the last term, has been re-engaged as Principal for 1885, at a salary of \$500. Miss Katie Sheehan has been re-engaged as assistant.

Mr. J. B. Turner, formerly of Hamilton, but recently of St. Catharines Collegiate Institute, has been appointed to succeed W. H. Ballard, M.A., as Mathematical Master of the Hamilton Collegiate Institute.

Mathematical Department.

UNIVERSITY OF TORONTO, ANNUAL EXAMINATIONS, 1884.

JUNIOR MATRICULATION.

MATHEMATICS.

Examiner: W. J. LONDON, B.A.

- Find the sixth root of 2565726409.
- (a) A square number cannot be of the form $12n+5$.
(b) The product of three consecutive numbers cannot be a perfect square.
- Divide $3-1$ by $3-1$.
- Simplify $a^4 \frac{(a+b)(a+c)}{(a-b)(a-c)} + \dots + \dots$, and reduce to lowest terms $\frac{8x^2-377x^2+21}{21x^2-377x^2+8}$.
- Solve the equations:
 $976063x^2 - 1952450x + 976063 = 0$.
 $16x(x+1)(x+2)(x+3) = 9$
 $x\sqrt{1-y^2} - y\sqrt{1-x^2} = xy - \sqrt{1-x^2}\sqrt{1-y^2} = \frac{1}{2}$.
- Any two sides of a triangle are together greater than the third side.
- Enunciate and prove Prop. 13, Book II.
- To find the centre of a given circle.

SOLUTIONS.

- Extracting the square root, and then the cube root we get 37.
- The formula is true only when n is integral. When n is a whole number $12n+5$ is an odd number, for it is the sum of $12n$, an even number, and 5, an odd number. Now, every odd square number $+12$ leaves remainder either 1 or 9. But $(12n+5)+12$ leaves for remainder 5, $\therefore 12n+5$ is not a square number.

NOTE.—Every odd number > 12 is one of the forms $12p+11$, $12p+9$, $12p+7$, $12p+5$, $12p+3$, or $12p+1$. Hence every odd square number is one of the forms

$$\begin{aligned} &(12p)^2 + 2(12p)11 + 11^2 \\ &(\quad)^2 + (\quad)^2 + 9 + 9^2 \\ &(\quad)^2 + (\quad)^2 + 7 + 7^2 \text{ \&c.} \end{aligned}$$

Hence every square odd number $+ 12$ is of one of the forms $12c+121$, $12c+81$, $12c+49$, $12c+25$, $12c+9$, or $12c+1$. If we divide these again by 12 we have $12y+1$, $12y+9$ as the final forms, so that the remainders must be either 1 or 9, and never can be 5.

- (a) Let $x-1$, x , $x+1$ be the numbers,
Product $= x(x^2-1)$, which is manifestly not the square.

$$\begin{array}{r|rr|l} 13 & 14 & & \\ 3 & 3 & + 0 & + 0 \\ 3 & & 13 & 13 \\ + 1 & & 2.3 & 3 \\ & & 3 & + 3 \\ \hline & 14 & 13 & 13 & - 1 \\ & 3-3 & 2.3-3 & & \\ & 3 & + 3 & + 1 & \\ & & & 13 & \\ & & & 3 & \\ & & & \therefore \text{Quotient} = 10.3 + 1. & \end{array}$$

$$\begin{aligned} 4. (a) a^4 \frac{(a+b)(a+b)}{(a-b)(a-c)} &= a^4 - \frac{2a^2(b+c)}{(a-b)(c-a)} \\ &\therefore \text{by symmetry, the whole expression} \\ &= a^4 + b^4 + c^4 - 2 \left(\frac{a^2(b+c)}{(a-b)(c-a)} + \frac{b^2(c+a)}{(b-c)(a-b)} + \&c. \right) \\ \text{Now sum of the fractions ()} &= \frac{[a^2(b^2-c^2)+b^2(c^2-a^2)+c^2(a^2-b^2)]}{(a-b)(b-c)(c-a)} \\ &= \frac{[a^2b^2(a^2+ab+b^2) - c^2(a^2+a^2b+a^2b^2+ab^2+b^4)+c^2(a+b)]}{(b-c)(c-a)} \\ &= \frac{[(b+c)(a^2+ab+b^2)a^2 - (b^2+bc+c^2)(a+b)c^2] + (c-a)}{-(a^2b^2+b^2c^2+c^2a^2) - (a^2+b^2+c^2)(ab+bc+ca) - abc(a+b+c)} \end{aligned}$$

Hence the whole expression $= a^4 + b^4 + c^4 + 2(a^2b^2 + \&c.) + 2(a^2 + \&c.)(ab + \&c.) + 2ab(a+b+c) = (a^2 + b^2 + c^2)(a+b+c)^2 + 2abc(a+b+c)$.

NOTE.—For a shorter and more scientific solution see Dr. McLellan's *Handbook*, p. 56, and *Companion*, p. 44. The general form of all such sums is given on p. 47 of the latter, hence we have given an independent solution instead of reproducing these to which our readers can easily refer.

- (b) The H. C. F. of the terms of the fraction $= x^2 - 3x + 1$. The fraction then easily reduces to

$$\frac{8x^2 + 24x^4 + 64x^6 + 168x^8 + 63x^{10} + 21}{21x^2 + 63x^4 + 168x^6 + 64x^8 + 24x^{10} + 8}$$

NOTE.—The process of finding the H. C. F. is given for the benefit of those who may find any difficulty in it.

$$\begin{array}{l|l} A = 8x^2 - 377x^2 + 21 & B = 21x^2 - 377x^2 + 8 \\ \hline (21A - 8B) \div 377 & = 8x^2 - 21x^2 + 1 = C \\ (21B - 8A) \div 377 & = x^2 - 21x + 8 = D \\ \hline (8D - C) \div 21 & = x^2 - 8x + 3 = E \\ (8C - D) \div 21 & = 3x^2 - 8x^2 + 1 = F \\ \hline (3E - F) \div 8 & = x^2 - 3x + 1 = G \\ (3F - E) \div 8 & = x^2 - 3x + 1 = H \end{array}$$

Hence this is the H. C. F. For a full exposition of this elegant method see *Teachers' Handbook of Algebra*, pp. 104, 105.

$$\begin{aligned} 5. (a) \text{ From the formula } x &= \frac{-b \pm \sqrt{(b^2 - 4ac)}}{2a} \text{ we get} \\ x &= \frac{1952450 \pm \sqrt{(1952450^2 - 4 \times 976063^2)}}{2 \times 976063} \\ &= \frac{1}{2} \left[\frac{1952450 \pm \sqrt{(1952450^2 + 1952126)(\text{ " " })}}{976063} \right] + \text{ " } \\ &= \frac{1}{2} \left[\frac{1952450 \pm \sqrt{(4^2 \times 494^2 \times 2^2 \times 9^2)}}{976063} \right] + \text{ " } \\ &= \frac{1}{2} \left[\frac{976225 \pm 4 \times 494 \times 9}{976063} \right] + \text{ " } \\ \therefore x &= \frac{958441}{976063} \text{ or } \frac{994009}{976063} \end{aligned}$$

NOTE.—If the middle term had been $-1952126x$, the solution would be effected simply by adding $81x^2 - 162x + 81$ to both sides, whence $988x - 988 = \pm(9x - 9)$. We suspect some error in the question, as there would seem no object in setting a tedious mechanical operation on a paper of this kind.

5. (b) $x(x+1)(x+2)(x+3) = \frac{9}{8}$
 $(x^2+3x)(x^2+3x+2) = \frac{9}{8}$. Put $y = x^2+3x$, and
 $16y^2+32y-9=0$
 $16y^2+36y-4y-9=0$
 $(4y-1)(4y+9)=0$, $\therefore y = \frac{1}{4}$ or $\frac{9}{4}$

Putting x^2+3x equal successively to these two values we get the four values of x required.

5. (c) Square all the equations as they stand.

(I)² = $x^2(1-y^2) + y^2(1-x^2) - 2xy\sqrt{(1-y^2)(1-x^2)} = \frac{1}{4}$
 (II)² = $x^2y^2 + (1-x^2)(1-y^2) - 2xy\sqrt{(1-x^2)(1-y^2)} = \frac{1}{4}$
 $\therefore x^2+y^2 - 2x^2y^2 - 2xy\sqrt{(1-x^2)(1-y^2)} = \frac{1}{4}$
 $-x^2-y^2+2x^2y^2 - \dots = \frac{1}{4}$

$2(x^2+y^2-2x^2y^2) = 0 \therefore x^2+y^2 = 2x^2y^2$ (A)

Square II and transpose and $x^2+y^2 = xy + \frac{1}{4}$ (B)

$\therefore 2x^2y^2 = xy + \frac{1}{4}$, a quadratic of the form,

$8m^2 - 4m - 3 = 0$, $\therefore xy = \frac{1}{4}(1 \pm \frac{1}{4}\sqrt{7})$. Combining this with A the numerical values of x and y result.

6, 7, 8. Easy book-work.

The Question Drawer.

In discharging a gun, at what time does it recoil, before or after the charge leaves it? In either case, what causes the recoil?—ENQUIRER.

From the replies received to questions in specimen number we select the following:—

1. Lord Bacon. When Lord Chancellor Bacon was accused of receiving bribes, and was heavily fined, but the firm was afterwards remitted. Late historians and biographers, notably Hepworth, Dixon, have shown pretty clearly he was innocent of intentional wrong doing. Pope's "Essay on Man."—J. M.

3. Glycerine and nitric acid. It is mixed with clay or something else to give it consistency. *Dunamis*, Gr., power.—J. M.

4. Mason, in paragraph 63, says: "Compounds in which the fusion of the two parts is complete, have the 's' at the end; as, handfuls, rosetrees. Angus' "Hand-book of English Tongue," page 175:—"When the words are so closely allied that the sense is extremely incomplete till the whole are added, the 's' is at the end; as, pailfuls, the three per cents." But the correct form may depend upon the shade of meaning: two different spoons full of something or two doses measured in the one spoon, or two different kinds of teas in two different spoons. In this last case perhaps either form would be correct.

5. Lost in the woods I turn to the right, it may be because I carry a gun on the right or step longer or stronger with one foot, probably the right.

To answer, as one correspondent does, to No. 2, "Why does a ten acre field require more fence when oblong than when square?" "Because it has a longer periphery," is not to give a reason, but to re-state the fact in other words.

Professor.—"If you attempt to squeeze any solid body, it will always resist pressure." Class smiles and recites examples of exception which prove the rule.

Why did the boy stand on the burning deck? Because it was too hot to sit down.

A new style of writing paper is called "Dude." A sort of fools cap, eh?

"What building is that?" asked a stranger, pointing to the school-house. "That," said the boy addressed, "why that's a tannery."

We work for the worst landlord on earth when we work for self; it is slavery. It is the grandest work on earth to work for others.—*New York School Journal*.

Miscellaneous Reading.

A TRIP TO EGYPT AND THE PYRAMIDS.

BY E. L. WELLS.

One morning in March, 1878, a small party of tourists left London for Egypt and Palestine.

* * * * *

In the evening the gentlemen reached Paris, where I was stopping at the time. I made arrangements to go with them, and the next morning we took a train for Marseilles.

The journey across France is a delightful one:—Over beautiful lands, cultivated in strips, looking like innumerable gardens; along the grassy banks of the swift-running rivers, with many a busy mill; over the streams on iron bridges; through tunnels; by picturesque villages, with fine parks of trees and flowers, lawns and shrubbery; by and through tens of thousands of vines, on terraced hillsides and in the valleys; with snow-capped mountains in the distance; with cathedrals and castles here and there on hill and mountain top, their spires, turrets, and towers standing as sentinels over the valleys below: everywhere something new, something beautiful, something to make one forget the long, and otherwise tiresome journey, he is taking.

ON THE MEDITERRANEAN.

We spent a forenoon in Marseilles, and then left the city on the French steamer, *Arethuse*.

A dozen different nationalities were represented among our passengers. Upon deck were strange looking beings scattered about in every available place, several of whom were Arabs in quaint costume. One of them, an old person, wrapped in an enormous hood and cloak, chinked in an opening by one of the smoke-stacks, being the cause of this daily conundrum: "Is it a man or a woman?" and which remained unanswered to the end of the voyage.

At first we had a smooth sea, but toward evening it became rough and quite troublesome to passengers with undecided stomachs. A lingering on-the-fence sort of stomach is worse than a volcanic one, that is active at the first of the voyage and quiet the rest of the time.

Opposite me sat a corpulent priest in his black cap and gown. I thought he certainly has not that capacious stomach to be agitated by trifles, but before the second course was finished, he had left to meditate on the transitoriness of all earthly happiness. Even Leopold, who was en route with us to Naples, showed by actions which speak more truthfully than words, that sea-sickness has no respect for princes.

Our course had to be changed in the night, and instead of going between Corsica and Sardinia we found ourselves in the morning making for the north end of Corsica.

This island and Elba were seen during the day, which was a rainy one, and found almost every passenger sick and in bed, if he had a bed, for the poor fellows on deck crouched around the smoke-stacks and into chinks and corners as much as possible, trying to keep dry and warm. This night was a terrible one.

After this we had a smoother sea, and on the fifth day from Marseilles we passed Stromboli, Scylla, Charybdis, and Mt. Etna. The smoke of Stromboli rested upon it, as if one cone were placed upon the frustum of another. Scylla, said in heathen mythology to have been a beautiful nymph, transformed into a roaring and voracious sea-monster by the jealousy of Circe, is a high rock on the coast of Italy. On its summit is a castle, and on each side a sandy bay. Two huge rocks extending into the sea are called the

Dogs. Charybdis, off the coast of Sicily and opposite Seylla, is probably caused by the meeting of several currents, and is sometimes so powerful as to place the undecked boats of the country in considerable danger, yet by no means so formidable as represented by the ancients. Etna, the greatest volcano in Europe, was white with snow for one half its height, while at its foot, and all along the shores of Italy and Sicily, were hills and valleys, beautiful with vines and gardens, and groves of lemons, figs and oranges. The remainder of the time of the Mediterranean voyage was spent quite monotonously. We had beautiful mornings, sky and sea. The sun shone very warm, and an awning was spread over the deck during the day. In the evening we had beautiful sunsets, and at night there was much pleasure in watching the phosphorescence of the water and the bright constellations of the heavens. On the eighth day from Marseilles we saw a long, low line of the sand coast of Africa, with here and there a hillock, a clump of palm trees, an Arab village, or the white walls and dome of a saint's tomb. Then we caught sight of Pompey's Pillar, and the light-house, and soon after we thought we saw a forest, but it proved to be the many masts of the shipping in the harbor. Where the light-house now stands was once one of the Seven Wonders of the World, the Pharos of Alexandria, erected by Ptolemy Philadelphus, 300 years before Christ. That massive tower was a square building of white marble, and the fires continually burning upon its top could be seen, it is said, a hundred miles at sea. The following inscription was placed upon the tower:—"King Ptolemy, to the Savior Gods, for the use of those who travel by sea." Sostratus, the architect, wishing the glory of such a work, cut his own name in the stones, covered it with mortar, and in this softer material he cut the name of Ptolemy. In time, the mortar scaled off, Ptolemy's name disappeared, and the inscription read:—"Sostratus of Cnidus, the son of Dexiphanes, to the Savior Gods, for the use of those who travel by sea." The entrance to the harbor is crooked and difficult, and vessels cannot enter it by night. Had we been fifteen minutes later, we should have staid outside until morning. A magnificent looking ship in the harbor, we were told by the pilot, in his broken English, belonged to the Khedive, and within it had trimmings of gold, silver, and diamonds. Our ship, at anchor, was immediately surrounded by a swarm of boats, and in a few moments the swarthy, turbaned, long-loose-robed Arabs, and half-clad negroes, black as night, thronged the deck, and woe to any timid passenger, alone and unused to the customs of such a landing place, for he would be seized by half-a-dozen at once, each uttering an unintelligible jargon of sounds, and endeavoring to drag him into his boat. Each article of baggage would be seized by others, and at best his position would be very awkward and unpleasant. But our conductor had traveled through Egypt a score of times, and by him we were relieved of all of the vexations of the solitary tourist. Our baggage and ourselves were all very soon in a large open boat of four rowers, and in a few minutes more we were on shore, showing our passports and having our baggage examined in the custom-house, after which, in carriages we passed through the gates into the city, and along its narrow streets to our hotel, each frequently crying, "See this!" "Look at that!" "How strange!" "I never dreamed of anything like this!" and other such expressions.

Teachers' Associations.

CARLETON. - The semi-annual meeting of the Co. Carleton Teachers Association was held at Bell's Corners on the 16th and 17th of October. The attendance was large, the papers of a high order, and the discussions lively, interesting, and general.

On Thursday afternoon the subject "Winter Pupils" was introduced by Mr. T. J. Hunter in a carefully prepared paper. He first explained who are the "winter pupils," their probable attainments on entering school, and the nature of the course of study best adapted to such. The writer explained very fully what he considered the most effective methods of teaching and governing such classes. He advocated strongly the necessity of instructing winter pupils in a class by themselves where practicable. The views of many of the teachers were at variance with the essayist in reference to a special classification of pupils entering for

the winter months, it being held that such a plan must, of necessity, operate injuriously upon the regular classes of the school. The essay in the main was thoroughly practical in its bearing, and elicited a discussion which must be productive of good throughout the schools of the county.

The Rev. H. B. Patton, of Bell's Corners, then gave a very interesting and instructive paper on "Teachers' Hindrances," which was so highly estimated by the teachers present that they requested permission to have it published in the local papers.

On Friday forenoon "The Teaching of Temperance in our Schools" was introduced by Miss E. Steadman in a well written essay. She commenced by showing the evils resulting from intemperance, and the necessity of using every means in combatting such an enemy. She held that teachers should not be behind ministers or editors in advocating the cause of temperance, and that the pupils in all our schools should be taught to avoid the use of liquor as a beverage. The great physical and moral degeneracy it entails, the curse and degradation sure to follow in its track, should be impressed upon the minds of the rising generation by talks and lectures on the subject, illustrated by diagrams showing its baneful effects on the human system.

"The Essentials of a Good Text-Book" was next taken up by Mr. D. D. Keenan. After referring to text-books in a general way, and the late annoyances from frequent change, he proceeded to point out some of the characteristics of a good text-book: 1st. The print should be of good size, such as may be read without straining the eyes. 2nd. The paper should be of a bluish or yellowish tint—black letters on a white ground may look well, but the effect is injurious to the eyesight. 3rd. The statements in any book treating of science or art should be clear and distinct, the definitions concise, especially such as may require to be memorized. 4th. A scientific division of the subject treated of. Among many text-books which he mentioned and criticized, he said that Kirkland and Scott's Arithmetic was admirably adapted for use in our schools. It was not written merely to show how much the authors knew. He also spoke very highly of the new set of school books published by Gage & Co., though he took exception to some changes in the rendering of old stories, which were by no means an improvement in a literary point of view.

"The Bible in our Schools" was brought before the Association by Mr. W. Beck in an elaborately prepared paper. He argued strongly in favor of Bible teaching in its broadest sense, and treated the subject throughout with clearness and ability. The subject was discussed with the reverence due to it, but no definite conclusion was arrived at as to what place the sacred volume should occupy in our Public Schools.

A full report of the proceedings of the Provincial Association was given by the delegate, Mr. A. Smiley.

The officers elected for the ensuing year are:—President, A. Smiley; I. P. S.; Vice-President, J. McElroy; Sec.-Treasurer, J. H. Moffatt; Monitoring Committee, Miss L. Richardson, Mrs S. Hunt, Mr. T. J. Hunter, Mr. J. A. Lackey, Dr. McPherson; delegate to Provincial Association, James McElroy.

Literary Review.

A TEMPERANCE PHYSIOLOGY for Intermediate Classes and Common Schools by Mrs. Mary H. Hunt, with a preface and endorsement of scientific accuracy by A. B. Palmer, M. D., LL.D. A. S. Barnes & Co., New York and Chicago.

This neat and attractive work has been prepared to meet the demands of a legislation in New York and other States, which requires that provision shall be made by the proper local school authorities for instructing pupils in Public Schools in physiology and hygiene, with special reference to the effects of alcoholic drinks, stimulants, and narcotics upon the human system. The subject is one which evidently requires careful handling in the present unsettled state of scientific opinion, but the treatment in this book seems cautious and free from extravagant overstatement. Many of the facts stated are indisputable, and nothing but good can result from having them impressed upon the minds of the young. In mechanical execution the book is excellent, and the style is simple and easy of comprehension, though not free from occasional looseness of expression.

THE SONG OF HIAWATHA, by Henry W. Longfellow. With notes, in two parts. Houghton, Mifflin & Company, Boston and New York. The Riverside Press, Cambridge.

These two little volumes constitute No's. thirteen and fourteen of the Riverside Literature Series. They are neatly printed; the notes, though not numerous, are well-chosen and seem to meet all that is needed by way of explanation and illustration of the text. Each contains a vocabulary of Indian names, a very interesting as well as useful appendage.