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The Canada School Journal.

Vol. VII.

TORONTO, APRIL, 1882.

No. 59.

THE KINDERGARTEN.

—Smiles says: "Cultivate the physical exclusively, and you have an athlete or a savage; the moral only, and you have an enthusiast or a maniac; the intellect only, and you have a diseased oddity—it may be a monster. It is only by wisely training all of them together that the complete man can be found."

What can be said of a Public School system which, instead of promoting the three-fold development referred to, attempts to train the intellect alone, and only a part of that? If the physical and moral are left to chance, we might expect that the intellectual would be thoroughly cultivated. Such, however, is not the case. The ideal, the imaginative, the qualitative powers of the mind are utterly neglected in most schools. However perfect our system may be then, efforts for its improvement are more commendable than boasting of its merits, so long as we only aim to develop one half of one of the three elements of our nature at the expense of all the rest. We do not merely neglect the physical and moral, we dwarf them by unhealthful conditions, and by directing all the energies of growth in the system to the mental.

This was the great defect that Froebel so clearly saw, and which he tried to remove by founding the Kindergarten. The fundamental principles of his system, and many of his practical methods of working out these principles can be introduced into every grade of our Public and High Schools. They would form the best leaven for our entire system. In addition to directing the efforts of all teachers to the tri-une training of the growing human being, it would be a source of inspiration from which every teacher would obtain nobler ideas of his work, and of the grandness of possibility in connection with each child committed to his care.

The Public School Inspectors at their last annual meeting, agreed that the chief defect in the teachers who graduate from our Normal Schools is a lack of earnestness and enthusiasm. The surest means of remedying this grave defect would be to afford every student who attends the Normal Schools an opportunity to see and practise work in a Kindergarten.

The Ontario Teachers' Association passed a resolution last year unanimously recommending such a course, and similar resolutions have been passed by several county conventions. We hope the Minister of Education may soon take steps to supply the means for giving all teachers the privilege of becoming practically acquainted with the principles of Froebel's system.

—We have, on several occasions, had to note the success of Mr. J. H. McFaul in several departments of Public School work. It gives us much pleasure to see him appointed as Mr. Gray's successor in St. Catharines. As an Inspector of the schools of a city Mr. McFaul will have the highest opportunity for the exercise of his special talents.

WEARINESS KILLS.

It is neither work nor worry that kills the child in school; it is weariness. It is not the amount of study, but its uninterrupted duration that exhausts the nervous systems of young pupils, and renders them unfit to resist disease when it attacks them. If the wise people who indulge in extravagant denunciation of "over work," would be more practical and do two things: shorten the hours of school attendance, and improve the lighting and ventilation of school-rooms, they would do more to remove the evils resulting to the constitutions of children, than they can ever do in any other way. Unfortunately in the minds of the majority of the rate-payers, at present, there are two objections to these improvements. They are too penurious to pay for proper school-houses, and they object to shorten school hours or lengthen holidays because they think they would not be able to get the worth of their money out of the teachers. They are only able to measure the value of the teacher's services by the length of time he is occupied at work; and the desire to make him work long enough to earn his salary, out-weighs their interest in the health of their children. It is an unfortunate thing for a country, when its legislators act from similar motives. Ignorance and greed are evils in the remotest rural section; they produce their worst effects when they usurp the functions of enlightenment and progress in the halls where they should be held in check.

Teachers have a duty as well as the public in relieving their pupils from the wearying monotony of school work. This they can do, to a certain extent, by the use of good methods of teaching, by varying these methods as much as possible, by giving the pupils their proper share of the work in the process of learning, and by making school-rooms attractive by adorning them with pictures, flowers, &c.

The most perfect system for preventing the bad effects of study, whether in school or at home, is to alternate study and physical exercise. At least five minutes of every hour should be devoted to vigorous and systematic exercise by the pupils, under the direction of the teacher. If done in time to music so much the better. In the best Model School in Europe, fifteen minutes of every hour are given to the development of the physical nature of the pupils. If school hours were shortened and study hours were fairly apportioned to the training of the mental and physical powers by relieving the weariness induced by long-continued study, with recreation and exercise, there would be little danger of evil effects from over-study.

—THE law requiring the old School Boards to meet on the day after election of new members to count the votes cast, is rather inelastic, as a meeting on that day may not be possible for want of a quorum. The time should be extended by a saving clause providing for special circumstances.

THE NEW HIGH SCHOOL INSPECTOR.

The lamented death of Mr. Marling left a vacancy difficult to fill. His scholarship, his experience, and his character combined to fit him in an eminent degree for the position which he so ably filled. The choice of the Government has been made, and Mr. J. E. Hodgson, M.A., Principal of Brantford Collegiate Institute, has been appointed an Inspector of High Schools. The duty of selection was a most difficult one. Among the numerous applicants there were other masters of equal ability and longer experience than Mr. Hodgson. There are no doubt some who will object to the appointment on account of the comparative youth of Mr. Hodgson. It is not often possible to give universal satisfaction in making such an appointment. It must be conceded, however, that when a young man has shown clear evidence of the possession of special fitness for any position, his youth is decidedly in his favor. The earlier a man enters upon his life-work the greater are the opportunities to attain a marked efficiency in the performance of his duties.

Mr. Hodgson, was born at Whitby, Ontario, in 1850. He received his training for the University, under his father, Mr. James Hodgson, at present Inspector of Schools for South York. He matriculated in Toronto University in 1869, received the degree of B.A. in 1874, and was awarded the first silver medal in the department of Classics. He took his M.A. in 1880. During the year of 1872, while an undergraduate, he taught in Chatham High School. In 1874, after graduating, he was appointed Classical Master of Cobourg Collegiate Institute, but in the course of a few months he was induced to accept a similar position in the Collegiate Institute at Hamilton. He retained this position till January, 1876, when he was appointed Principal of St. Mary's High School. In 1879 he was selected by the Collegiate Institute Board of Brantford as the successor to Mr. Mills, who had been appointed President of the Agricultural College, at Guelph.

As a teacher, Mr. Hodgson has been singularly successful; five students, directly prepared by him, have won classical scholarships at the matriculation examinations of the different Universities, and a large number of his students have gained first-class honors in Classics, English, French, History and Geography. In his classification and management of two of the most important Collegiate Institutes in the Province he has shown marked ability.

On the whole, Mr. Hodgson's experience has been of the right kind to fit him for the duties of an Inspector. Indeed his whole life has been spent in High Schools, or at College. His father was a successful Grammar School Master, so that from his earliest years, he has been perfectly familiar with the details of the work he will have to inspect.

—Mr. Gray, who was for many years Principal of the Central School in St. Catharines, and afterwards Inspector of Schools in that city, has been appointed Inspector of the County of Lincoln. Mr. Gray is an experienced and successful teacher, and will no doubt prove the right man in the right place.

MATRICULATION IN THE MEDICAL SCHOOLS.

—WE expressed the opinion in the February Number of the JOURNAL, that the regulation adopting the Intermediate Examination with Latin as the standard for matriculation by the College of Physicians and Surgeons for Ontario, should be interpreted to mean that the intending Medical Student should take Latin as his optional subject, instead of French, German, or Natural Philosophy, &c., and that those who had already passed the Intermediate without Latin could matriculate in the College by taking Latin only. We are glad to have our interpretation confirmed by Dr. Pyne, Registrar of the College. He sent the following letter bearing on the question to Mr. Clarke:—

TORONTO, Feb. 20, 1882.

J. A. CLARKE Esq., M.A.,

High School, Smith's Falls, Ont.

Dear Sir,—I send you the C. P. & S. O. announcement, with the page turned down, stating that the Intermediate certificate with Latin only, is all that is required by the Medical Council.

In the copy of curriculum you enclosed, I must state, that the group you mark B (being the one on Latin) is the only one required to be taken, by intending Medical Students. Groups A. C. & D. are not required.

Trusting this will be sufficiently explicit,

I remain, dear Sir,

Yours faithfully,

R. F. PYNE,
Registrar.

THE REVISED EDUCATION CODE OF ENGLAND.

We learn from the London Times that the task of revising the English Education Code—a matter which for a year past has excited much discussion throughout educational circles in England—has been definitely terminated. The original code, first drawn up by the celebrated Mr. Lowe (now Lord Sherbrook), though like most educational projects which break in upon stereotyped usages, it encountered severe criticism, has, as the Times observes, proved itself fairly well adapted to the circumstances of national education, and has remained practically unaltered to the present day. But the minor changes made necessary by the altered conditions of the country, in time wrought so much complication and confusion in the details of the Code that its very unintelligibility made imperative a systematic revision. To this work of revision the chiefs of the Education Department, Earl Spencer and Mr. Mundella, seem to have addressed themselves with great energy.

On various suggested changes, public opinion was elicited in advance by means of circulars plentifully distributed throughout educational circles. The general result of their labor, the Times represents as in the highest degree re-assuring to all true friends of the existing national system of elementary education. The new Code is compared to "a well-fitting boot pressing gently and equally on all sides; special care, indeed, being taken here and there to give ease to a particularly painful corn."

The points of the new Code to which the Times directs particular attention, are the following:—*Infant Schools*, *Subjects of Instruction for Children over Seven Years of Age*, *Annual Examination*, *the Attendance Grant*, *Night Schools*, *School At-*

tendance, Pupil Teachers, Miscellaneous Regulations. The requisites of a successful school system for young children are justly stated by the *Times* to be "good teachers, bright methods, thoroughness of results, and simple and discriminating inspection." The new Code is described as adapted in a high degree to secure these requisites. We are glad to observe that provision is made even in the case of *Infant Schools* for "simple lessons (not rigidly systematic as to their subjects) on common objects and on the more prominent phenomena of nature and common life—lessons intended to train the observation as well as to store the mind with useful information."

In a future issue we may refer to some of the features of the new Code in detail."

—The able article in the February number of the *JOURNAL*, written by Professor Robins, Inspector of Schools in Montreal, was issued by him to his teachers, and first appeared in print in the columns of *The Educational Record*, the official organ of the Education Department, Quebec. We are pleased to note that the Provincial Board of Education, has recommended an increased grant in aid of our lively contemporary.

✓ —The annual meeting of the American Froebel Society will be held in Detroit, on the 21st of June next. All Canadian Kindergarteners are cordially invited to be present, as well as those interested in extending the work of Froebel. Those who intend to be present should notify W. N. Hailman, Editor of "New Education and the Kindergarten Messenger," Lafayette Street, Detroit. We hope many Canadians may show their interest in true educational progress by attending the meeting.

—We perceive with much pleasure that Mr. A. L. Parker, B.A., has been appointed a Fellow of St. John's College, Manitoba (see Notes and News). Mr. Parker is at present performing the duties of School Inspector of Parry Sound and Algoma, and on his appointment to that position we took occasion to notice his successful and promising career. We are always pleased to record success, and we hope the new sphere Mr. Parker is about to enter will be to his advantage. The North-West is depriving us of some of our leading educators, but we feel too much interest in the future welfare of the Sister Province to grudge her anything for her benefit.

REV. EGERTON RYERSON, D.D., LL.D.

BY J. GEORGE HODGINS, LL.D.

[The following sketch appeared in the first number of the *JOURNAL*, and is republished at the request of the General Committee of the Ryerson Memorial Fund. It will doubtless be of greater interest to most of our readers now, than when first published.]

We are glad to see that steps have been taken to carry out a suggestion which we made in the last number of the *JOURNAL*; that some suitable monument to Dr. Ryerson should be erected in the Normal School grounds. The question has been raised whether subscriptions should be limited to trustees, teachers, and pupils, past and present, or open to the entire Province. It matters little. Those who have not been trustees, teachers, or pupils in Ontario at some time during the past thirty-eight years, form but a small por-

tion of its population. There is no way in which a national spirit can be more quickly developed, or a laudable ambition to be good citizens awakened in the breasts of young men, than by doing honor to those whose lives have been successfully devoted to the best interests of their country. Let the response to the appeal for funds for the Ryerson Memorial be universal and prompt.]

—
"For quite a complete and admirably arranged Exhibition, illustrating the Ontario system of Education and its excellent results; also for the efficiency of an administration which has gained for the Ontario Department a most honourable distinction among Government Educational agencies."—
Report of the American Centennial Commission, 1876.

Such was the gratifying tribute which a number of eminent American Educationists unconsciously paid to the distinguished founder of the Ontario system of Education, in estimating the results of his labours as illustrated at the Centennial Exhibition.

Although it is difficult to sketch, with freedom, the life and career of distinguished men, while living, yet it can, nevertheless, be done; and there are cases in which it is desirable and fitting that it should be done as far as possible. Such a case is that of the Rev. Dr. Ryerson, whose official career as the founder of our Educational system was so honourably and successfully closed in 1876. The history of Dr. Ryerson's life and labours has yet to be written; but this cannot be done in the lifetime of the present generation. The conflicts of his noted and eventful career have been so many, and have been more or less so severe that it would be a difficult and delicate task just now to describe them, or to discuss the motives and proceedings of the principal actors with the judicial calmness which would give to such a work an impartial character. The materials are, however, abundant; and the writer of this sketch hopes that it may yet be in his power, from his long and intimate knowledge of the facts relating to these events, to be able to perform this filial duty, and to do justice to the noble qualities, statesman-like views and comprehensive grasp of mind of the distinguished man who, while yet in the vigour of a "green old age" has reared for himself so enduring a monument as the public school system of Ontario, and has enshrined his name in the hearts and affection of his countrymen.

In seeking to account for the great success, which has attended the labours of the late Chief Superintendent of Education, in founding our system of public instruction, it is desirable to enquire into the causes of that success. Energy and ability will do much in any great work, and they are essential to its successful accomplishment; but many a man of untiring energy and undoubted ability has failed, because he had overrated his own powers and had lacked tact and judgment in their exercise. Dr. Ryerson may have erred now and then in these particulars; but such errors were the rare exception and not the rule. He wisely laid down certain great principles which he believed to be essential to the success of his labours. These general principles may be thus summarized: 1. That the education of the people should be by themselves, and through their own agency; and that they should, therefore, be consulted in regard to all school legislation. 2. That the aid of the Government should only be invoked where it can most effectually stimulate and assist local efforts in this great work. 3. That the property of the country is responsible for, and should contribute towards, the education of the entire youth of the country. 4. That a thorough and systematic inspection of the schools is essential to their vitality and efficiency. These with other general principles, Dr. Ryerson kept steadily in view during the whole thirty-two years of his administration of the school system of Ontario. Their judicious application has contributed largely under the Divine Blessing, to the success of his labours.

The Reverend Egerton Ryerson, (or, as he was baptized, Adolphus

Egerton Ryerson,) was born in the Township of Charlotteville, near Lake Erie, London (afterwards the Talbot District, (now the County of Norfolk) on the 24th of March, 1803. His father, Colonel Joseph Ryerson, a United Empire Loyalist in the British service at the time of the American Revolution, was born in New Jersey. He first joined as a cadet, and was one of the five hundred and fifty loyal volunteers who went to Charleston, South Carolina. For his good conduct in bearing despatches one hundred and ninety six miles into the interior, he was promoted to a lieutenancy in the Prince of Wales' Volunteers by Sir Guy Carleton, (Lord Dorchester). Subsequently he was engaged in six battles, and was once wounded. At the peace of 1783 he was exiled, and went to New Brunswick, thence to Canada—he and his family enduring very great hardship in penetrating into the interior of the then unbroken wilderness of Canada. He settled in Charlotteville, and lived there about seventy years. In the war of 1812, he and three sons again joined the British standard, and acquitted themselves bravely. During his life he held various appointments under the crown. He died, in 1854, at the venerable age of ninety-four years, after having enjoyed his half-pay as a British officer for the unprecedented period of seventy years. Dr. Ryerson was the fourth son of Colonel Ryerson, and was named after two British officers who were intimate friends of his father. His youth was passed in his native country and at its Grammar School he received the rudiments of his early education. With Mr. Law, the Master of the Gore District Grammar School at Hamilton, (at the head of Lake Ontario) he studied his classics. As the Grammar Schools were the only public schools at that time in existence in the country (and they had just then been established; they were, in the rural counties, very elementary in their character, and did not profess to teach more than the mere rudiments of an English education. The young and ardent student, as Doctor Ryerson then was, (and his ardency continued during his life time) not content with the superficial knowledge of grammar which he obtained at school, prevailed upon his father to allow him to go home for six months to attend a grammar class which had been established in the county town on that specific subject.

Doctor Ryerson's habits of study at this time were characteristic of his practice in after life. When at school he had entirely mastered the theory and principles of English Grammar, and had learned all the rules and explanations, and in fact nearly the whole book by rote, but he had no one to explain the theory or to apply the principles of the text-book, flexibility and power of the language. He also at the time prepared and wrote out a digest of Murray's English Grammar, in two volumes, Kame's Elements of Criticism, and Blair's Rhetoric and a Latin Grammar. He was an indefatigable student; and so thoroughly did he ground himself in these and kindred subjects thus early in life and under most adverse circumstances, that in his subsequently active career as a writer and controversialist he ever evinced a power and readiness with his tongue and pen which has often astonished those who were unacquainted with the laborious thoroughness of his previous preparation.

Doctor Ryerson's experience as a teacher did not extend beyond the Grammar School of his native county. At the age of sixteen he was appointed usher, or assistant teacher, to his eldest brother George, (who had received his training at Union College, Schenectady) and who had succeeded his brother-in-law, Mr. Mitchell, on his appointment by the Governor to the judgeship of the county. During the absence of his brother George, the charge of the school devolved upon the youthful usher. Having thus the management of boys and girls who were his companions, and many of them several years his senior, his firmness, tact, and decision were frequently put to the test, but he acquitted himself well, and the experience thus gained was afterwards turned to higher account.

On his twenty-second birthday (24th March, 1825) Dr. Ryerson was ordained deacon in the M. E. Church, by Bishop Hedding. His diary during the first year of his ministerial life shows how devotedly he applied himself to the culture of his mind, although his valise often contained the chief part of his library, and the back of his horse frequently afforded him the only place of study. His first literary effort was put forth in 1826—being the review of Ven. Archdeacon Strachan's sermon on the death of Bishop Mountain, and it at once established his reputation as an able controversialist. In 1828, he again wrote a series of letters criticising Dr. Strachan's famous chart of the various religious bodies. Both series were published in pamphlet form. In 1829, the *Christian Guardian* was established and he was appointed its joint editor. In 1833 he went to England, and again in 1835. In the latter year he went to obtain a Royal Charter and subscriptions for "U. C. Academy," now Victoria College, Cobourg. He also induced the Home Government to recommend the Upper Canada Legislature to grant \$16,000 to the Academy, which it did against the wishes of Sir F. B. Head, the Governor.

In 1840 an Act of Incorporation was obtained from the then recently united Canadian Legislature, erecting Upper Canada Academy into a University under the name and style of the "University of Victoria College, at Cobourg." Doctor Ryerson (who then received the title of D. D. from the Wesleyan University, Middletown,) was unanimously chosen its first President. In 1844, Doctor Ryerson was appointed Superintendent of Education for Upper Canada, by His Excellency the Governor General with an understanding that he would re-lay the entire foundation of the system, and establish it on a wider and more enduring basis. The instructions which he received on his formal appointment were contained in the following words: "His Excellency has no doubt that you will lose no time in devoting yourself to devising such measures as may be necessary to provide proper school books; to establish the most efficient system of instruction; to elevate the character of both teacher and schools; and to encourage every plan and effort to educate and improve the youthful mind of the country; and His Excellency feels assured that your endeavours in matters so important to Western Canada will be alike satisfactory to the public and creditable to yourself." In 1846, he submitted an elaborate report on his projected system of public schools for Upper Canada. In the first part he stated and illustrated its general principles, the concluding fifty pages are devoted to the subject of the machinery of the system under the heads of "Kinds of Schools," "Text-Books," "Control and Inspection," and "Individual Efforts."

Notwithstanding the zeal and ability with which Doctor Ryerson had collected and arranged his facts, analyzed the various systems of education in Europe (chiefly in Germany), and America, and fortified himself with the opinions of all the most eminent educationists in those countries, yet his projected system for this province was fiercely assailed, and was vehemently denounced as embodying in it the very essence of "Prussian despotism." Still with indomitable courage he persevered in his plans and at length succeeded, in 1846, in inducing the legislature to pass a School Act which he had drafted. In 1849 the Provincial administration favourable to Doctor Ryerson's views went out of office, and one unfavorable to him came in. The Hon. Malcolm Cameron, a hostile member of the cabinet, having concocted a singularly crude and ambiguous school bill, aimed to oust Doctor Ryerson from office, it was without examination or discussion passed into a law. Doctor Ryerson at once called the attention of the government (at the head of which was the late lamented Lord Elgin) to the impracticable and unchristian character of the bill, as it had formally excluded the Bible from the schools. The late Honorable Robert

Baldwin, G. B., Attorney General (the Nestor of Canadian politicians, and a truly Christian man) was so convinced of the justness of Doctor Ryerson's views and remonstrance, that he took the unusual course of advising His Excellency to suspend the operation of the now act until Doctor Ryerson could prepare a draft of a bill on the basis of the repealed law, embodying in it, additional to the old bill, the result of his own experience of the working of the system up to that time. The result was that a law passed, in 1850, admirably adapted to the excellent municipal system of Canada, so popular in its character and comprehensive in its provisions and details, that it is still (in a consolidated form) the statute under which the Public Schools of Ontario are maintained.

There was one question, the agitation of which had for many years caused a good deal of disturbance to the school system, but which was set at rest in 1863. This question was the right of Roman Catholics to establish schools of their own, separate from the Public School, but nevertheless aided from the parliamentary grant for education, according to the average attendance of pupils at the schools. The principle of these schools was fully conceded in the first Canadian School Bill which was passed in 1841, the year of the legislative union of the provinces of Upper and Lower Canada. It was subsequently modified in 1843, 1847, and 1850, and (after much bitter agitation) in 1853, 1855, and finally in 1863. In the resolutions for the confederation of the British North American provinces, agreed to at Quebec by representatives from all these provinces, and adopted by the Canadian Legislature in 1865, the rights of the Roman Catholics in regard to these Separate Schools were confirmed as follows: "The local legislature of each province shall have the power to make laws respecting education; saving the rights and privileges which the Protestant or Catholic minority in both Canadas may possess as to their denominational schools, at the time when the confederated union goes into operation."

In 1853, after a good deal of delay and discussion, Doctor Ryerson prevailed upon the legislature to revise the Grammar School Law of the province, which had remained in the statute book accomplishing comparatively little good since 1807-1839. Even then (in 1853) the principle of local taxation for these schools, as applied to the public schools, was not adopted by the legislature in regard to the Grammar Schools. For twelve years longer these schools continued to languish. In 1865, the Grammar School Law was still further improved, and a higher standard of education adopted; but as yet the principle of local taxation for the support of these schools had been but partially concurred in by the legislature and embodied in the amended Act. It provided, however, that a sum equal to one-half of the legislative grant (independent of school fees) should, as a condition of receiving the grant, be raised from "local sources," i. e., by rate, subscription, municipal grant, or otherwise.*

In 1850, Dr. Ryerson, while in England, made preliminary arrangements for establishing the Library, Maps, and Apparatus Depository in connection with his department, and, in 1855, he established Meteorological Stations in connection with the County Grammar Schools. In this he was aided by Colonel (now General) Leffroy, R. E., for many years Director of the Provincial Magnetical Observatory at Toronto. Sets of suitable instruments (which were July tested at the Kew Observatory) were obtained, and shortly afterwards a few of these stations were established. In 1865, the law on the subject having been amended, twelve stations were selected and put into efficient working order. In 1857, he made his third educational tour in Europe, where he procured at Antwerp, Brussels, Florence, Rome, Paris and London, an admirable collection of copies of paintings by the old masters, statues, busts, etc., besides various articles for an Educational Museum in connection with the

Department. In 1858-60, Dr. Ryerson took a leading part in the discussion in the newspapers, and before a committee of the legislature, in favour of grants to the various outlying Universities in Ontario. He maintained that "they did the State good service," and that their claims should be substantially recognized as colleges of a central University. He deprecated the multiplication of Universities in the province, which would be the result of a rejection of his scheme. In consideration of his able services in this contest, the University of Victoria College conferred upon him the degree of LL. D. in 1861. In 1860, he induced the Government to submit to the Legislature the draft of a Bill which he had prepared, after consultation at various County School Conventions, for the further development of the system of public instruction. This law very greatly improved the details of the system, and rendered its whole working more effective. In 1867, he made his fourth educational tour in England and the United States. On his return, in 1868, he submitted to the Government a very valuable "special report on the systems and state of popular education in the several countries of Europe and the United States of America, with practical suggestions for the improvement of public instruction in Upper Canada. He also made a separate "Report on Institutions for the Deaf and Dumb and Blind in Various Countries." In 1868-70, he submitted drafts of Bills to the Government for the further improvement of the Public and High Schools. The matter was fully discussed before a large committee of the House of Assembly, and with a good deal of vehement heat in some public journals. In 1871, the Bill was at length carried through the Legislature by the Hon. M. C. Cameron, and has been the means of largely benefiting both classes of schools. The more important features of the Act related to the new system of county inspection and uniform examinations of teachers, besides provisions for greatly improving the High Schools. In 1874, further important amendments were made to the Act relating to Public and High Schools. The Acts thus amended were consolidated and otherwise improved in this year.

For many years Dr. Ryerson had felt that our new political condition required a change in the management of the Education Department. He, therefore, in 1869 and 1872, urged upon the Government the desirability of relieving him of his arduous duties, and of appointing a Minister of Education in his place. Early in 1876 his recommendations were acted upon, and he retired on full salary from the responsible post which for thirty-two years he had so worthily and honourably filled. As to the estimate formed of his valuable labours, I shall quote the opinions of two gentlemen, viz.: Bishop Fraser, of Manchester, England, and the Hon. Adam Crooks, Dr. Ryerson's successor. In concluding his report on our Canadian Schools in 1865, Bishop Fraser says: "Such, in all its main features, is the school system of Upper Canada. A system not perfect, but yet far in advance, as a system of national education, of any thing that we can show at home. It is indeed very remarkable to me that in a country, occupied in the greater part of its area by a sparse, and anything but wealthy, population, whose predominant characteristic is as far possible removed from the spirit of enterprise, an Educational system so complete in its theory and so capable of adaptation in practice should have been originally organized, and have been maintained in what, with all allowances, must still be called successful operation for so long a period as twenty-five years. It shows what can be accomplished by the energy, determination and devotion of a single earnest man. What national education in England owes to Sir J. K. Shuttleworth, what education in New England owes to Horace Mann, that debt, education in Canada owes to Egerton Ryerson. He has been the object of bitter abuse, of not a little misrepresentation; but he has not swerved from his policy or from his fixed ideas. Through evil report and good report he has resolved, and he has found others to support him in the resolution, that free education shall be placed within the reach of every Canadian parent for every Canadian child."

Before giving the remarks of Mr. Crooks in regard to Dr. Ryerson, I insert the following particulars from the Report to which he refers. They show that a wonderful advance our school system has made under Dr. Ryerson's administration from 1844 to 1874. In this connection I may say that a few of the present generation can realize, not only the low status, but the positively inert condition of the Province in educational matters when the Rev. Dr. Ryerson took charge of the Department, thirty-two years since—1844. Men who were fit for no other occupation were considered just the men to teach school; and houses which farmers of the present day would not erect as out-buildings on their farms, were considered as the ideal country school-house.

* In 1876 the principle so long contended for by Dr. Ryerson, was adopted by the Legislature on the recommendation of Hon. Mr. Crooks, Minister of Education, and the County Councils are hereafter to make a grant to the High Schools of a sum equal to the Legislative Grant.

COMPARATIVE STATEMENT OF THE CONDITION OF PUBLIC SCHOOL EDUCATION IN ONTARIO FOR THE YEARS 1844 AND 1875.

YEAR.	TEACHERS.			MONEY.		PUPILS.					SCHOOL HOURS.				
	Total.	Male.	Female.	Salaries of Teachers.	Total Expenditure.	Total.	Male.	Female.	Total.	Brick.	Stone.	Frame.	Log.		
1875	6,018	2,045	3,973	\$1,758,100	\$2,993,080	474,241	250,430	223,811	4,858	1,232	492	2,117	1,017		
1844	2,706	2,060	646	206,856	275,000	96,756	51,210	45,546	2,505	49	84	1,028	1,344		
Increase..	3,312	585	2,727	\$1,551,254	\$2,718,080	377,485	199,220	178,265	2,353	1,183	408	1,089	....	
Decrease..	....	....	....	....	....	....	....	....	....	....	....	....	327

Mr. Crooks, in concluding his report for 1875, says:—"During that year all these matters were under the control and supervision of the Reverend Dr. Ryerson; and this Report may be considered as a further testimony to the vigor and success of his long administration of thirty-one years; recording, as it does, the operations of the last complete year of his educational labours, and showing a further stage in advance in our educational progress. . . . My best efforts will be directed to secure and perpetuate the advantages which were gained for our system by the late Chief Superintendent after many controversies and discussions."

A meeting of Inspectors, Normal, High, Public, and Separate School Teachers, and Trustees, was held March 14, in the Public Hall of the Normal School, on the invitation of J. George Hodgins, Esq., LL.D., Deputy Minister of Education for Ontario, for the purpose of taking steps to secure the erection of some suitable memorial as a tribute of love and esteem for the late Rev. Egerton Ryerson, for nearly thirty-three years Chief Superintendent of Education in Ontario.

The meeting was fairly attended by the teachers of the Normal, Public, Separate, and High Schools of Toronto, and by the Public

School Trustees of the city, as well as by several Public School Inspectors from a distance.

Dr. Hodgins was appointed Chairman, and Mr. James L. Hughes Secretary of the meeting.

It was moved, by Mr. S. McAllister, seconded by Mr. A. McMurchy, M.A., and carried unanimously, That in the opinion of this meeting a suitable monument should be erected as a tribute to the memory of the late Rev. Egerton Ryerson.

On motion of Mr. J. L. Hughes, seconded by Mr. John Campbell, a committee, consisting of Mr. A. McMurchy, M.A., Rev. Bro. Odo, Mr. David Fotheringham, Mr. A. McAllister, and Mr. Geo. McMurrich, was appointed to nominate a General Committee of Management to take steps to secure the erection of a suitable memorial in accordance with the terms of the previous resolution.

On the retirement of the Nominating Committee, the Chairman read letters from Hon. Adam Crooks, Minister of Education; Alex. Marling, LL.D., Secretary, Education Department; G. W. Ross, M.P.; W. R. Bigg, I.P.S., Leeds; G. D. Platt, I.P.S., P. Edward; E. Scarlett, I.P.S., Northumberland, and Mr. W. J. Gage, expressing their entire sympathy with the object of the meeting, and their willingness to aid in carrying it to a successful issue.

While awaiting the report of the Nominating Committee, an informal discussion took place regarding the nature of the proposed memorial, the best place to erect it, and the method of collecting the funds necessary. Mr. Little, I.P.S., Halton; Dr. Carlyle, Toronto N. S.; Mr. McBrien, I.P.S., Ontario; Mr. James Bain, Toronto P. S. Bd.; Mr. McKinnon, I.P.S., Peel; Rev. Dr. Davies, and Mr. Kirkland, Toronto N. S., and others, took part in the discussion. The general opinion was in favor of a statue in the Normal School grounds.

Mr. McMurchy presented the report of Committee on Nominations, and moved its adoption.

Mr. Bain seconded the resolution, and with very slight amendments, the report was adopted.

The report as amended reads as follows:—

The Committee on Nominations begs to recommend that the following gentlemen constitute the General Committee of Management in connection with Ryerson Memorial:—J. G. Hodgins, LL.D., Chairman; Walter S. Lee, Sec.-Treas. Toronto Collegiate Inst. Bd., Treasurer; James L. Hughes, I. P. S. Toronto, Secretary; Rev. Dr. Ormiston, New York; Rev. Dr. Davies, Principal Toronto N. S.; James A. MacCabe, LL.D., Principal Ottawa N. S.; Daniel Wilson, LL.D., President Toronto University; Prof. Young, Chairman C. C.; His Grace Archbishop Lynch; Rev. Provost Boddy, Trinity College, Toronto; Rev. Principal Caven, Knox College, Toronto; Rev. Dr. Castle, President McMaster Hall (Baptist College), Toronto; Rev. Father Vincent, Superior St. Michael's College, Toronto; Rev. Dr. Nelles, President Victoria University, Cobourg; Rev. G. M. Grant, President Queen's University, Kingston; A. McMurchy, M.A., President Ontario Teachers' Association; E. Galley, Chairman P. S. Bd., Toronto; Vicar General Rooney, Chairman Sep. Sch. Bd., Toronto; Mr. White, Provincial Inspector of Sep. Schools; Rev. Bro. Tobias, Inspector Sep. Schools, Toronto; J. A. McLellan, M.A., Inspector of High Schools; J. S. Carson, I.P.S., Chairman Inspectors' Section Ont. T. A.; D. O. McHenry, M.A., Chairman H. S. Section Ont. T. A.; R. Lewis, Chairman Public School Section Ont. T. A., and the Public School Inspectors of Ontario, *ex-officio*.

It was agreed that five members of the Committee shall form a quorum; and that the Committee shall have power to add to its number.

At a subsequent meeting the presidents of chartered Universities, and Messrs. McAllister, Doan, and Spence, the Legislative Committee of the Provincial Public School Teachers' Association, were added to the General Committee.

The following circular has been issued by the Committee:

MEMORIAL TO THE LATE REVEREND DOCTOR RYERSON.

APPEAL.

To Trustees, Inspectors, Teachers, and Pupils—past and present—connected with the Public, Separate, and High Schools, and to the other friends of Education, in the Province of Ontario; from the General Committee appointed at Toronto, on the 14th of March, 1882, for the collection of funds with which to erect a Monument, or other Tribute of Esteem and Admiration, to the memory of the late Reverend Dr. Ryerson, founder of the educational system of Ontario.

Although still young, our Province has already been called to mourn the removal of not a few of her gifted sons, who have severally adorned the different walks of public life. In weight of character, wealth of manhood, and width of human sympathy, the late Chief Superintendent of Education stood amongst the foremost and mightiest of them all.

Egerton Ryerson was a man of rare diversity of gifts, of remarkable energy, and of abundant mental resources. It would have been easy for him to have excelled in any one sphere of human greatness, but it was his to stand high in several. He was a many-sided man; richly endowed in various ways. He was a laborious farmer, a zealous student, a successful teacher, an eminent preacher, a prominent ecclesiastic, an influential editor, a forcible writer, a sagacious counsellor, a most efficient principal and professor, but he was chiefly noted as a great public educationist.

For a third of a century he was the head and inspiring genius of our school system, establishing, moulding, adapting, controlling it; and this, the main work of his life, will endure, and command in the future, as it has in the past, the admiration of all both at home and abroad. During all these years he was the teacher's true friend, and the ardent well-wisher of the young. His sympathies—tender and true—as helpful as they were healthy, went out to every earnest worker, whether in acquiring or imparting knowledge. The enquiring left his presence directed; the downcast, cheered; the doubtful, confirmed.

Unselfish, generous, disinterested, he devoted himself wholly to his work. How often did his lip quiver and his eye fill when he addressed the gatherings of teachers and pupils upon whom he looked not only with the eye of a patriot, but of a parent,—“Ye are my children all.”

We can never forget him; we profoundly mourn our loss; we fondly cherish his memory. Affection, gratitude, a sense of what is due to so eminent a man, impel us to perpetuate that memory in some suitable way, which will render such a noble life an inspiring example to young men now and in the coming days.

In obedience then to one of the purest and loftiest instincts of our nature, let us unite in paying a common tribute of admiration and regard to the memory of him to whom we all sustained a common relationship, and to whom we also, without distinction as to nationality, political preferences, or religious belief, can pay sincere homage, as the founder of our present excellent and comprehensive system of education.

In honouring him we do honour to our common country, and recognize our obligation to pay fitting homage to the great men of our Dominion whose names, with his, are inscribed high upon the roll of Canada's famous sons.

WM. ORMISTON (New York), } Committee.
J. GEORGE HODGINS,

Signed on behalf of the General Committee,
JAMES L. HUGHES, Secretary. J. GEORGE HODGINS, Chairman.

Contributions.

EDUCATIVE INSTRUCTION.

BY WILLIAM CROCKET, A.M., PRINCIPAL OF FREDERICTON
NORMAL SCHOOL.

Most men look at things in the direction of their own tendencies. They see properties in which they are interested but fail to perceive what does not immediately concern them. The carpenter sees in the tree the boards of his workshop; the lumberer the deal for the market; the botanist the characteristics of its structure, and the poet “a thing of beauty and a joy for ever.” In the inanimate rock the builder sees the corner-stone of a noble edifice, the sculptor the full proportions of a finished statue, and the geologist reads the story of the olden times. So it is with the subject of Education. The clergy man sees in it the elevation of the masses, the politician the diminution of crime, the practical man the training for a particular pursuit, the parent the passport to the position he contemplates for his son, and the miserable bachelor nothing but a bill of expense. The subject touches on so many interests, and has so many aspects,

that every man is more or less concerned with it, and has got his own notions regarding it. Formed as these generally are, not upon a search into principles, but according to the bias or tendency of the individual, it is not to be wondered at that opinion regarding its subjects, methods, and results should be so conflicting. One man would limit the subject to the three R's, another would embrace whatever subjects are required to fit the pupil for the business of life. One man ignores method, and makes knowledge paramount, another subordinates knowledge to method. One man believes that the diffusion of education will diminish crime, another believes nothing of the kind—“it may give it a different direction, but statistics prove that it does not diminish it.” Thus the contest has been going on for many years, and will continue until fundamental principles are generally known and recognized.

What is the grand ideal underlying all this agitation, all this interest, all this desire for the diffusion of education? Is it merely that the pupil may be crammed with so much knowledge? Does the man who would limit the subject of instruction to the three R's ask for simple knowledge? Does he not expect faculty—faculty to read words and sentences distinctly, to handle the pen and form letters, and to manipulate numbers? To aim at this, is to aim at endowing the pupil with a power which he had not before. This, as far as it goes, is capacity acquired through the instrumentality of these subjects. When the Province, at the beginning of the century, granted £10 to each parish to encourage only two of the three R's—Reading and Writing, it intended that the pupils should acquire the power to read and write—that they should be trained to do the things specified. When Lord Brougham, after the French Revolution, sounded the note of the education of the people, it is true that the favorite phrase was the diffusion of knowledge among the people—useful knowledge. But there accompanied it the aphorism which is still current—“Knowledge is power.” Knowledge is not in itself power. Power is the result of the effort put forth to acquire knowledge. It would then seem that unless the diffusion of education gives faculty, power, capacity, the grand national idea underlying education is not realized.

This underlying idea is the one that has run through the ages, however much in our practice we may depart from it. The old Persian ideal of education was one of capacity, not of acquisition—to ride, to shoot with the bow, and to speak the truth. The accomplishments of the perfect knight were not what he knew, but what he was and could do. Among the Greeks knowledge as mere knowledge did not count much. They aimed not at the acquisition of knowledge but the acquisition of perfect habit. Philosophy was a life, not a system which could be written down on paper. Such was the idea as it grew out of Greek experience. It is true there were then, as there are in our own day, professional crammers—men who defended cram on principle. There were the Sophists, teachers who undertook to furnish their pupils with ready-made talk, which could be produced on any occasion. They could make a speech or write a leader on any side of any question without knowing anything about it. During that brilliant period of Athenian history, about two centuries before the death of Cato, when almost all the citizens were equally well qualified to fill offices or conduct business, these Sophists had little foothold, but as Greece went down in virtue, honesty and patriotism, these crammers came more and more to the front, and the term crammer—which in the good time was held opprobrious, lost its offensive construction and came to mean simply a public teacher. But this was degeneracy and decay. In the uncorrupt time education was the agency by which character was to be formed and capacity acquired. And this is the grand central ideal, in whatever form we may seek to clothe it, that the modern spirit is more and more casting about to realize.

The proper aim of the teacher is to aid in the realization of this conception—the evolving of the pupil's powers so as to fit him for action in any sphere. The powers of the intellect are to be brought out and character formed as far as time and circumstances permit.

In what way can the school aid in the realization of this ideal?

The pupil's powers can only be evolved according to natural law. We may cram him with knowledge, may strain his memory to the utmost capacity, but if the mind does not grow in this way, we cannot thereby produce healthy faculty any more than we can produce a healthy plant except through the laws of its growth. Let us consider for a moment the laws stamped upon the mind by the Creator.

We see that the mind first expands through contact with the external world. By means of the senses impressions are made upon it. The child sees a tree one day and another the next and so on, he comes to form some idea of what a tree is. He is not able to define it, but he knows what it is, he has made an induction of his own. This is a natural law, and so in regard to actions. He sees this one to be beneficial, and another and another, and he soon comes to select that which is beneficial. But this is not all in this simple operation. Every perception is accompanied with some feeling or emotion and some desire. Watch, for instance, how a child acts while looking at the beautiful toy of his play-mate.

We have then three aspects in which objects affect the mind. They form perceptions, give rise to feelings or emotions, and awaken desires. Further, when a sufficient number of perceptions have been thus formed, a higher operation takes place. The mind detects similarities, it unites them into groups or classes, and thus gradually rises from the individual to the general, from the concrete to the abstract. In the case of the feelings the child learns to love what is worthy of being loved, and from doing this in particular cases its affections enlarge until groups are embraced; it then sets its desires on what is really desirable and seeks to attain it. These are the laws of mental growth—perception through the senses, from individual or particular cases to general laws, from the concrete to the abstract—and their violation will be followed by such penalties as are consequent upon the violation of physiological or any other natural law.

In our haste to impart knowledge we are apt to ignore these laws—to give the child his perceptions of an object through verbal description, instead of bringing him into contact with the object itself or representation of it—to give him the abstract by way of rule and definition instead of leading him step by step through concrete examples. In our lessons in natural science, we seek rather to begin with the classification and generalization of naturalists than to bring the pupil into contact with nature itself and lead him up to her laws. In the case of the feelings, it is not uncommon for us to expatiate upon a virtue before the pupil has had sufficient experience to enable him to apprehend what we mean.

The instrument through which the teacher seeks to educate the pupil is instruction. Instruction is the means, education the end. We have not now to discuss what subjects are best suited to accomplish the end. We have settled that question to the best of our judgment. We believed that the two great subjects, *man* and *nature*, meet the wants of the human mind and form the only sure basis for action. Hence we divided our course into the two subjects—*Language* and *Natural History* or *Science*—*Language* as the expression of man's inner life—*Natural Science* as the expression of the external world. Whatever aptitude a pupil may afterwards exhibit for the one or the other of the two great lines of study, and whatever provision University Curricula may make to meet the wants of the students, I believe that we are guided by the soundest principles not only in conjoining both subjects in our Course, but in assigning equal value to each, and though in places not remote, it

has been sneeringly and flippantly assailed, it was only to bring out its vitality and power.

It is in the mode employed in using the Course just as it is in the proper application of any instrument, that its effectiveness depends. The mode must be consistent with the end in view. The modes may vary and will vary. The particular plan which one man adopts may be ill-suited to another. A mode which is effective in some circumstances, may be fruitless in others. The thinking man will shape his mode to suit himself and his circumstances. It is here that the Teacher ought to have and ought to take the fullest freedom. But principles do not change. They are the eternal lights that guide us amid all the vicissitudes of circumstance and condition. And here it is that the Teacher is restricted. He cannot without frustrating the true aim adopt a mode opposed to the laws of mental growth—he cannot put the abstract before the concrete—the general before the particular.

One fundamental principle in educative instruction arising out of these laws is *clearness and accuracy of ideas*. However few these ideas may be there can be no basis for further progress until they become distinct and accurate. The external world first furnishes the only means to this end, and here the child's first lesson must begin. He is not to be taught geology, zoology, plantology, or any other ology. To attempt this is to attempt impossibilities. It is only a mature mind that can grasp any of these as a science. But these sciences supply endless materials for giving distinct notions of things. But this can only be done when the things themselves are presented. More statements about them is of no more value to a child's conceptions than is a description of color to a blind man. How useless, for example, is a lesson on a leaf if the object is not submitted for examination and its properties determined by the pupils themselves? To describe its form, its outline and venation without inspection, not only deprives the child of the means intended for its early culture, but is the sure way to impart false conceptions. Test the result of teaching by mere statement and you will find that the most absurd and incongruous notions are entertained—notions which if ever they become accurate and distinct only do so through experience of the things themselves. On the other hand, if the leaf is submitted and its form fully examined and compared and contrasted with other forms, the impressions will be vivid and complete. In the same way should lessons be given on the outline and venation. Again, the ordinary phenomena that underlie the operations of a general law should be observed, and observed with sufficient frequency. In this way is a foundation laid for those higher exercises which the growing mind requires. The pupil comes to detect similarities and differences, and groups and classifies accordingly. From repeated observations of individual phenomena he inductively arrives at general laws. The impulse thus imparted to him will carry him on to higher and higher attainments as his mental powers unfold, and though his school days may be short, his training in the external world has been, as far as it goes, complete. In connection with this subject, the *London Lancet* of May has a valuable article which was republished in the *St. John Sun*, in its issue of 22nd ult. "Before the age of seven," it says, "the sole aim of the educator should be to develop by habit the faculties of observation and mind storing, with the closely connected power of recalling mental impressions at will." This is confirmation from high authority not only of the principles I have laid down, but of the soundness of, at least, the first two standards of the Course.

Again, we have the abstract of the external world in the form of Arithmetic and Mathematics. Here also the abstract must be reached through the concrete, the general through the particular; conceptions of numbers must be awakened through the medium of

objects. The word seven is a more sound to the pupil who cannot count seven objects, and his operations on imperfect ideas of number are mysterious performances. The practice of dealing with 100s and 1000s and larger numbers with a view of acquiring rapidity in the fundamental rules, lays the foundation for that obscurity which frequently hangs over the subject. With respect to the rules in arithmetic, it is notorious that many pupils have for a long time no intelligent conception of them, and some are never able to apply them unless they are told by what rule the question can be solved. The pupils are not stupid, they are bright at many other things. In one case they have acquired clear conceptions which make them eager to advance; in the other, they have not, and they dislike the subject. The dullness in this case arises from reversing the natural process—from dealing with the general before the particular, giving the rule without experience of the facts upon which it is founded—by a sufficient number of practical examples being proposed and the pupil questioned step by step as to the processes which must necessarily be adopted in their resolution, he will make the induction for himself. The rule will then be to him a reality, something he can apply wherever it is applicable.

Geometry has always been regarded as an eminent means of mental discipline. The subject is in itself well fitted to be so, but the mode of commencing it has, until recently, been a serious drawback. Definitions which can only be grasped by those having a knowledge of the subject, or by minds of considerable maturity were first presented and produced what Socrates calls *simulacra*—semblances of knowledge, phantoms, things to be got rid of as soon as possible, to make room for verities. How much more natural, how much more pleasant, and how much sooner the mind can be fitted for the discipline of the study, if correct geometrical conceptions are first awakened. This mode is now adopted by all intelligent teachers. Illustrations by means of paper, pasteboard or wood, are employed. Solids are made the starting point—the pupil becomes familiar with the cube, cone, and cylinder as realities and not merely as lines on a blackboard. From the solid he takes the surface which is its boundary, and in the surface he sees the line which he comes to know cannot exist anywhere else. He next proceeds to represent his conceptions. He lays his blocks or planes upon paper, passes the pencil round them, and in the figures he sees the plane or line, just as the child sees the dog in the picture. The pupil should subsequently be introduced to constructive geometry—a part of the subject too much neglected by us. He has probably been using his compasses to test the accuracy of his freehand representations. He should now be required to use them in making exact constructions—an exact perpendicular, square, parallelogram, equilateral triangle, &c. His practice in such constructions leads him to see various relations in and between the figures, which prepares him to appreciate and even to anticipate the logical demonstrations. It is only in some such way as this that clear conceptions can be had from the outset, that each step is the natural sequence to the preceding one, that each attempt promises victory,—in short that the subject can become educative. Let a simple question like the following be proposed to two average boys, who have been studying geometry for the same length of time—one trained on the plan described and the other on Euclid's plan; How much larger is a square described upon a line two inches in length than a square described upon a line one inch in length? The Euclid boy has not met with it in his demonstrations, and is unable to determine the relation. The modern boy does not know, but he proceeds to find out. He draws a line one inch in length and describes a square upon it. He draws another line two inches in length and describes a square upon it. He takes the smaller square and finds that it is contained four times in the larger. Which of the two boys will receive most benefit from the logical demonstrations? and let us ask our practical friends, which of the two boys is best prepared to enter upon the practical affairs of life?

Our prescribed text-book on the subject has helped to bring about the present mode of teaching it. The plan of the book is on sound philosophical principles, which, if carried out, will lead the pupil to be inventive, intellectual and practical. The explanations and illustrations that precede the definitions and logical demonstrations should be given in the form of oral lessons by the Teacher, and not got up memoriter from the book. Illustrations and experiments with a view of leading to general principles are always most

effective in the hands of the teacher. Even for the pupil to read them over beforehand takes off the bloom of the interest that would otherwise attach to them. For the same reason Hotze's Text-book on Physics, which deals almost exclusively with illustrations and experiments, should not be found in the hands of the pupil at all. The text on geometry is so far as I know the only one which treats the subject in the way I have described. Had this plan been more satisfactorily executed, we should have all looked upon it with much more favor. The language is in many instances obscure, the demonstrations of the propositions are too elliptical to enable the generality of pupils to follow them without assistance, and too little prominence is given to constructive geometry. It has been the means however of putting us on the right track, and we may well endeavor to supply its defects until they are remedied either by the author or by one of our own Teachers.

In connection with what I have said on the subjects of Arithmetic and Geometry, I may be permitted to make the following extract from Mr. Matthew Arnold's Report on the Schools and Universities of the Continent of Europe. In speaking of the schools of France (p. 87), he says: "In general, the respect professed in France for the mathematical and scientific teaching of our schools is as low as that professed for our classical teaching is high. A French school-master who had seen a number of our schools, said to me; 'Your boys do not learn arithmetic, they learn to reckon, and every one,' continues Mr. Arnold, 'who has watched a French teacher employing with his pupils the simple processes, and has also watched an English boy's dealing with a rule of three sum, and heard his questions about its 'statements,' which to him is a mere trick, learnt mechanically, not understood and easily misapplied, has a good notion of the differences between the arithmetic of French and English Schools. I must not forget to add, that our geometry teaching was in foreign eyes sufficiently condemned when it was said that we still used Euclid. One of the great sins of Cambridge was her retention of Euclid. I am bound to say that the Germans and the Swiss entirely agree with the French on this point. Euclid, they all say, was quite out of date, and was a thoroughly unfit text-book to teach geometry from, I was told that Euclid's propositions were drawn out with a view to meet all possible cavils, and not with a view of developing geometrical ideas in the most lucid and natural manner. This to me, in my ignorance, sounded plausible; but at any rate, the foreign consensus against the use of Euclid is something striking, and I cannot but call the English reader's attention to it."

The Universities in our own Dominion are now adopting modern methods. Our Provincial University makes Euclid or modern methods optional at its matriculation examination, and Queen's University, Kingston, Ont., treats, as stated in its calendar just issued, geometry in the lecture room by modern methods as well as by Euclid.

We have next the *inner world*. Here we have human experience as expressed in language and history. It is here that the pupil sees what the race has accomplished. It is here that his own spirit can be inspired in the contemplation of human force, human freedom and activity.

Language.—The instrument through which this is accomplished is Language. The pupil who leaves school at an early age can only receive a knowledge and a very imperfect knowledge of his own language. As long as he proceeds, however, it should be to him the clear and accurate expression of the thought. There is a great tendency on the part of pupils to memorize words without connecting them with the ideas they represent or with any ideas. If care is not taken they fall into the habit of reading, of listening to reading, without taking any meaning from it. The lessons which are received through the external world, connecting as they do, or ought to do, words with things, are, in themselves language lessons, and are fitted to promote its acquisition. The pupil who receives such instruction is therefore less likely to misinterpret language, or fall into the habit referred to. But language is connected with thought as well as with things. The connection is a logical one; for language is not only related to the external world, but also to the subjective mind. As language then is the expression of the thoughts, its value as an educative instrument will depend upon the pupils making this connection. It is just here however that we are so liable to be mistaken. There is, as I have said, a strong tendency on the part of children to catch sounds, and to repeat them correctly without associating any intelligent idea with them.

A few words of explanation as to the cause of this may put the matter in a clearer light. The cause is a physiological one, and it is to re-

cont investigations in Nervous Physiology that we are indebted for the explanation. The brain has two distinct functions—an intellectual and a sensational. By the former the succession of ideas is controlled, and the course of conduct determined. This is a distinctly human function. The sensational function, embracing the powers of sensation, ideation, and spontaneous remembrance, is common to the lower animals, as well as to man. This function is an absolute necessity of animal life, and it is accordingly provided for by a tendency for spontaneous development under appropriate stimulants, and blind submission to the promptings of sensation would in all ordinary cases supply the wants, or gratify the passions of man. Unless these promptings are controlled by an exercise of will guided by a prior exercise of judgment, a man is a mere animal. These two functions are not distinct but in some degree antagonistic, through the application of the ordinary law of nutrition to their respective organs. The portions of the brain which are most employed will receive the largest supply of blood, and will be the seats of the most vigorous cell growth, while on the other hand disuse, or restricted use, will be attended with functional impairment or structural derangement. Now the first impressions made upon the consciousness of a child have a strong natural tendency to expend themselves through the sensorium or sensational portion, and usually do so, unless directed higher by the manner in which they are produced. Unless care is taken to arouse the intelligent attention, the impressions made will excite the sensational faculties alone, be variously associated and remembered in their order, without being understood. Hence the facility with which pupils can repeat, and repeat correctly, definitions, rules, in fact any kind of sounds, without knowing anything about them. The following extract from the *Lancet's* article, already referred to, confirms the view I have given, which is substantially that of Dr. Wm. B. Carpenter. To prevent structural derangement: "The means is training as distinguished from mere exercise. This is an important discrimination. It is not work for mere work's sake that is wanted to cultivate the brain of the youth, but a skilful eliciting of cerebral function by education, tending to formulate the energy of brain tissue by leading or constraining it to useful lines of action." Again, "The mere accumulation of what is called knowledge is not brain training, but brain burdening (sensational excitement) and may easily be pushed to the extreme of brain straining, with the result of a complete and ruinous breakdown."

To study language aright we should study the idea with the word, or the thought with the expression. How little ideas have many of our pupils of terms much used but often little understood—such as justice, mercy, truth, courage. The meanings of such terms can only be reached through concrete examples. If stories setting forth virtue or vice are told, children will soon come to apprehend what such terms really mean, although they may not be able to define them in set phrases—nor is it desirable that they should do so until their minds have sufficient maturity to grasp the comprehensiveness of a definition. ("Use Art to keep the child ignorant."—*Rousseau*.)

When the pupils are sufficiently advanced to get knowledge from a reading lesson, the thought of every passage should be apprehended before the lesson is concluded. That wrong conceptions may not be formed at the outset the main point or general drift of the lesson should be brought out before it is read. The prominent ideas should be set forth in a form suited to the child's intelligence, and his attention then called to the expression in which the idea is clothed. He is now prepared to read the lesson and to associate the meaning with the language. Each stanza or paragraph should then be taken up as much in detail as is necessary to the full appreciation of the thought in it. This gives the opportunity for the explanation of particular words or phrases and which are always best understood in connection with their application. The practice of selecting the large words here and there and of giving the explanation without reference to the context serves no useful purpose. Each paragraph treated in this way, the lesson may be re-read with a view of bringing out its full meaning. A lesson cannot be concluded in this way at one exercise. Many lessons will require several exercises, but as pupils advance, more and more may be done at one time. The poetical extracts in the Readers should be gone over in the same way before being assigned for recitation. We are then sure that the expression is associated with the thought, and what is more, with proper thought. Recitations of questionable thought or sentiment, designed more for the amusement of spectators than the pupils' benefit, as also those beyond the range of the pupils' sympathies should be avoided.

When the pupil is sufficiently advanced to begin the more formal study of Literature, a plan similar to that adopted with the reading lessons should be pursued. Let the general drift of the piece, be it an essay, a poem, or a play, be apprehended before the more detailed study is taken up. This may be done by directing the pupil to read the subject for himself and afterward questioning upon the leading points until the subject stands out in its broad outlines. This outline should then be filled in such a way that each part will be seen in relation to the other and its relation to the whole. It is here that the study of particular words or expressions will naturally come in, and their peculiar force or aptness be felt and appreciated. It is on some such plan as this that the mind grows with the subject, becomes permeated with the thought, and is fitted mayhap for higher things.

The form of so called Literature which deals only with the personal history of the author, his birth, marriage and death, with the name of his chief works, is of no educative value nor of any value whatever until the pupil's literary taste be somewhat formed. When he comes to feel the influence of an author upon his soul, the personal history may be left to take care of itself.

Another mode in dealing with the subject is to spend the time chiefly in the study of particular words to the exclusion of the thought. Though our texts contain notes that deal almost exclusively with peculiar words, their history and origin, they were intended as aids to the mastery of the thought and not to be dealt with as isolated pedantries. Nor is there much, if any, educative value from the study of the subject by making it merely a means for a further acquaintance with grammatical analysis. The study of a classic presupposes such knowledge of grammatical forms as to render the exercise unnecessary unless in the case of involved constructions. It is true that where the thought is mastered and its expression appreciated, the very best opportunity is afforded of drawing attention to the rationale of Grammar (a very different thing from the grammar of the textbook), but the pattering of declensions and conjugations in connection with a classic is out of place. The same remark applies to the teaching of Latin or any other language. From first to last classical pupils, even at Universities, fritter away too much time in mere grammatical verbalisms, instead of bending their energies to the thought and form of expression. How few students see the beauties of a Virgil, or have fathomed the thought of an Æschylus in his Prometheus or in any of his Orestea.

History.—This subject is also a human study. It is the study by which we learn what are the workings of man's nature as carried out in action. And here it is only necessary to add one word as to the plan to be pursued. As in other subjects, we must begin with the particulars. It is in the particular actions of men as observed by the pupil himself, or as related by others, that he first forms his moral standard. The first stage of the subject should therefore be biography, and given orally. Lively conversational sketches of great men cannot fail to impress and interest the young, and if we once get the child interested in a great man we have taught him some history, and what is more, we have given him a valuable acquaintance for life. During this stage also interesting events may be pictured out and actual pictures used if possible. History should be to the child a series of pictures that may live in the imagination and not a heap of facts to rot in the memory. Never mind the sequence of events at this stage, nor the country to which they relate, provided they are fitted to arouse the imagination and appeal to the natural enthusiasm for everything that is great and noble in human nature.

In the formal study of the subject the event should be made to subsolve as far as possible some great purpose—the value of industry, of toleration, of earnest conviction, of perseverance, of freedom, etc. On some such plan as this, it is possible to make the study of history produce profound moral effects on the pupil.

The root idea of the plan I have sketched to make the course of instruction educative, and thus secure to the country the benefits which education should confer, lies in giving clear and accurate perceptions from the outset. With clearness and accuracy of ideas there arises a consciousness of power which urges the pupil onward. No external force is needed either in the shape of punishment or prize. The mind's own inherent energies are stimulated to go forth in search of the elements of its growth. These it takes in and works into itself, and the knowledge instead of incrusting the mind and causing a collapse or breakdown becomes the expanding and energizing power of the soul, making the character stronger, nobler, more individualized, more fruitful in all that is good and beautiful. It is in this way, and this alone, that we can ever hope to realize the grand central ideal of education, and hereby make our pupils, our people, not "dumb driven cattle," "but heroes in the strife."

THE STUDY OF BOTANY.

BY MRS. CHANDLER, WINDSOR, NOVA SCOTIA.

(Read before the Teachers' Association of No 5 District, N. S. and published by the request of the members.)

We understand the aim of true education to be the cultivation and expansion of the powers which God has given us. To cultivate anything, be it a plant, an animal, a mind, is to make it grow. Growth depends not only upon the natural soil, but upon the kind of food and manner of feeding. It is the aim, therefore, of the true teacher to choose such subjects as are best calculated to strengthen the minds of the children with whom he is associated day by day, and present them in such a manner that all their mental powers being gradually unfolded they may go forth from the schoolroom not dwarfs, but with vigorous and well-formed intellects, so that they may be not only morally and physically but mentally better able to take the positions in life which they are destined to fill.

Since a large part, and perhaps the largest part of the knowledge of the child is derived from its power of observation, we find the perceptive faculties the earliest avenue open to the mind. The child is ever on the alert with watchful eye, quick ear, ready hands, and willing feet. As some one has expressed it: "Finite yet infinite to apprehend. Nothing too small, nothing too great to be accounted for." We ask, then, how can this part of the child's nature be better developed than by bringing it into contact with natural objects; we cannot say after all bringing into contact, for this is already done, but by arousing his curiosity about the objects he sees around him. Every child is born with a certain amount of curiosity. So also a love for the beautiful is implanted in every human breast. This love may be developed and form one link between the visible and the invisible, between man and God, in whose image he was created. We know of no study which cultivates this love, or one which gives a wider range for the powers of observation, or which is more interesting to the child, than that of plants in their forms and habits. Where also can we find greater variety of color, or greater perfection of form than in the plant-world, even among the most common weeds? Hence the study of flowers has a tendency to awaken a conception of design, and through this an idea of the great Designer. For we naturally, upon looking at a wonderful piece of art, whether it be a picture, a statue, or whatever it may be, ask 'Who is the author?' Who could study nature in her variety and unity and not be led to contemplate the great Author? We cannot but believe that any study which has a tendency to direct the mind to the Creator is both elevating and profitable, and must form the noblest growth in man's nature. Tennyson must have had some such idea of the study of flowers when he wrote:—

"Flower in the crannied wall,
I pluck you out of the crannies,
Hold you here in my hand,
Little flower, root and all,
And if I could understand
What you are, root and all, and all in all,
I should know what God and man is."

The introduction of this or any such study relieves the monotony of ordinary school-work, and gives a new impulse to many a child who might otherwise have a distaste for the usual work of the schoolroom. It also gives greater power of expression by helping to trace resemblance and difference.

Some, however, may object to this kind of work being introduced into our common schools, particularly on the ground that it is not necessary for the fitting of children for the various trades and occupations. But the child is not to be educated simply because he is

to become a farmer, a shoemaker or shipbuilder, but because he is to become a man. A trade is not the great end of his being, for his mind cannot be shut up in it, his force of thought cannot be exhausted on it. How often when the arm of the laborer is employed does his mind escape to the ends of the earth. No one can assert that a man will cultivate his farm, or perform any labor less successfully for having some knowledge of nature. Heaven's richest blessings are bestowed on all alike. The sun shines on the rich as well as on the poor; the air we breathe is for all. Nature's bounties are all free, and with these gifts minds are given to all capable of enjoying them.

"Defeat and scorn and shame
Be his who strives to bind
The restless, leaping waves of thought,
The free-tide of the mind."

In the past some few have stood on the pedestals of rank, others on the pedestals of wealth, and have viewed with a self-satisfied air from their lofty eminence the toiling masses below. But all are gradually learning that it is neither rank nor wealth that raises a man above his fellows. It is not these outward things, for they all find one common level, but it is the character which gives the man his true position. Hence the great law of human equality is being recognized, and the day will come when a man will be valued not so much for his rank and wealth as for the quality of mind he possesses. For an illustration of the power of mind in the masses we have only to look at Russia, shaken to her very foundation. Despotism may attempt the destruction of that power, but the history of Europe in the past proves it unequal to the task. The only thing which can elevate and give it a right tone is a universal education, which will not unfit for labor, but which will fit men to labor more intelligently.

The study of plants may be commenced with children as soon as they enter school, for when a child is able to distinguish *a* from *b* in the alphabet, it is certainly able to distinguish the root from the stem and leaf of the plant. There is no need of giving scientific terms, on the contrary this would confuse the child, and render what would otherwise be a delight an irksome duty. Thus, to tell a child five years old that a bell-shaped flower is campanulate, or that a butterfly-shaped flower is papilionaceous, or to call a pod a legume would be simply absurd. Give everything the simplest name possible. The parts of the plant may be learned first by talking with the children about what they can see, in the same manner as one would talk about a picture. They may learn the uses of the root, how it holds the plant in the ground and gets food for it. How it gets its food may be illustrated by putting blotting-paper in ink. The children will at once tell you that it sucks up or absorbs the ink; they may then be shown that in the same way the ends of the roots absorb the moisture from the ground. This moisture is carried by the stem to the leaves, where it is changed into sap, and it is this sap which makes the plant grow and form new leaves, flowers and fruit. From this they will be able to tell readily what part of the plant assists in its growth.

Before taking up the form of the leaf and flower, get the children to look into their homes and see where they will find these forms represented. They will have quite a list of articles on which they have seen flower forms, viz.: carpets, wall-paper, curtains, dishes, etc. The parts of the leaf may then be learned, as the blade, the footstalk and pair of little blades at the base of the footstalk. Leaves which have all these parts may be compared with those which have no footstalk, being sessile or sitting. Show also how the leaf is held together by a framework. The veins in the framework of some leaves form a net, in others they run side by side, or are parallel. It would add much to the interest of the lesson if a leaf were shown with the pulp removed, or if a piece of net were cut out the

shape of the leaf, with threads run through it to represent the principal veins. In teaching the form of the leaf, the general outline should be given first, since it would first be noticed by the children. This can be done by a picture, a drawing on the blackboard, or with the natural leaf. Get the children to find as great a variety of leaves of the shape required as possible, and let them draw their outlines on the slate. In this way they would soon learn to distinguish between a long or linear leaf and a round one, between a heart-shape and an egg-shape, or the ear-shape and the kidney-shape. They may also distinguish between a sharp and a blunt-pointed leaf, or between a leaf that is toothed or not toothed, if toothed whether the teeth are sharp or round, whether they turn forward or outward. Here the blackboard as well as the natural object is indispensable.

After the leaf comes the flower. The use of the flower is to produce fruit and seed from which new plants come. The parts of the flower may be learned, viz.—the outer cup, the inner cup, the stamens, and pistils, the outer and inner cups being called envelopes, because they cover and protect the stamens and pistils the same as an envelope covers a letter.

The most simple forms of simple flowers may be learned, such as the bell shape, wheel-shape, lip-shape. Then compare simple and compound flowers and leaves. Here is a good opportunity to begin lessons on color. After flower forms have been studied the different kinds of fruits may be compared; thus, the fleshy fruits, such as apples, grapes, tomatoes, and berries of different kinds may be compared with stone fruits, as the cherry, plums, etc. and then with dry fruits, as the acorn, and key. Children from five to eight or nine years of age may in this way become very interested in the study of plants during the summer months when plants of every description are at hand.

Older pupils by pursuing a different course could very profitably begin the study early in the spring or winter months. Begin with the uses of plants, how they furnish man with food, materials for clothing, building materials, and fuel, also how they purify the air for animals. The different classes of plants, viz., food plants, medicinal plants, and industrial plants could be taken up separately, for example, if we take food plants, a number of lessons could be given on their geographical range and distribution, the different forms in which they supply food, and how they regulate the distribution of animals. Show how plants differ from animals in their structure, mode of growth, power of voluntary motion, and relation to the air. Then take up the food of the plant, how it passes from the root to the leaves not only through little tubes by absorption or capillary attraction but from one cell to another in the tubes by the process of endosmosis, as when the moisture passes into a raisin when put in water.

Show the different ways and purposes for which the sap is stored up, and how it changes during the growth of the plant. Take Indian Corn, for example. In the leaves it has the form of thin mucilage, in the stalk it turns into sugar to nourish the blossoms, in the grain it is laid up in the form of starch, either for food or for nourishment for the young plant; when the grain germinates the starch is changed into sugar which in the growing plantlet is again changed into plant fabric. The different modes of root development and the different forms of roots may be compared.

The shape of leaves; viz., the general outline, apex, base, and margin, as well as the forms of flowers both simple and compound may be learned from diagrams, so that by the time spring has arrived the pupils will be ready for object lessons on the whole plant, and will not lose time in learning names which can be learned without, as well as with the plant. They will also be ready to collect plants for

their plant-book or Herbarium which they can make for themselves at the cost of a few cents.

A good exercise once in a while is to allow each pupil to write out the analysis of a plant at home. Plants may be compared, as the fruit trees and forest trees of our own country.

Object lessons may be given under the following heads, viz.—Its Class; as to its use, texture, and length of life. Description; taking the root, stem, leaf, flower and fruit in order. Locality; where it was found in its wild state and where cultivated at present. Uses; Genus, Species, Orders, giving some general characteristics and naming some other plants in the order.

Suppose the potato be taken for the day's lesson. All parts of the plant, root, stem, leaf, flower, and fruit must, if possible, be before the class.

POTATO.

Class.—Food-plant. Annual Herb.

Description.—Root fibrous, Stem three-sided; branches above bearing flowers and fruit, those underground swelling out into tubers which contain eyes or buds from which new plants come. The reason why the tubers are planted instead of the seed is because the greater amount of nourishment in the tuber produces a more vigorous plantlet, and consequently larger potatoes. Leaf, unequally and oddly pinnate. Flower, corymb. Corolla, wheel-shaped, five parted. Fruit, a many seeded berry.

Locality.—Native of S. America, taken to Ireland by Sir Walter Raleigh; to England by Sir Francis Drake. It has been extensively cultivated only about a century.

Used.—For food and in the manufacture of starch.

Genus—Solanum; *Species*, Tuberosum.

Order.—Solanaceæ, or Nightshade family.

Many of the plants in this order are narcotic, rendering the fruit and herbage dangerously poisonous, as Henbane, Belladonna, Tobacco. The Potato, and Tomato have the narcotine expelled by ripening in the sun or in cooking.

A Teacher in order to give a course of lessons successfully must spend more or less time in preparation. If he would like assistance, Mr. Gray for one dollar will show him "How Plants Grow," or for \$2.75 will give him his "New Lessons in Botany."

VERBA ET PRETEREA NIL.

BY C. C.

After all our contrivings, and the wisdom of our text-books, what a vast amount of our teaching remains for our poor pupils, "words and nothing more." There is no patent process for eradicating original ignorance out of human beings, or a candidate at the last examination for entrance to High Schools would not have hazarded the statement that a "glacier is a Pasture track of land," about "the 21th of september." The boy who gave information about the "N. Frigate and S. Frigate zone," very naturally thinks that "climate is the system of the air," and that "zones are belts running through the earth," while "the length of each zone = 1408 deg."

Who was at fault, this other boy or his teachers that he was so blind as to write: "The N. temperate zone is bounded on the north by the arctic circle, on the south by the Tropic of Capricorn, on the east by the Atlantic Ocean, on the west by the Pacific Ocean."?

Let us join the general chorus, and blame excessive devotion to "the cross-grained nurses of the cube and square" for the following recitilinear and maliciously mathematical statements: "From a knowledge of the mountains of a country you obtain the scenery of a country;" "we can obtain the information that Cattle & Sheep are Raised Henceforth the exports of Wool, tallow Hides." "Trinidad is a city in Quebec near the mouth of the R. St. Lawrence." "Vancouver an island in the Gulf of St. Lawrence." "Plateau is an island formed at the mouth of a river." "Vancouver is the capital of West Minister and in the western part of the same." "Glaciers are large masses of ice." "The Mersey is a river in Africa; the Volga empties into the Atlantic Ocean; the Oder into

the Pacific." Let us believe that the over-exactitude, and the excessive precision of a too prolonged flirtation with mathematics were the prime causes of such bad composition as "The reign of King John in England is not a very remarkable one is was as all other reigns, troubles." The Minister of Education is evidently to blame for the historical statements that "the Whig aristocracy means the conceitedness of the Whigs;" also "was the defeat from the power the Tories won the victory hence the Name." "By the wars of the Roses the Tudor Period was established." "Reform Bill was a bill which enacted that the French Canadians could make their own laws." It is equally manifest to every candid and unprejudiced mind that the arrogant Central Committee are responsible for the following delicate morsels of information: *The bearings of every possible harbor*, means "what the ships were laden with," also "noting how much the harbors would carry if there would happen to be shipping there, whether they would bear many ships of great burthen or not." *A salvo of ordnance*, means, "a kind of law" and also "shouts of praise." After what we have all suffered at the hands of this Central Committee, who does not sympathize with the poor little fellows writing in the confusion of confusion. "One day darkness black as pitch came over the scene something like a pine tree." The general state of departmental regulations is manifestly the cause of the candidate's assertion that "impetuosity = wisdom." It needs no demonstration to prove that the pernicious laws our legislators have placed on the statute-book, the wretched cobbling and tinkering they have practised on the school law, and their shabby treatment of the great cork-screw question, were enough to make any boy write "Montcalm was glad to be defeated." "Montcalm lost the Battle and had to pay Britain." Berry = "a King of fruit." Crew = "a King of a wall." Troops of the line = "men engaged to fight in one line" = "that the troops were arranged in lines." These last statements show the evil of introducing party politics into educational matters. And the whole of these *bona fide* and *verbatim* specimens evidently prove that we teachers are entirely free from any carelessness in our work, that we persistently and successfully aim at clearness of thought, accuracy of expression, and the constructive comprehension by our pupils of all the facts we carefully deposit in their memories. A glance shows the disinterested spectator that we teach one thing at a time, and that we invariably concentrate such a focus of energy and enthusiasm on that one thing that it immediately becomes the pupil's own private possession. Any unprejudiced bystander may observe how successful we are hanging the pictured walls of memory with life-like, breathing portraits of fact and reality. The few occasional blunders that do turn up when our pupils are subjected to exact tests, are chiefly chargeable to those misguided Grangers who compelled our beloved legislators to induce the Education Department to curtail the long holidays. Down with the Grangers! Let every Convention "resolute" them into the limbo of forgetfulness! Verba et preterea nil!

Mathematical Department.

VICTORIA UNIVERSITY MATRICULATION, 1880.

Examiner.—J. A. McLELLAN, LL.D.

ALGEBRA—HONOR PAPER.

1. If $a = -b = -3c = 1$ find the value of $(a+b)(a-b)(a-c) \div (a+c)(a+b)(c-1)$; and determine the value of $a^3 + b^3 + c^3$ when $a^3 + b^3 - c^3 = 0$.

2. Divide, using detached coefficients, $1+x^3+x^4+x^5+x^6$ by $1+x+x^2+x^3+x^4+x^5$; and $5x^4+2$ by $3x^2-2x+3$ by Horner's method.
 3. Find the value of $2x^5+401x^4-199x^3+399x^2-602x+211$ for $x = -201$; and show that $x^4+12x^3+5x^2-7$ is equal to $y^4+4y^3-43y^2+92y-67$, if $y=x+2$.
 4. State the law of Indices, and prove it for positive integral Indices. Assuming the law to be general, interpret the expressions x^{-m} , $x^{\frac{m}{n}}$, when m, n are positive integers.
- Simplify $\left(\frac{1}{64a^3b^2c^4}\right)^{-\frac{1}{2}} \div \frac{1}{8(a^2b^3c)^{\frac{1}{2}}}$.
5. Prove $\frac{1}{(a-b)(a-c)(x-a)} + \frac{1}{(b-a)(b-c)(x-b)} + \frac{1}{(c-a)(c-b)(x-c)} = 1 \div (x-a)(x-b)(x-c)$; also find the fractions which, when united by addition, shall give $2x \div (x^2-1)$.
 6. Solve:
 - (1) $\frac{x^2-5}{x^2-6} + \frac{x^2-11}{x^2-12} = \frac{x^2-7}{x^2-8} - \frac{9-x^2}{x^2-10}$
 - (2) $8\sqrt{3x} + \frac{243+324\sqrt{3x}}{16x-3} = 16x+3$.
 7. Find the condition that x^2+px+q and x^2+px-q may have a common measure. Find the H. C. F. of $(a^2-b^2)^2 + (b^2-c^2)^2 + (c^2-a^2)^2$ and $a^2(b-c) + b^2(c-a) + c^2(a-b)$.
 8. Solve (1) $\frac{x+\sqrt{x-4}}{x-\sqrt{x-4}} = \frac{x}{4}$.
 (2) $\frac{x^4+1}{(1+x)^4} = 3\frac{1}{2}$.
 (3) $\sqrt{b(x^2+y^2)} = \frac{1}{2}(x+y)$, and $xy = 8$.
 9. Two lights of equal intensity are placed at a distance a from each other; find a point in this line a , at which the sum of the illuminations shall be a given quantity b , it being assumed that the intensity of illumination varies as the square of the reciprocal of the distance from the light.
 10. If the p th term of a geometric series = P , and the q th term = Q , show how to determine the series.
Sum to infinity $1+3r+5r^2+\dots$
 11. Prove that the geometric mean between two quantities is a mean proportional between the arithmetic and the harmonic mean. If a and g be respectively the arithmetical and geometrical mean between m and n , and h the harmonic mean between a and g , prove that $h = 2(m+n) \div \left\{ \left(\frac{m}{n}\right)^{\frac{1}{2}} + \left(\frac{n}{m}\right)^{\frac{1}{2}} \right\}^2$
 12. Prove the Binomial Theorem for a positive integral exponent. Determine the first negative coefficient in the expansion of $(1+3x)^{\frac{1}{3}}$.

SOLUTIONS.

1. $a+b=0$, \therefore expression assumes the form, $\frac{g}{g}$. If, however, we strike out the common factor $(a+b)$ we get expression = -3 .
 $(a+b-c+3a^{\frac{1}{2}}b^{\frac{1}{2}}c^{\frac{1}{2}}) = (a^{\frac{1}{2}}+b^{\frac{1}{2}}-c^{\frac{1}{2}})$
 $(a^{\frac{1}{2}}+b^{\frac{1}{2}}+c^{\frac{1}{2}} - a^{\frac{1}{2}}b^{\frac{1}{2}}+a^{\frac{1}{2}}c^{\frac{1}{2}}+b^{\frac{1}{2}}c^{\frac{1}{2}}) = 0$.
 2. $(1+0+1+1+1+1+0+1) \div (1+1+1+1+1+1)$ &c.
Answer $1-x+x^2$.
- | | | |
|-----------------------------------|-----------|-----------|
| 3 | 5 + 0 + 0 | + 0 + 2 |
| +2 | + 10 - 5 | - 10 + 20 |
| -3 | + 20 | - 10 |
| $\frac{5}{3} + 10 - \frac{20}{3}$ | | |
| $-\frac{10}{3} + \frac{20}{3}$ | | |
- $= \frac{5}{3}x^2 + 10x - \frac{20}{3}$ and remainder $-\frac{140x}{27} + \frac{48}{9}$.

3. $x-201=0$. Divide given expression by $x-201$ by Horner's method, the remainder is 10. Answer $x=y-2$ Divide the second expression continuously by $y-2$ as far as possible, using Horner's method. The successive remainders are: $-7, 0, +5, +12$, and final quotient 1. Hence 2nd expression $= (y-2)^4 + 12(y-2)^3 + 5(y-2)^2 - 7$
 $= x^4 + 12x^3 + 5x^2 - 7$.

4. Book-work. $\frac{1}{x^m}, \sqrt[n]{x^m}, 32a^2b^4c^4$.
5. Assume them equal. Clear of fractions, and we get
 $(x-b)(x-c)(b-c) - (x-a)(x-c)(a-c) + (x-a)(x-b)(a-b)$
 $= (a-b)(b-c)(a-c)$.

Now we can show this equation to be true. For, left hand vanishes when $a-b=0$, $\therefore (a-b)(b-c)(a-c)$ is a factor, and there are no other literal factors. Put $x=a=0$, $b=1$, $c=2$, and we find the numerical factor = 1.

Assume $\frac{2x}{x^2-1} = \frac{A}{x+1} + \frac{B}{x-1}$. Clear of fractions and equate coefficients, $\therefore A+B=2$ $A-B=0$, &c.

Answer $\frac{1}{x+1}$ and $\frac{1}{x-1}$.

6. (1) Complete divisions of fractions, quotients cancel, put remainders equal, $x = \pm 3$ is one root. After dividing through we have left

$$\frac{1}{(x^2-6)(x^2-12)} = \frac{1}{(x^2-8)(x^2-10)}$$

From this we may get $\frac{1-\frac{6}{x^2}}{1-\frac{8}{x^2}} = \frac{1-\frac{10}{x^2}}{1-\frac{12}{x^2}}$. We see that as x approaches ∞

the fractions $\frac{a}{x^2}$, &c., approach 0, and the equation approaches an identity, Hence the other two roots are each = 0.

- (2) Transposing and factoring,

$$\frac{81\sqrt{3}(4x^{\frac{1}{2}} + \sqrt{3})}{(4x^{\frac{1}{2}} + \sqrt{3})(4x^{\frac{1}{2}} - \sqrt{3})} = (4x^{\frac{1}{2}} - \sqrt{3})^2$$

$$\therefore 81\sqrt{3} = (4x^{\frac{1}{2}} - \sqrt{3})^2 \therefore x=3 \text{ by inspection;}$$

$$\text{or, taking cube root } 3^{\frac{3}{2}} = 4x^{\frac{1}{2}} - 3^{\frac{1}{2}} \\ 4x^{\frac{1}{2}} = 4(3^{\frac{1}{2}}) \\ \therefore x=3.$$

7. Let $x+m$ be their H. C. F. Divide it into each and put the remainders each = 0; \therefore we have

(A) $m^2 - pm + q = 0$ and $m^2 - p_1m - q = 0$ (B), or $m(p-p_1) = 2q$, or $m = 2q \div (p-p_1)$ substituting this in (A)

$$4q^2 - 2pq(p-p_1) + q(p-p_1)^2 = 0.$$

First expression = $3(a-b)(b-c)(c-a)(a+b)(b+c)(c+a)$ by the method employed in No. 5. Also second expression vanishes when $(a-b)$, $(b-c)$, or $(c-a)=0$, but it does not vanish when $(a+b)$, $(b+c)$, or $(c+a)=0$; $\therefore (a-b)(b-c)(c-a)$ is the H. C. F., for it is easily seen that 3 is no factor of second expression.

8. (1) Add and subtract numerators and denominators.

$$\frac{\sqrt{x-16}}{x} = \frac{x-4}{x+4} \therefore \sqrt{x-16} = 0. \quad x=4,$$

$$\frac{\sqrt{x+4}}{x} = \frac{\sqrt{x-4}}{x+4} \therefore x = \frac{1}{2}(-3 \pm \sqrt{-23})$$

- (2) Clear of fractions, transpose, divide through by x^2 and arrange thus:

$$5(x^2+x^{-2}) + 28(x+x^{-1}) + 42 = 0, \\ \text{i.e., } 5(x+x^{-1})^2 + 28(x+x^{-1}) + 32 = 0, \text{ a quadratic from which } \\ x+x^{-1} = \frac{1}{2}(-14 \pm \sqrt{-14}), \text{ a pair of quadratics from which } \\ \text{we get four values of } x.$$

- (3) Probably x^4 is a misprint for x^2 . If not we have found no solution except by Horner's method of approximation. Taking it to be x^2 instead of x^4 , substituting for y and reducing we get

$$3x^4 - 10x^2 - 80x + 192 = 0, \\ \text{i.e., } (x-2)(3x^2 - 4x^2 - 8x - 96) = 0, \therefore x=2, y=4.$$

There are evidently three other roots.

9. Let $1 =$ amount of illumination at distance of one unit, and x , and $a-x$ be the distance of required point from lamps.

$$\therefore \text{Total illumination of point} = \frac{1}{x^2} + \frac{1}{(a-x)^2} = b, \text{ an equation}$$

which will give x in terms of a and b .

10. p th term = $a + (p-1)d = P$;
 q th " = $a + (q-1)d = Q$;
 $\therefore d = (P-Q) \div (p-q)$;
 and $a = P - (p-1)(P-Q) \div (p-q)$, which determines the series.

Let $S=1+3r+5r^2+\dots$ ad. inf.
 $\therefore Sr = r+3r^2+\dots$
 $\therefore S(1-r) = 1+2(r+r^2+r^3+\dots)$ ad. inf.)
 i. e., $S(1-r) = 1 + \frac{2r}{1-r}$

$$\therefore S = \frac{1+r}{(1-r)^2}$$

11. Book-work. $a = \frac{1}{2}(m+n)$, $g = \sqrt{mn}$, $h = \frac{\sqrt{mn}(m+n)}{\frac{1}{2}(m+n) + \sqrt{mn}}$

Multiply numerator and denominator by $\frac{2}{\sqrt{mn}}$ and we have the required relation.

12. Book-work. General term = $\frac{p(p-q)\dots\{p-(r-1)q\}}{1\cdot 2 \dots r \cdot q^r}$
 where $p=13$, $q=3$ $\therefore (r-1)q$ must $> p$ $\therefore r=6$, $\therefore r$ is an integer. Answer, 6th term,

EUCLID—BOOKS I.—IV.—HONORS.

Examiner—J. A. McLellan, LL.D.

1. Explain the meaning of *hypothesis*, *corollary*, *axiom*, *postulate*, and distinguish clearly between direct and indirect demonstration.
2. Prop. 32, Book I. If the interior angle at one angle of a \triangle and the exterior angle at another be bisected by straight lines, the angle contained by the two bisectors = $\frac{1}{2}$ the third angle of the \triangle .
3. Prop. 35, Book I. $ABCD$ is a parallelogram. A straight line EF drawn \parallel to the diagonal AC meets AD , DC or these produced in E and F respectively; show that the $\triangle ABE = \triangle BCF$.
4. Prop. 45, Book I.
5. Prop. 3, Book II. Divide a line so that the rectangle contained by whole line and one part = twice square on other part.
6. Prop. 11, Book II.
7. Prop. 17, Book III. AB is diameter of circle, C any point on circumference. AC , BC produced meet the tangents at B and A in D and E , and the tangent at C meets the same tangents in F and G . Show that FG is half the sum of BD and AE .
8. Prop. 26, Book III.
9. Give, without proof, the construction for inscribing a regular pentagon in a given circle.
 A, B, C, D, E, F are successive angular points of a regular decagon inscribed in a circle whose centre is O . OC cuts AD in G . Prove that AE bisects OG at right angles.
10. Prop. 14, Book VI. Enunciate the converse of this proposition.
11. Prop. 31, Book VI. If these figures be rectangles, prove the proposition by a method analogous to that of I. 47.

THE MATHEMATICAL TRIPOS.

CAMBRIDGE, ENG. JAN. 1882.

EXAMINATION PAPERS.

(Selected from the first three days' examination.)

ARITHMETIC, ALGEBRA, AND PLANE TRIGONOMETRY.

1. An article made of sterling silver weighs as much as 5s. 6d. in silver; the same article and a fourpenny piece together weigh 1 $\frac{1}{2}$ oz. avoirdupois. The cost of the article is 11s. 5 $\frac{1}{2}$ d. What is this per oz. Troy?

2. Find two independent relations between the roots and the coefficients in a quadratic equation.

If the result of eliminating x between the equations $x^2+px+q=0$ and $xy+a(x+y)+b=0$ be an equation in y , whose roots are the reciprocals of those of the given equation in x , then either $a(1-q)=0$, and $ap=1+b$; or $b=1$ and $p=a(1+q)$.

3. Eliminate x, y, z , from $\frac{x^2-xy-xz}{a} = \frac{y^2-yz-yx}{b} = \frac{z^2-zx-zy}{c}$, and $ax+by+cz=0$,

Solve (i) $\sqrt{ax+\beta} + \sqrt{(a_1x+\beta_1)} = \sqrt{ax+b} + \sqrt{(a_1x+b_1)}$
 where $a+a_1=a+a_1$, and $\beta+\beta_1=b+b_1$.

$$(ii) \frac{\sqrt{(3a+a^2-3x-x^2)}}{a-x} = \frac{3}{a^2} + 1.$$

4. Find the sum of n terms of a geometrical progression when the r th and s th terms are known.

B holds an estate from A on a lease with two years unexpired. He has made permanent improvement on it and sublet it for £510 per annum. Reckoning yearly interest at 4 per cent., the present value of the estate to A is 24 times B 's interest in it. What rent is B paying A ?

5. Assuming the binomial theorem for a positive integral index, prove it for a fractional one.

Prove that if the difference between p and a perfect cube N^3 be less than one per cent. of either, $\sqrt[p]{p}$ differs from $\frac{1}{3}N + \frac{1}{3}\frac{p}{N^2}$ by less than $\frac{N}{90000}$.

6. Find the number of combinations of n things taken r together. Prove that, if each of m points in one straight line be joined to each of n in another by straight lines terminated by the points, then, excluding the given points, the lines will intersect $\frac{1}{2}mn(m-1)$ ($n-1$) times.

7. Define the tangent of an angle, and from the definition show that $\tan(180^\circ - A) = -\tan A$.

Prove directly from the definitions of the trigonometrical functions that $\frac{1+\cos A}{\sin A} = \cot \frac{1}{2}A$.

Find the general values of A from the equation: $\tan A + \sec 2A = 1$.

8. Show *a priori* that when $\sin A$ is expressed in terms of $\sin 2A$, four values are to be expected generally.

If $\sin 2A = a$, what values of A will give the following equation: $2\sin A = -\sqrt{1+a} + \sqrt{1-a}$?

Prove that if $\sin A = a$, the four values of $\tan A$ are given by $\frac{1}{a} \left\{ (1+a)^{\frac{1}{2}} - 1 \right\} \left\{ 1 + (1-a)^{\frac{1}{2}} \right\}$

9. Prove that, if $A+B+C=180$, $\sin^2 A + \sin^2 B + \sin^2 C = \frac{3}{2} + 2 \cos A \cos B \cos C + \frac{1}{2} \cos 2A \cos 2B \cos 2C$,

and that if $\frac{\sin ra}{l} = \frac{\sin(r+1)a}{m} = \frac{\sin(r+2)a}{n}$,

$$\frac{\cos ra}{2m^2 - l(l+n)} = \frac{\cos(r+1)a}{m(n-l)} = \frac{\cos(r+2)a}{n(l+n) - 2m^2}$$

10. Prove that, if θ be the circular measure of an angle less than a right angle, $\frac{\sin \theta}{\theta}$ lies between 1 and $1 - \frac{1}{4}\theta^2$.

Find the value of $\sin 3^\circ$ to 10 places of decimals.

11. Find the area of a triangle in terms of one side and the adjacent angles.

If a triangle be cut out in paper and doubled over so that the crease passes through the centre of the circumscribed circle and one of the angles A , the area of the doubled portion is $\frac{1}{2}b^2 \sin^2 C \cos C \operatorname{cosec}(2C-B) \sec(C-B)$, C being $> B$.

12. It is observed that the altitude of the top of a mountain at each of the three angular points A, B, C , of a plane horizontal triangle ABC is α . Shew that the height of the mountain is $\frac{1}{2}a \tan \alpha \operatorname{cosec} A$.

Shew that, if there be a small error n'' in the altitude at C , the true height is very nearly $\frac{1}{2} \frac{a \tan \alpha}{\sin A} \left(1 + \frac{\cos C \sin n''}{\sin A \sin B \sin 2\alpha} \right)$

EUCLID.

1. Prop. 35, Bk. I. Find the condition that must exist in order that it may be possible to fold the four corners of a quadrilateral piece of paper flat down on the paper so that the four angular points meet in a point, and the paper is everywhere doubled.

2. Prop. 3, Bk. III, first part. Draw from a given point P two straight lines PQ, PR , at a given inclination to one another, to meet two given straight lines in Q and R , so that PQ, PR may be equal.

3. Prop. 21, Bk. III. If A, B , be two fixed points on a circle, and C, D , the extremities of a chord of constant length, then the intersections of AD, BC and of AC, BD lie on fixed circles.

4. Prop. 35, Bk. III, case two. If P be a point in a diameter AB of a circle, and PT be the perpendicular on the tangent at a point Q , then $\operatorname{rect.} PT, AB = \operatorname{rect.} AP, BP + \operatorname{sq. on} PQ$.

5. Prop. 8, Bk. VI. Show that the middle points of the four common tangents to two circles which lie outside each other lie on a straight line.

6. Prop. 19, Bk. XI. If the perpendiculars from two of the angular points of a tetrahedron on the opposite faces meet in a point, the perpendiculars from the other two angular points meet in a point.

PROBLEMS FOR SOLUTION.

T. E. Colman, B.A., Frederickton Junction, N.B. sends the following problem for solution:—"Two boys bought a cylindrical tankard of milk 6 inches deep and 4 inches in diameter. One boy drank until, by tipping the tankard so that the milk came to the mouth without spilling, he could see half the bottom. Required how much of the milk this boy drank."

J. K., Prescott, requests us to give a solution of the equations $x^2 + y = 7, y^2 + x = 11$. This is a famous old equation of the fourth degree and of course has four roots. We can see by inspection one solution, viz, $x=2, y=3$. But to find all the roots we must substitute $y=7-x^2$ in the second equation for y , and get $x^4 - 14x^2 + x + 37 = 0$.

$$\text{i.e., } (x-2)(x^2+2x^2-10x-19)=0.$$

We next apply Horner's method of approximation to find the roots of the equation $x^3+2x^2-10x-19=0$, and get

$$x = 3.13; -1.84; 3.28; \text{ and corresponding values for } y = -2.79; 3.61; 3.75. \text{ These together with } x=2. y=3 \text{ are the four pairs of values required.}$$

Practical Department.

LESSONS IN CHEMISTRY.

(Continued from last month.)

EXERCISE I.

(N. B.—All answers should be carefully written out.)

- What is the difference between a simple and compound body?
- Name twenty elements, and give their chemical symbols and atomic weights.
- Are we acquainted with all the elements?
- Define *matter, volume, mass, molecule and atom*.
- What is the atomic weight of an element? What is taken as the unit of comparison? How does the *molecular weight* differ from the atomic?
- Mention differences between chemical force and physical forces?
- What is the method of investigation in chemical research?
- How do chemical changes differ from physical changes?
- What is the special province of the chemist in the study of matter?
- Mention the chief means at our command for securing chemical union or decomposition.
- What view does the chemist take of the constitution of matter?
- Give some examples of the extreme divisibility of matter.
- If the globe and all upon it consisted of one chemical element, say gold, would the science of chemistry be possible?
- Explain the use of the balance to the chemist.
- Illustrate the statement—"Matter exists in three forms."
- When a candle is burnt in a wide-glass tube, the upper half

of which contains lumps of dry caustic soda, the soda arrests the products of combustion. If the whole, tube and candle, be counterpoised when the candle is first lighted, it will be found that the apparatus has actually gained in weight, although the candle has disappeared. What does this experiment teach?

17. Define Chemistry, and write a short account of chemical action.

18. Iodine has a metallic lustre, some metals lose it when powdered; potassium, sodium, and lithium will float on water, while bromine, iodine, carbon, and arsenic are heavier than water. What conclusion do you draw as to the line separating metals from non-metals?

19. Give examples of mechanical mixtures. Discuss one of them.

20. Air consists of oxygen and nitrogen, with a small percentage of other gases. If a little air be shaken up with freshly distilled water, its composition is changed somewhat, the water having dissolved some of the oxygen. What do you infer as regards air?

21. What is a chemical symbol? Give the symbols for ammonia, sal-ammoniac, sulphuric acid, iodide of potassium, corrosive sublimate, prussic acid, and hydrochloric acid.

22. Describe an experiment to illustrate each of the following concomitants of chemical action:— (1) Change of color, (2) of temperature, (3) of form, (4) evolution of light and flame.

23. State Thompson's idea of the distance between the centres of molecules.

24. The symbol or formula for water is H_2O , i.e. two atomic weights of hydrogen and one of oxygen. How many lbs. of oxygen in a barrel of water? Given 1 barrel = 63 gals. and 1 gal. = 10 lbs. N.B. $O = \frac{1}{8}$ water = 560 lbs.

25. How many grams of zinc in 1000 grams of chlorate of potash, $KClO_3$? N.B.—The $O = \frac{48}{12 \times 3}$ ($KClO_3$) = 391.83.

26. Find the composition of 100 parts of nitric acid, HNO_3 .
ANS. $O = 76.19$, $N = 22.22$, $H = 1.59$.

27. It was anciently believed that fire, earth, air and water were elements. State the views which now prevail as to the nature of each of these things. What is now meant by the term element? (Intermediate Exam. 1876.)

28. Calculate the per centage composition of ammonia, sulphuric acid, and common salt ($NaCl$). (Intermediate Exam. 1876.)

29. Describe minutely any chemical experiment you have yourself performed. (Intermediate Exam. 1877.)

30. Give the names and atomic weights of the elements represented by the following symbols:—Al, C, Ca, Cu, Fe, Cl, Pb, S and P. (Intermediate Exam. 1878.)

31. What is the difference between a mechanical mixture and a chemical compound? (Intermediate Exam. 1879.)

32. State generally the conditions that promote chemical action.
(To be continued.)

NOTES ON HYGIENE.

BY J. A. WIMMER, PRINCIPAL OF PARKDALE PUBLIC SCHOOLS.

(Continued from last month.)

Never use hair dyes; most of them contain more or less nitrate of silver in solution, or some of the stronger acids, and in order to discolor the hair they must be of sufficient strength to injure, if not to destroy its vitality. Notice the harsh, wiry, dry look of dyed whiskers or hair, so different from the glossy brightness of natural

healthy hair. Any child whose attention has been drawn to this difference in appearance can at once detect dyed hair. In olden times gray hair was esteemed honorable; now, however, a few stray hairs turning gray are sufficient to excite consternation in the minds of many foolish people, and sinful vanity leads them to use those injurious washes and hair dyes which, when once commenced, must be continued, or the hair will turn to a disagreeable, dirty green color. To sum up, then, we conclude that hair dyes discolor the scalp, injure the vitality of the hair, deceive nobody as to their use, and are a waste of time and money. Hair invigorators, or preparations for promoting the growth of hair (some of which are advertised to produce a fine mustache in six weeks), are also injurious. The hair follicles are over-stimulated by tincture of Cantharides, or Spanish Fly, which is the basis of most of these mixtures. It follows that hair, thus produced and artificially stimulated like a hot-house plant, cannot have the strength, firmness, or durability of natural healthy hair. All efforts to improve on nature in these matters have proved failures. Boys and girls while at school, and doing a considerable amount of mental labor, should keep the hair cut short, especially in summer. In no season should the head be too warmly clad or covered by heavy, tight-fitting caps. A train of evils may follow inattention to this simple matter; among them I would mention headache, congestion of some of the blood vessels in the brain, with bleeding at the nose, and very often premature loss of hair, or baldness. Baldness, however, is oftener hereditary, therefore if your immediate ancestors were bald-headed you need not be alarmed about being bothered with too much hair, especially after middle age.

I need scarcely do more than mention the fact that cosmetics, pearl powder, etc., for the skin are highly dangerous. These preparations almost always contain either white lead or arsenic, both of which are rank poisons. They clog up the pores of the skin and prevent them from doing their duty in perspiration. Their use causes the skin to turn yellow and look like parchment, and, like the hair dyes already mentioned, when once commenced they must be continued. I would not need to mention the effects of these *beautifying preparations* if you all had seen the face of an elderly woman, who has been in the habit of using paint and powder, before she was fixed up for company. Plenty of exercise in the open air, the free use of soft water and coarse towelling will give healthy bloom and color to the cheeks—if these fail, nothing else will do it. I mentioned bleeding at the nose a short time ago. If this should be persistent, it may generally be controlled by applying cold to the back of the neck, as snow, ice, cold steel, or ice cold water. If this will not stop it, close the nostrils with cotton batting saturated with tincture of perchloride of iron, if obtainable, or better still call in a physician.

We have thus briefly discussed the hair and face, now we come to the teeth and breath. The temporary or milk teeth, only twenty in number, appear and disappear by the time a child is eight or nine years old, and need not, therefore, be discussed in this connection. The permanent teeth, thirty-two in number, should if properly treated be much more permanent, as a rule, than they are in this country. To keep them clean and healthy they should be carefully brushed night and morning. Use a stiff tooth-brush and pure soft water. Instead of expensive dentifrices a little powdered chalk or charcoal may be used, but they must be very finely divided, or well pounded in a mortar, to prevent discomfort afterwards by their particles getting between the teeth. Never use pins, sharp steel, or other hard substances to pick the teeth. If you must pick the teeth after eating, use a blunt-pointed quill or ivory.

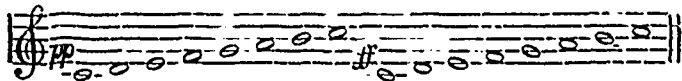
(To be continued.)

TONE TALKS WITH THE TODDLERS.

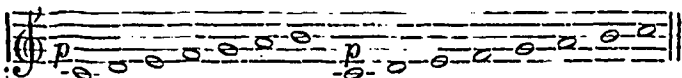
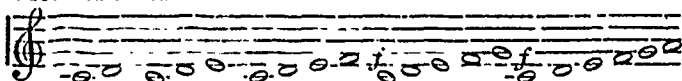
NO. II.

BY MISS GEORGINA RICHES.

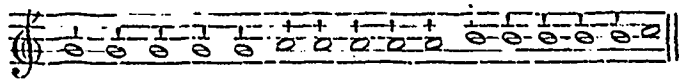
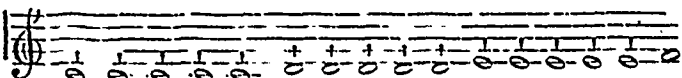
Whom were we talking about, yesterday, Jenny? "Miss Fa, the discontented girl, and Sol, the bright-eyed boy who cut his initials S. C. on the ladder; La, the poor beggar-girl who cried bitterly; Si, the little girl who tried to cheer her and pointed up to the blue sky, and Master Do, who was so inquisitive that he left his little short step and jumped half-way up the ladder, so that he might see and hear all that was going on." Thank you, Jenny. Suppose we have a party to-day, and invite all these little boys and girls to it; it will be a musical party, you know, and will have the blackboard for the drawing room. Now, Willie, will you make the seats for them to sit on? Johnnie, take the chalk and put on Sol's initials, and Mary, show the little girls their places; Fred bring in the boys and get them seated, and then our party will begin. While Mary and Fred are attending to our visitors, the class may make the party on their slates. Now, as Mary and Fred have finished, we will take a peep at our guests. You see they are well behaved, each one keeps his or her own place. They are ready to commence their little songs, so now, as I point to them, you sing *pp.* what they say. Very good, now change to *ff.*



Thanks. Now, we will play at jumping. This is the way: Go up one step and jump down; then two steps and jump down; then up three and so on.



Isn't that a nice game to play at? Did you ever drop a marble on the stairs, Johnnie? "Yes, ma'am." What did the marble do? "It rolled down the stairs." Tell me what the marble said as it touched each step? "Tick, tick, tick." Now, we'll make that tick. Here it is. When you see that mark under or over our little friends, sing in the short, quick way that the marble ticks:



Now, as we are tired of jumping, we'll have a song. Let us sing "Old Mother Hubbard" to these tones. Well, Willie, what question do you wish to ask? "I thought their names were do, and re, and mi." What is your name? "Willie Robertson." You have two names; so have our friends; sometimes we'll call them tones, as that is their family name.

HOW TO TEACH GEOMETRY.

BY WILLIAM A. DUKE, CHATHAM, N. B.

The following is the substance of a paper read by Mr. William A. Duke before the Educational Institute, Northumberland Co., N. B.

To a young and vigorous mind, filled with a love of new ideas, Geometry should be one of the most attractive and suitable subjects. The constant occurrence of new and important truths which it presents, and their beautiful and systematic development must, if properly taught, be of great interest to students. Every one who

has applied himself earnestly to the study of geometrical truths will testify to the great satisfaction to be derived from it.

Why is it then that we so often find even our most forward and persevering pupils possessed of a decided dislike toward this branch of study? We have all experienced the difficulty of arousing any emulation or interest among children in a matter which has the nature of geometry. They have rather to be dragged along than induced to proceed from any feelings of interest.

The cause of this dislike lies in the method of teaching. In the hands of some, this branch, in itself so apposite to the minds of the young, loses all its charm. Like a fair field, under the management of ignorant cultivators, it presents an unattractive and even forbidding appearance. There are elements essential to a true method of teaching geometry which are overlooked where pupils have an aversion to the study. The lack of these elements counteracts the natural advantages of the branch.

One of the most important principles in the teaching of geometry often violated by teachers is that, *the Learner must not clearly apprehend the truth he is about to prove, but he should have a knowledge of it as a fact before he attempts to reason upon it.* This is the order of nature. Long before theorems could be proved true, their practical significance could be well understood. The fact that the circumference of a circle is a little more than three times its diameter; that any two sides of a triangle are together greater than the third side, and many others, were known and applied before they became a part of geometrical science. As it has been with the science in its development so, teaching it, the pupil should be first made acquainted with the truth by experiment. Wormell, in his excellent text-book on geometry, keeps this principle constantly before him. No reasoning is begun until a sufficient fund of observations has first been accumulated. It is this part of Wormell's text which is best understood and most frequently ignored. Very many teachers entirely overlook it, considering it paltry and time-wasting. To give their class a conception of the truth about to be proved, they confine themselves to a formal enunciation which is often couched in language too general and formal to awaken in the pupil's mind any corresponding idea. He learns the words but they are as chaff to him, from which no mental nutriment can be obtained. The definitions are learned by rote simply, and as soon as they are thus memorized the class is plunged at once into demonstration. The truth stated in mere formal proposition is not sufficiently clear and will not serve the purpose designed, but is fitted to produce mechanical work only and barren minds. How often have we been required again and again to supplement these formal statements of truth by verbal and extempore explanations? Even with such illustrations, which must often be of a common-place and unsatisfactory character, the pupil hardly knows what he is about while proving, frequently gets himself confused, and finally ends by learning the whole thing by rote. Carefully prepared paraphrases to the definitions and enunciations, illustrations, explanations, everything by which the truth may be conveyed to the child intelligibly and grasped by him should be sought for and employed.

As an example of the correct treatment of definitions I will insert a method of teaching the idea conveyed by the word *triangle*, copied from Wormell's Geometry.

Mark upon a sheet of paper the position of a point *A*, then at



that point form an angle by drawing from *A* two straight lines *AB*, *AC* in different directions. Take a point *B* in *AB*, and a point *C* in *AC* and draw the line *BC*. *BC* and *AC* will form an angle at *C*. and *BC* and *AB* will form an angle at *B*. The three straight lines form a closed figure having three angles and is, therefore, termed a *triangle*.

By proceeding thus with every definition, taking care that the pupils do the work, which should have been prepared previous to the lesson, ideas will be garnered and not words only.

Then in a similar manner the properties of the figure, or the powers of the truth should be illustrated before using it in abstract reasoning. For instance, taking the triangle again, it may be experimented with as follows:—Form a quadrilateral with four sticks. It will be found that the sticks may be moved in various directions but yet continue a quadrilateral. But form a triangle from three of the sticks and the figure is fixed. The sticks cannot be changed in relation to each other and yet continue to be a triangle.

Another element in the successful teaching of geometry of the highest importance is that the truths learned by demonstration should be understood in their application. That no truth is well learned until it can be applied, is a truism. Instead of hurrying from theorem to theorem without halting to consider their use, pains should be taken, after every truth has been known as a fact and proved, to drill the pupil upon its application. Give him examples of its use, and set him to work searching for other examples. For instance: "The opposite sides and angles of a parallelogram are equal to one another and the diagonal bisects it." The application of this truth may be shown by reference to the parallelogram of forces, the steam engine, etc. The principle of the isosceles triangle is used extensively in common examples of architecture, the use of tangents in railway curves. Examples will suggest themselves abundantly to any observer. The pupil should have as much liberty allowed him as possible to experiment, to investigate, to question, to think. Every effort should be made to encourage him in these exercises. Excite his curiosity by hints of the importance of the subjects and of the valuable secrets to be yet acquired. If discouragement shows itself at the outset, excite him to fresh ardor by representing the uselessness of any attainment acquired without difficulty. There are unknown wonders to be discovered, but only to those who are willing to brave the difficulties.

Gratify the pupil by leading him to make discovery of new ideas. Nothing will please a pupil so much as to hit upon an idea after repeated experiments. Give him full scope for the exercise of his own thoughts. Nothing should be shown him which he can discover for himself, nor should any mechanical work be done by the teacher for the sake of rapidity or other reason which the pupil can do for himself. Nothing should be taken for granted. Every line, angle, etc., spoken of in the demonstration should be drawn. It is said of the celebrated Faraday, when lecturing to children, that he would not take for granted that an apple would fall to the ground if left unsupported. He would actually perform the operation.

Having now stated a few general points to be kept always in view, I will explain the order in which I would take up the various parts of a set of geometrical propositions.

1. It is necessary at the outset to understand and thoroughly memorize all the definitions.

2. Then the propositions to which they refer may be taken up. As it is in this part of the work above all others that correct methods of teaching are necessary, I will mention a few exercises and precautions to be observed by the teacher, which will do much towards facilitating the perfect and speedy acquisition of a lesson.

In the first place the teacher will find much value to arise from simplifying the proposition and making it interesting by means of a familiar talk previous to assigning any lesson. Unless the truth can be readily appreciated the pupil is most apt to learn it by rote. It should be the aim of the teacher, by the preliminary talk, to make the matter so plain as to remove all inducement for rote-learning. In this preface to the lesson we should show to be true,

in one or more cases, what will afterwards be shown to be always true. No preliminary exercise will be so valuable as to lead the class to discover the truth for itself. Our object in this exercise is to make the pupil grasp the truth, to awaken his interest, and to remove difficulties. Wormell provides the substance of valuable conversations such as I propose. The importance of such a collection can only be known to such teachers as have experienced the difficulty of framing original examples. It is a task of great difficulty, and involving the use of much ingenuity and labor to provide on the spur of the moment such illustrations as would be of value and interest, the more especially when it must be borne in mind that to profit his class the teacher should confine his illustrations rigidly to the leading and peculiar features of the lesson.

After such a drilling as is thus recommended the pupil would go to the study of the demonstration incited by curiosity and ambitious of excelling, and not discouraged by continually recurring obstacles.

Perfect accuracy in workmanship should, in all cases, be required. The figure should be placed on the board by the pupil with neatness and accuracy in the mechanical parts, and the truth proved with mathematical precision and order. Nothing clumsy in diagram, inelegant in language, or ungraceful in posture should be permitted. Every stroke of the chalk made by a child, every word he utters has its influence in the formation of his character.

It is an excellent plan to cause the pupil to go over the demonstration without the aid of a figure. But care must be taken lest this exercise should degenerate into an aid to rote-learning, the most pernicious negative influence the teacher has to encounter in teaching geometry. To young pupils whose memory is stronger than their reason, it is far more easy to learn by rote than by proof, and unless great pains are taken to prevent it all our teaching will be vitiated by this evil.

It may, to some extent, be avoided by reversing the figure or by different lettering. But I think more can be done by appealing to the judgment of the pupils themselves. I believe strongly in the power and will of young people to obey their judgment if it be appealed to, and the danger of disobedience presented in its true colors.

3. Having finished a set of theorems, problems and exercises founded upon them can be taken up. It is a great mistake to omit the problems. They offer the most potent means of fixing the truth in the memory, and have besides an eminent value of their own in forming correct habits of thought and training the mind in reasoning and observation.

4. After finishing a series of propositions, a very complete and thorough review should take place. All the leading and peculiar points should be brought out clearly and reiterated; all definitions and propositions should be repeated carefully and systematically.

I may say in closing that, though it is necessary to gather together and to memorize many facts, yet the teacher should always regard such memorization as a subordinate exercise. The grand end of all teaching is to lead the pupils to grasp principles. Many years are spent by each of us in making observations, in undergoing experiences, but how few grand principles we acquire, how seldom we manage to combine our experiences and trace a truth underlying them all, and producing them. It takes many observations to lead to the discovery of great ideas; but few such can be obtained in a life-time, notwithstanding the acquisition of multitudes of facts. Yet it is by the possession of great ideas that great minds are distinguished, and not by "an infinity of loose details."

COLORED CRAYONS IN THE SCHOOL-ROOM.

Fellow teachers, have you ever used colored crayon in your school? If not, there are many ways in which they might be made very serviceable. If your trustee or director will furnish you with half a box to be used judiciously, they will last a term and repay the cost ten-fold. With your class of beginners you can make the lesson so much more interesting and attractive to them by printing or writing the lesson or a part of it in colors.

Let the lesson be prepared after school, and placed upon the board, printing each new word in colors, and have a screen over the board so as to make the lesson a surprise when they come out to read and you will be astonished at the interest and progress.

Another way equally good is to place the lesson upon a sheet of white paper, a pound of which will cost ten cents, and last through the term. At the time for the recitation this can be placed upon a standard in front of the class.

Once each week the smallest pupils might be allowed to go to the blackboard for twenty minutes, and use the crayon for printing or making pictures.

Advanced pupils could use it to advantage in map-drawing on the board. Dates in history may be written nicely on the wall over the blackboard, and programmes tastefully arranged will add much to the attractiveness of your room.—*The Countryside.*

THE DISTINCTION BETWEEN SHALL AND WILL.

The general rule to be followed in the use of the words *shall* and *will* is, that when the simple idea of future occurrences is to be expressed unconnected with the speaker's resolve, we must use *shall* in the first person, and *will* in the second and third, as: "I shall die, you will die, he will die;" but when the idea of compulsion or necessity is to be conveyed,—a futurity connected with the will of the speaker,—*will* must be employed in the first person, and *shall* in the second and third, as: "I will go, you shall go, he shall go." "I shall attain to thirty at my next birthday," merely foretells the age to which the speaker will have reached at his next birthday; "I will attain to thirty at my next birthday," would imply a determination to be so old at the time mentioned. "You shall have some money to-morrow," would imply a promise to pay it: "you will have some money to-morrow," would only imply an expectation that the person addressed would receive some money.

The *Edinburgh Review* denounces the distinctions of *shall* and *will*, by their neglect of which the Scotch are so often betrayed, as one of the most capricious and inconsistent of all imaginable irregularities, and as at variance not less with original etymology than with former usage. Prof. Marsh regards it as a verbal quibble, which will soon disappear from our language. It is a quibble, just as any distinction is a quibble to persons who are too dull, too lazy, or too careless to comprehend it. With as much propriety might the distinction between *farther* and *further*, *strong* and *robust*, *empty* and *vacant* be pronounced a verbal quibble. Sir Edmund W. Read has shown that the difference is not one which has an existence only in the pedagogue's brain, but that it is as real and legitimate as that between *be* and *am*, and dates back as far as Wickliffa and Chaucer, while it has also the authority of Shakespeare.—*Matthew.*

A SCHOOL TRUSTEE'S LOGIC.

There is nothing like logic, and every thoughtful man ought to keep a package of it on hand to use in cases of emergency. A countryman was told by a schoolmaster that the earth is round and turns round, and he stared in astonishment and then said! 'I'll just try an experiment for myself.' The next day he came back with a triumphant proof that the schoolmaster's yarn was all nonsense. 'Ef the earth turns round,' he said, inquisitively, 'then half the time we are on top and half the time under, ain't we?' 'Most assuredly,' was the reply; 'Well the earth didn't stop turnin' round last night for the first time, did it?' 'probably not,' said the schoolmaster. 'Now then,' went on the logician triumphantly, 'see how foolish you be. Why don't you try experiments before you scare people telling such stories? Last evenin' when I went home I put a 'tator' nicely balanced on a stick that I stuck in the ground. If the earth had moved a quarter of an inch all night that 'tator' would have dropped sure: but when I got up this mornin' there it was just as I left it. We don't want no such nonsense taught here. This school closes to day, and your bill to date will be paid.'

JUDGE YE.—Here is a true story. A young man, son of a celebrated D.D., married a young woman, a graduate of a female seminary. They were educated and accomplished. They had two lovely daughters; both of these at about the age of fifteen died of diphtheria. As it was at a country-place, the physician looked at the surroundings. There was a flower garden in front, and a hollow to hold slops behind. "Why," he said pointing to the latter, "this is enough to kill the whole neighborhood." Were reading, writing, and arithmetic the most important things for that father and mother to know?—*The School Journal (N. Y.)*

THE RIGHT KIND.—Said one of the patrons of a school, not long since, when applying for a teacher: "I wish we could get such a teacher as we had last year; he taught the children hundreds of things they never thought of before, and my boy has pestered me with questions ever since; he will scarcely give me any rest; he tells me every thing he has heard there, and relates to me all the stories in his reading-book, and makes comments upon everything. He could not have paid a higher compliment to the former teacher. The teacher had succeeded in awakening in the pupil's mind a desire to know. Curiosity, that great incentive to the acquisition of knowledge, was fully aroused.—*Educational News.*

Notes and News.

ONTARIO.

Watford Public School has adopted the half-time system.

The Stratford, Mitchell, and Listowel High School Boards made unsuccessful application to the County Council for increased grants. The latter town paid last year \$1200 in support of the High School, while 33 out of 75 of the pupils reside outside the town.

The masters and students of St. Mary's Coll. Inst. recently gave a very successful entertainment in the Opera House. Mr. Riddle gave a lecture on "Dreams," and there was a magic lantern exhibition.

On Feb. 4th the Principal of the Dresden Public School was severely assaulted by a resident of the place. The nasal bone was fractured. The alleged ground was the whipping of assailant's son. The offender was committed for trial; bail was accepted.

Mr. A. Bowerman, late Head Master of Farmersville High School, has opened a land office in Winnipeg.

The proposed High School Masters' Institute has not yet been held in Western Ontario.

A grand oyster supper was given Feb. 24th, in honor of Mr. J. B. Robinson, teacher of S. S. No. 9, Blanshard, Co. Perth. Mr. Robinson has been in charge of this school for three years, and resigns to go to the North West. The presence of about a hundred people, and the presentation of a complimentary address to Mr. Robinson, testified the high value placed upon his services.

The trustees of Blyth, in an evil hour, decided to try the "cheap teacher" experiment. We are glad to learn that, after two months trial of the new plan, they concluded to invite back Mr. Henderson, who had served them so long and faithfully and with general satisfaction. All such experiments are merely "penny wise and pound foolish," and we record with pleasure the course of the Blyth Board, which was the most manly they could adopt after seeing the error of their policy.

Mr. James Hartly, an esteemed teacher in East Huron, died March 9th, at the early age of 31. Mr. Hartley had undergone a severe operation for tumor, from the effects of which he never fully recovered. After two months of extreme suffering he succumbed to the malady, and has left a young wife and two children to mourn his loss. He was a faithful teacher, and was highly respected by all who knew him.

A very successful and pleasant entertainment was given in the Union School House, Nos. 1 and 13, Con. 14 Brooke and Warwick, Mr. J. T. Smith, teacher. Readings, recitations, songs and instrumental music by the Watford String Band made up a programme of 19 items. Very interesting and noteworthy addresses were delivered during the evening by C. A. Barnes, Esq. Inspector of Schools, and the Rev. Mr. Colwell. A large and appreciative audience was present.

Provision is made in the estimates for Education in Ontario for an Inspector for 196 Separate Schools at a Salary of \$1,400. A third Inspector for High Schools has been dispensed with, so that the Inspectorship of the Separate Schools has not increased the staff. Appropriations are also made for the inspection of 52 County Model Schools, 105 High Schools, and 16 Collegiate Institutes.

Great excitement has been caused at Trenton owing to the action taken against Mr. Hicks the High School Master. A large amount of sympathy is shown Mr. Hicks, as the following resolution, passed at an indignation meeting will testify. Moved by W. H. Austin, seconded by Capt. Porto: "That this meeting views with alarm and indignation the arbitrary action of the School Board in interfering with the duties of the High School master, and driving him from the school, after a faithful and honorable service of upwards of ten years, and ejecting the advanced pupils and their school apparatus and books from their departments."

Mr. White, newly appointed Inspector of Separate Schools, at a salary of \$1400 and expenses, possesses talents of a high order, and unusual fitness for this office.

The tonic sol-fa system of singing has been introduced into the Public Schools of London, Ont., and the teachers of East Middlesex are to receive lessons on the method with a view to teaching it in their schools.

Mr. Moran, I.P.S. for South Perth is about to resign, and enter the field of Journalism. The *Stratford Herald* will be under his control.

Several High Schools have suffered severely owing to numerous removals to the North-West.

The average attendance of Brantford Public Schools for the first half of 1881 was 1120; for the second half, 1204. The average attendance for February, 1882, 1190.

Mumps are very prevalent in Brantford, and the average attendance of scholars is lower on that account.

Mr. Gale, late of St. Mary's, has been appointed teacher of Penmanship and book-keeping to the Brantford Public Schools. He will use Beatty and Clare's copies.

Miss M. S. Bates of Prince Albert, has been appointed teacher of Division 5, Brantford Central School.

Pupils arriving over five minutes late, will find the doors closed in the Aylmer public school.

Of the Lawyers and Doctors of St. Thomas some fifteen were formerly teachers.

We have already expressed our feelings concerning the loss sustained, by the teaching profession in Ontario, by the appointment of Mr. J. B. Somerset, as Inspector of Schools in Winnipeg. The teachers of Lincoln Co. presented him with the following address before he left, accompanied with a splendid gold chain for himself and set of furs for Mrs. Somerset;—

St Catharines, Jan. 21. 1882.

J. B. SOMERSET, Esq. :—

DEAR SIR,—We, the teachers of the County of Lincoln, cannot permit you to retire from the Inspectorship without expressing our highest respect for you as a Christian gentleman, our entire confidence in your ability as an Inspector, and our appreciation of you as the teachers' true friend.

During the time you held the office, you have done much for the cause of Education in this locality. School buildings and school furniture have been greatly improved; play grounds have been enlarged and, by your excellent system of holding Township and County Conventions, you have succeeded in introducing better methods of instruction and in exciting in the minds of your teachers a desire to excel in their profession.

In your efforts to raise the standing of the schools in the County, you have used the authority with which the law invests you wisely and well. By your admirable executive ability, you have always accomplished your object, and, at the same time, retained the confidence and good-will of Trustees and people alike.

In taking leave of you, we wish you entire success in the new field of labor you have selected, and beg you to accept this small gift as a token of the friendly feelings we entertain towards you, and of our earnest prayer for the future welfare of yourself and family.

Signed on behalf of the teachers of the County of Lincoln :

JACOB HIPPLE,

HENRY G. MANLEY,

DONALD MCKAY,

SAMUEL ALTON.

JAMES BRODIE.

Mr. Gray his successor will, we doubt not, ably fill Mr. Somerset's place, and receive from the teachers the same cordial support accorded to Mr. Somerset.

The Toronto Public School Board purposes to erect thirteen additional school rooms during the present year. This will make one hundred and seventy five rooms altogether. In 1874 the total number was only sixty nine.

The Staff of the Kingston Collegiate Institute at present consists of W. P. Knight, M.A., Rector and Science Master, Prince's Prisoner, and Honor-man in Mathematics and Natural Science, holds also P. S. Inspector's Certificate, Thomas Gordon, Mathematical Master, 2nd class Certificate, Member County Board of Examiners; D. A. Givens, B.A., Modern Languages, Prince's Prisoner, and Honor-man, holds also P. S. Inspector's Certificate; John R. Wightman, M.A., Classics, Gold Medalist and Honor-man Toronto University, holds also P. S. Inspector's Certificate; Miss M. L. Philips, Assistant in English Subjects, 1st Class Normal.

Miss C. Gillan, of Brantford, was appointed assistant teacher in the Collegiate Institute, by the Perth Board of Education. The salary to be at the rate of \$600 per annum.

Miss Amelia Christie was appointed to the Colborne St. School, London, at a salary of \$350, vice Mr. Sheppard resigned.

The salaries of schoolmasters in the County of York average \$404.

Miss Inglis, late of Springfield, has received an appointment in St. Thomas.

Mr. Murray, for some time Mathematical Master at the Collegiate Institute, Galt, has received the appointment of Head Master at the Brampton High School.

Fingal Public School is progressing most favorably under the direction of Mr. Vance and Miss Sutherland.

Mr. D. McIntyre of Marmora, formerly of Catarqui, has been appointed a teacher in the Central School, Guelph.

The Warden of Northumberland and Durham is in favor of the municipal grant being paid to the trustees in place of the Teacher. At a late meeting of the University Literary Society, Mr. W. McBride, B.A., Head Master, Richmond Hill High School, obtained the prize for the graduates' essay.

The salary of Mr. T. H. Huston, B.A., Second Master, Pickering College, has been increased. Mr. Huston, it will be remembered competed for the first Gilchrist Scholarship, and won first place, but, through being slightly over the maximum age, was disqualified. We are glad his superior merits are recognized so tangibly by the authorities of the College.

MANITOBA.

At a recent meeting of the Board of Education, it was unanimously decided to inform his Honor, the Lieut. Governor in Council, that, in the opinion of this Board, the time has come when the Legislature should be asked to make suitable provision for the thorough training of teachers for the public schools of Manitoba; and to point out the importance of an early dealing with the matter.

The following gentlemen have recently been appointed Inspectors of Protestant Schools, viz.: Rev. J. Boydell, M.A., Brandon; Rev. H. J. Borthwick, M.A., Mountain City; Rev. A. Stewart, B.D. Crystal City; Rev. J. W. Wellwood, M.A., Minnedosa; Rev. B. Franklin, M.A., B.D., DeWinton; and D. A. Stewart, Esq., Pilot Mound.

The work of organizing school districts in the recently acquired territory in the west of the Province is progressing as fast as can be expected and the number of new schools, to be opened this year, will be unusually large. There are flourishing schools at Brandon and Rapid City.

In Winnipeg, the present school accommodation is barely sufficient, and arrangements have just been made for increasing it to nearly double its extent by the commencement of the next term.

The meeting of the Manitoba Teachers' Association, held on Friday and Saturday of last week, was unusually successful. The attendance was large and the papers extremely good. Papers were read by Rev. J. Douglas, Inspector of schools for Provencher, and Messrs. J. E. Stewart, J. B. Somerset, A. Springer, E. Blakely and Eaton.

The proceedings are to be printed in pamphlet form with the proposed new programme for cities and towns, for rural schools, as an appendix.

The Council of St. John's College has appointed A. L. Parker, Esq., B.A., a Fellow of that College. Mr. Parker will enter upon his duties at the close of the summer vacation. The Council has secured \$25,000 of the \$40,000 required for the erection of the new College building for Students in Arts and Theology.

The Manitoba College new building is nearly ready for use.

Readings and Recitations.

THE TEACHER.

Tired teacher, toiling, trembling,
Whence those lines upon thy brow?
Fearful, in thy weakness stumbling,
Canst not read the promise now?
"He that goeth forth while weeping,
Sowing precious seeds in love,
Shall doubtless at the time of reaping,
Joyful, bear rich sheaves above."

Faltering teachers, fainting, fearing,
Why that tear-drop on thy cheek?
Clouds of doubt, not disappearing,
That he strengtheneth the weak?
Press then on in faith each hour,
And with joy thou'lt prove at length
That "To the faint he giveth power,
To the frail increaseth strength."

Stalwart teacher, struggling, straining
All the powers within thy soul,
Why thy hopes so early waning?
Why dost never reach thy goal?
On thine arm of flesh thou'rt resting,
Heeding not the "Stretched-out Hand";
All alone the fierce waves-breasting,
Thou'lt not gain the golden strand.

Greatest calling God has given!
Teacher, teach thyself this truth:
Thou art ever hiding heaven
In the ready heart of youth.
Such as it is, these will be
In the years that are to come,
And throughout eternity:
Wilt thou lead them, guide them home?

Teachers' Associations.

ALGOMA.—The semi-annual convention of this Institute was held in the village of Manitowaning, on the 2nd and 3rd of March, '82. H. Brown, President, in the chair. The meeting was called to order, one P.M. Owing to the very unfavorable state of the roads, only very few teachers were present, the following being the list:—President, H. Brown; Sec-Treas., J. Hanna; Librarian, T. Flesher; Messrs. Forrest, McDonald, Sim and Trotter, Misses Munroe, McDougall, Pentland, Gray, and McIvren. The President opened a very interesting and attractive programme by an essay entitled "Mistakes in Teaching" which was highly appreciated and fully discussed afterwards. This was followed by an excellent essay by J. Hanna, entitled, "Teaching Grammar to Junior Classes," which was well received and criticized in a friendly manner. Mr. McDonald then read his most excellent essay on "How to Teach Reading," and this certainly spoke volumes for his ability as a teacher, though he has had only a very brief experience as such, and called forth the most laudatory remarks of those present. Then followed Mr. Forrest with an appreciative paper on "How to Teach Geography," which met with the general approval of the meeting. On motion of Mr. Flesher, seconded by Mr. Sim, the evening session was dispensed with, to attend a meeting of the Debating Society, as, owing to the comparatively small attendance the entertainment could not have been as successful as desired. The President then gave an address, preparatory to routine business, in which he explained the formation of this Institute and its progress, and also explained the object of Teachers' Institutes, and how they may be made a success. The programme of second day opened by an interesting and humorous reading by J. Hanna, which fully explained the culinary capabilities of men in general. The reports of Sec-Treas. and Librarian were received and adopted, and the President then intimated that the second half-yearly grant from government was expected as soon as the report of this meeting was sent in. The accounts of W. L. Smith for printing, \$6.50, and the Librarian, for postage \$1.36, were ordered to be paid. It was then unanimously resolved that a question box should be opened in connection with the Institute, which means that all teachers are required to take note of, and submit for solution, any point or problem upon which they may be desirous of receiving information, more especially in mathematics, other subjects however are not excluded from the box. H. Brown was appointed receiver and custodian of the questions, which are to be published in the "Expositor" as reserved by him, and the solutions made known at next meeting of the Institute. This routine business was followed by a very interesting reading, entitled "Education of Farmers' Children" by Mr. Forrest, which was duly appreciated. In the afternoon Miss Munroe gave a very excellent and instructive essay on "How to Teach Writing," which was very well received. Mr. Brown, President, then gave an

essay on "Physical Education in Schools," setting forth the great lack of elementary scientific training in our Educational System, and urging upon educationists of Canada the necessity of putting forth a determined effort to remedy this evil, for which he was accorded a unanimous vote of thanks. This was followed by an interesting essay by Mr. Flesher, entitled "Oh yes, Learning is a very Fine Thing," which was well received and duly appreciated. Then came a lecture on "Elementary Chemistry" by Mr. Forrest, after which the lecturer answered many interesting questions, proposed on the subject by persons present. It was then resolved on motion of Mr. McDonald, seconded by Mr. Forrest, that a vote of thanks be tendered the village School Board for the use of their room. The meeting throughout was very harmonious, pleasing, and instructive, and well attended by many of the villagers, and all retired, feeling much benefited, encouraged and strengthened to meet, and if possible conquer, the numberless troubles which perplex the teacher in his profession. The date of next meeting was not decided upon, it being deemed advisable to consult Mr. P. A. Switzer, P. S. I., on this point, with a view to having him present at the summer session.

PARRY SOUND.—The first semi-annual meeting of the PARRY SOUND Teachers' Institute was held in the School House, Parry Sound village, on Thursday and Friday, March 2nd and 3rd. Notwithstanding the bad state of the roads, which prevented those at a great distance from attending, there was a fair number of teachers present, who by their work and interest, seemed desirous of making the meeting successful. *First Day.*—The President, Mr. W. Symington, took the chair at 10 a.m. After the preliminary proceedings were concluded, Mr. Knox took up the subject "First steps in Reading." He showed the importance of proceeding slowly, of teaching few letters at a time, the necessity of knowing the words by sight, and how to teach phrase-reading on the tablets and blackboard. A lively and instructive discussion followed. Mr. Steel, in giving "Elementary Arithmetic," said, he would begin by teaching the pupil to count. He showed methods of teaching *tens* and *units*. The four simple rules should be taught simultaneously, he thought. Messrs. Symington, Mathewson, and Knox, gave their views on the different methods adopted in teaching the subject. Miss Somers illustrated her method of teaching a lesson in "Reading" to a second class. She required always a thorough knowledge of the words, phrases and expressions in the lesson, before reading, explaining to the pupils what they could not reasonably be supposed to know themselves. Expression and intonation were illustrated by examples. The speaker always required a synopsis of the lesson, as an exercise in language, from the children before leaving it. Modes of teaching "Spelling" were debated by Messrs. McMillan, Steel, Mathewson, and Knox. *Second Day.* The first subject, "Elementary Grammar," was taken up by Mr. Knox. The speaker showed how to teach the "parts of speech" by drawing on the pupils' own knowledge of words; also how to have them arrive at a correct definition of the words. The order to be followed, in his opinion, should be first, classification; second, sub-classification; third, inflection; fourth, relation of words. In answer to questions, forms for analysis and parsing were given on the blackboard; and the following order was given for dealing with the sentence; 1st, subject and predicate; 2nd, enlargement; 3rd, different enlargements; 4th, different kinds of sentences. Capt. Macfarlane was listened to with much interest while giving "First lessons in Music." He advocated rote singing, at first, of selections from the readers. By a modulator and staff he showed his method of teaching the notes to more advanced classes; but would not advise the introduction of the theory into public schools. Moved by Capt. Macfarlane, seconded by Mr. Knox, "That a letter of sympathy be sent to our respected and worthy Inspector, Mr. P. A. Switzer, expressing our deep regret at his absence, coupled with our sincere hope that he may soon be able to resume his labors."—Carried. Much regret was expressed at the absence of Mr. Parker, Inspector *protem* for the District. Moved by Mr. Knox, seconded by Captain Macfarlane. "That it be recommended to the Inspector to set the time for the next Institute, so as to fall on the two days preceding the Teachers' Examination."—Carried. Moved by Mr. Knox, seconded by Mr. McMullen. "That a vote of thanks be tendered Mr. Symington for the close attention and deep interest displayed by him during the many years in which he has been connected with this Institute; also that he carries with him to the distant country to which he is about to remove our sincere good wishes and hopes for his prosperity and happiness."—Carried. Mr. Symington thanked the Institute in a few appropriate words. Mr. Switzer made a few remarks, regretting his inability to attend, and expressing interest and sympathy in teachers' work. Mr. Ireland followed with a similar expression of good will. Capt. Macfarlane sang "Be kind to Auld Grannie," in his usual happy style; when the meeting adjourned.—JOHN D. KNOX, Sec. P. S. I. Inst.

EAST MIDDLESEX.—*Saturday Morning.*—The President opened the meeting according to the programme. Accounts were passed to the amount of \$31.40. Mr. R. K. Row made a well-pointed introduction to his practical address on "Incentives to Work and Good Conduct." He treated the prize question and strongly condemned the manner upon which prizes are very often awarded, but gave unqualified commendation of the system of giving prizes, or rather reward books, on the basis of a-

fair system of marking extending over the whole term. The value of monthly reports was next dwelt upon. In his reports he added a question to the parents, asking whether they were willing to have these reports discontinued. He received invariably an emphatic "No." The value of merit cards given daily in the first and second classes was highly approved. The granting of privileges of various kinds would be found a good means of rewarding the extra diligent. As an incentive to good order, the singing of an exercise song in the middle of the longer sessions is valuable. Teachers who cannot teach singing may give three minutes for general conversation and laughing, too, if there was anything to laugh at. The pros. and cons. of corporal punishment led to a conclusion in favor of a very sparing use of this stimulant. For ridicule there is nothing to be said but that it is a poison to be set on the back shelf and there left. The value of encouragement, judicious praise and private admonition cannot be over estimated. To induce greater regularity, the school, outside and in, should be made attractive. After an animated discussion in which Messrs. Donaldson, Honor, Liddicoat, &c., took part, Mr. R. Graham took up the subject of the "Occupation of Junior Pupils at Seats." The advantages of a preliminary course of carefully taught drawing of manual practices were impressed. The common plan of occupying pupils with what is called printing was shown to be highly injurious, as it confirms beginners in habits of gross carelessness and prevents the development of elasticity of the hand and freedom of its movements so necessary to the subsequent teaching of penmanship. The degeneration of writing was certified and attributed to the careless so-called printing and the low value attached to the subject of writing at the examinations. The nature of the susceptibility of the child's mind for good or evil, and the importance of such employment tends to inaugurate indefatigable exertions on the true principles of education. To develop independence, the pupil should be placed at an early age under a method of employment, which seeming hard, yet salutary discipline compels the pupil to do for himself and suffer correction until, independently, this end is accomplished. Drawing not being as essential as some of the other elementary subjects, it is necessary that a careful distinction should be made in selecting the lessons to be given to pupils in the primary forms. As far as a teacher is able to economize time without some such aid, over two thirds of their time is lost. A child's being idle in a school is attributable to the want of some lesson, which, though not requiring much thought, will eventually produce good results. The teacher is, therefore, blamable in such cases for not providing for the super-abundant activity being called forth by its own inherent nature. It therefore lies with teachers, more particularly those who are good penmen, to awaken an earnest interest in the work of penmanship. Mr. Graham gave a series of excellent exercises by charts and on the blackboard. Mr. Eckert, of London East, on introducing this subject of "Writing in our Public Schools," said that Mr. Graham, had gone over just what he intended to take up. The new series of readers which are in process of publication will most assuredly contain a number of illustrations on this subject. While only twenty marks are given on the examination papers for that subject, we would always find teachers devoting the major part of the time to the illustration of subjects for which more marks are given. He deprecated the most ridiculous idea some people have of having and writing very peculiar and unintelligible signatures. Such people, he thought, should be banished from the profession. Boys and girls he found frequently saying, "O, I can't learn to write." To such he would say "Try." Teachers had been heard to say that they could never learn to write. Any person with a will could learn to write. Teachers should practice incessantly. Before a pupil can have that enthusiasm so necessary to its proper study instilled, he must have beautiful samples executed for him. Any teacher at least can make nicely formed letters by making them slowly. The scholars will then see that the task is not a very difficult one. He illustrated by quoting an example of a boy who, when the first lesson was given, had received a great amount of encouragement by simply practising on one letter. A confidence in himself was thus obtained. He always taught writing by single letters in the early stages, being very careful not to introduce word writing until the letters were thoroughly mastered. Mr. Yerex, of the London Commercial College, being present, the President called upon that gentleman to make a few remarks concerning the prize which he had so liberally offered to be competed for during the week of the Western Fair of 1882. Upon looking at invoices, &c., coming particularly from the United States, he found that they were nicely written, and, to his mind, the day was not far distant when we would witness such a prominence given to that subject which its importance demanded. He concluded by stating that the awarding of the prizes would be left solely in the hands of the Association. The meeting after some discussion proceeded to appoint a committee to nominate officers and adjourned. At the afternoon session, the Committee on Nomination recommended the following for officers of the Association for the ensuing year:—President, Mr. John Dearness I. P. S.; 1st vice, Mr. R. K. Row, 2nd vice, Miss McNaughton; Treasurer, Mr. W. D. Eckert; Secretary, Mr. A. McQueen. Report adopted. Moved by W. D. Eckert, seconded by T. H. Scute, that this Association recognize the great benefit derived from the establishment of the combined promotion examination, and the H. S. entrance examination, in this Inspectorate, and that the Secretary be instructed to

acknowledge our thanks to the Hon. the Minister of Education for granting the establishment of this examination, and to the County Council for the means of carrying it out. Carried. Moved by Mrs. Oliphant seconded by Miss L. Langford, that the thanks of this Association are due, and the Secretary is hereby instructed to convey them to Mr. Freeland and friends who assisted him, and the children of the London South school for the instructing and entertaining session afforded this Association. Carried. Moved by H. T. Johnson, seconded by R. K. Row, that from what we have witnessed last night of the method and results of teaching singing by the tonic sol-fa notation, that it receives our hearty approval, as a system of teaching singing, and that the managing committee be instructed to interview Mr. Freeland for the purpose of giving the teachers a course of instruction, and when the roads improve to notify the teachers to meet for the purpose of receiving their report. Carried. Resolution adopted. The resolution of Condolence to Mrs. Dr. Ryerson, in her bereavement as drafted by the Committee was carried. Miss McNaughton, of London East, presented a good essay on "How to teach Reading." For beginners she thought the "Look and Say" method was the best yet in use, and the third lesson part 1st, was the best to take up first. After the pupils knew a few simple words they should be drilled on the powers of the letters. Pupils should be taught to read with expression from the very first lessons. If a child reads in that dull, monotonous style too frequently heard, stop him and ask him a question or two and let him see that he is not talking naturally. A humorous discussion followed on how to break off the habits of misplacing the "h," stammering, etc., in which good suggestions were made by Mrs. Oliphant, Messrs. Eckert, Learn, Marshall, Honner, Dearness, and others. Mr. Falkner, of Waterloo County, was called upon and made a few remarks congratulating the Association on its large attendance and interesting programme, and asked Mr. Eckert how he would deal with German children who gave the "d," sound to "th" in that. Mr. Eckert replied that nothing was so good as being associated with purely English speaking people. Moved by Mr. McQueen, seconded by Mr. Row, that the management be instructed to make arrangements relative to the competition for Mr. Yerex's scholars, securing that gentleman as judge on behalf of the Association, and to notify the teachers of such arrangements. Carried. National Anthem.

NORTH PERTH.—The semi-annual meeting of the North Perth Teachers' Association was held in the Public School, Listowel, on the 8th and 9th inst., and was fairly attended. As the President, Mr. Monroe, was not present, Mr. Thompson was elected to preside over the meeting. The first subject taken up was "How to teach Composition." by Mr. B. Rothwell, who handled it in an able and energetic manner. He favoured the idea of causing young pupils to reproduce easy lessons from their readers, on which they had previously received a thorough drill in the class, as preliminary exercises in composition. He said that the great fault in teaching composition to beginners was in giving them a subject with which they were not acquainted. Mr. Morphy then took up "The Theory of Algebra," and, beginning with the Hindoo method, traced the various changes and improvements that had taken place in the symbols used to express Algebraic quantities from that time until the present. At the afternoon session Mr. B. McCallum, M. A., read a most excellent paper on English Literature, in which he traced the various phases through which poetry had passed since the days of Chaucer. He dwelt particularly on the works of Cowper in restoring English verse to the place from which it had fallen during the days of Dryden. The Rev. Dr. Sommer gave a short lecture on the benefits of teaching the Natural Sciences in our public schools. He said that a knowledge of the principles of natural science was essential to everybody, whether male or female, and that it was neglected in our schools and other things taught that were of less practical benefit. Dr. McLellan took up the principle of Symmetry in Algebra, and showed by a series of examples how very difficult problems could be solved by means of it. He said that a thorough knowledge of symmetry and factoring would greatly facilitate the study of this science. The second day's proceedings were opened at 9 a.m. The "A B C of Arithmetic" was taken up by Dr. McLellan, who favored the idea of teaching numbers to young pupils by means of sensible objects arranged in symmetrical groups. The subject of promotion examinations was then discussed by the Association. Considerable fault was found with some of the papers set at the last examination, particularly the dictation, and the arithmetic for jun. third class. It was shown that the dictation for entrance to fifth class contained more difficult words than are to be found on any paper set for the intermediate examination. The following officers were elected for the ensuing year: Mr. Wm. Waddell, President; Miss Matilda Draper, Vice-President; Mr. Hoigins, Secretary-Treasurer, re-elected; Messrs. W. Alexander, B. Rothwell, G. V. Poole, J. Laird and W. Knox, management committee. The Secretary-treasurer, Mr. Hodgins, read a report of the financial standing of the Association. Messrs. W. Alexander and Geo. Hamilton were appointed to audit the books and report at next meeting. The Association then adjourned to meet in Stratford at the call of the President. On Friday evening a public lecture on "National Education" was delivered by Dr. McLellan in Osborne's hall, to a large and appreciative audience.—Listowel Standard.

ELGIN.—The regular semi-annual meeting of this Association was held in the Coll. Inst., St. Thomas, on 23rd and 24th Feb. After routine business on Thursday, the Rev. Prof. Austin of Alma College, gave an address on "The Bible as a Text-book." The Rev. gentleman showed forth the many uses to which it could be applied as a book for this world as well as the next. He maintained that many of its passages were unsurpassed by profane literature, for true poetry and sublimity, while in a three-fold system of Education it would be the means of training the intellectual as well as the moral faculties. After a vote of thanks to W. Austin, Miss Paler took up the subject of Geometry to beginners. She very skilfully illustrated how she would draw forth the principal definitions from the pupils. N. W. Ford followed with some very pregnant remarks on the Teaching of History. At the evening session held in St. George Street Church, addresses were given by the most prominent speakers of the city, together with readings, vocal, and instrumental music by local celebrities. The Rev. Mr. Sutherland, on behalf of the Ministerial Association, read a paper treating on the topics of swearing, smoking, and drinking. Swearing, he said, was very prevalent in the land. It was an insult to intelligent men, and an apology should be offered by every man who swore in the presence of a Christian. Indulgence in strong drink was the bane of the country, and teachers could not too vividly impress on the minds of their pupils the evil effects caused by its use. He recommended several large books which children should read; teachers should perform experiments before their classes, showing how alcohol is made. Tobacco was another article in general use, and it was lamentable that members of the weaker sex were becoming addicted to smoking. Tobacco has been called by some old smokers their silent friend. It was bad in itself but it opened up the way to further evils. He said teachers had one thing in common with the rest of mankind—the common drudgery of life. After all, there was poetry in the drudgery of life, if one's heart was in one's work. Longfellow's village blacksmith worked away "toiling, rejoicing, sorrowing." There was inspiration for the teacher in the consciousness of a duty done; inspiration in the consciousness of developing powers of mind; inspiration in considering the results of their labors on the future welfare of the world; inspiration in considering the large stores of gratitude coming to him from the future time. Beautiful pictures of imagination rise up before him as he glances at his pupil. These are the future mothers of the land; these the statesmen, warriors, poets and scholars into whose hands must fall the sceptres now wielded by the great and good of the world. You gather material from different lands and different nations; gather the richness of the poets and philosophers from the ages; richness from the science of our day to prepare youth for the future and launch them on the sea of life. The Rev. Gentleman closed his eloquent and able address amidst hearty applause. Principal Millar gave a short discourse on "The relation of our school system to Christianity." This question was causing a good deal of discussion in the secular and religious press. He laid it down as a fact that Christianity was good for the people at large, and therefore it followed that it was good for the teacher. Our public school system was a compromise on the part of the state. It was the duty of parents to bring up their children in the principles of Christianity, and they should not surrender their children into the hands of any teacher until they knew their views would be carried out. The question is often asked, should Christianity be taught in our schools? Should our public men act in accordance with religious principles? Should you answer the latter question in the affirmative, the answer to the first is not far to seek. It is said by some that our schools should have nothing to do with religion. In one sense they have, and they have not. Every teacher gives a bias to the minds of his pupils, either for or against Christianity—if against, no Christian parent can allow his children under his care. Our schools are not religious schools but they are the schools of a Christian people, and their views should be carried out. Should teachers be members of a Christian church? Not necessarily, but their influence should be in favor of Christianity. He was not in favor of formal religious teaching in schools. This was the view held by the late Dr. Ryerson, to whom the country was greatly indebted for its excellent school system. The schools should open in the mornings by reading from the scriptures, and as a recognition of Christianity this was enough, as far as formality was concerned. The teacher's life is the main thing in wielding an influence in favor of religion. It is better than precepts. The religious press was agitating in favor of denominational schools. If our university and schools were what they should be, there need be no change. There is a marked inconsistency in the arguments used in this connection. It might be laid down as sound doctrine that what was right for a Citizen was right for a Christian. It is said that Christians should not interfere in elections—that if they did they would get morally soiled. This was erroneous, and if acted upon would be detrimental to the interests of the nation. Good men should take an interest in elections, and see that good men are elected to public positions. How can a Citizen vote for a man who is in favor of a National University, and at the same time as a Christian do all he can to kill it? If it is worthy of our support we should not try to weaken it. Some say we should have religious schools, where those who prefer could send their children. He was anxious, as all should be to advance religion and education, and thought the public schools were and ought to be of that character which entitled them to

the support and patronage of all classes of Citizens. If he thought the National University was not conducted in the interests of Christianity he would pull it down. Our Roman Catholic Citizens have as much right as any other class of Citizens to have their wishes acceded to on this question. They wanted the schools under the church, but their views were objected to by the Protestants who wanted the schools under the State, and the separate school system was not established until after a severe struggle. Many Protestants were inconsistent in this matter, and the Catholics could truthfully tell those who patronized denominational schools, that their arguments did not coincide with their practices. This question was before the public and all teachers should give it their consideration. (Applause.) Mr. A. F. Butler, County Inspector, gave the next address. Some men had affirmed that he (Mr. B.) was a crank on two questions, viz: the Kindergarten system and poetry. There was poetry ever where. You could find it in the shop, in the field and in all avocations of life. He would give some comments on Longfellow's "Psalm of Life." He asked who were the "heroes in the strife" and drew a picture of Prince Napoleon dying in Zululand and contrasted Jennie Carroll, the actress, giving up her engagements to attend at the bedside of a divorced husband, deserted by every other friend, who was a total wreck and dying. She was not only an actress but a heroine, "Sublime" was a great word; but don't mistake its meaning. Honest labor is sublime, no matter what department of industry is considered—the forge, the carpenter's bench, or the field with its golden sheaves. Teaching is the sublimest of all occupations. It was not right to rob the mountain goats of herdsmen to make poor shepherds of men. Every man should follow that occupation for which he is best adapted. The press was a mighty power, and manufactured public sentiment. The recognition of women was in accordance with the sentiments of poetry. Mr. Butler's address was interspersed with quotations from celebrated poets; and as a *resumé* of an address of this kind does not do justice to the speaker, but a faint idea can be had of the rich treat enjoyed by those who are cultured in the "Divine Art," and heard the discourse last evening on the "Psalm of Life." On Friday morning the law regarding Teacher's Certificates and County Boards was handled by Mr. D. McLean of Cranan, who treated the subject of Cramming in Public Schools in a masterly manner; he attributed the growth of this evil to three causes: 1st. The pressure of Examinations; 2nd. The excess of Home-work; 3rd. Frequent change of Teachers. His remarks on Examinations called forth a lively discussion on the subject of County Promotion Examinations; the majority of those who expressed their views, thought that the uniformity etc. aimed at by these examinations was more than counter-balanced by the evils resulting from them. Mr. Dance of Fingal, in his well-written paper on Arithmetic, denounced our system of weights and measures as a great hindrance to progress in that subject. He advocated the introduction of the Decimal system. Mr. Clay dealt with the subject of Reading Books in Public Schools; he pointed out defects in the series now in use, and also features which should be possessed by the coming series. He moved, seconded by J. W. Cook, that a committee of three teachers be appointed in each township of the County, whose duty it shall be to call a meeting of teachers and others, in such township, for the purpose of expressing their views as to the merits of the different series of readers now placed before the Minister for authorization. The afternoon session was opened by Miss Watts taking up the subject of Drawing for Junior Classes. She maintained that besides being a source of employment and amusement the subject had a strong educative influence. Mr. Leitch explained some of the principal difficulties in Book-keeping, after which the Question Drawer was opened and many interesting points discussed by members of the Committee. A resolution embodying our respect for the memory of the late Dr. Ryerson and sympathy for the bereaved family was passed, as also a resolution in reply to an address from the Ministerial Association of the city, inviting our aid in the suppression of Intemperance and the use of Profane Language. The following officers were elected for the present year:—President, D. W. Dance; Vice-President, N. W. Ford; Rec. Sec., H. McDonald; Cor. Sec., A. F. Butler; Treasurer and Librarian, J. Cook.

HALTON.—Halton Co. Assoc. met at Palermo, on Feb. 23rd, 24th 25th. Meeting called to order, when Mr. Bonny led in prayer. Minutes and correspondence read by the Secretary, and on motion were approved. The President, Mr. R. Little, made some practical remarks in reference to institute work, and afterwards alluded to the death of the late Dr. Ryerson, late chief superintendent of education, in such a manner as to prove the high estimation in which he held the venerable gentleman. On motion a committee was appointed to prepare and submit to this association a resolution of condolence concerning the demise of the late Dr. Ryerson. *Librarian's Report*.—Showing that at present we have 165 books, as per catalogue; also 72 books presented by the Minister of Education, making in all 237 volumes. Books are in good condition. Two hundred and two books have been taken out. The classification of 165 volumes is as follows: Professional and books of reference, the latter embracing English, Science, Mathematics, Primers, Drawing, and Object Lessons. It is hoped that a greater interest will be taken in the Library by the teachers of the county. The President spoke in favor of teachers using the Library; said we were apt to

get into ruts; should read to see how others worked; read to gain knowledge, to develop the mind regularly. Teachers must have clear ideas of the work they have to do, and the Library was the best source from which to get the needed assistance. On motion of P. McLean, of Model School, Milton, N. J. Wellwood, B.A., Oakville H.S., Miss Mary Crooks, of Burlington, and R. Coates, of Norval, were appointed a committee to report on a set of Readers prepared and submitted by Mr. Gage for examination and approval. Report.—“Your committee on Text Books on Reading beg respectfully to report, that we are decidedly of opinion that in view of the increased attention that is now paid to the subject of reading, improved and more suitable text books are desirable. We are much pleased with the new series of Readers published by Messrs. Gage & Co., and consider that they embrace many new and excellent features, which must prove of very material aid to teachers and pupils in this important branch of study. On the whole we consider this series of Readers much superior to any that we have yet examined. All of which is respectfully submitted (Signed.) P. McLean, Mary Crooks, N. J. Wellwood, R. Coates, Palermo, Ont., 24th Feb., 1882.” Dr. McLellan then discussed the question, “Unitary Method v. Rule of Three.” This was handled in a clear and practical manner, while Proposition was accorded a very prominent place, the U.M. was considered of far more practical utility. “Reading” was next introduced. The Dr said it was too much neglected in the High Schools, probably because as it did not pay, and perhaps it did not receive sufficient attention in the Public Schools. The subject was pretty fully discussed. Attention was called to several points, as, Articulation, Enunciation, Expression; much stress was laid on clearly and distinctly uttering the consonants and short vowels, etc., etc. Teachers should set good models before their pupils, and encourage them to imitate. Always prepare lessons before coming to the class. The Treasurer’s report was read, the balance from last year being \$34.29. Grammar was next treated of, and many very good hints given for the benefit of teachers. The order of introducing the subject in its various stages was suggested. Would guard teachers against rendering the poetical passages analytically. Mr. N. J. Wellwood, B.A., took up “Statics,” and in a very clear and pleasing style pointed out the needful requirements for its successful study. This was followed by Mr. Husband, who read a carefully prepared paper on “Writing.” This brought out some discussion about position, pen holding and methods to be followed when teaching young pupils. “Good Questioning and Bad,” was very ably and forcibly handled by Dr. McLellan under the following heads: 1. Object of Questioning. 2. Qualifications of the Questioner. 3. Characteristics of the Questions. Many errors were pointed out, and proper remedies suggested. The committee to prepare a resolution of condolence to the bereaved family of Dr. Ryerson submitted the following:—*Resolved*, We, the Teachers of the County of Halton, in convention assembled, desire to express our heartfelt sympathy with the family of the late Rev. Dr. Ryerson, Chief Superintendent of Education for the Province of Ontario, in the irreparable loss they have sustained in his death. We, as Teachers, mourn the loss of our late venerable chief, whom we regard as pre-eminently the teacher’s friend, and to his efforts attribute the greatly improved social position and professional efficiency of the teachers of this Province. As Canadians, also, we deplore the loss of one whose life-work, more than that of any other Canadian, has, we believe, conduced to the intellectual well-being of the Province of Ontario. We fondly hope this, his life-work, will ever remain the grandest and most imperishable monument of his untiring perseverance. A. Bunny, H. Husband, R. Coates. In the unavoidable absence of Mr. J. L. Hughes, Dr. McLellan lectured on Thursday evening to a full house. Subject, “This Canada of Ours.” At the close the chairman, Dr. Buck, Reeve of the Township of Trafalgar, remarked, “If Dr. McLellan does so well for another person much may we expect from him when he appears for himself to-morrow night.” H. M. Switzer, Esq., in most fitting terms, moved a vote of thanks to Dr. McLellan for his instructive, eloquent and patriotic lecture. Rev. A. Ferguson was the seconder. On the following evening we had an address on “The Teacher and Parent in Relation to Education.” This if possible was the source of greater pleasure to the audience than that of the previous evening. Wm. McCroney, of Oakville, in moving a vote of thanks alluded to the lessons that he had himself received while listening that evening. Rev. W. Pirritte seconded the above, which was carried unanimously. The thanks of the H.C.T.A. were cordially tendered the people of Palermo for their generous hospitality to the teachers, and for providing conveyances free of charge to and from the R.R. stations, also to the trustees of the school house and to the trustees of the M.E. Church for the use of their commodious rooms, free of charge, for the daily session and evening lectures. A most pleasing feature of this convention was the attendance of all the leading persons in the neighborhood, many coming six or eight miles to hear the papers read, and listen to the discussions. The ladies were present in no small numbers. One gentleman remarked that “I thought this convention was only a lot of the teachers gathered together to keep up salaries, etc., for themselves, but I find they never say salary, they talk of their work, and try to find the best ways to do it effectively.” Next meeting in Burlington in September or October.—*Con.*

REVIEWS.

SCRIBNER’S GEOGRAPHICAL READER AND PRIMER. Chas. Scribner’s Sons, New York.—This is a series of Journeys Round the World (based on Guyot’s introduction), with Primary Lessons, and is intended to give zest to dry, geographical information, by means of interesting descriptions of leading features in the several countries supposed to be passed through. The beautiful engravings which illustrate the text, and the well-executed maps that are to be used with the exercises, serve to make the book attractive and useful. The aim of the work is, in Part I., to excite interest in the several countries described; and, in Part II., to give their commercial and political character—the physical features being noticed, generally, in the course of each “journey.” As it is intended for primary work the amount of information given is not burdensome, but we should like to see important countries, such as Great Britain, France, Canada, &c., occupy more of the book than they do, and commensurate with their position in the civilized world. As a reading book on geography it is valuable, interesting, and attractive, and in opening up the subject it is practical and effective. Type, paper, and mechanical execution are of the high class which is characteristic of the publishing house of Chas. Scribner’s Sons.

MAGAZINES.

THE CONTEMPORARY REVIEW for March has been received from Strahan & Co., 34 Paternoster Row, London. It contains the following articles: ‘The Revised Version and its Assaults,’ by F. W. Farrar, D.D.; ‘Agricultural Depression,’ by the Duke of Argyll; ‘The Government of London,’ by Sir Arthur Hobhouse; ‘Monkery,’ by Alfred H. Wallace; ‘Disestablishment in Scotland,’ by Principal Rainy; ‘The Financial Crisis in France,’ by Auguste Vitre; ‘Compensation to Irish Landlords,’ by Professor Leach; ‘The Vistas of the Past,’ ‘The Earth and the Moon,’ by R. A. Proctor; ‘Land and Labor,’ by Rev. W. H. Blackley; ‘The Procedure of the House of Commons,’ by J. E. Thorold Rogers, M.P.; ‘Prof. Goldwin Smith As a Critic,’ by Herbert Spencer; ‘The Channel Tunnel,’ by Lord Bradburne. *The Contemporary* is ably maintaining its place as one of the foremost periodicals of the day.

ST. NICOLAS FOR APRIL opens with a charming frontispiece picture by Rosina Emmet, illustrating a timely little poem by Mary Mapes Dodge, entitled ‘An April Girl.’ Mrs. Abby Morton Diaz contributes ‘The Story of Wangse Pah and the White Elephant,’ an illustrated sketch of Siamese life. ‘Lord Malapert of Moonshine Castle’ is a bright comedy for children, by E. S. Bno s. The voracious legend of Mr. Weathercock is given by ‘Aunt Fanny’ Barrow. Walter Satterlee has drawn four page-illustrations for some æsthetic stanzas, called ‘Lament of the Cat-tail.’ Dr. Eggleston’s serial, ‘The Hoosier Scho-I-boy,’ and the ‘Recollections of a Drummer-boy,’ by Harry M. Kleffer, are brought, all too soon, to their conclusions, in stirring and spirited instalments, and ‘Donald and Dorothy’ have a grand, good time in their ‘House Pic-nic.’ The illustrated ‘Northern Myth’ stories are continued with the legend of ‘The Hoard of the Swarthy Elves.’ Mary N. Prescott, Margaret Johnson, and Margaret Vandergrift are among those who contribute poems and sketches, and there are drawings by J. Wells Champney, Walter Shiran, Addie Ledyard, J. G. Francis, and Jessie McDermott.

THE CENTURY MAGAZINE.—The frontispiece of the number presents the strong, plain, and decidedly English face of Matthew Arnold, the original being the portrait by the painter G. F. Watts. This accompanies a biographical-critical study, by Mr. Andrew Lang, of Mr. Arnold’s poetry and essays—the purely literary feature of the number. Of the serials, Mrs. Burnett makes a decided advance with her novel, ‘Through One Administration,’ the reader has a chance to correct some misapprehensions, Bertha goes to the Virginia mountains, and Mr. Amory gives his ideal of a woman lobbyist. Mr. Howells’ ‘Modern Instance’ takes his young married couple to Boston, touches lightly on the foibles of young married people in general, and introduces Bartley to Boston journalism, which is to figure largely in later parts of the novel. The illustrated papers cover a good deal of ground. The third of Mrs. Mitchell’s papers on sculpture is devoted to ‘The Age of Praxiteles.’ The subject is treated in an expository way, and is illustrated with beautiful engravings by Cole, Krull, Miss Powell, Evans, Babcock, Shusler, and Tynan. More superb cuts of ancient art have probably never been made. The Hera head, the two cuts of the Hermes, and the Demeter, are the most striking. ‘Some American Tiles,’ is the title of a paper, by Frank D. Millet, descriptive of processes and results at the Chelsea (Mass.) Tile Works. The variety and beauty of these tiles may be seen in the drawings, and the rapid improvement in the American product may be inferred from the facts that, whereas a few years ago there was not a decorative tile made in the country, in 1880 these specimens took the gold medal at Crewe “over all the famous pottery manufacturers of the United Kingdom.” The remainder of the body articles are light, and include a charming short story of New Mexico, ‘Nilita,’ by Thomas A. Janvier, a writer who awakens large expectations by the distinct literary flavor and wide range of method he displays, ‘The Blessings of Piracy,’ by Edward Eggleston, a satirical treatment of the question of international copyright, and a paper on ‘Oddities of Southern Life,’ by Henry Watterson, who, after recalling much that was humorous and characteristic in the South of the day of ‘Simon Suggs’ and ‘Major Jones’ records some of the marked changes that have occurred, since the war, in the motives of society, concluding with a tribute to Southern women and the new Southern thrift. Poems are contributed by ‘H. H.’ Ellen M. Hutchinson, Roger Jordan, Henry A. Boers, Henry Eckford, and Alice Wellington Rollins. ‘Tales of the Time,’ concludes a most readable number. The publication of Thomas Carlyle’s ‘Irish Journal’ will begin in the May *Century*.