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The Canada School Journal.

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No. 71.

The Canada School Journal

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CANADA SCHOOL JOURNAL HAS RECEIVED

*An Honorable Mention at Paris Exhibition, 1878.
Recommended by the Minister of Education for Ontario.
Recommended by the Council of Public Instruction, Quebec.
Recommended by Chief Superintendent of Education, New Brunswick.
Recommended by Chief Superintendent of Education, Nova Scotia.
Recommended by Chief Superintendent of Education, British Columbia.
Recommended by Chief Superintendent of Education, Manitoba.*

The Publishers frequently receive letters from their friends complaining of the non-receipt of the JOURNAL. In explanation they would state, as subscriptions are necessarily payable in advance, the mailing clerks have instructions to discontinue the paper when a subscription expires. The clerks are, of course, unable to make any distinction in a list containing names from all parts of the United States and Canada.

REPORT OF THE MINISTER OF EDUCATION, 1882.

The annual report of Minister Crooks comes to hand more than usually replete with important and interesting information. Under the first head of the report we have a summary of the proceedings of the Education Department for 1882, and it is satisfactory to note that the information comes down to date, and does not, like many reports of former years, convey statistics which have become musty and stale by lapse of time. The opinions and decisions of the Minister on a great variety of questions that have from time to time been submitted to him are given, and will be useful as precedents. In this part we have the course of study for public schools as revised a year ago. It is safe to predict that this programme will have to be re-issued at no distant date in order to supply several minor omissions, and when that is done it will be well to present a fuller statement of details under each subject as a guide to the younger and less experienced teachers. A short explanatory handbook similar to the "Manual of Instruction and Discipline" employed in the primary and grammar schools in the city of New York would be of immense service to our public schools, if the Minister could see his way clear to issue such a guide book to accompany the programme and enter into the particulars of the course to the end of the fourth class. A short clear outline of methods, limits, topics, and a precise statement of the standard of attainments to be aimed at in each grade, would have a very beneficial influence on both teachers and pupils, since it would place before them, with a distinctness impossible in a bare programme, the work to be accomplished and the way in which it could be attempted, with the greatest chance of success during the time allotted. Something of this kind has already been done in portions of the programme for high schools and for first class teachers.

Under this division of the report, we have extracts from the report of the public and the high school inspectors which de-

serve a careful perusal, as coming from men actually in the field, who know what our schools really are, who get their facts at first hand, and thus supply us with data for a clear conception of the state of education in the various districts.

From the statistical part of the report we glean some items which may profitably be compared with the figures from the English report which we give in another column. Total receipts for public school purposes, \$3,259,238. Average cost per pupil in rural districts, \$6.69; in cities, \$8.12; in towns, \$6.13; and for the whole province, \$5.92; which is 23 cents less than in 1876. Average salary of male teachers in counties, \$384; in towns, \$562; in cities, \$755. Average salary of female teachers in counties, \$240; in towns, \$221; in cities, \$330; showing a total decrease in salaries for the province of \$7,161. Total school population between 5 and 16—484,224; within school age and not attending, 29,143. Attendance at public schools, 476,268; at separate schools, 24,819; at high schools, 12,135. We have 5,278 public schools, 195 separate schools, and 104 high schools; and 86 per cent. of these are opened and closed with religious services. It is worth noticing that 81 per cent. of our public school pupils are in the third and lower classes, and 16 per cent. in the fourth class, so that our great want is trained teachers for the elementary classes, and our normal and model schools should govern themselves accordingly. The municipal grants to high schools have fallen off \$21,819, while the fees from pupils have increased by \$2,362, and the total amount of fees collected in secondary schools amounts to \$30,871, from which we may infer that the lament of a few cranks over the expense of higher education is entirely out of place, and their fault-finding the result of morbid ignorance.

On the whole the results are highly satisfactory, but as we have only received the report just as we go to press, we shall be compelled to reserve our remarks on the county model schools, the normal schools, and the special report of Director McLellan for a future occasion.

REPORTS TO PARENTS.

It is a great mistake for any teacher to assume more than his own fair share of responsibility for the mental and moral progress of his pupils. Parents generally are only too glad to put upon the shoulders of teachers the burdens they themselves ought to bear. For instance, when a boy is habitually negligent of his work, inattentive or disorderly in his class, frequently late, &c., it is the duty of the teacher to inform the parents and thus secure their co-operation in checking the evil, instead of dealing with it single-handed. A very effective method of dealing with laziness, carelessness, inattention, tardiness, &c., is to send the pupil home to his parents requiring him within a reasonable time to return with a note from them showing that they are aware of the irregularity. Sometimes

indifferent parents will object to the trouble incurred, but this only goes to show that in the end they will exert their authority to assist the teacher rather than suffer the inconvenience of writing notes, signing reports of bad conduct, &c. Those who have not tried this plan little know how much moral power over their pupils they are leaving unused. Corporal punishment will perhaps always be necessary in rare cases, but as practised in some of the best schools in Canada and the United States, the plan of appealing to parental authority has the effect of reducing the application of this extreme measure within very small limits. Let every teacher carefully consider how much of the discipline fairly belongs to him, and how much properly falls to the share of parents. It would be unwise to send a child home for every trivial offence, but there are few school offences of which parents should be kept in ignorance. The certainty that his parents will know of his bad conduct acts as a powerful deterrent to the average boy. In many cases it is best to insist on the parent's coming with his child and undertaking to secure proper conduct.

RECENT APPOINTMENTS.

The vacancy caused in Peterboro' Collegiate Institute, by the lamented illness of Mr. John Dixon, has been filled by the appointment of Mr. Wm. O'Connor, late of Owen Sound High School. Mr. O'Connor is a graduate of Queen's, Ireland, but has seen service in Canadian public and high schools, in Seaforth, London, Harriston, and Owen Sound. His energy has won uniform success, and is the best guarantee that Peterboro' will continue to advance under his management. During his residence here he has made many friends, who will be glad to hear of his promotion. We are gratified to see a thoroughly competent man placed in a responsible position.

As successor to Mr. Embree, in Strathroy High School, the board have secured T. O. Page, B.A. Mr. Page, like his predecessor, is a trained teacher, who served his apprenticeship in public school work, graduated from the Normal School in '70 with a first-class certificate, and took his degree at Toronto in '77. He has recently had successful experience at Albert College and Vankleek Hill High School. It is one sign of the times, and a good omen for sound education, to see thoroughly experienced men appointed to our best schools. The masters of our high schools are the teachers of our public school teachers; and it is useless to hope that a few months' study of methods at the normal schools will suffice to eradicate the errors of years. We want the best trained teachers that money can procure for high schools. Let the good work proceed.

COMPULSORY EDUCATION.

We lately gave quotations showing that the compulsory clause of the English code is by no means a dead letter. It is time that our own compulsory clause should be put into

effect by the establishment of industrial schools in all our large cities. Looked at merely as a commercial undertaking, or in any aspect, no better investment of public money can be suggested, as the following extract plainly shows:

The statistics of every country, where education is compulsory and universal, demonstrate that juvenile crime may be nearly, if not quite, exterminated by a rigorous enforcement of juvenile education. The Grand Duchy of Baden, by a rigorous enforcement of such a law for seven years, according to their carefully-prepared statistics, reduced crime in that Duchy 51 per cent., and pauperism 25 per cent.

Our Board of Education has not pretended to a rigorous enforcement of the compulsory education law, but they have given some enforcement to it, employing twelve agents of truancy to look after the truants in over 150,000 children. Their labors, imperfect as they have been, have had a most remarkable effect in reducing juvenile crime in this city.

For the five years immediately preceding the enactment of the compulsory education law, there were 6,105 arrests of juvenile delinquents in this city, being an average of 1,221 per year.

The total arrests of juvenile delinquents for the last five years, under the enforcement of this law, have been 4,341, or an average of 868 per year, and for the last year only 717. This, considering the larger population of the city now than then, is a decrease in juvenile crime of 36 per cent., and is an annual saving to the city in future criminal expenses of many times the entire cost of enforcing this law.

A single agent has, in the last year, by direct arrest of the Italian truants, and by his moral influence in inducing others of them to go to school without arrest, added 1,100 to the attendance of that class of children alone. The labors of this single agent have relieved the taxpayers of this city of more expense for pauperism and crime, springing from this class of our population, than the entire expense of the whole truancy department.—*Dexter A. Hawkins, in Observer.*

APPOINTMENT OF SUB-EXAMINERS.

We are pleased to learn that in appointing the sub-examiners for the July examinations, the Department has secured the services of as many experienced teachers as possible, and among these a number of county inspectors who have had long practice in reading papers at the county boards. The universities find it extremely difficult to get competent men to conduct their examinations, and the Department must find it still more difficult, since the great majority of those who are best qualified to do the work are directly or indirectly interested in the results, and therefore ineligible. Young and inexperienced men almost invariably prove too severe, and too ready to reject candidates without deliberate and careful judgment. In fact, a good examiner is rather rare even among scholars of distinguished ability, since he requires good judgment, which is a thing quite different from ripe scholarship. However, with the large representation of old and experienced men now secured, we may confidently expect that the papers will be carefully valued. It would be an excellent thing to carry rigidly into effect that part of the Minister's instructions to examiners which directs that every paper shall pass through the hands of at least two of the examiners; thus saving many appeals, by guarding more effectually against oversights and mistakes.

"In the course of a series of articles on scholastic hygiene, now being published in the *Gesundheit*, Professor Reclam advocates the arrangement, where practicable, of a skating-rink in connection with schools. The mental advantages derived from this exercise are, he asserts, more numerous than might generally be supposed, inasmuch as it involves rapidity of thought and presence of mind in keeping clear of collisions, thus partaking of the element tending to form the character which are also claimed by German authorities for gymnastic exercises as carried out in their *Turnvereine*. Amongst the physical advantages of rinking he enumerates the more noble and graceful carriage of the body which is induced by the maintenance of equilibrium, and the greater uniformity which it establishes in the distribution of the blood through the various portions of the body, this process being, it is remarked, specially desirable during the interval which separates the morning's tasks from those of the afternoon. It is also asserted that roller-skating is an excellent remedy for the excessive flow of blood to the head, which so often manifests itself in weakly yet diligent pupils by bleeding of the nose. Dr. Reclam considers that pupils of ten years of age and upwards may be freely allowed to participate in this exercise."

The above extract, from *The School Guardian*, contains an idea worth considering. In this country the girls of most schools get very little out-door exercise during the winter months, beyond that obtained by walking to and returning from school. In our high schools they often carry a dry and indigestible lunch which aggravates the evil, and the consequence is that many of the best students among them are frequently on the sick list. Boys turn out for foot-ball, snow-shoeing, &c., but the girls are prisoners from December to March, or later. It seems to us that with a little preparation in the summer, every school ground might have a small out-door rink for the girls where no covered sheds have been provided for their accommodation. In summer the girls enjoy out-door games, and it is rather hard that they should be "wooded in," as Sitting Bull expressed it when confined in Fort Walsh, for so many months in winter.

This and the preceding issue of the JOURNAL contain the questions set for promotion in several counties, where the inspectors and teachers are, as they should be, desirous of securing a fair classification of the pupils in the public schools. To teachers, these papers must be valuable, as they show the work done in other schools, and give them new ideas on the formation of questions. Every experienced teacher often feels at a loss for such aid; his mind at times is not in a constructive mood—to him, especially, selections from other sources prove a boon. The young teacher, having little practice in the art of questioning, cannot fail to derive benefit from the experience of his associates in school-work. Pupils may be urged to additional effort by placing questions from other counties before them for solution. *On these grounds alone, the present number of the JOURNAL is well worth the cost for the entire year.*

While the necessity of questions for examination purposes is admitted, there is reason to fear sufficient stress is not laid on methods of answering. Frequently, the writing is exceedingly bad, neither care nor neatness being apparent on the answer papers. The pupil expects anything he gives in reply to a question should be of some value. His teacher, careless in

training, favors the utmost leniency in making answers; thus the examiners, if strict, may find themselves at variance with current opinion. We believe writing is not well taught in the majority of schools; further, it receives little attention during the training of the teachers for professional certificates. This induces the idea it is a minor subject; besides, not a few think it a mark of scholarship to write badly. All teachers should be able to write tolerably well, and to answer questions neatly and logically on paper. The public schools should lay the foundation of a good system of movement and formation of letters, the high schools should develop it, and make their students ready and accurate in penmanship.

At a recent dinner, in New York, of the Alumni Association of Princeton College, Dr. Porter, President of Yale College, bore the following emphatic testimony to the dependence of all true university work on thorough-going preliminary education:

Dr. McCosh proposes very wisely to expand the undergraduate instruction into a school of philosophy, as I understand him, for graduates and under-graduates both desiring in this way to connect, so far as is practicable, philosophical instruction with college instruction, as the way shall open for this further development of such a branch or such a school of instruction and study. It seems to me this is a legitimate way for the colleges of America to expand into universities. At all events, I wish to give my testimony, as I feel bound to do on all occasions, that there can be no universities either in the capital or in the country which are not founded on a thorough-going preliminary education. There are no such universities in Germany. The united testimony from all the representatives of the leading universities of the leading educational interests in Germany, particularly in the Empire, as to this fact, is to this effect—that the university cannot stand except the gymnasial interest is sustained, and the most distinct expression has been given to alarm and fear lest a relaxation in the gymnasial instruction should sap and destroy the foundations of university culture. Neither in New York nor in Baltimore, nor in Cambridge, nor at Cornell, nor at Ann Arbor, can there be university instruction unless there are minds trained to the capacity to receive it, and unless young men are disciplined to the reception of what may be called lectures on the higher departments of knowledge. We rejoice that Columbia College has awakened to the possibility and the hope that it may become a great national university in New York. We hope it may. We hope also that the attention of the community may be called to the expression, in what may be called the proclamation or programme for its operations, that the rural universities of England are going into the shade in comparison with the influence of certain leading lectures in London. As though any London lectureships, or any organization of London lectureships, could compare with those mighty instruments of power which never were so strong, never were so well furnished, never so splendid in the variety of the equipments of the men who teach, never so wakeful in the ardor and eagerness of the men who hear, as the so-called rural universities of Oxford and Cambridge! The time may come, and we hope it may come, when the great university of New York, which is to be, shall shine forth in its glory, and when that time comes, we hope that the rural universities of Princeton and New Haven and Cambridge shall send fit men, with minds prepared and matured to receive the higher instruction that shall be communicated from these metropolitan chairs. In this we would rejoice, and we will endeavor to do our part to prepare men for these advanced opportunities, and for the fame which shall accrue to the universities which shall give them.

It was known here that for some months past Mr. James H. Stewart, who three years ago removed from this place to Winnipeg, had been suffering from ill-health; and when the sad tidings of his death reached here on Saturday his friends were in a measure prepared for the news. The Winnipeg Free Press gives the following particulars and a brief biography:—“Mr. James Haldane Stewart died at his residence on Jemima-st., Monday evening, after a lingering illness extending over some six months. Mr. Stewart came to this country three years ago. He was the first Inspector of our city schools, and at the time of his decease was Sec. Treas. of the Protestant school board. He was born in Argyleshire, Scotland, and received a portion of his education at Carleton Place, Ont., finishing at McGill University, Montreal. Previous to his arrival in Manitoba he was English and Science Master at Perth, Ont. Almost ever since he came to Winnipeg he has been in delicate health, and finally fell a victim to that dread destroyer, consumption. He was thirty years of age, and leaves a wife and one child, who are residing in the city. Mr. Stewart, ever since his arrival here, has been closely identified with our educational system, and has made a very large number of friends, who deeply regret his untimely demise, and whose fullest sympathy is extended to the bereaved ones.” —Perth Courier.

Official Department.

JULY EXAMINATION OF PUBLIC SCHOOL TEACHERS, 1888.

TIME AND SUBJECTS OF EXAMINATION.

CLASS I. EXAMINATIONS.		INTERMEDIATE, 3RD AND 2ND CLASS NON-PROFESSIONAL EXAMINATIONS	
DAYS AND HOURS.	SUBJECTS.	DAYS AND HOURS.	SUBJECTS.
Non-Professional Examination.		Tuesday, July 3.	
GRADE C.		A.M. 9-9.15	Reading Regulations
Monday, July 9.		9.20-10.50	Geography.
P.M. 2-3.	Composition	10.55-11.25	Dictation.
3.5-5.5.	Geography	11.30-12.	Mental Arithmetic.
Tuesday, July 10.		P.M. 1.15-3.15.	English Literature.
A.M. 9-12	Natural Philosophy.	3.20-4.50.	Chemistry.
P.M. 2-5	History.	Wednesday, July 4.	
Wednesday, July 11.		A.M. 9-11	Arithmetic.
A.M. 9-12	Arithmetic.	11.5-12.5.	Botany.
P.M. 2-4.30.	English Literature & Language.	P.M. 1.15-3.15.	English Grammar.
Thursday, July 12.		3.20-4.50.	Latin Authors.
A.M. 9-12	Euclid.	Thursday, July 5.	
P.M. 2-5	Grammar.	A.M. 9-11	Algebra.
Friday, July 13.		11.5-12.5.	English Composition.
A.M. 9-12	Algebra.	P.M. 1.15-3.15.	Natural Philosophy.
P.M. 2-4.30	Hydrostatics & Heat.	3.20-4.50.	Latin Prose and Grammar.
Saturday, July 14.		Friday, July 6	
A.M. 9-11	Chemistry.	A.M. 9-11	Euclid.
Professional Examination.		11.5-12.5	Music
Saturday, July 14.		P.M. 1.15-3.15	History.
A.M. 11.5-12.30	Education, 1st Paper	3.20-4.20	Drawing.
P.M. 2-4.	Education, 2nd Paper.	Saturday, July 7	
Monday, July 16.	Music, Drawing, Drill.	A.M. 9-11	French
GRADES A & B.		11.5-1.5	German.
Tuesday, July 7, & 3 following days.		Where there are no Candidates for Class III, for both French and German, either paper can be taken from 9-11.	
		* Mental Arithmetic is for 3rd and 2nd Class Candidates.	

Mathematical Department.

ARITHMETIC.

1. A set of harness cost \$25, the buggy as much as the harness and 60% of the price of the horse, and the horse as much as the buggy and harness together. Find the price of the rig.

SOLUTION—Horse = buggy + harness = (\$25 + $\frac{3}{4}$ horse) + \$25 = $\frac{3}{4}$ horse + \$50; $\therefore \frac{3}{4}$ horse = \$50, &c.

2. Bought a lot of sheep at \$4 each; as many and 20 more @ \$6 each; sold the whole @ \$5 $\frac{1}{2}$ and gained \$80; find the number bought.

SOLUTION—Had the two lots been equal, the average cost price would have been \$5. As it was the cost price was \$20 more than this average of \$5 each. \therefore the selling price was \$30 + 20 = \$50 more than this average, i.e. \$ $\frac{1}{2}$ on the average gave \$50; \therefore 100 sheep bought.

3. When wheat is worth \$1.20 per bush. 11 bushels of a mixture of wheat and oats are worth \$8.90, but if the proportions in the mixture were interchanged its value would be only \$8.04. Find the number of bushels of wheat in the mixture and the price of oats.

SOLUTION—Add the two mixtures and 11 bush. wheat + 11 bush. oats = \$16.94. \therefore 11 bush. oats = \$3.74. \therefore oats worth 34c. Subtract the mixtures and difference = \$8.86 = 1 bush. wheat - 1 bush. oats. \therefore 1 contains 6 bushels of wheat and 5 of oats.

4. A can chop 4 cords in 3 days, B can chop as much in 3 days as A in 4 days. How long will they take to chop a cord both working together?

SOLUTION—A cuts $\frac{1}{3}$ cord in 1 day. \therefore B cuts $\frac{1}{9}$ cords in 1 day, &c. Ans. $\frac{3}{4}$ day.

5. A's money is $\frac{2}{3}$ B's, and $\frac{1}{3}$ A's added to $\frac{1}{4}$ B's produces \$800 interest in 6 years at 5%. Find the sums.

SOLUTION— $\frac{1}{3}$ A's money gives \$800 in 6 years at 5%. i.e. $\frac{1}{3}$ A's $\times 6 \times \frac{5}{100} = \800 . \therefore A's = \$3555 $\frac{1}{3}$, and B's \$5925 $\frac{2}{3}$.

6. A father leaves \$3000 to his three sons, aged respectively 15 $\frac{1}{2}$, 17, and 19 years. The money is to be invested at 6% simple interest, and each son is to get the same sum when he comes of age at 21. Find each son's present share of the \$3000.

SOLUTION—Shares will be at interest 2, 4, 5 $\frac{1}{2}$ years respectively. Int. on \$1 in respective shares for given times = $\frac{1}{10}, \frac{2}{10}, \frac{11}{20}$. \therefore discount = $\frac{9}{10}, \frac{8}{10}, \frac{9}{20}$. \therefore Present worth of \$1 in each = $\frac{1}{10}, \frac{2}{10}, \frac{11}{20}$, which are the proportions of the present shares. $\therefore 100 (\frac{1}{10} + \frac{2}{10} + \frac{11}{20}) = \3000 , &c.

Shares are \$1092.76, \$987.01, and \$920.22 respectively.

7. The interest on \$98 for 15 years is \$81, part of it being out at 5% and the rest @ 6%, simple interest. Find the sum lent at each rate.

SOLUTION—5% loan + 6% loan = \$98.
also $\frac{2}{3}(5\% \text{ loan}) + \frac{1}{3}(6\% \text{ loan}) = \81 .
Multiply 2nd pair of equals through by $\frac{3}{2}$, and we have
 $(5\% \text{ loan}) + \frac{1}{2}(6\% \text{ loan}) = \108 . Subtract the 1st pair of equals from this and $\frac{1}{2}(6\% \text{ loan}) = 10$. \therefore 6% loan = \$50, and 5% loan = \$48.

8. A merchant marks his cloth at 3 $\frac{1}{4}$ % profit. After selling $\frac{2}{3}$ his stock at this rate he is forced by competition to reduce the price 2 cents a yard, and in the end gains only $\frac{1}{3}$ of what he had intended. Find the cost price per yard.

SOLUTION—3 $\frac{1}{4}$ % = $\frac{3}{100}$. \therefore \$1 cost is to produce \$ $\frac{31}{100}$ sales.
 \therefore for every $\frac{2}{3}$ lb. bot. he realised $\frac{2}{3} \times \frac{31}{100} = \frac{62}{150}$ cost of 1 lb.,
and for every $\frac{1}{3}$ lb. bot. $\frac{1}{3} (\frac{31}{100} - 2c.) = \frac{11}{150}$ “ “ - $\frac{1}{3}$ c.
 \therefore for every 1 lb. bot. $\frac{62}{150} + \frac{11}{150} = \frac{73}{150}$ “ “ - $\frac{1}{3}$ c.
actual gain on 1 lb. = $\frac{73}{150}$ cost of 1 lb. - $\frac{1}{3}$ c. = $\frac{11}{150}$ of intended gain.
i.e. $\frac{11}{150}$ cost per lb. - $\frac{1}{3}$ c. = $\frac{11}{150}$ of $\frac{31}{100}$ cost per lb.,
or $\frac{11}{150}$ of $\frac{31}{100}$ cost = $\frac{1}{3}$ c. \therefore cost = 82 $\frac{1}{2}$ cts. Ans.

9. A can do a piece of work in 18 days, B in 30 days, C in 33 days. How long must each work in turn alone so that the work may be completed in 25 days?

SOLUTION—A, B, and C do respectively $\frac{1}{18}, \frac{1}{30}, \frac{1}{33}$. Let 4950 shares = whole work; average = 198 shares per day to be done. A does 77 shares above, B 33 below, and C 48 below the average each day. Now A must make up for the deficiency of the others. Hence as in alligation we must have some multiple of 77 = the sum of some multiples of 33 and 48 (the algebraic expression for which would be the indeterminate equation $77x - 33y - 48z = 0$). We may choose to take these multiples integers. e.g. A 63, B 35, C 77 days respectively, so that if the work lasted 175 days, A would do 63 \times 77 shares over; the average, and B and C together would do (35 \times 33) +

(77 × 48) = (63 × 77) below the average. Hence when the work lasts only 25 days, i.e. $\frac{1}{3}$ of 175 days, A must work $\frac{1}{3}$ of 63, B $\frac{1}{3}$ of 35, C $\frac{1}{3}$ of 77 days, or 9, 5, and 11 days respectively.

10. A building society lends \$1500 @ 5% per annum, compound interest, to be repaid in 10 equal annual instalments, principal and interest together. Find the yearly instalment.

SOLUTION—

$$\text{Instalment } (1+1.05+1.05^2+\&c.+1.05^9)=1500(1.05)^{10}$$

$$\therefore \text{ " } (12.57666) = 1500 \times 1.6288336$$

$$\text{Instalment} = \$194.2569+$$

N.B.—In calculating $1.05^2, 1.05^3, \&c.$, the best way is to use logarithms. For those who do not understand logarithms, the binomial theorem will save much labor, thus—

$$1.05 = 1 + \frac{1}{20}; 1.05^2 = (1 + \frac{1}{20})^2 = 1 + \frac{1}{10} + \frac{1}{400}$$

$$= 1 + .1 + .0025; (1 + \frac{1}{20})^3 = 1 + 3 \cdot \frac{1}{20} + 3 \cdot \frac{1}{400} + \frac{1}{8000}$$

$$= 1 + .15 + .0075 + .000125; \&c., \text{ in } (1 + \frac{1}{20})^4, (1 + \frac{1}{20})^5, \&c.$$

We may neglect all terms of the expansion after the 4th or 5th, unless the sum involved is very large indeed. Thus the final addition will stand

$$1.0000000,$$

$$1.0500000,$$

$$1.1025,$$

$$1.157625, \&c.$$

See McL. & K.'s EXAM. PAPERS (Introduction), and K. & S.'s ARITH. (App.)

FIRST CLASS TEACHERS—GRADE C.

JULY EXAMINATIONS, 1882.

ALGEBRA.

TIME—THREE HOURS.

1. Solve the equations

$$(1.) \begin{cases} x^2 - xy + x = 0 \\ 4y^2 - 3xy - 2y = -7. \end{cases}$$

$$(2.) x^2 - 2x^2y - 3xy^2 = 10 = x^2 - 3xy.$$

(3.) Discuss the solutions of x, y, z , in the equations

$$a = \frac{x-y}{x+y}, b = \frac{y-z}{y+z}, c = \frac{z-x}{z+x}.$$

2. What value of x will make $x^2 - 2x$ a minimum?

Apply your method to show that the square is the greatest rectangle that can be inscribed in a given circle.

3. In the solution of $ax^2 + bx + c = 0$, interpret the results when

$$(1.) c = b = 0; (2.) b^2 = 4ac.$$

4. If α, β , be the roots of $x^2 + px + q = 0$, and α', β' , those of $x^2 + px + \frac{1}{9}(2p^2 + q) = 0$, then $\alpha, \alpha', \beta', \beta$, form an arithmetic series.

5. Determine the conditions that $ax^4 + bx^2 + c$ and $cx^4 + bx^2 + a$ may have a common divisor of the form $x^2 + px + q$.

6. When is one quantity said to vary as another.

If $x \propto y \propto z$, show that constants k, l, m exist such that $l(x - ky) = m(y - lz) = k(z - mx)$.

7. The sum of n terms of a certain series is $\frac{1}{3}n(n+1)(n+2)$; show that the sum of the differences between the 1st and 2nd, 2nd and 3rd, ... $n-1$ th and n th terms is $(n-1)(n+2)$.

8. Find the sum to n terms of a Geometric series, having given the first term and common ratio.

If between each pair of the quantities $x, x^2; x, x^3; x, x^4; \dots$ Geometric means be inserted, and r_1, r_2, \dots be the common ratios,

$$\text{then } \frac{r_2}{r_1} + \frac{r_3}{r_2} + \dots + \frac{r_{n+1}}{r_n} = n \cdot x^{\frac{1}{n+1}}.$$

9. In forming the combination of n things r together, find for what value of r the number of combinations is greatest.

A committee of 8 is to be selected by taking a certain number (a) from a party of 13, and the remainder from a party of 8. What is the value of a that the selections may be made in the greatest number of ways; and how often will A of the first party and B of the second party find themselves in company?

10. Assuming the Binomial Theorem to hold for positive integral indices, show that it holds for positive fractional indices.

Verify

$$\frac{1}{\sqrt{3}} = \frac{1}{2} \left\{ 1 + \frac{1}{2^2} + \frac{1.3}{2^4} + \frac{1.3.5}{2^6} + \dots \right\}$$

By equating co-efficients of x^r in $(1+x)^n$ and $(1 - \frac{x}{1+x})^{-n}$,

show that

$$\frac{n(n+1) \dots (n+r-1)}{r!} = \frac{n(n+1) \dots (n+r-2)}{(r-1)!} \cdot \frac{r-1}{1} + \frac{n(n+1) \dots (n+r-3)}{(r-2)!} \cdot \frac{(r-2)(r-1)}{2} + \dots$$

$$= \frac{n(n-1) \dots (n-r+1)}{r!}.$$

SOLUTIONS.

1. (1.) Add the equations and we have—

$$(x^2 - 4xy + 4y^2) + (x - 2y) - 2 = 0. \text{ i.e. } (x-2y)^2 + (x-2y) - 2 = 0.$$

$\therefore x - 2y = -2$ or $-1. \therefore y = \frac{1}{2}(x+2)$ or $\frac{1}{2}(x+1)$.

Substitute these values in 1st equation and we have—

$$x = \pm \frac{1}{2}\sqrt{2} \text{ or } = \frac{1}{2}(-1 \pm \sqrt{73}), \text{ whence we get eight correspond-}$$

ing values for y .

(2.) Multiply 2nd by y and add, and $x^2 - 3x^2y = 10(1-y) = 10 - 10x$ from 2nd; $y = 1 - x$. Substitute this in 2nd equation, and $4x^2 - 3x - 10 = 0 = (4x+5)(x-2); x = -\frac{5}{4}$ or 2 ; whence $y = \frac{9}{4}$ or -1 .

(3.) Adding and subtracting numerators and denominators in each equation, we have—

$$\frac{x}{y} = \frac{1+a}{1-a}, \frac{y}{z} = \frac{1+b}{1-b}, \frac{z}{x} = \frac{1+c}{1-c}.$$

Multiply up, and

$$\frac{1+a}{1-a} \cdot \frac{1+b}{1-b} \cdot \frac{1+c}{1-c} = 1, \text{ i.e. } a+b+c+abc=0,$$

Which is the equation of condition among the coeffs. of x, y , and z which must exist. (A.) If we put the equations in the form $a_1x + b_1y + c_1z = d_1, \&c.$, we have

$$a_1 = a-1, b_1 = a+1, c_1 = 0, -d_1 = d_2 = d_3 = 0, a_2 = 0, b_2 = b-1, c_2 = b+1, a_3 = c+1, b_3 = 0, c_3 = c-1.$$

And $x = \frac{d_1(b_2c_3 - b_3c_2) + d_2(b_3c_1 - b_1c_3) + d_3(b_1c_2 - b_2c_1)}{a_1(b_2c_3 - b_3c_2) + a_2(b_3c_1 - b_1c_3) + a_3(b_1c_2 - b_2c_1)}$

$$\text{i.e. } x = 0 \div \{(a-1)(b-1)(c-1) + (a+1)(b+1)(c+1)\}$$

$$= 0 \div 1 = 0 = y = z, \text{ and the original equations vanish}$$

$$x = y = z = a = b = c = 0.$$

2. $x^2 - 2x = x(x-2)$, which vanishes for $x=2, =-1$ for $x=1$, and $=+3$ for $x=3$. i.e. passes from $-$ to $+$, as x passes from 1 to 3. $\therefore 2 = \text{minimum value, if we exclude } x=0.$

math dept 2

If $r = \text{radius}$, and x and y the half sides of rectangle, we have $\text{area} = xy$, which vanishes when $x=0$, or $y=C$ i.e. as angle between r and y passes from 0° to $90^\circ, \therefore \text{max. occurs when angle} = 45^\circ, \text{ i.e. when } x=y, \text{ or when rectangle} = \text{square.}$

3. (1.) In $ax^2 + bx + c = 0$, write $\frac{1}{y}$ for x , then

$$a + by + cy^2 = 0, \text{ and if } a = b = 0, cy^2 = 0, \therefore y = \pm 0, x = \pm \infty.$$

(2.) $x = \frac{1}{2}(-b \pm \sqrt{b^2 - 4ac})$, \therefore values of x are real and different, real and equal, negative and impossible, according as $b^2 = 4ac.$

4. If $\alpha, \alpha_1, \beta_1$, and β are in A.P., then $\alpha - \alpha_1 = \beta_1 - \beta$, i.e. we have to show that $\alpha + \beta = \alpha_1 + \beta_1$. Now from given equations we have $\alpha + \beta = -p = \alpha_1 + \beta_1$, hence the four quantities are in A.P.

5. The 2nd expression is derived by changing a into c and c into a , \therefore if $a=c$ the expressions are identical, and if $x^2 + px + q$ divides one it will divide the other also. The same result is obtained if we divide each expression by $x^2 + px + q$, and put each part of the remainders $= 0$, \therefore for we get from $p^2 = -\frac{a}{b} = -\frac{b}{c} \therefore ac = b^2$, and

$$q^2 = -\frac{c}{a} = -\frac{a}{c} \therefore a=c, \text{ whence } a=b=c.$$

6. Book-work. Let $x = ay = bz, z = \frac{a}{b}y$, Substitute these values

in the given relation and $l(a-k)y = m(1 - \frac{al}{b})y = k(\frac{a}{b} - am)y$.

Strike out y , and multiply through by b , and $alb - blk = mb - al m = ak - abmk$, three equations which will give us k, l, m , in terms of a, b , and c , constant quantities. $\therefore k, l, m$, are constants.

7. Put n successively equal 1, 2, 3, &c., and we have the sums of 1, 2, 3, &c., terms=2, 6, 12, 20, 30, 42, &c., respectively.

Hence the series must be

$$2+6+12+20+\&c. = 2\{1+3+6+10+15+\&c. + \frac{1}{2}n(n+1)\}$$

Hence required sum

$$= 2(2+3+4+\&c. \dots + n). \text{ Put}$$

$$s+1=1+2+3+4+\&c. + n = \frac{n}{2}(n+1).$$

∴ Required sum

$$= \left\{ \frac{n}{2}(n+1) - 1 \right\} 2 = n^2 + n - 2 = (n-1)(n+2).$$

8. Book-work. If we insert n Geometric means between a and b ,

we have $r = \left(\frac{a}{b}\right)^{\frac{1}{n+1}}$. In this case we get

$$r_1 = \left(\frac{x^2}{r}\right)^{\frac{1}{n+1}}, r_2 = \left(\frac{x^3}{r}\right)^{\frac{1}{n+1}}, r_3 = \left(\frac{x^4}{r}\right)^{\frac{1}{n+1}}, \&c., r_n = \left(\frac{x^{n+1}}{r}\right)^{\frac{1}{n+1}}$$

$$\text{i.e. } r_1 = x^{\frac{2}{n+1}}, r_2 = x^{\frac{3}{n+1}}, r_3 = x^{\frac{4}{n+1}}, \&c. r^n = x^{\frac{n}{n+1}}.$$

$$\therefore \frac{r_2}{r_1} + \frac{r_3}{r_2} + \&c. = x^{\frac{1}{n+1}} + x^{\frac{1}{n+1}} + \&c. x^{\frac{1}{n+1}} = n x^{\frac{1}{n+1}}$$

$$9. Cr = Cr_{-1} \times \frac{n-r+1}{r}, \therefore Cr > Cr_{-1}, \text{ so long as } \frac{n-r+1}{r} > 1, \text{ or}$$

$n+1 > 2r$, and the greatest value of r is the integer next below $\frac{1}{2}(n+1)$. When n is even $r = \frac{1}{2}n$, when n is odd $r = \frac{1}{2}(n-1)$.

No. of combinations of 13 things is greatest 6 together. Hence take 6 out of the 13 group and 2 out of the 8 group. Remove A and B , and take 5 out of the 12 group and 1 out of the 7 group. This gives 792 groups of 5 and 7 groups of 1, and each of the former may be combined with each of the latter to form a group of 6, i.e. there are $792 \times 7 = 5544$ groups of 6, to which if we now add A and B , they meet 5544 times. The total number of selections possible is 1716×28 .

10. Book-work.

$$\frac{1}{\sqrt{3}} = 3^{-\frac{1}{2}} = (4-1)^{-\frac{1}{2}} = \left\{ 4 \left(1 - \frac{1}{2} \right) \right\}^{-\frac{1}{2}} = \frac{1}{2} \left(1 - \frac{1}{2} \right)^{-\frac{1}{2}}$$

$$\text{Now } (1-x)^{-\frac{1}{2}} = 1 + \frac{p}{q}x + \frac{p(p+q)}{[2 \cdot q^2]}x^2 + \frac{p(p+q)(p+2q)}{[3 \cdot q^3]}x^3 + \&c.$$

$$\therefore \frac{1}{2} \left(1 - \frac{1}{2} \right)^{-\frac{1}{2}} = \frac{1}{2} \left\{ 1 - \frac{1}{2} \cdot \frac{1}{2} + \frac{1 \cdot 3}{[2 \cdot 2^2]} \frac{1}{2^2} + \frac{1 \cdot 3 \cdot 5}{[3 \cdot 2^3]} \frac{1}{2^3} + \&c. \right\}$$

which is the given series.

$$(1+x)^n = \left(1 - \frac{x}{1+x} \right)^{-n}. \text{ Now coeff. of } x^r \text{ on left hand}$$

$$= \frac{n(n-1) \dots (n-r+1)}{[r]} \text{ Expansion of right hand}$$

$$= 1 + n \cdot \frac{x}{1+x} + \frac{n(n+1)}{[2]} \cdot \frac{x^2}{(1+x)^2} + \&c.$$

$$+ \frac{n(n+1)(n+2) \dots (n+r-1)}{[r]} \cdot \frac{x^r}{(1+x)^r}$$

and the succeeding terms will contain only powers of r higher than x . We see that

$$\frac{x^r}{(1+x)^r} = x^r (1+x)^{-r} = x^r \left(1 - \frac{r}{1}x + \&c. \right) = x^r - rx^{r+1} + \&c.$$

$$\frac{x^{r-1}}{(1+x)^r} = x^{r-1} (1+x)^{-(r-1)} = x^{r-1} \left\{ 1 - \frac{r-1}{1}x + \&c. \right\}$$

$$= x^{r-1} - \frac{r-1}{1}x^r + \&c. \frac{x^{r-2}}{(1+x)^{r-2}} = x^{r-2} \cdot (1+x)^{-(r-2)}$$

$$= x^{r-2} \left\{ 1 - \frac{r-2}{1}x + \frac{(r-2)(r-1)}{[2]}x^2 + \&c. \right\}$$

$$= x^{r-2} - \frac{r-2}{1}x^{r-1} + \frac{(r-2)(r-1)}{[2]}x^r - \&c.$$

Thus each term after the first contains x^r , and the sum of all those coeffs. must equal the coeff. of x^r on the left hand of the identity, i.e. we must have

$$\frac{n(n+1) \dots (n+r-1)}{[r]} (1) + \frac{n(n+1) \dots (n+r-2)}{[r-1]} \left(-\frac{r-1}{1} \right) + \frac{n(n+1) \dots (n+r-3)}{[r-2]} \left(\frac{r-2}{[2]} \cdot \frac{r-1}{1} \right) + \frac{n(n+1) \dots (n+r-4)}{[3]} \left(-\frac{r-3}{[3]} \cdot \frac{r-2}{[2]} \cdot \frac{r-1}{1} \right) + \&c. - (-1)^r$$

And this is the required relation.

MANITOBA TEACHERS' EXAMINATIONS—1882.

MENSURATION.—1ST & 2ND CLASSES.

Examiner—STEWART MULVEY. Time—Two Hours.

A. Give the rules for finding:

- (a) The area of an equilateral triangle.
- (b) A Trapezium.
- (c) A Circle.
- (d) A Sector of a circle.
- (e) A Segment of a circle.

B. Give the rules for finding:

- (a) The solidity of any pyramid.
- (b) The contents of a frustrum of a pyramid.
- (c) The cubical contents of any prism.
- (d) The solidity of a wedge.

1. The sides of a triangle are respectively 18, 14, and 15 feet. What is its area and the perpendicular on the greatest side?
2. One of the sides of an isosceles triangle is 7 feet and the base is 12 feet. What is its area?
3. Required the area of a segment of which the height is 20, the diameter of the circle being 23?
4. The chord of an arc less than a semi-circle is 336, and the diameter is 625. Required the length of the arc?
5. The longer axes of a prolate spheroid is 55 and the shorter 33 inches. What is the solid contents of the spheroid?
6. Find the difference between the area of a triangle whose sides are 6, 8, and 10 feet, and the area of an equilateral triangle having an equal perimeter?
7. How many standard or imperial gallons in a cistern of the following dimensions, viz.: Bottom diameter, 60 inches; middle diameter, 50 inches; and top diameter, 65 inches. Depth of cistern, 40 inches?
8. How many bushels of barley and imperial gallons would the above cistern contain when filled 30 inches from the bottom?

SOLUTIONS.

- A. (a) Area = $\frac{\sqrt{3}}{4}(\text{side})^2$.
- (b) If a, b, c, d , be the four sides, area = $\sqrt{(s-a)(s-b)(s-c)(s-d)}$, where $s = \frac{1}{2}(a+b+c+d)$. If d be one of the diagonals and p and p_1 the perps. on it from the opp. angles, area = $\frac{1}{2}d(p+p_1)$.
- (c) Area = πr^2 , where $\pi = 3.14159+$, and r = radius.
- (d) If l = length of arc, area = $\frac{1}{2}lr$.
- (e) Area of segment = area of sector - area of triangle whose base is chord of arc and vertex at centre.
- B. (a) Solidity = $\frac{1}{3}(\text{area of base} \times \text{perp. height})$.
- (b) Solidity = $\frac{1}{3}(\text{area of base} + \text{area of top} + \text{mean proportional between them}) \times \text{perp. height}$.
- (c) Solidity = area of base \times perp. height.
- (d) Solidity = $\frac{1}{6}(\text{twice length of base} + \text{length of edge}) \times \text{breadth of base} \times \text{perp. height}$.

1. $s = \frac{1}{2}(13+14+15) = 21$; $s-a, s-b, s-c$, = resp. 8, 7, and 6.
∴ area = $\sqrt{21 \times 8 \times 7 \times 6} = \sqrt{7 \times 3 \times 4 \times 2 \times 7 \times 3 \times 2}$
 $= \sqrt{7^2 \times 3^2 \times 4^2} = 7 \cdot 3 \cdot 4 = 84$.
- Also 2 area = $15 \times \text{perp.} = 2 \times 84$, ∴ perp. = $2 \times 84 \div 15 = 11\frac{1}{3}$.
2. 2 area = $12 \times \text{perp.}$ But perp.² = $7^2 - 6^2 = 13$, ∴ perp. = $\sqrt{13}$.
∴ area = $6\sqrt{13} = 6 \times 3.65 = 21.9+$

3. Height of complementary seg=3, h'ght of its trig. = $\frac{23}{2} - \frac{17}{2} = \frac{6}{2}$
- ∴ its ($\frac{1}{2}$ chord)² = $(\frac{23}{2} - \frac{17}{2})^2 = 60$, ∴ chord = $4\sqrt{15}$.
- ∴ chord of $\frac{1}{2}$ arc = $\sqrt{(60+9)} = \sqrt{69}$,
- ∴ length of arc = $\frac{1}{2}(8\sqrt{69} - 4\sqrt{15}) = \frac{1}{4}(2\sqrt{69} - \sqrt{15})$
 = $\frac{1}{4}(2 \times 8.306 - 3.872) = 16.986$,
- ∴ area of sector = $\frac{1}{2} \times 16.986 \times 23 = 195.339$,
- area of its triangle = $3\sqrt{69} \times 3 = 8.306 \times 9 = 74.754$,
- i.e. area of complementary seg = $195.339 - 74.754 = 120.585$,
- and area of seg. = area of circle - area of comp. seg.
 = $23^2 \times .7854 - 120.585 = 415.4766 - 120.585 = 294.8916$.
4. Half chord = 168. Let h = height of seg. ∴ (III. 35),
 $(625 - h)h = 168 \times 168$, i.e. $h^2 - 625h + 168^2 = 0$,
- ∴ $h = \frac{1}{2}(625 \pm \sqrt{625^2 - 4 \times 168^2}) = \frac{1}{2}(625 \pm \sqrt{461 \times 289})$
 [for $(625)^2 - (2 \times 168)^2 = (625 + 336)(625 - 336)$]
 i.e. $h = \frac{1}{2}(625 \pm 31 \times 17) = \frac{1}{2}(625 \pm 527)$.
- Now the - sign does not apply, ∴ $h = 49$,
- ∴ chord of $\frac{1}{2}$ arc = $\sqrt{(168^2 + 49^2)} = 175$,
- ∴ length of arc = $\frac{1}{2}(8 \times 175 - 336) = 354\frac{3}{4}$ nearly.
5. Solidity = $33^2 \times 55 \times .5236 = 31361.022$.
6. The triangle is right angled, for $6^2 + 8^2 = 10^2$ ∴ $ac = 3 \times 8 = 24$
 Side of equilateral triangle = 8, ∴ area = $.433 \times 8^2 = 27.712$,
 difference = 3.712 .
7. Assuming cistern to be circular, it is two frustra of cones.
- ∴ Area of bottom = $60^2 \times .7854 = 3600 \times .7854$,
- “ mid. sec. = $50^2 \times .7854 = 2500 \times .7854$,
- “ top = $65^2 \times .7854 = 4225 \times .7854$,
- Mean proportional between first two
 = $50 \times 66 \times .7854 = 3000 \times .7854$,
- Mean proportional between second two
 = $50 \times 65 \times .7854 = 3250 \times .7854$,
- ∴ Solid'y low'r pt. = $(3600 + 2500 + 3000) \times .7854 \times \frac{20}{3}$,
- “ upper “ = $(4225 + 2500 + 3250) \times .7854 \times \frac{20}{3}$,
- “ of cist'rn = $19075 \times .7854 \times \frac{20}{3}$, Imp. gal. = 277.274 c.in.
- ∴ No. of gallons = $(19075 \times .2618 \times 20) \div 277.274 =$
8. 10 inches of upper part filled,
 ∴ $10^3 : 20^3 =$ solidity of part : solidity of whole upper frustrum,
 ∴ Solidity of part = $\frac{1}{8}$ that of upper frustrum,
 = $\frac{1}{8} \times 9975 \times .7854 \times \frac{20}{3} =$
 To which add solidity of lower part,
 = $9100 \times .7854 \times \frac{20}{3}$,
 Content = $10346.875 \times .2618 \times 20$,
 Gallons = $10346.875 \times .2618 \times 20 \div 277.274 =$
 Bushels = “ “ “ $\div 2150.4 =$

Correspondence.

SMITH'S FALLS, April, 1883.

To the Editor of the CANADA SCHOOL JOURNAL :

DEAR SIR, - Allow me to thank you for your most flattering notice in the April number of the JOURNAL, and to ask you to explain in the May number that, being under the impression that I could procure my release at a month's notice, I allowed my willingness to accept Strathroy head mastership to be known to my friends and the Board there; but finding, to my surprise, that my release could be procured by giving notice at the end of the year only, and that my Board were not willing to release me, although I had posted a suitable substitute in the working of my classes, I was obliged to resign the Strathroy appointment, with regret at causing any delay or disappointment in filling Mr. Embree's place. I regret that press of studies compelled me to neglect your request to furnish instances of errors in syntax, but I wish you success in your little venture in a much-needed reform: I am receiving the CANADA SCHOOL JOURNAL all right now, through the Lanark Teachers' Institute, although in some way the Secretary allowed my subscription to run out. I add, at Mr. McCreary's request, a criticism of your little Geography Primer, and hope it will be of service to you even yet. I have not the book myself, but you may send it in my order with Cato Major, German or English Literature for 1884, whenever, if ever, you publish them, and I will review them carefully.

Fraternally yours,

J. A. CLARKE, H.M.H.S.

Special Articles.

RELATION OF GRAMMAR AND LITERATURE.*

BY THE REV. DR. HUDSON.

(Concluded from last month.)

Not, however, but that something of special heed should be given to the Poet's language, and his use of words; for many of these are either unfamiliar or used in unfamiliar senses: but this part of the study should be kept strictly subordinate to the understanding of his thought and meaning, and should be pushed no further than is fairly needed to that end. But I have ample cause for saying, that in many cases, if not in most, altogether too much time and strength are spent in mere word-mongering and lingual dissection; a vice as old indeed as Cicero's time, who pointedly ridicules it in describing one as "a chanter of formulas, a bird-catcher of syllables." In fact, as we are now chiefly intent on educating people into talkers, not workers, so the drift of our whole education is, to make language an ultimate object of study, instead of using it as a medium for converse with things: for we all know, or ought to know, that the readiest and longest talkers are commonly those who have little or nothing to say. On every side, teachers are to be found attending very disproportionately, not to say exclusively, to questions of grammar, etymology, rhetoric, and the mere technicalities of speech; thus sticking for ever in the husk of language, instead of getting through into the kernel of matter and thought.

Now, as before implied, Shakespeare, least of all, ought to be taught or studied after this fashion. A constant dissecting of his words and syllables just chokes off all passage of his blood into the pupil's mind. Our supreme master in the knowledge of human nature, it is little less than downright sacrilege to be thus using him as the raw material of philological exercitations. In the degree that it is important people should acquire a taste for him and learn to love him, just in that degree is it a sin to use him so; for such use can hardly fail to breed a distaste for him and an aversion to him. Doubtless there is a time for parsing, as there is for other things; but people cannot parse themselves or be parsed into a relish for Shakespeare's workmanship, or into a fruitful converse with his treasures of wisdom and power.

And with the young, especially, the study of vernacular authors should be prosecuted in entire subservience to the knowledge of things: if turned into a word-mongering process, it touches no free and natural springs of interest, and so becomes tedious and dull—just the thing to defeat all that pleasure which is the pulse of mental life. For the proper business, as also the healthy instinct of young minds, is to accumulate and lay in stores of matter: the analytic and discriminative processes naturally belong to a latter period; and to anticipate the proper time of them is a very bad mistake. But the knowledge of things proceeds too slowly and too silently for the ends of school-room show. Boys in school and college shine chiefly by the knowledge of words, for this is the mere work of memory; but, in practical life, men are useful and successful in proportion to their knowledge of things: which knowledge proceeds, to be sure, by the measures of *growth*, and therefore is far less available for competitive examinations and exhibitory purposes. And so, forsooth, our children must be continually drilled in a sort of microscopic verbalism, as if we had nothing so much at heart as to make them learned in words, ignorant of things. Hence, too, instead of learning how to *do* some one thing, or some few things, they must learn how to smatter of all things: instead, for example, of being taught to sing, they must be taught to prate scientifically about music.

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Thus our educational methods are all converging to the one sole purpose of generating a depurated and conceited intellectualism; which is just about the shallowest, barrenest, windiest thing in the whole compass of man's intellectual globe. But, what is strangest of all, so becharmed are we with our supposed progress in this matter, as not to see, what is nevertheless as plain as the sun at mid-day, that we are taking just the right course to stunt and thwart the intellect itself. For the several parts of the mind must grow in proportion, keeping touch and time together in the unity of a common sap and circulation, else growth itself is but decay in disguise. And when the intellectual man, through pride of self-sufficingness, sequesters itself from its natural commerce and reciprocation with the moral, emotional, and imaginative man, the intellect must needs go into a dry-rot.

THE SUBJUNCTIVE MOOD.*

Any of you who have studied Mason's Grammar will have found that he points out a number of difficulties which are encountered by students of English grammar. Among the prominent ones (indeed I might say the most prominent one) is the "Subjunctive Mood," and I think, from the way in which he deals with it, he has felt the difficulty himself. In saying this I do not wish you to think that I am of opinion that Mason lacks anything in clearness, or that he does violence to any of the principles of English. Of all the authors whom I have studied on this subject, Abbot, Mason, Angus, Fleming, and Bain, Mason is the only one who, in my opinion, has interpreted faithfully the teachings of English.

The real source of difficulty with which I had to contend, and with which those who have experienced the difficulty also had to struggle, was the way in which we were taught to distinguish moods. The method was purely mechanical. Now when Mason wishes us to free ourselves from a tyranny of names, and presents peculiarities, hitherto unnoticed, in a logical manner, we, as teachers who possess more than ordinary intelligence and a little literary culture, but whose minds have become vitiated by the teachings we received from the old grammars and older teachers, at first do not perceive the distinctions in thought, to express which the English language is so admirably fitted. It would be presumption on my part, at this time, to enter into arguments that may be urged in favor of the new conjugation; for any one who has examined Mason must have found plenty of arguments sufficiently clear to abandon the old.

It may be well here to observe that in doing away entirely with the Potential Mood (I would not speak of it did I not know that there are some teachers who still cling to the Potential Mood like true conservatives) there has been recognized that important principle in grammatical science, that all grammatical expedients are to be valued, in so far as they explain fully the force and office of those words with which they deal.

The Potential Mood long occupied a conspicuous place in the conjugation of our verbs, but has by a great many been discovered to be a useless invention—a deviation from the foregoing rule not having a solitary feature or circumstance to recommend its retention, and has, accordingly, been discarded for an arrangement that unfolds the true use of verbs in the particulars to which they relate.

It is a matter of surprise how such an arbitrary arrangement as the P. Mood should be accepted by succeeding generations as the best that could be devised. The only way I can reconcile myself

to it, is that in times past we were strictly confined to the authorized text-book, and did not investigate for ourselves. The question was not: What does language teach? What does use teach? but the great question in grammatical enquiry was, What does the authorized text-book teach? The doom of this system has, fortunately for the studies of our youth, been sealed. Research to all the departments of English grammar has been extended, and it may now with truth, and not with irony, be called a science and an art.

But to come to the point. We shall suppose now that we are beginning a school term, and that we have a class that has been promoted to the fourth form, and so far as grammar is concerned, the class is perfectly familiar with the Indicative Mood, in simple and compound sentences; the Subjunctive Mood then comes up for explanation, and experience confirms me in the belief that the use of the past tense, as explained by Mason (pp. 433-434), is the most advantageous place to begin, as that contains the most easily distinguished feature of the Subjunctive Mood, viz., to determine whether the supposition corresponds with or is contrary to what is the fact; and I think this needs no very great power of discrimination.

Mason has made this point so clear that it would not only be useless, but presumptuous, on our part to attempt any further explanation. Yet the anomalous use of the past tense, in reference to present time, demands some attention. I think you will all agree with me when I say all present conditions of things were brought about in past times, either near or remote. Take then an example: "If Noah were here, I would speak to him." Noah's being present would have to be an accomplished fact, before the speaker, under the circumstances, could speak to him. Hence in the hypothetical clause, the past tense is properly employed to make a distinction between the real and the supposed condition of things. In the consequent clause the use of the past tense, secures the same end, showing "the want of congruity between the supposition and the fact."

Experience has taught me that a serious point of difficulty with beginners is the use of the Present Indicative in hypothetical clauses. The point where they fail is, in comprehending the reason for the supposition or what was in the mind of the speaker—to denote which is the office of moods. Here many, who have tried to investigate the matter, have experienced a difficulty; and with many investigation has stopped here, simply because they could not tell when to use, and when not to use, the Present Indicative in hypothetical clauses. For this reason I have given this point a somewhat lengthy consideration, and to make the matter perfectly clear, we shall take an example in which the Present Indicative is used in the hypothetical clause. "If the boy is guilty he deserves to be punished." In dealing with this sentence before my class, I was asked by one of my senior pupils, "Why does the speaker put his opinion in the form of a supposition if there is no doubt on his mind?" It may seem strange, that although students in their studies daily meet with this use of the Indicative, they are hopelessly bewildered when they attempt to define what was in the mind of the speaker in such cases, nevertheless it is a fact. In clearing this path of investigation for my pupils I require them first to recite the two views of suppositions, so fully illustrated in Mason's Advanced Grammar (p. p. 429-433); then, taking an example like the previous one, we pursue something like the following: We shall suppose that the boy mentioned in the example, while on the play-ground, was guilty of a misdemeanor deserving corporal punishment, and another boy who witnessed the crime informed the teacher of the fact. He sends for the boy, who comes in, and the other boys follow to the ante-room, to know the result. After a thorough investigation of the matter, the boy acknowledges the fault, and the teacher

*A paper read before the West Huron Teachers' Institute, on Saturday, February 7th, 1883, by William Leigh, Farquhar.

is in the act of inflicting the punishment, when a stranger enters the ante room where the boys are assembled and asks the cause of 'the boy's being punished; he is informed of the circumstance, and says, "Well, if he is guilty he deserves to be punished." Of the boy's guilt he has no doubt, and consequently uses the Indicative Mood. It may appear to you that I have magnified this difficulty, but I have invariably found that, simple as it may seem, it is a point which I had difficulty in mastering, and which I have found is a stumbling-block to students. With the desire to be practical I have simply attempted to indicate, in terms as plain as possible, the plan with which I have been most successful in getting my pupils to master the Subjunctive Mood.

When the use of the Present Indicative in hypothetical clauses is fully understood, little difficulty will be experienced in determining when to use the Present Subjunctive. A few words on this point may not be entirely thrown away. When there are two things that are liable to be confounded, if we get a clear idea when to use the one, the use of the other will be more easily understood. If we know when to use the Present Subjunctive it will materially aid us in determining when to use the Present Indicative in hypothetical clauses. In listening to a sermon some time ago on evolution, I heard the minister make use of the following. "If the Mosaic account of the creation be true, evolutionists are in error." Now let us consider the statement for a moment. Why did he make use of the expression "evolutionists are in error"? From his sermon and from what was passing in his mind, he was certain that the Mosaic record is true because only on his belief of the correctness of the account could he make the assertion that "evolutionists are in error." The speaker misrepresented what was passing in his mind by using the Subjunctive instead of the Indicative.

Take another example, viz.: the one given in our authorized textbook, and by pursuing a similar line of argument you will see clearly that the speaker misrepresents what is passing in his mind when he says "If it rain we shall not come." What would lead the speaker to make use of the expression? We must think exactly as he did, and he transfers himself forward mentally to the time of starting; then the only reason he could possibly have would be its raining at that time. Change the expression to "If it does not rain we shall come," and all becomes perfectly clear. When, then, you will ask, is the Present Subjunctive used? The best answer that I can give is to be found in Mason's *Advanced Grammar*, pp. 438 and 439; and in his remarks on the Subjunctive Mood in the preface to his *Grammar*.

There is a point here to be strictly guarded, that is, not to confound this use of the Subjunctive with that found in suppositions respecting the future, treated as "a mere conception of the mind," and to express which the past tense is employed. I may here refer to the *infallible* guide we used to have for the correct use of the Subjunctive Mood: "When contingency and futurity are both implied, the Subjunctive; when contingency and futurity are not both implied, the Indicative." This is entirely wrong, and should be vigilantly guarded against as a fruitful source of error, since it contains only part of the truth.

But its most perplexing part of the subject remains to be considered, viz.: whether there is a Future Subjunctive or not. If you examine the works of Abbot, Mason, Angus, Bain, and Fleming, you will find that Bain, Fleming, and Angus have a future tense in their paradigms, Mason has none, and Abbot (if I may be permitted to use the expression) is on the fence. Were we to decide this matter by numbers, Mason's testimony being alone would go to the wall, but let us appeal to a higher authority than any of these, viz.: Language. What does it say in the matter? Take an example: "If Mr. Bishop should advocate the N. P. his popularity with the Reform

party would decline" (assumed for the sake of argument) The occurrence of the probability spoken of in the sentence, if it should be brought to the test of reality, would be in the future. The mental position in which the speaker places himself is to regard it as past. Let me reconcile these statements, contradictory as they must seem. The sentence may be reconstructed to the following, and yet convey the same meaning. "If Mr. Bishop were to advocate the N. P. his popularity with the Reform party would decline." I think any and all of you will agree with me that the verb in the hypothetical clause is in the past tense. But this argument fails, when applied to the consequent clause. The best way, then, to dispose of the difficulty is to place ourselves in the speaker's place mentally. The supposition is "a mere conception of the mind." Mentally, the speaker transfers himself forward to a period to which the probability of which he speaks is a past event. In simpler language, the speaker views Mr. Bishop's advocacy of the N. P. and his consequent fall in the Reform estimation, as accomplished. Bearing in mind the fact that mood has reference to the mental attitude of the speaker, any one who regards my statement of the question, so far, as correct, must admit that the verbs in the example are in the past tense. Consequently I think we must come to the conclusion that Mason is right. What the others call future he calls a past-paraphrastic.

These are the principal difficulties I have experienced in studying and teaching this subject, and the plans I have taken in overcoming them. If any teacher present has met with the same difficulties and has received the slightest hint that will be of any value I shall be satisfied. But let me in conclusion urge upon you all the necessity of investigating for yourselves, and not to accept anything simply because the text-book says so, but because you are satisfied it is right.

THE NEW EDUCATION.*

His subject was: "The New Education." The lecturer, after a few remarks on the course of lectures which the Y.M.C.A. had arranged this winter, and the efforts which it was putting forth to assist itself as an educative force in Quebec, proceeded to discuss as a preliminary the civilization of the present time. Progress and order, he said, were the two great factors of our civilization, but they were neither constant nor always sympathetic. Ever and anon they make a shuttlecock of citizenship in the restlessness of Liberalism and the reaction of Conservatism. As an instance of this he pointed out the political antagonism as it is to be seen in the history of the nations, and which seemed to point to civilization as anything but a harmony. It was necessary, therefore, to seek the counterpoise which is apt to be overlooked in the general movement of promoting a true civilization. Christianity is undoubtedly the greatest of the forces which has tended to bring harmony out of the discord in human nature. The effects it has produced established a fair induction that it is a divinely appointed instrument for the elevation and improvement of men. There is a spurious kind of Christianity which has blurred the pages of history. But the true Christian civilization, the highest recognition of the moral, has in it no retrograde activity. It promotes in man a confidence, a *forwardness*, not however from the evil he finds in others, but from the good he finds in himself. Over-confidence on the part of Christianity is bigotry, and bigotry promotes the harmony of Hades; it is the conceited ignorance of a blinded hope, it is superstition with its inherent darkness rendered visible by a mere glimmer from the true light. In other words, bigotry is the caricature of dogmatism, and *dog-matism*, as the Rev. Sydney Smith says, is *puppy-*

* Address delivered before Y.M.C.A., by John Harper, M.A., Rector, High School, Quebec.

ism full grown. What we want is a force which shall dissipate the turpitude of man's bigotry, which shall restore to him the full effluence of a true intelligence, the full harmony of a true civilization. Do we know such a force? The lecturer then spoke of the printing press and the steam engine—of the one as the exponent of progressive knowledge, of the other as the symbol of the physical in the industrious, the emblem of man's active powers. The co-operation of these three forces, Christianity, knowledge, and industry, forms the thread-work which runs through society in its regular or crystalline form, just as man's personal being and destiny depend upon his moral, intellectual, and physical activity. It is this co-operation which has promoted the civilization of the present time. And just as the Alchemists busied themselves with a search which did not discover an elixir vite nor a universal solvent, but which nevertheless laid the foundation of the science of chemistry, may we not, in observing the imperfections of the civilization we possess, enter upon a search for some psychical force which, though it may not resolve all these imperfections into the pure gold of wisdom, truth, and justice, may yet perfect the principles of a science of education? The foundations of such a science have been laid deep in the history of man's nature, and to rear upon them some beautiful and symmetrical structure which shall adorn the history of the nations, and stand as the development of man to the utmost limit of his own capacities, is the aim and object of what has been called the New Education.

Mr. Harper, who confined himself throughout to the negative side of the enquiry, proceeded to discuss a passage taken from Addison's works, in which education is compared to the sculptor's art. After examining carefully the various assertions in the paragraph, he proceeded to say: In this comparison instituted between the mind in its incipient stage, and a block of marble in the quarry, we have a glimpse of the *tabula rasa* theory of John Locke, who looked upon the infant's mind as a blank organism, something like a clean sheet of paper, on which impressions are made as the consciousness and experience of the child take shape. And had such a theory been safely established by the sensational school of philosophy, the beauty of Addison's simile would certainly be enhanced by its truthfulness. But even Locke had to confess to an innate activity in the mind. The impressions made upon a block of marble by the sculptor's chisel are not the impressions made upon the child's mind by a process of education. The latter impressions, in their co-ordination, form an experience, and an experience implies an activity on the part of the recipient of the impressions, an activity which in turn promotes co-ordination; whereas a block of marble is one of the most striking emblems of passivity. Perhaps the nearest approach to a valid comparison between a statue and a matured mind would be to say that just as the artist finds in marble certain properties which he turns to account, so the teacher turns to account the capacities and characteristics which he finds in his pupils. This was evidently the simple idea in Addison's mind when he elaborated his simile. But that is as far as it is safe to go, inasmuch as the sculptor turns the properties of marble to account in the perfection of his art, while the skilful teacher turns whatever he finds in the child's mind to the improvement of the child's capacities and active powers. He sets the mind in action by means of its own activity, and guides it to its own adornment. The lecturer here gave an illustration of education when the mental activity is at its weakest. The case was of a little girl who had lost her hearing, power of sight, and even her sense of taste and smell, at the early age of two years. For twenty years her education proceeded, and though she could only gain her knowledge through one sense, she was at last able to converse freely by signs, to read the raised print for the blind, turn up any passage

in the Bible, keep a diary, and write letters to her friends. Here was an example of the New Education in embryo—the imitative faculty, excited through the activity of but one of the senses. The same process is to be seen in our institutions for the blind and for the deaf and dumb, but more particularly in the Joseph McKay Institute of Montreal. To this institution are admitted pupils who, though dumb, have no defects in their vocal organs, and in a very short time, by the process of imitation, they are taught to articulate words. From these and other examples, the lecturer drew the conclusion that the New Education is not to a human soul what sculpture is to a block of marble. Knowledge is power; education is a force; knowledge is potential or possible energy; education is the element acting as gravity acts on the physical, which makes it kinetic or active. Knowledge is the food of the mind; education is the juice acting upon that food for purposes of mental digestion and assimilation. Knowledge is the stock-in-trade with which the mind starts business; education is the activity of those business principles which increases the stock and thus extends the commercial influence of the firm. Knowledge is ecstatic in enjoyment; but it is education that promotes ecstasy. Its ambitions soar beyond this world; but without education their wings are clipped. By means of education, knowledge becomes perennial in its growth; without it, it is a plant matured at its birth. In truth, education is to knowledge what the light and heat of the sun are to the flower. The plant in its germ state has laid up within it vegetable energy which may lie in the potential state for thousands of years; but once let the rays of the sun, under favoring circumstances, play around it, and the visible growth of the plant very soon indicates the energy which was once only a possibility now in active operation. And so it is with the mind, with its stock of knowledge, intuitive or acquired. In that knowledge lies the possibility of a full-grown mind. It may lie as a dead weight, an ornament to the memory perhaps, but of no real benefit to the mental activities. But once let that knowledge be rendered active by a beneficent system of education, and at once the mind will assume new phases, and continue to develop to these limits by which the Creator has bounded it.

Education then is no sculptor's chisel. It does not destroy in order to beautify. It does not cut out; it builds up. It does not repress in order to improve; it improves in order to impress. Aristotle tells us that the sculptor removes the rubbish and clears away the superfluous matter in order to reach the statue. But whatever rubbish or superfluous matter education finds in the mind it takes possession of it, and by a psychical process of which we know as little as of the first life movement, it brings forth the beauty of knowledge from the rot of ignorance. Ignorance is as often false perception as lack of knowledge; and in this sense, and this sense alone, the false is the undeveloped true, just as in morals evil is sometimes considered an undeveloped good. Let the false in man's mind be acted upon by the fullest activity of a man's intelligence brought into play by a healthy system of education, and let the evil in man's heart be acted upon by the warmth of a Savior's love and the purifying confidence in a Heavenly Father's favor, and the false becomes true, the evil good, and the whole man is elevated to that plane of intellectual holiness on which alone can rest the civilization which is a harmony. As the poet says: "With these elements mixed in one being, Nature may truly stand aside and say to all the world, *This is a man.*"

Still keeping to the negative side of the enquiry, the lecturer proceeded to examine other authorities, pointing out some of the defects in their opinions, and giving the audience a clearer insight into the aim and purpose of the New Education. He spoke of the allusion to education as a medicine. Knowledge is to be recog-

nized not as medicine but as food. Sometimes the manner in which food is given to children makes it as distasteful to them as medicine, and this is as much the case with food for the mind as food for the body. But, generally speaking, the child delights in acquiring information. The eye brightens when beholding things beautiful, the ear quickens when it drinks in the harmony of sound, the whole body quivers with the excitement of joy when some pleasant discovery is made by the sense of touch, taste, or smell. If knowledge naturally acquired be medicine, then it is the God of nature who has sweetened the cup into a dainty and wholesome dish for our little ones; and if the joy of such be rendered bitter, it is by some one who does not understand fully the processes of nature. The lecturer then spoke of the pleasure to be found in the class-room. He likewise reviewed the utilitarianism which not unfrequently opposes the progress of the New Education. Two of these theories he designated the "dollar and cent" theory and the "quart-jug" theory, which he humorously illustrated. He characterized the education which some worldly-minded people commended as that process to which old Fagin subjected Oliver Twist and the Dodger, and which made the latter more of the artist than Bill Sykes. True education cannot make a man worse than he is; it must make him better. Other forces are certainly at work which counteract the beneficial influence of a good education in a man, and if he fall, as fall he may, considering the thousand and one temptations to over-reach himself and others, he falls not because he is educated, but in spite of his being educated. The purpose of education is neither to train men to gain money nor to lose money, neither to make them millionaires nor paupers. We certainly desire to imbue them with those moral principles which, if followed, will keep them out of jail and make them besides honorable members of society; and that so-called educated men become either paupers or jail-birds must be traced to that restlessness which society encourages in men by its flatteries rather than to over-education.

Our space, however, will not permit us to extend our report at present. Mr. Harper concluded his able lecture in these words:—

Ladies and gentlemen,—To pause suddenly here on the threshold of the position is to leave our task of investigation only half done. But I have detained you too long already, and have only time, not to draw a conclusion, but to make a statement. It is impossible to assert at this stage of our inquiry that the New Education is a panacea for all the moral delinquencies of society, or that it is the corrective of the deteriorating reaction we see in those other forces which tend to raise society to a harmonized civilization. But this we can assert, notwithstanding the limited sphere of our present investigation: The New Education is founded upon the very constitution of man's nature. It is a science, and like all other sciences, is grandly progressive. As a powerful influence for man's elevation and enlightenment—the associate of pure religion, the ally of true knowledge and industry—it is accomplishing for society a great and mighty reform. As the grandest of all phenomena, it has engrossed the attention of our ablest thinkers and most spirited philanthropists. Like a mighty river, it had its origin in the disinterested philanthropy of a humble citizen. Sometimes the mist of superstition hung over the roll of its increasing waters, but impotent to pollute its current rushing in its majestic career against the strongholds of bigotry and ignorance. Onward it still continues to roll, less often stained with the bloodshed of persecution and intolerance, sometimes swelling into a rapid as it passes over the rocks of a false civilization, but oftener flowing amid scenes of peace and prosperity. Still onward, searching out the unclean dons of iniquity and crime, and bearing on its broad bosom the emblem of liberty; if it be not itself the hope of an approaching

unity among the nations. The leper disdained at first to leap into the waters which could promote in him health, strength, and purity; and even yet the sunken masses in city and country refuse to educate they and their children. Then the work of education still stands incomplete. But incomplete though it be, we cannot but marvel at what has been accomplished. Everywhere the achievements of education are being examined in order that a perfection may be attained to, a perfection which has found its development thus far in the New Education.

At the close of the lecture a vote of thanks on motion of Hon. G. Ouimet, Superintendent of Education, and the Rev. Robt. Ker, was unanimously voted to Mr. Harper for his thoughtful, instructive, and entertaining paper.—*The Morning Chronicle*.

VOCAL MUSIC IN THE PUBLIC SCHOOLS.*

The great stumbling-block in the way of systematic teaching of music in our schools is not the inability of the teachers, but the prevalent idea that one requires special musical talent to either study or teach the subject. This is a fallacy. The only talent required is the faculty of imparting instruction to others, which every good teacher possesses. United with a knowledge of the subject, this will enable anyone to teach music successfully. The abstract principles are simple; and any child will understand the characters as readily as algebraic or arithmetical signs. Many ask: "How can I teach my pupils to sing, when I cannot sing myself?" The question shows a misconception. The gift of song is as universal as the gift of speech. A small proportion of the human race have not the capability of speech, or possess it only in a slight degree. But a small proportion have not the capability of song. Then why do such a comparatively small number of people sing? Because the men and women of this generation have not been taught in childhood that they have the faculty, and how to use it. Let not the mistake be made in educating our children. Thousands of school teachers in Ontario possess the "special talent" that they ascribe to a small minority. With a few exceptions, all can fit themselves to teach music. Many say: "I never could sing—I haven't any voice." They deny the existence of that which the utterance of the word proves. All have voice—and the voice in song is the same as that in speech, differing only in use.

"The difference between music and speech lies in the manner of transition from one degree of pitch to another. In speech, the movement is concrete, the voice continually sliding upward and downward, never remaining at one point of the scale except in the monotone. The singing voice passes from one pitch to another by a distinct step called discrete movement."[†]

Voices differ in volume, quality, and pitch. All cannot have the advantages of a professional elocutionist or orator, and yet this does not deter any teacher from instructing pupils how to read and speak correctly. All cannot possess the perfect vocal organs given to but a few great singers. Should this prevent teachers exercising the vocal organ they do possess? No. It should rather be an incentive to development and improvement of their powers, and the germ that is innate in every human being.

Examination Questions.

PUPIL TEACHERS' EXAM. PAPERS—Nov., 1882.

CANDIDATES. ARITHMETIC.

MALES.

1. Find, by practice, the value of 6 tons 11 cwt. 1 qr. 24 lb. at £1 18s. 6d. per cwt.
2. If the rates on a house, of which the rent is £63, be £9 16s. 3d., what is the rent of a house on which the rates amount to £11 8s. 11d?
3. If 24 men can build a wall in 40 days, and 6 men leave after 4 days, in how many days will the remaining men finish the wall?
4. If 8 cwt. 14 lb. be carried 30 miles for 10s. 6d., how far should 19 cwt. 2 qr. be carried for the same money?
5. If 12 men and 6 boys do a piece of work in 22 days of 8 hours each, in how many days of 9 hours each would 16 men and 4 boys do the same, 2 men doing as much as 5 boys?

FEMALES.

1. Make out the following bill:—
 - 81 lb. tea @ 2s. 11d. per lb.
 - 99 lb. coffee @ 1s. 7½d. per lb.
 - 54 lb. cocoa @ 1s. 5d. per lb.
 - 243 lb. rice @ 2½d. per lb.
 - 31 lb. 8 oz. butter @ 1s. 10d. per lb.
 - 63 lb. loaf sugar @ 7½d. per lb.
 - 108 lb. moist sugar @ 3½d. per lb.
 - 38 lb. 4 oz. bacon @ 10d. per lb.
 - 55 lb. 2 oz. cheese at 8d. per lb.
2. Find the cost of 14,773 acres 2 roods of land at the rate of £63 10s. 6d. per acre.
3. What is the value of one thousand four hundred and ninety-one articles at £32 11s. 1d. each?
4. Find the cost of 30 cwt. 3 qr. 9 lb. 12 oz. at £16 6s. 8d. per cwt.

GRAMMAR.

1. "Two brothers once did weeping part
On the edge of the sea so blue;
The one was fair, and false of heart,
The other was gallant and true."
(a) Point out and parse all the verbs and adjectives in the above.
(b) How do you know that the words "the one" and "the other," in the above are not adjectives?
2. What kinds of adjectives admit of comparison? What do not?

GEOGRAPHY.

(Answer either Q 2 or Q. 3, not both.)

1. What is meant by the basin of a river? Illustrate your answer by referring to the basin of the Severn, describing the counties drained by it, and naming in order its principal tributaries.
2. Describe minutely a voyage from Newcastle-on-Tyne to Stirling.
3. Where are the following articles made:—Silk goods, stockings, lace, gloves, needles, porcelain? Name towns as well as counties, and describe the situation of each.

COMPOSITION.

Write from dictation the passage given out by the Inspector:
"When he emerged from the devious path | which conducted him through the thicket, | he found himself on a ledge of flat rock | projecting over one side of a chasm | not less than a hundred feet deep, | where the dark mountain stream | made a decided and rapid shoot over the precipice, | and was swallowed up | by a black yawning gulf. | The eye in vain strove to see the bottom of the fall; | it could catch but one sheet of foaming uproar | and sheer descent, | until the view was obstructed | by the projecting crags | which enclosed the bottom of the waterfall, | and hid from sight the dark pool | which received its tortured waters."

PENMANSHIP.

Write, in large hand, as a specimen of copy-setting, the word *Cymbeline*.

Write, in small hand, as a specimen of copy-setting, *The Turkish preparation makes for Rhodes*.

FIRST YEAR.

ARITHMETIC.

MALES.

1. Divide $2\frac{2}{3} + 3\frac{2}{3}$ of $1\frac{1}{2}$ by $5\frac{1}{2}$ of $1\frac{1}{2} - \frac{2\frac{1}{2}}{4\frac{1}{2}}$.
2. What fraction of $\frac{6\frac{1}{2} + 5\frac{1}{2}}{5\frac{1}{2} - 4\frac{1}{2}}$ of 3s. 4d. is 2s. 10½d.?
3. Give a rule for finding the decimal point in dividing one decimal by another. Divide 29·5625 by 6·25; 295625 by 625; and 295625 by 625.
4. Express $1\frac{1}{2}$ of £1 17s. 10½d. as the decimal of £5, and find the value of 428571 of $2\frac{1}{2}$ guineas.

Show that $\frac{729 \times 1345}{.027 \text{ of } 2088} = 1728$.

FEMALES.

1. A person's salary is £383 5s. for 365 days; in how many days will he have a claim for £63?
2. A bankrupt having £645 5s. 3½d. left, can pay 7s. 8½d. in the £. What is the amount of his debts?
3. If 16 men, working 8 hours a day, can reap 9 acres in 3 days, how much land can 20 men, working 6 hours a day, reap in the same time?
4. If 6 horses eat 18 guineas' worth of hay in 6 weeks, when hay is 9d. a stone, what is its price per stone when 15 horses eat £110 5s. worth in 21 weeks?

GRAMMAR.

1. "Not wholly in the busy world, nor quite
Beyond it, blooms the garden that I love;
News from the humming city comes to it,
In sound of funeral or of marriage bells;
Although between it and the garden lies
A league of grass, washed by a slow, broad stream,
That stirred by languid pulses of the ear,
Waves all its lazy lilies."—TENNYSON.
(a) Point out all prepositions in the above, and show what words they govern.
(b) Parse the word "that" as it is used in the second and seventh lines.
(c) Which words in the above are adverbs? Show that they are such.
2. The words *except*, *notwithstanding*, are sometimes used as prepositions, sometimes as conjunctions. Give examples of their use in each capacity.

GEOGRAPHY.

Answer either Q. 2 or Q. 3, not both.

1. Draw a full map of Russia in Europe. Insert the lines of latitude and longitude.
2. What is a river-basin? Illustrate your answer by referring to the basins of the Severn and the Danube, describing minutely the courses of those rivers, and their principal tributaries.
3. Say what you know about the government of the different countries of Europe; and explain the terms, *Absolute Monarchy*, *Limited Monarchy*, *Republic*, *Confederation*.

HISTORY.

1. How many kings named William have governed in England? Give dates of their accession and death.
2. Name the queens who have reigned in England, with the length of each reign.
3. Give names and dates of the sovereigns who reigned between 1460 and 1550.

COMPOSITION.

Write from memory the substance of the passage read to you by the Inspector:—

"An incident which occurred when Horace Walpole, with the poet Gray, was crossing the Alps into Italy in 1739, will show the difference between travelling in those days and at present. Walpole had a fat little black spaniel called Tory, of which he was very fond. As this pampered creature was trotting beside the ascending chaise, enjoying his little constitutional, a young wolf sprang out of the covert, and snatched the shrieking favourite away from amongst the carriages and servants before any one had the presence of mind to draw a pistol. Walpole screamed and wept, but Tory had disappeared for ever."

SECOND YEAR.

ARITHMETIC.

MALES.

1. At what rate per cent., simple interest, will £375 12s. 6d. amount to £460 2s. 9 $\frac{1}{2}$ d. in 5 years?
2. Find the compound interest on £2,533 6s. 8d. for 2 $\frac{1}{2}$ years at 3 per cent. per annum.
3. On what sum of money will the simple interest in 3 years 219 days at 4 per cent. per annum amount to £685 8s. 9 $\frac{3}{4}$ d.?
4. A money-lender gets 15s. for the loan of £24 for 5 calendar months. What rate per cent. per annum does he get for his money?
5. What percentages of 5 are 20, 3 $\frac{1}{2}$, '02, and 1 $\frac{1}{3}$?

FEMALES.

1. Find the least common multiple of 225, 255, 289, 1023, and 4095.
2. Reduce the following compound fraction to a simple one: $\frac{5}{8}$ of $\frac{2}{3}$ of $\frac{70}{8}$ of $\frac{3}{4}$ of $1\frac{1}{7}$ of 147.
3. Divide $3\frac{1}{2} - \frac{4}{5}$ by $21\frac{1}{2} + \frac{1}{8} + 4\frac{1}{3}$ of 5.
4. What fraction of a sovereign is $4\frac{1}{4} - 10\frac{4}{5} + 9\frac{1}{5} - \frac{2}{11}$ of a penny?

GRAMMAR.

1. "It is not *dying* for a faith *that is so hard*, but living as if it were a *reality* to us."
 - (a) Analyse the subordinate sentences in the above, pointing out to which class each belongs.
 - (b) Parse the words in italics.
 - (c) Show from the above what kind of conjunctions are followed by the subjunctive mood, and give other examples.
2. Distinguish between (present) participles and gerunds. Give some examples of the use of the latter.

GEOGRAPHY.

Answer two questions.

1. Draw a full map of Russia in Europe. Insert the lines of latitude and longitude.
 2. Give full Notes of a Lesson on "Malta."
 3. Say what you know about British Columbia, the Mackenzie, the Great Slave Lake, Melville Sound, Hudson Straits, Baffin's Bay, and Cape Sable.
- N.B. — If you do not answer Q. 1, draw little sketch-maps in illustration of 2 or 3.

HISTORY.

1. Who was Stephen? Who disputed the throne with him and upon what grounds? Which do you consider to have had the better right to it?
2. Who was Richard I.? How came he to be so long absent from England, and how was the country governed during the king's absence?
3. Name the locality nearest to your home which is famous for a battle fought before 1486. Describe the parties to that contest and its issue.

COMPOSITION.

Write full Notes of a Lesson on "The Oak."

EUCLID.

All generally understood abbreviations for words may be used.

1. If two straight lines cut one another, the vertical, or opposite angles shall be equal.
2. At a given point in a given straight line, to make a rectilinear angle equal to a given rectilinear angle.
3. Find a point in a given straight line such that its distances from two given points may be equal.

THIRD YEAR.

ARITHMETIC.

MALES.

1. If a grocer buys cheese at £4 13s. 4d. per cwt., how must he sell it per lb. to gain 15 per cent. on his outlay?
2. If by selling tea at 3s. 6d. per lb. a grocer gains 12 per cent., how much per cent. would he gain or lose by selling it at 3s. per lb.?
3. A man derives an income of £108 by investing £3,595 10s. in the 3 per cents. What is the price of stock?
4. A invests £6,000 in one railway stock at 108, paying a dividend of 4 per cent.; and B invests £5,000 in another railway stock at 75 paying a dividend of 2 $\frac{1}{2}$ per cent. What is the difference in the annual incomes derived?
5. Divide £1,746 amongst A, B, and C, so that B may have 50 per cent. more than A, and C 33 $\frac{1}{3}$ per cent. more than B.

FEMALES.

1. Find the value of $\cdot 007 \times 700 \times 760 \cdot 3 \times \cdot 00416 \times 100000$.
2. Find the quotient of $\cdot 7575$ by $16\frac{2}{3}$.
3. Find the value of $\cdot 972916$ of £1.
4. Find the value of the following expression: $\cdot 68125$ of £1 + $\cdot 375$ of 13s. 4d. + $\cdot 605$ of £3 2s. 6d.

GRAMMAR.

1. "And now *farewell*. I am *going* a long way
To the island valley of *Avilion*;
Where falls not *hail*, or rain or any snow,
Nor ever wind blows loudly, but it lies
Deep-meadowed, happy, fair with orchard lawns,
Where I will *heal me* of my grievous wound."—TENNYSON.
 - (a) Give an example from the above of a simple predicate, of a predicate with its complement, and of a predicate with its extension.
 - (b) Parse the words in italics.
 - (c) "An adjective sentence is sometimes introduced by a relative adverb." Give an example of this from the above.
2. Point out the Latin preposition in each of the following words, and give the meaning of each preposition, and of the word with which it is compounded: *superfluous*, *extra-mural*, *percolate*, *cis-Atlantic*.

GEOGRAPHY.

Answer either Q. 2 or Q. 3, not both.

1. Draw a map of Lower Egypt, showing the positions of Alexandria, Cairo, Damietta, Port Said, Ismailia, Suez, Rosetta, and the two mouths of the Nile. Insert the lines of latitude and longitude.
2. Give Notes of a Lesson on "Japan and the Japanese."
3. Say what you know about Trichinopoly, the Neilgherry Hills, Seringapatam, Hyderabad, the Godavery, the Krishna, and the Nerbudda.

HISTORY.

1. Show the connection of James I. with his predecessors on the English throne, and explain how the great parties here came to assent to his accession.
2. Give dates and localities of any battles fought since 1486 in the county where you live, or in an adjoining county. Describe the parties engaged in one of them, with its result.
3. When was the Legislative Union of Great Britain and Ireland effected? Describe events which led to it.

COMPOSITION.

Write from memory the substance of the passage read to you by the Inspector. :—

"During the last two seasons, terrible havoc has been committed by caterpillars on the foliage of our oaks and other trees. The natural enemies of the caterpillars, and of the flies or moths which produce them, are the birds. Nearly all birds, with the exception of a few which are exclusively seed-eaters, feed on insect life during some part of the year; while some of them, as is well known, live on insect food entirely. The rook, though he takes some of the farmer's corn, has an enormous appetite for insects. Even the common and much abused house-sparrow feeds her young on grubs and caterpillars. Previous to the two severe winters we lately had, birds were extremely plentiful in wooded districts. But since then they have even in many such districts become extremely scarce, and I have no doubt that in the birds we have lost the best friends of our trees as well as of the farmers."

EUCLID.

All generally understood abbreviations for words may be used.

1. If a quadrilateral figure be bisected by one diagonal, the second diagonal is bisected by the first.
2. Any two angles of a triangle are together less than two right angles.
3. If a side of any triangle be produced, the exterior angle is equal to the two interior and opposite angles, and the three interior angles of every triangle are together equal to two right angles.

ALGEBRA.

1. Simplify $(a+b)^2 - (b+a)(a-b) - \{a(2b-2) - (b^2-2a)\}$.
2. Find the G.C.M. of $x^2-7x+10$ and $4x(x^2+10)-25x-62$.
3. Solve the equation :—

$$\frac{2x-6}{3x-8} = \frac{2x-5}{3x-7}$$

FOURTH YEAR.

ARITHMETIC.

MALES.

1. A man invests £4,875 in the 3 per cents. at $97\frac{1}{2}$; he afterwards sells out at 99, and reinvests the money in railway shares at 110, paying a dividend of 4 per cent. Find the increase in his income.
2. Find the present value of a bill for £2,287 10s. due 5 months hence, interest being at 4 per cent. per annum.
3. Find the value of 2142857 of 3 guineas + 1 375 of £2 - 0625 of a crown + 4 16 of 1d.; and reduce the result to the decimal of £5.
4. The capital of a railway company is £5,000,000; the gross earnings in a year are £500,000, and the expenses are 55 per cent. of the earnings. What dividend per cent. can the company pay on the capital?
5. A man mixes 36 gallons of whisky at 15s. a gallon with 36 gallons at 13s. 6d. a gallon, and adds 9 gallons of water. If he sells the mixture at the rate of 19s. a gallon, what per cent. does he gain on his outlay?

FEMALES.

1. Find the amount of £417 7s. 9d. for 1 year 10 months, at 4g per cent.
2. If tea be bought at 3s. 6d. per lb., and be sold at 3s. 10½d. per lb., find the gain per cent.
3. A hare pursued by a greyhound was 130 yards before him at starting; whilst the hare ran 5 yards the dog ran 7 yards. How far had the hare gone when she was caught by the dog?
4. If 20 men can do a piece of work in 12 days, find the number of men who could do another piece of work 3 times as great in $\frac{1}{2}$ of the time.

GRAMMAR.

1. "How many men, in the common concerns of life, lend sums of money which they are not able to spare, are bound for persons whom they have little friendship for, give recommendatory characters of

men whom they are not acquainted with, bestow places on those whom they do not esteem, live in such a manner as themselves do not approve, and all this merely because they have not the confidence to resist solicitation, importunity, or example!"

ADDISON: *Essay on "False Modesty."*

- (a) Show from the above that an infinitive may be the complement of a verb.
 - (b) Analyse from *How many men to spare.*
 - (c) Parse the words in italics.
 - (d) To what period of the English language does the above belong? Notice any difference you may observe in it, compared with the style of the present day.
2. Give the meaning of the following words:—*Ethics, astronomy, eucharist, monastery.* State to which element in our language they belong, and account for their introduction into our language.

GEOGRAPHY.

1. Give full Notes of a Lesson on the "Gulf of Mexico;" and illustrate by a map. Insert the lines of latitude and longitude.
2. What is a river-basin? Illustrate your answer by reference to the basin of the Amazon.

HISTORY.

1. What periods of our history have been remarkable for contests with France? To what in general would you attribute those contests?
2. What was the condition of Parliament during September 1882? What is its condition now, and what do you expect to be the next change?
3. Give dates and brief particulars of any wars in which this country has been engaged during the present reign in Europe, Asia, and Africa.

COMPOSITION.

Write a short Essay on "Fables and their Uses." (Illustrate the subject by giving any fable you can remember.)

EUCLID.

All generally understood abbreviations for words may be used.

1. *ABCD* is a trapezoid, *BC* being parallel to *AD*. If *E* be the middle point of *DC*, the triangle *AEB* is half the trapezoid.
2. To draw a straight line through a given point parallel to a given straight line.
3. If a straight line be divided into any two parts, the square on the whole line is equal to the squares on the two parts, together with twice the rectangle contained by the parts.

ALGEBRA.

1. Find the value of $\frac{a}{a+b} + \frac{b}{a-b} - \frac{b^2}{a^2-b^2}$ when $4b=3a$.
2. Solve the equations :—

$$(1) \frac{3x}{4} - \frac{2y}{3} = 1 = \frac{7x}{18} + \frac{5y}{36}$$

$$(2) \frac{68x}{7} - \frac{7}{x} = 8x + 11$$
3. Find two consecutive numbers, such that the half and the fifth of the first taken together shall be equal to the third and the fourth of the second.

MENSURATION.

Find the side of an isosceles right-angled triangle whose area is the same as that of the triangle with sides 10, 11, 12.

ANSWERS TO MATHEMATICS.

ARITHMETIC.

CANDIDATES. Males.—(1) £253 1s. 4½d. (2) £73 10s. (3) 48 days. (4) 12½ miles. (5) 16 days. Females.—(1) £11 16s. 3d. + £8 0s. 10½d. + £3 16s. 6d. + £2 16s. 8½d. + £2 17s. 9d. + £1 19s. 4½d. + £1 11s. 6d. + £1 11s. 10½d. + £1 16s. 9d. = £36 6s. 6½d. (2) £938486 11s. 9d. (3) £48538 5s. 3d. (4) £503 13s. 5½d.

FIRST YEAR. *Males.*—(1) $1\frac{1}{2}\%$. (2) $\frac{11}{16}$. (3) 478; 000473; 473000. (4) 606; £1 2s. 6d. *Females.*—(1) 60 days. (2) £1674 4s. (3) 8 ac. 1 ro. 30 po. (4) 6d.

SECOND YEAR. *Males.*—(1) $4\frac{1}{2}$ per cent. (2) £281 3s. $1\frac{3}{4}$ d. (3) £4760. (4) $7\frac{1}{2}$ per cent. (5) 400; 70; 4; 26.6. *Females.*—(1) 2017790775. (2) $\frac{9}{11}$. (3) $\frac{13}{14}$. (4) $\frac{5}{7}$.

THIRD YEAR. *Males.*—(1) $11\frac{1}{2}$ d. (2) 4 per cent. loss. (3) 99. (4) £38 17s. $9\frac{1}{2}$ d. (5) A, £388; B, £582; C, £776. *Females.*—(1) 1549795.52. (2) 04545. (3) 19s. $5\frac{1}{2}$ d. (4) 13s. $7\frac{1}{2}$ d. + 5s. + £1 17s. $9\frac{1}{2}$ d. = £2 16s. $5\frac{1}{2}$ d.

FOURTH YEAR. *Males.*—(1) £30. (2) £2250. (3) 18s. 6d. + £2 15s. - $3\frac{3}{4}$ d. + $4\frac{1}{2}$ d. = £3 8s. $6\frac{1}{2}$ d.; 6853472. (4) $4\frac{1}{2}$ per cent. (5) 50 per cent. *Females.*—(1) £450 17s. $3\frac{3}{4}$ d. (2) $10\frac{1}{2}$ per cent. (3) 325 yds. (4) 300 men.

ALGEBRA.

THIRD YEAR.—(1) $3b^2$. (2) $x-2$. (3) 2.
FOURTH YEAR.—(1) $2\frac{1}{2}$. (2) $\frac{2}{3}$; $\frac{1}{2}$; $\frac{1}{3}$; 7, $-\frac{1}{2}$. (3) 5, 6.

MENSURATION.

10.15+.

Practical Department.

THE TOPICAL TEACHING OF HISTORY.*

BY JAMES L. HUGHES, TORONTO.

It is a cause of deep regret that so many pupils leave school believing that history is of little use except as a means of testing their memories, in order that bad marks or other punishments may be given for failing to remember. They are usually forced, by the method of treating this subject, to regard it as a confusing collection of dates, names, and events, related to each other only by chronology and the weak linking afforded by the names of rulers alike uninteresting, be they names of kings, emperors, presidents, or governors. Foreign and civil wars, commercial progress, the extension of the influence of the church, political intrigues, international diplomacy, constitutional growth, the development of the people, literary culture, and educational advancement may be found side by side in the same chapter—utter strangers in everything but the accident of having occurred in the reign of the same sovereign. The same old kings who ruled the nations have continued to rule historical writers and teachers until recently; indeed, do still govern the vast body of teachers in their teaching of history. The constitutional, intellectual, and religious development of a nation are served up in scraps as carved by the various kings; great principles, and the mighty movement of true progress, are treated as secondary matters and tacked on as mere ornaments for the coats of successive sovereigns. The rulers with their whims, their physical, mental, and moral peculiarities, and their dates, are allowed to occupy the first place in most school histories, and the genuine work of the world is seen through the crevices between the kings. Events are fitted to the sovereigns, who should have a place in history only as they influenced events. This is a fundamental error in writing or teaching history. Dr. Arnold held that the record of the development of the "race institutions and religion" of a country constitutes its real history, and modern writers and thoughtful teachers are acting in accordance with this principle to a large extent.

A merchant who wishes to learn the results of his business transactions at the close of the year, and to satisfy himself as to the comparative importance of his various trade enterprises, and their

relative influence on each other, might possibly do so by examining his day-book alone, but it would require the labor of months to accomplish what he could do in a few hours by consulting his ledger. Histories are usually merely day-books of the business of nations, and so students read them through and through without remembering clearly the events narrated, their causes, or their immediate or ultimate bearing on any of the departments of national life or progress. The continuous concentration of thought which is so essential in the formation of correct conclusions concerning the effects of national customs or tendencies, is impossible when the attention is distracted by the presentation of so great a variety of unconnected events to the mind. If these events were grouped in ledger form so that they could be taught topically, the student would save much time and be able to make more satisfactory progress. Instead of giving facts relating to all kinds of events promiscuously, as they occurred, and as they would be recorded in a diary, they should be classified under a few leading heads, and the consecutive history of each class during the period under consideration taught independently. The chief elements that go to form the life and true development of a nation should be selected, and the history of each element narrated without reference to the others, except in so far as it is directly related to them. The historical topics should vary slightly for different periods and nations, but the following will generally include all that are necessary: 1. External History, including foreign relationships and wars, the loss or extension of territory, etc.; 2. Constitutional Growth; 3. Religion; 4. Literature; 5. Social Development; 6. Commerce; 7. General Progress.

Before beginning the topical study of the history of a country in detail, it is essential to glance at its history as a whole, and subdivide it into periods by noting the great changes that have taken place during its growth. This may be done in a single lesson, and such a lesson will prove of great advantage to the pupils. It gives them a general idea of what they have to learn; it connects the present with the past in their minds; and, most important of all, it fixes in their memories a connected series of landmarks, about and between which they can readily group events as they become acquainted with them. This will greatly facilitate the learning and retention of the facts of history. It is much easier, and usually more important, to remember that an event occurred during a certain period than that it happened at a certain date. The mere date may be practically unsuggestive, while the association of the event with a certain historic period can scarcely fail to call to mind a series of related facts. The dates which bound the periods should be fixed, and thoroughly learned, and then events should be remembered as related to them. Different teachers may adopt various bases of division in deciding the number of periods into which to divide the history of a country, and the best basis for the history of one nation may be quite unsuited to that of another. It will usually be found best to make the dividing lines between the periods correspond with the dates which mark the great formative eras in a nation's history.

Having thus given a general sketch of the history of a country, and divided it into periods, the teacher is ready to proceed with the filling in of the necessary details. These should be few or many, according to the age of the pupils. Whether few or many however, they should be taught topically. The following are some of the reasons for recommending this course:

1. Events are more easily learned and remembered by this than by any other method. The ease with which impressions are made, and the length of time they remain fixed in the memory, depend chiefly upon the degree of attention given to a subject by the learner. When all conceivable kinds of historical events are re-

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corded on the same page, it is not possible for the reader to concentrate his attention on those having a special influence upon any particular department of historical study. If he is seeking for the causes which led to a great constitutional change, he should not have his attention distracted by anything which did not in some way affect the constitution. He will thus be able to fix his attention entirely on one subject at a time, and the certain result of such a course will be clearer conceptions and more permanent impressions.

In a subject like history, the successful study of which depends so largely on the memory, it is of the utmost importance that the laws of "simple suggestion," or "association of ideas," be taken advantage of to the fullest possible extent. The most important primary law of association of ideas is the law of resemblance or similarity. One fact will suggest another of a similar kind, and so a series of thoughts referring to the same subject will be recalled in the mind much more readily than if they related to dissimilar subjects. The application of this principle to the study of history is clear. In the topical arrangement of events, facts of a similar character, all leading to the same end, are learned in consecutive order, and will therefore be more easily remembered in accordance with this fundamental law of association through similarity. It may be urged that "contiguity of time" is also a law of suggestion, and that the fact that events occurred at the same time will serve to associate them in the mind, however much they may differ in character. It must be remembered, however, that "contiguity of time" refers only to the experience of the individual who tries to remember. If two important events occurred about the same time, both of which directly affected me, the remembrance of one of them will be pretty certain to recall the other to my memory. Even if these events had not directly affected me, but merely interested me, they would be likely to recall each other. This would not be the case, however, if the events had occurred before I was born. We remember events by "contiguity of time," not because they occurred at the same time, but because they affected us at, or nearly at, the same time.

2. The teaching of one department of the history of a country facilitates the teaching of every other department. The events immediately connected with any one of the topics into which the history may be divided will have a bearing more or less direct on some, if not all, the others. When the constitutional history has been studied it will be found that the history of the church, or of literature, or the social development of the people, during the same period, may easily be fitted to it. The teaching of each additional topic paves the way for the more easy learning of those which are to follow.

3. When one department of history has been taught, the teaching of each successive department reviews the work that has been done. The connection existing between the various topics compels this reviewing. It is done, too, in accordance with one of the most important, though most neglected, principles of the science of education; it is done incidentally. The portions already learned are reviewed, not as set lessons assigned for review, but in natural connection with the teaching of new work as a necessary part of that work. It will be conceded by all that reviewing is essential to fix facts in the memory. It must not be forgotten, however, that when reviewing is merely a repetition or re-teaching of a lesson already learned, it soon loses its interest. Pupils cease to give active attention to it because it has lost the charm of novelty. Facts previously learned should be impressed on the memory by being used as the basis for acquiring additional knowledge. The ploughshare of knowledge should be kept bright, not by frequent rubbing, but by constant use in turning over fresh soil. This is

the highest kind of reviewing. It is the only kind to which a child is ever accustomed before it goes to school. This method of reviewing incidentally, not directly—by using knowledge, instead of merely repeating it—is only possible in the subject of history when it is taught by the topical method. Instead of traveling over the path of history once only in search of a promiscuous collection of facts, the pupil goes over it several times, each time with a specific object, and uses in each successive excursion the information acquired previously.

4. By teaching topically the teacher develops the reasoning powers of his pupils, and trains them to read history intelligently after they leave school. It is most desirable that students of history should be taught to trace causes to effects, and effects to causes. The facts of history are of little value as information merely; the lessons to be drawn from them constitute their real value. When teaching topically, events are not presented as of importance on their own account, but as elements which together produce certain results. The circumstances are regarded as subordinate to their consequences, and so the study not only exercises the memory, but calls into action the higher faculties. This naturally makes students take a deeper interest in the study of history as they grow older and their reasoning faculties develop, while it is a well-known fact that, as usually taught, the interest grows less as the pupils advance in years. This fact has led many thoughtful writers to question the propriety of teaching the subject at all in school. It is certainly most deplorable that the vast majority of pupils have such a distaste for the subject when they leave school that many of them never read an historical work afterwards. This cannot be the fault of the subject itself. It can only be due to the character of the school-histories, and the methods of teaching which are commonly practised. It is clearly impossible to give pupils a sufficient amount of historical knowledge during the time they are at school, and it is therefore of the highest importance that the method of teaching it should accomplish two results: 1. It should satisfy the growing demand for a higher kind of mental activity than the mere exercise of memory; 2. It should give a pupil a decided taste for historical study after he leaves school, and should qualify him for pursuing such a course in a systematic and intelligent manner. Both of these objects are accomplished by the topical method of teaching the subject.

There is nothing in the preceding remarks which is intended to express disapproval of any of the excellent "Child's Histories," which are written in interesting narrative form, and are so well calculated to attract the attention of the young. The object has been to show that a taste for such narratives decreases rapidly as pupils grow older; that the "mere tissue of names and dates, and dead, unmeaning events," soon becomes wearisome, if the names, dates, and events have to be memorized; and that a more intelligent method of presenting the subject should be adopted by teachers and those who write school-histories.

THE PUBLIC SCHOOLS AND THE PUBLIC HEALTH.*

The work of Sanitary Science in the prevention and removal of disease is very nearly allied to the great scheme of human salvation—in fact may justly be regarded as a part of the work of the Gospel, and of the mission of Jesus Christ to earth. Men miss very much of the scope and meaning of the Christian religion who limit its operations to purely spiritual concerns, and relegate its practical benefits to the life to come. In all ages there have been multitudes

* An address given at the Provincial Board of Health, St. Thomas, by Rev. Prof. Austin, of Alma College.

of men so carried away with the superior importance of the spiritual life as to be unmindful of the claims of this fearfully and wonderfully constructed temple we call the human body. Some have even claimed to derive sanction for such views from the religion of Jesus Christ. But where, it may be asked, in the teachings of the Son of God are men taught to ignore the body or the present life? Surely not in His precepts, for He taught men that their bodies were temples of the Holy Ghost, constantly guarded by Divine Providence, and hence worthy of the best human attention. Surely in Christ's miracles He does not ignore the body or the natural life, for He heals it of every malady, and thus earns for himself the title of the Great Physician. Indeed, one distinguishing feature of Christ's teaching is its perfect adaptability to the physical relationships of life as well as to the spiritual, so that His followers have promise of the present life as well as that to come. So high is the estimate Christianity puts on the physical nature and the present life, that wherever it obtains, the various sciences that cluster around the human body rise up spontaneously into importance and dignity. Contrast, if you will, the medical science of the Indians or the Chinese with the progressive, critical, and far-reaching medical sciences of Christian lands.

The point I wish to make clear is this: Christianity is eminently practical, and its precepts should be applied to the body as well as to the soul, to the present life as well as to the future, and hence sanitary science and sanitary reform have special claims upon all Christian people, deserving not merely their endorsement and sympathy, but their active co-operation. And that there is urgent need of active and general co-operation in the great work on the part of all good citizens, who can doubt? The people perish to-day as of old for lack of knowledge. Men sicken and suffer and die all around us, not because the course of nature is complete, but because they know not the laws of their own being—the very A B C of practical education. Men die, not because of old age, but because they know not how to escape the shafts of death shot at them out of impure air, or the poison of impure food or drink, and because they know not when sick how to apply the simple and effectual remedies of nature about them. Knowledge costs both time and money; ignorance costs both time and money and life itself.

Who can contemplate the constant ravages of disease in the destruction of the physical powers, the blighting of promising lives, the blasting of human hopes, and reflect that in the vast majority of cases these ravages are preventible and unnecessary, without an earnest desire to combat and destroy it? The evidence of the urgent need of this movement in the way of sanitary reform is patent to the sense of sight and the sense of smell on every hand, while the fearful destruction of life wrought by zymotic diseases is well known to all who have investigated. Now, to whom are we to look as the leaders of this sanitary reform—as the educators of the people in sanitary science? What class of society is best calculated to arrest and fix public attention upon the great evils being suffered at present, and to banish the dense ignorance on matters of health and disease that prevails so alarmingly in society? Our minds naturally turn to the physician, whose whole life is supposed to be devoted to scientific research and conflict with disease and death. He, from his very position among men, is the natural instructor of society on sanitary matters. From his knowledge and experience, from his wide range of acquaintance and influence, from his direct intercourse with the sick and suffering, he derives invaluable opportunities of imparting that instruction with which the health and happiness of the people are so intimately associated. And there can be no question that society in general experiences the benefit of a great deal of private and gratuitous instruction that aids ma-

terially in keeping down the ravages of zymotic diseases and increasing the average of public health. But while giving physicians their due credit, it may justly be doubted if they can ever be the chief, much less the sole agents, in this work of sanitary education and reform. Some of their number are as little interested in matters regarding public health as those who know less of the sufferings and needs of society. Many of the most talented are worn out with professional duties, and all of them from the very exigencies of the case have to restrict their work chiefly to the healing of the sick, and leave the work of instruction and warning of the masses to other hands. The minister of the Gospel, as the follower of Him who went about doing good to the bodies as well as the souls of men, ought to accomplish much in the education of the public on matters of health and good living. Too often the teaching of the pulpit has been largely occupied with controverted points of theology to the neglect of practical teaching regarding the every day life. Could not many a sermon on disputed points of doctrine, alike above both preacher and people, be omitted with advantage in favor of instruction on the practical Christianity of better living? Ministers themselves are partially responsible for the idea which is altogether too prevalent that religion consists in church attendance, song, prayer, and collections. People should be taught that to live according to the laws of God written within us, to enjoy good health and promote it, to have a healthful home and preserve it such—that these are an important part of religion. Men ought to be taught by the pulpit that he who knowingly violates the laws of nature is a sinner in need of Divine pardon. They must come to understand—and I think it the business of the pulpit to cause them to understand—that the laws of nature written on their being are the laws of God, and just as binding on the heart and conscience as if written on the inspired page. I would not secularize the pulpit—I would not detract one iota from the amount of teaching on matters purely spiritual, yet I would vote heartily for the introduction of plain and pointed application of Gospel truth to the every day life of the people—even if some powerful and eloquent and ponderous and learned discourses on controversial theology had to be omitted. Yet ministers, with their multiplied labours, can be helpers only and not leaders in this work of sanitary reform. To whom then can we look as the principal agents in this work? Our answer is to the teachers of our youth. They deal with the most important class to reach. Instruction imparted by them in the Public Schools would have a whole lifetime in which to bring forth its fruits. What then, it may be asked, can the Public Schools do for the public health?

1. The Public Schools of our land ought to be utilized to the promotion of greater physical vigor among the youth of both sexes. A robust constitution easily throws off ordinary attacks of disease which cause the weak and frail to succumb. What is required first of all in the battle with disease and death is a higher type of physical manhood. This, it appears to me, is best secured by instruction and training in the schools. And for this purpose I would devote a fixed part of school hours daily. An hour of physical exercise directed by a skilful teacher who knows how to make it at once enjoyable and beneficial would only increase the zest and ability of the pupils for intellectual pursuits. Let it not be imagined for a moment that the ordinary voluntary school sports will answer this purpose of physical development. The boys who take the rough and hearty exercise at school are as a rule the ones who need it least; the weak-chested, flabby-muscled lads are the ones who lounge about with marbles and other profitless games. These are the very ones who need most the stir and excitement of more daring sports. If a lad comes to school physically weak, the course of instruction and training laid out for him should aim at giving him

better muscle, purer and stronger blood, and more digestive power. Why should not a defective muscle be toned up by regular exercise as well as a defective faculty of the mind? That such regular physical training would result in a higher type of physical manhood, in a greater ability for intellectual pursuits, and in a higher average of public health we have the best evidences. Dr. Jaeger, whose recent investigations on the influence of exercise and clothing on health has created considerable stir in Germany and Switzerland, found that school children who went through a regular course of gymnastics had 40 per cent. less absences (through illness) charged against them than those who did not. In another gymnasium the difference was 18 per cent. in favour of those taking regular exercise. In a girls' school where gymnastic exercises were regularly given the absences were almost nil. Dr. Jaeger also found that soldiers in the third year of their service had a much higher specific weight than those in the first year. The mortality among third-year soldiers was 36 per cent. less than among the second-year men, and among the latter the mortality was 34 per cent. less than among the new recruits. Still more significant is the fact that the deaths of the older soldiers from typhoid and kindred diseases were relatively fewer than among recruits and the second year men. He ascribes these results to gymnastics and drill. Exercise, he says, by draining the body of its superfluous moisture hardens the flesh, and hard flesh is sounder than soft flesh.

2. The Public Schools can do much for the public health by prescribing and imparting thorough instruction on Hygiene and the kindred branches of Physiology and Chemistry upon which it is founded. Even an elementary knowledge of these subjects would fix the attention of the pupils on the subjects of health, and the need of care and discrimination in regard to labor and rest, eating and drinking, temperance, and the preservation of vital force, which would in itself be a great point gained. Such a course of gymnastic training and instruction as I have advocated would, of course, necessitate on the part of the teacher a knowledge of the subjects taught, but not a greater knowledge than every well-informed man should have of the nature and needs of the great and complicated machine we call the human body. The great objection to both the instruction and training I advocate—if, indeed, objection there can be—will, of course, be the crowded state of our school curriculum at present and the consequent lack of time. The Public School, says the objector, is for intellectual culture alone, and not for physical, and as it is more important to cultivate memory than muscle, and there is not time for both, gymnastics and hygiene must be abandoned. Grant, if you will, that the intellectual training is the more important, it does not follow that the physical is to be omitted; unless, indeed, it can be shown that the latter is incompatible with the former. The very reverse of this is the case. It may even be questioned if as much literary culture could not be given in five hours daily when an additional hour is given to systematic physical training, as in six hours daily spent exclusively at intellectual pursuits.

But even should it be shown that something now on the school programme would have to be omitted, we do not think this should prove an insuperable objection to the introduction of the instruction and training desired. The branches of the great tree of knowledge have so multiplied in this day of scientific research that an eclectic course of study is a necessity, and the demand of the age is for the practical as distinguished from the theoretical and ornamental. Now what could be more directly and universally practical than the great laws that govern us in our physical relationships and the rules that should govern us in every day life? If, then, a selection must be made, why not take the most intensely practical subjects? For of what use, so far as this life is concerned, is cultur-

ing so highly the mind if the body is too weak to bear the strain and pressure of life's battles? Of what use garnishing the jewels till their resplendent lustre dazzles all beholders, if both casket and jewels so soon are to be thrown into the pit? Why be so anxious to increase the size and value of the cargo, if the vessel is so poorly built that the storms will surely wreck her in mid-ocean? Now we are very much mistaken if this instruction and training for which we plead is not really more practical and important in every day life than some of the subjects usually found in the curriculum of the school. Let us take for example ancient history. Outside the professional walks in life, of what practical value is the amount of ancient history usually received at school? Leaving out of consideration the mixture of myth and mystery, of truth and fable, of error and exaggeration usually found on the historic page, can any one for a moment doubt that Hygiene and Physiology would be of more practical use to nine-tenths of our pupils than this branch of study? The very many questions which ancient history presents for our study and investigation may be interesting enough to the historian and pleasant enough as a pastime, but to us in this practical age are not of as pressing importance as more recent problems. Whether Thebes had 100 gates, whether Romulus did really found Rome, whether Alexander untied or cut the Gordian knot, whether the vision of Constantine was an illusion or a reality, may have been burning questions in the early ages, but after a lapse of a few thousand years they have lost something of their freshness and interest, and hardly arouse as much enthusiasm in St. Thomas as the burning question of the great sewer.

The great problem is how to live best in our day, and for the answer of this problem a man must have some knowledge of the wonderful mechanism of his own body. Now the study of ancient history—and we merely use this subject as an illustration—to the neglect of a knowledge of the human body, its laws and its needs, is about as wise as the study of astronomy would be to the engineer to the neglect of the science of engineering. Go to him and urge him to lay aside the science of engineering for the delightful study of the stars, and he replies, "Why, sirs, other sciences may be useful and pleasant, but to me engineering is an essential branch of knowledge. Of what use for me a knowledge of the constellations if I don't know my own work? What benefit to me if I could name every star if I run my engine off the track or explode it?" Hygiene and Physiology are as practically important to every man as engineering to the engineer. What is wanted in this sanitary reform is some system at once general and efficient for the indoctrination of the people in health matters, and this system, it appears to me, can only be carried out by the agency of the Public Schools. Instruction and training there given would reach the most important class to be reached, viz., the youth; would be at once general and efficient, and would come home to the minds and hearts of the public with the sanction of the powers that be, and an authority such as no private efforts, however well directed, could possess.

Lives of great men all remind us
We can make our lives sublime,
And departing, leave behind us
Foot-prints on the sands of time.

We can never be too careful
What seeds our hands may sow.
Love from love is sure to ripen,
Hate from hate is sure to grow.

Sixty seconds make a minute;
Use them well and you will win it.
Sixty minutes make an hour;
Use them well while in your power.

Promotion Examinations.

CO. OF HALDIMAND, APRIL 5TH AND 6TH, 1883.

HISTORY.

CLASS IV. TO V.

1. Give a short account of the reign of Alfred the "Great."
2. Give a list of the Plantagenet sovereigns, and the date when each commenced to reign.
3. Give a short account of the reign of Henry II.
4. What is meant by the "Commonwealth," and explain how it came to be established in England?
5. Describe the conquest of Wales by Edward I.
6. What gave rise to the Wars of the Roses? Petition of Rights? Habeas Corpus Act? Magna Charta?
7. Write brief notes on Duke of Wellington, Lord Nelson, and Sir Garnet Wolseley.
8. For what length of time are Members of Dominion Parliament elected? Members of the Provincial Legislatures? Members of the Senate of the Dominion?
9. Who hold the following offices: Prime Minister of England? Prime Minister of Canada? Prime Minister of Ontario? Governor-General of the Dominion of Canada? Lieutenant-Governor of Ontario?

SPELLING AND DICTATION.

CLASS IV. TO V.

1. The insatiable desires of the incendiary criminals were incredible.
2. He pursued the fugitives through the interminable forest.
3. The Michigan volunteers received a magnanimous compliment.
4. Those foreign auxiliaries were guilty of a gross breach of etiquette.
5. The principles of the feudal system were condemned by Parliament.
6. By orders of the Government, the committee published a catalogue of books for the use of the Lieutenant-Colonel.
7. The reconnoitring party defended themselves with their umbrellas.
8. His unsociable companion proffered him aid on arriving within the precincts of the emporium.
9. The ceremonies were performed with impressive grandeur.
10. These pitchers are the sepulchres of an innumerable number of gnats.

GEOGRAPHY.

CLASS IV. TO V.

1. What are zones? Give their boundaries and the width of each in degrees.
2. Name the chief divisions of North America, and give the boundaries of each.
3. Name the States bordering on the lakes between Canada and the United States, and mention one city in each State.
4. In taking a coast voyage from Halifax to the mouth of the Rio Grande River, name the capes, bays, peninsulas, islands, cities, and river mouths you would pass.
5. Through what countries do the following rivers flow, in what countries do they take their rise, and where do they empty their waters: St. Lawrence, Mississippi, Red, St. John, Danube, Rhine, Amazon, Vistula, Niger, and Ganges?
6. Name the British colonies in America and Europe.
7. Where and what are the following: Portland, Verte, Perth, Belgrade, Otranto, Kerch, Corea, Maldiva, Melbourne, Carpentaria?

GRAMMAR AND COMPOSITION.

CLASS IV. TO V.

"ERE IN the northern gale
The SUMMER tresses of the trees ARE GONE,
The WOODS of autumn, ALL AROUND our VALE,
HAVE PUT their glory ON.

The mountains THAT UNFOLD,
IN their wide SWEEP, the COLORED LANDSCAPE ROUND,
SEEM GROUPS of giant kings in purple and GOLD,
That guard the enchanted ground."

1. Write out each proposition of the above extract separately, and tell its kind and relation.
2. Fully analyze the last stanza.
3. Parse the words in small capitals.
4. Parse the phrases as if they were single words.
5. "That" may be three different parts of speech. Write three sentences, each containing it, which will show this.
6. Give the meaning of "northern gale," "summer tresses of the trees," "the woods of autumn have put their glory on," "colored landscape," "enchanted ground."
7. Change the extract into prose.
8. What is the difference between "object" and "objective case"? In how many ways may nouns be in the objective case? Give an example of each way.
9. Give the past tense and past participle of grow, glow, weave, seethe, and dye.
10. Correct anything wrong in the following, and give your reasons in each case:
 - (a) Who learned you grammar?
 - (b) Whom do they say that I am?
 - (c) He won't let him do nothing.
 - (d) He showed him his two hands.
 - (e) He rode to town and drove twelve cows on horseback.
 - (f) The book is laying on the table.

ARITHMETIC.

CLASS IV TO V.

1. How does simple division differ from compound division? Show that division is a particular case of subtraction.
2. If 15 times the remainder be added to the quotient, the result is 2082; but if 19 times the remainder be added to the quotient, the result is 2550. The dividend is 287,656,458, find the divisor.
3. Reduce 23,048,771 square inches to acres, rods, &c.
4. Reduce 12 lbs., 8 oz., 4 drs. avoirdupois to lbs., oz., grs. troy.
5. Reduce the difference between 5 acres and 4 acres, 3 rods, 39 per., 30 yds., 8 ft., 11 in. to the fraction of a rood.
6. A and B are 48 miles, 6 fur., 3 per., 1 ft., 3 in. apart. A sets out towards B at 8.45 a.m., and 3 hours later B sets out towards A; they meet at 4.45 p.m., A having gone over 17 miles, 3 fur., 32 per., 5 yds., 2 ft., 9 in. more ground than B. How far did each travel, and at what rate per hour?
7. A and B earn together the same sum of money in 22½ days which A alone earns in 38 4/7 days. In how many days can B alone earn this sum?
8. If the 8 cent loaf weighs 1 lb., 11 oz., 12 drs. when wheat is \$1.80 a bushel, what ought the 12 cent loaf to weigh when wheat is \$1.26 a bushel?
9. A farmer sold 34 bushels of corn and 56 bushels of barley for \$63.10, receiving 35 cents a bushel more for the barley than the corn; what was the price of each per bushel?

GEOGRAPHY.

CLASS II. TO III.

1. What is a river? a sea? a gulf? a strait? a continent? a peninsula? a valley? a canal? a cape? an ocean? Give an example of each.
2. What townships of the county of Haldimand touch the Grand River?
3. What counties touch the county of Haldimand on the north, east, and west?
4. Name the Provinces of the Dominion of Canada. In which one do you live? What is its capital?
5. What river drains Lake Ontario? What river connects Lake Erie with Lake Ontario?
6. What railroads enter the following places: Caledonia, Dunnville, Jarvis, Cayuga, Hagersville?

SPELLING AND DICTATION.

CLASS II. TO III.

1. He crept slyly up to the victim of his guile.
2. The doctor caught a dreadful fever.

3. I see signs of the crocuses coming up.
4. The thirsty crow flew to a pitcher, hoping to find water.
5. She bought sugar plums, caraway comfits, and some new music.
6. The giant, clothed in complete armor, challenged the men of Israel.
7. The boys separated and went on their errands.
8. He at first demurred, then acceded to the proposal.
9. The thievish and merciless urchins threatened the travellers.
10. The bears, after committing great havoc, quite leisurely walked away.

ARITHMETIC.

CLASS II. TO III.

1. Write in figures twenty thousand, two hundred and twenty; one hundred and one millions, one hundred thousand and ten; five hundred and three thousand, three hundred and five.
2. Write out in words 200202; 2020020; 20002200.
3. Express the value of $2061 - 2002 + 907 - 389 + 97 - 176 + 9 + 492$ in Roman notation.
4. Find the difference between 80010107 and 70011008.
5. Multiply 879635 by 890070, and divide the result by 96 by factors.
6. There are two numbers of which the product is 373625, and the greater number is 875; find the sum of the two numbers.
7. What must the number be which divided by 453 will give the quotient 307 and the remainder 109?
8. How many lbs. of sugar at 12 cents per lb. must be given for 5 pieces of cotton cloth containing 44 yds. each at 18 cents a yard?
9. A horse worth \$120 and 4 cows at \$28 each were exchanged for 81 sheep and \$46 in money. What were the sheep valued at per head?
10. A merchant bought 4 pieces of cloth, of equal lengths, at \$5 per yard; he gained \$45 on the whole cost by selling three of the pieces for \$485. How many yards in each piece?

GEOGRAPHY.

CLASS III. TO IV.

1. Define continent, isthmus, plateau, delta, port, roadstead, estuary, tide, river, colony.
2. Give the boundaries of the Dominion of Canada, also the names of the Provinces of which it is composed, with capital of each.
3. What rivers drain the following lakes: Great Slave, Winnipeg, Superior, St. John, Champlain?
4. In taking a coast voyage from Halifax to the mouth of the Rio Grande River, name the capes, bays, peninsulas, islands, cities, and river mouths you would pass.
5. What railroads enter the following cities: Ottawa, Toronto, Hamilton, London, Brantford?
6. Name the countries of South America, and give the capital of each.
7. Where and what are the following: Miramichi, New Orleans, Chaleur, Rideau, Quinte, Carleton, Perth, Amherst, Allumette, Mackinaw?

GRAMMAR.

CLASS III. TO IV.

1. Divide the following sentences into subject and predicate:
 - (a) With her mother's scissors, she snipped off ribbon enough for an apron.
 - (b) Two of us in the churchyard lie, Beneath the churchyard tree.
 - (c) Had he lost a front tooth?
 - (d) There was now a line of rope between the shore and the rock.
 - (e) In the Saskatchewan, the chief food, both of white men and Indians, is buffalo meat.
2. Parse: Just as I put my head up the hatchway, the sheet of one of the sails knocked my hat off.
3. Write sentences containing:
 - (a) The subject modified by an adjectival phrase.
 - (b) The predicate modified by an adverbial phrase.

- (c) The verb completed by an object, modified by an adjective.
- (d) The verb completed by a predicate nominative.
- (e) A verb in the passive voice.

4. Correct the following sentences, and give reasons where you can:
 - (a) I ain't going to school no more.
 - (b) She is older than me.
 - (c) I seen her through the window.
 - (d) Is that pencil laying on the desk?
 - (e) Have you went to school to-day?
 - (f) Her and me are going to study grammar.
5. Define gender, case, number, verb, inflection.
6. What are the inflections of the pronoun, verb, and adverb?
7. Compare the following adjectives: many, ill, proper, near, well.

SPELLING AND DICTATION.

CLASS III. TO IV.

1. The narrow escape of the pilgrim was quite miraculous.
2. It is impossible to drive along these impassable roads.
3. His pockets were invariably filled with unpalatable and nauseous fruit.
4. He was unconscious of being so near the muzzle of that double-barrelled gun.
5. During the month of February the precipice was completely covered with ice.
6. The sugar was melted down to the consistence of syrup.
7. The grandeur of the scene is quite impressive.
8. The captain's language was unintelligible to a foreigner.
9. He believes the buffalo is untamable.
10. Evidently the bear was coming slowly and lazily along.

ARITHMETIC.

CLASS III. TO IV.

1. Write in words 203050006000404, and in figures six billions, twenty millions, and fifty.
2. Divide 2959990965442 by 9864802, and express your quotient in Roman notation.
3. Express in words and figures how much greater the value of one 5 is than the other in the number 459,356.
4. Find a number such that if it be subtracted 45 times from 97693, the remainder will be 43.
5. A bought \$19 worth of coal, at \$7 per ton. B bought \$17 worth, at \$6 per ton; how many lbs. of coal did one get more than the other?
6. If a man takes 36 inches at a step, a woman 24, and a boy 18, how many times will the three step together in walking 5 miles, supposing all three start together?
7. How many times oftener will a wheel 15 feet in circumference revolve in going three miles than one 22 feet in circumference?
8. Find the amount of the following bill of farm produce:
 - 2300 lbs. of hay, at \$8.50 per ton.
 - 43 bush., 24 lbs. wheat, at \$1.15 per bush.
 - 3126 lbs. oats, at 51 cents per bush.
 - 2829 lbs. clover seed, at \$6.21 a bushel.
9. Find the sum, difference, product, and quotient of $(3\frac{1}{2} - 2\frac{1}{4})$ and $(2\frac{3}{4} + 3\frac{1}{8})$.

Notes and News.

ONTARIO.

Mr. S. D. Barton, formerly assistant in Weston high school, and lately assistant in Bradford high school, has accepted a position on the staff of the Collegiate institute, Barrie.

Burlington public schools have made rapid strides in advance since the appointment of Mr. R. W. Hicks as principal. Several pupils are preparing for entrance examination, the upper classes have made considerable proficiency in drawing; and vocal music, in theory and practice, is a strong and enjoyable feature. Complete order and intelligent discipline are observable in all the rooms. Mr. Hicks is well assisted by Miss Brownlee and Miss Fyfe.

Mr. S. S. McCormack, the respected head master of Orangeville public school, has been suffering from a severe cold, and, for a fortnight, was compelled to retire from school work. We are pleased to know that he is now quite recovered and able to resume his accustomed duties.

Mr. W. H. Bingham has been appointed junior mathematical master in Orangeville high school. He also takes junior English and science. Mr. J. E. Lynn (undergraduate Tor. Univ.), late principal of Port Elgin Academy, teaches classics and German. The head master, Alex. Steele, M.A., takes senior English and mathematics, and the improved condition of the school as regards attendance testifies to his high and well-earned reputation as a successful teacher.

Flesherton public school is in a very prosperous condition under the efficient principalship of Mr. M. P. McMaster. Elementary chemistry is taught, and the specimens of industrial drawing which were exhibited were highly creditable. Three pupils are preparing for the intermediate examination and several for entrance. Mr. McMaster's ability as a teacher is fully appreciated by the trustees, who have, for the five years that he is with them, advanced his salary annually without solicitation. No better testimony to the worth of a teacher could be given. In the junior department of the school Miss Hopkins is also giving much satisfaction.

Prof. Croft, Professor of Chemistry of Toronto University for many years, whose name is familiar to almost everybody, died at Texas on the 28th February last, after a short illness. He was 64 years of age.

The Lakefield public school opened after the Easter holidays, under the mastership of Mr. F. A. August, the 'new master.' Mr. August has a Second Class, Grade A, Normal School certificate, and also a first-class Provincial certificate of qualification, and he comes to Lakefield with unexceptionable recommendation as a practical teacher. He is said to have been the best teacher in the county of Dufferin, where he taught for some years. Mr. August has created a very favourable impression upon those whom he has come in contact with so far.—*Peterborough Review*.

The Belleville school board pays \$1,100 per month for teachers.

During the temporary illness of Mr. S. S. McCormack, head master of Orangeville model school, his class was under the care of Mr. N. Gordon, inspector of schools for Dufferin county. Mr. Gordon was at the same time inspecting the school, and, while examining any class in the other departments, he sent the teacher of that class to the principal's room as his substitute. It is gratifying to see an inspector whose heart is so earnestly in his work, and who can sympathise so warmly and practically with the teachers when they are afflicted.

The work carried on in Arthur public school, under the experienced and effective management of Mr. A. Macpherson, principal, is of the most substantial nature; the attendance is large, especially in the junior departments. The head master has the valuable assistance of the Misses N. E. Campbell, J. Foote, and McTaggart.

The work carried on in the separate school, Arthur, is extremely creditable. Under the wise and careful tuition of the two Sisters who are at present in charge the attendance is increasing, and the trustees are about to build another room. At the last entrance examination several pupils passed. Among these were two young ladies, Miss O'Donnell and Miss Centwell, who entered the high school at Mount Forest; Miss Landy, who is attending Toronto collegiate institute; Miss Carroll, at Walkerton high school, and Miss Halley, at Elora high school.

CANADA SCHOOL JOURNAL.—We are in receipt of the February number of this very instructive journal, which contains a vast amount of useful information. The JOURNAL should be in the hands of every teacher.—*Exchange*.

A man was obliged to pay \$11.50, fine and costs, for abusive language to the teacher of S.S. No. 5, Blandford, and for interfering with the order of the school. He is not likely to misconduct himself when he goes school visiting next time.

J. A. Houston, M.A., recently English master, London High School, has been appointed head master of the Collegiate Institute, Portage La Prairie. Mr. Houston was one of the best teachers in the province, his reputation as a teacher of English being equalled by few. We have no doubt Mr. H. will prove himself worthy of the new position.

The public school children of Kingston are arranging for a day's sports and games for 24th May. It will be the first day's games they have had in four years.

The schools of Bobcaygeon have been closed for a time, in consequence of the prevalence of measles.

The salary of Mr. Milner, of London collegiate institute, has been increased to \$1,000.

The Goderich school board have increased the salary of H. I. Strang, M.A., head master of the high school, to \$1,200.

Brampton high school, under the management of A. Murray, M.A., is keeping well to the front. The fifth regular meeting of the literary society in connection with the school was a decided success. We regret space does not permit giving particulars.

The boys attending Belleville high school have developed an *esprit du militaire* which has led to their being formed into a company of cadets in connection with the 49th Battalion. If the board of education will not develop an *esprit de l'économie*, but will furnish the youthful sons of Mars with a suitable equipment, the boys will turn out with the regiment in review next Queen's birthday. Cannot other high schools follow the example set by the Belleville boys?

Since the appointment of Mr. J. McDonald to the head mastership of Priceville public schools, much satisfaction is expressed at the progress made. Mr. McDonald has made several excellent improvements in school matters.

Mr. W. P. Rundle, the principal of Dunkalk public school, is doing such a good work that the school trustees are about to build a new school-house where he will have more scope for his indefatigable labor. Miss Harris, one of the many pupils who reflect credit on Richmond Hill high school, makes an excellent assistant.

C. J. McCabe, B.A., has a well attended school in Durham. A large class is preparing for entrance examination. The teaching staff is too small for the number attending, Miss McArthur having over 80 in the primary department; Miss Butters' class is also too large for one teacher.

Shelburne public schools, under the efficient management of Mr. R. L. Mortimer with the competent assistance of Miss Elliot, is increasing in attendance to such an extent that the school trustees are about to add another room and engage a third teacher.

The intermediate class in Mount Forest high school, of which Mr. J. Reid is head master, numbers about 50. The reputation enjoyed by Mr. Reid as a successful teacher is attracting a rapidly increasing attendance. W. H. Wilkinson, B.A., B.Sc., takes mathematics and science, and A. M. Shields, B.A., takes modern languages. The attendance at present averages 84.

Dr. McLellan recently visited the Seaforth High School, and made a very satisfactory report. So says the *Huron Express*.

Hiram Robinson has occupied the position of chairman of the school board, Ottawa, for twelve years.

Miss Anderson and Miss Rothwell have recently been added to the staff of Ottawa teachers.

The salaries of lady teachers, Ottawa, have recently been increased. Those holding second class certificates, grade A, receive \$400; those holding second class, grade B, \$350.

Ottawa Normal School has 75 students in attendance.

Mr. Smith, B.A., Toronto, honor man in science and mathematics, has recently been appointed to the head mastership of Vankloek Hill High School.

120 students are in attendance at the Toronto Normal School.

Rumor has it that important changes will shortly be made in the staff in the Education Department.

A. Robinson, public school teacher, Wolfe Island, left for Dakota, to take up a new line of business, about the middle of April.

J. Shaw, B.A., has been engaged to fill the vacancy caused by the resignation of A. Robinson, Wolfe Island.

The Model School, Ottawa, under Mr. Parlow, the popular head master, is reported doing good work. There are now 450 pupils in attendance, with many applying who cannot secure accommodation.

It is pleasant to visit a model school that is a model school. Among those which deserve the title is that under the head mastership of Mr. S. B. Westervelt at Mount Forest. Perfect order, solid instruction, good appliances, well ventilated rooms, and a suitable building and grounds are its leading characteristics. Each room seems to be a reflex of the principal's, and an earnestness in the business of teaching and learning seems to pervade all the classes. Mrs. Jelley teaches the primary department, and the other assistants are the Misses Mitchell, Jelley, Kerr, Whelpley, and Mackenzie.

We are pleased to learn that Dr. Agnew, I.P.S., Frontenac, has greatly recovered his health, and is again able to be around. Mrs. Agnew and family leave for California shortly, on a trip for health, the Doctor remaining in the county.

Active work is being carried on by Mr George W. Marsales in Clifford public school. Two pupils are preparing for the intermediate examination and some for entrance. In the junior departments Miss Kirk and Miss Catley are doing excellent work.

Last year Walkerton high school passed 30 out of 38 who went up for intermediate examination, namely, 5 A's, 22 B's, and 3 C's, although during the previous year there were but two teachers. Notwithstanding this thinning out, the average attendance now is 85, of whom about 40 are in the intermediate class. There are at present four teachers, viz.: J. Morgan, B.A., head master; J. H. Long, M.A., LL.D., late examiner in Toronto University, who takes modern languages; J. W. Mustard, B.A., science master; and Mr. D. McKay, mathematical master. Mr. Long is a barrister and attorney-at-law, having practised his profession for some years. He is also a gold medalist in modern languages.

The literary society in connection with Walkerton high school, which was formed last fall, now numbers about 120 members.

Walkerton model school continues to prosper under the effective management of Mr. W. R. Telford. A large number are preparing for entrance examination, and the pupils of this school are usually very successful. Mr. Telford's staff, consisting of Mr. C. A. Elhott and the Misses Robertson, Warren, Roether, Thornton, and Walker, are diligent and energetic teachers.

Mr. R. M. Munro, who was principal of Milverton public school, is now principal of the public school. Paisley. Since his appointment the attendance has largely increased; about 250 pupils being the average. In the primary department Miss McDonald is doing excellent work, and good progress is being made in the other rooms under the effective teaching of Miss Jelley and Miss McNaughton. Some nice specimens of freehand drawing, done by the pupils, are exhibited on the black-board in Miss McNaughton's room.

Mr. Wellwood, the principal of Oakville High School, recently held a very successful entertainment. The proceeds were devoted to the purchase of a bust of the late Dr. Ryerson for the classroom. Mr. Wellwood has secured funds in a similar way for floral decorations for his class-room.

Special attention has been given to writing in primary classes in the schools of Halton under the inspection of Mr. Little, with the most satisfactory results. In many of the schools such progress has been made that the pupils in the first and second primers can write readily any words in the lessons from dictation.

A very successful entertainment was recently held in Waterdown High School, under the auspices of the literary society. An interesting programme was prepared, consisting of readings, &c. During the evening a debate was conducted by members of the society.

J. A. Tanner, B.A., Trinity College, late head master of Dufferin College, has been appointed head master of Streetsville High School.

Large additions to the model school building in Milton have been recently made, costing \$3,000.

There is room for another teacher in the Teeswater public school, which is under the very efficient head mastership of Mr. E. H. McKague. Although he is well assisted by Miss M. Laing and Miss M. E. Sharpe, the increasing attendance is becoming too heavy for the present staff. The vacant room in the very fine school building might be occupied by another class with advantage.

When erecting their new school building the Harriston school board did not reckon on such a large attendance as is at present under the efficient head mastership of Mr. R. H. Hopkins. Two classes have to occupy an adjacent building, as the new one will not accommodate all the classes. Besides the head master there are five teachers, viz.: Mr. G. Waite, and the Misses Jones, A. Taylor, Arnold, and Mae Clapp.

There are eight teachers in Orangeville model and public schools, besides Mr. S. S. McCormack, the head master, namely, Messrs. A. McLinn, F. B. Denton, J. C. Reid, and the Misses M. Steele, C. West, and J. Anderson. The Misses Griesbach and A. West have charge of the auxiliary school.

Mr. James Harris, late teacher of Thornton's school, has been appointed principal of Rockwood public school.

The Government grant to the collegiate institute, St. Mary's, for the year 1882 amounted to \$1,988.80, the largest ever received by that town in one year.

H. I. Strang, M.A., has announced his intention of giving an annual prize in the high school, Guderich, for the best public speaking. It will be known as the head master's prize. He will also offer a prize for the best essay, to be called the Preston prize, in memory of Mr. Strang's predecessor.

A teacher has recently been appointed to conduct classes in Mercer Reformatory and Central Prison. Mr. Pritchard has been the choice of the authorities.

The public school at Port Elgin, under the experienced management of Mr. T. Rankin, is second to none in the county. The system of instruction pursued therein has the effect of producing smart and intelligent answering in the various subjects. The subject of mental arithmetic receives marked attention, and the pupils are making rapid progress in it. Mr. Jas. McKinnon is first assistant, and is highly spoken of as an energetic teacher. The other assistants are the Misses Cairns, Jones, and Baird.

Mr. D. F. Ritchie has been head master of Southampton public school for the past eleven years, and has been singularly successful in his work. During that time about forty of his pupils entered the teaching profession. The attendance at present is about 150, several of whom are preparing for the entrance examination. The school building is a credit to the village. Mr. Ritchie is well assisted by Miss Janet Ross and Miss Mary Ross.

The attendance in Hanover public school is getting too large for the accommodation afforded by the building. There are only two rooms, and in each room are two teachers—or rather a teacher and a mistress. The principal, Mr. S. Noilly, is a very energetic teacher, and his assistant, Miss Pritchard, is highly spoken of for diligence and ability. A special class for industrial drawing has been formed, and a large number are preparing for entrance examination.

Mr. Robb, who was first assistant in Walkerton model school, accepted the head mastership of Chesley public schools at the commencement of this year. Since his appointment the attendance has increased, and the accommodation is insufficient for the number of pupils. The junior departments, which are under the tuition of the Misses Hicks and Howes, are quite overcrowded.

A larger and more suitable school building is becoming needful in Tara. The work carried on at present by Miss Gerolamy and Miss Crooks is very creditable, but it is considerably retarded by the restricted accommodation available. The seats and appliances are also unsuitable. We understand the trustees are going to make a move towards having matters more comfortable for teachers and pupils.

An entirely new and novel feature is being introduced into some of the schools in the west—the establishment of a system of trade and finance among the scholars. They are encouraged to earn money in every possible honest way, by doing work, or selling any marketable article, and have a bank for their own management. The object is to teach the value of money and the importance of thrift. The scholars take kindly to the scheme, and even manifest increased diligence in their other work, it is said. The question is, do children require to be taught the importance of money-making nowadays? There is a possibility of carrying this new idea too far, but a judicious teacher can give valuable suggestions to his pupils in matters of this description.

The Perth yearly promotion examination was held on Friday of last week, and passed off as satisfactorily as usual. It was at one time rumored that these examinations were to be discontinued, but we are pleased to see that this is not the case. They have done a great deal to raise the schools in this county to their present state of efficiency. No recent change has been so instrumental in creating uniformity and stimulating both teachers and scholars. It is no exaggeration to say that the mode of conducting these examinations here is second to none for system and thoroughness. They have been beneficial to the teacher also—that is the successful teacher. We hope they may be continued, and that the results may be as marked in the future as in the past.—*Exchange*.

In Brampton, James Fleming, Esq., M.P., chairman of the high school board, has generously offered for competition among the essay writers a prize, consisting of five handsome volumes of English poets; while A. F. Campbell, Esq., of the *Conservator*, honorary president of the High School Literary Society, with like liberality, offers \$5 worth of books to the best speaker in the literary society speaking competition. Another prize is promised for the best hand-drawn maps of the hemispheres and the Dominion of Canada.

Christian Brothers' school, Kingston, have recently added a fourth teacher.

The grounds surrounding some of the school buildings in Kingston are in anything but an attractive condition. Those of Queen street school are particularly bad, although Mr. Godwin, the energetic teacher in charge, has evidently made an attempt to do the best he can with limited advantages.

In the rural school adjacent to the village of Tara, Miss Rogers is doing good work. Miss Rogers is an excellent, painstaking teacher, and we shall be glad to hear of her promotion, in the early future, to a larger and more important sphere of labor where her teaching power will have a better opportunity of development.

During the six years that Mr. H. W. Hicks has occupied the principalship of Invermay public school, he has succeeded in adding considerably to his reputation as an energetic, well-qualified teacher. In passing candidates for entrance examination he has been very successful. He is preparing a large class at present for the ensuing examination. The school building is too limited for the increased attendance.

The prosperous village of Warton is rapidly increasing its population, and in consequence, the school building is not large enough for the numbers of pupils. The school trustees have, therefore, rented another building for a class under the care of Miss Stahn. The head master, Mr. A. Ferr, has won the confidence of the trustees and inhabitants by his acknowledged ability and untiring zeal. He is well assisted by Miss Kirk, from Toronto, who brings with her the experience of the work carried on in that city.

The literary society connected with the St. Mary's collegiate institute recently gave one of their popular reunions, which was very favorably noticed by the local press. Such meetings do great good, both in the way of enlisting public interest and of benefitting the pupils by a sort of experience that must have a powerful educative influence.

We commend the following instructions issued to pupils at the recent promotion examinations by one of the ablest inspectors in the west, Mr. Alexander, Stratford. They will be found of great importance in the marking of the papers: The value of each answer is to be marked in the margin, and total value marked on the outside and copied into the report. Much, of necessity, must be left to the judgment of the examiners in determining the value of an answer, but the following hints may be found useful:

1. *Spelling*—The omission or addition of an unimportant word, letter, or capital letter should not be marked as an error. The intention of the paper is to test the pupil's ability to spell, not to "catch" at a trivial oversight. The examiner is expected to mark all real errors, but not to lay too much stress on an evidently unintentional omission which does not necessarily show inability to spell a word. *Mathematics*—Great stress should be laid on accuracy of work in these papers. A correct method of working a question should, however, be entitled to about half value, even should the answer be wrong on account of inaccuracy of work. *Grammar*—In marking the parsing and analysis considerable latitude should be allowed as to technical terms, and different schemes. *Geography*—Half a mark should be deducted for each error in spelling, including omission of capitals. Examiners will bear in mind that every teacher has the right to see the papers of his pupils when they are returned to the inspector; they will, therefore, be careful to so perform their work as to leave no grounds for complaint as to the fairness of the examination. The papers of each school are to be kept separate.

The late James Michie, of Toronto, willed \$4,000 to Queen's University.

The high school at Orangeville has largely increased in numbers; the daily average attendance being about one hundred. For this number of pupils there are only two rooms, which are set apart in the public school building. In addition to the head master there are two teachers, and, therefore, two separate classes have to be assembled in one room, thus causing the greatest inconvenience and some confusion. In the meantime a disused church in the town has been rented by the School Board for the accommodation of about 150 public school pupils, and the attention of the head master of these schools is more distracted than if he had the whole school more immediately under his supervision. The deduction is obvious: the public school building should be enlarged and a new building of, say, four rooms at least should be erected for high school purposes. If this were done, as it is hoped it will be, the progressive town of Orangeville would be in a right position in educational matters; and, in the course of a few years, judging from present appearances, the high school may be promoted into a collegiate institute.

The tonic sol-fa system of sight singing was introduced some time since into the schools of London west. Messrs. Leslie, Lockey, and Macdonald have signified their intention of subscribing \$5 each towards the expenses incurred. "Music hath charms."

The expenses of the educational establishments in Gananoque amount to \$3,000 per annum.

Dr. C. W. Connon, M.A., LL.D., died in Hamilton a few days ago. The deceased was born in Aberdeen, Scotland, on the 9th April, 1816, and has occupied positions as principal of the Liverpool Mechanics' Institute, and chief master at the Government Naval School, Greenwich Hospital. In 1858 he accepted a position as English and classical master in Upper Canada College, where he remained till failing health in 1873 compelled him to retire, since which time he has been living with his son in Hamilton.

Mr. Dobson, who took charge of Picton high school some two years ago, has succeeded in keeping the school in a high state of efficiency. The average attendance is now 94, over 50 of these pupils coming from the county. Last year this school was successful in passing 23 pupils at Intermediate, and the prospects are that an equally creditable showing will be made this year. The principal is ably assisted by Mr. Schmidt, B.A., recently appointed classical master, with Miss Gillespie taking junior work. Mr. Dobson has offered a gold medal to all of his pupils attaining the standard of 2nd A certificate.

R. W. Murray, for the past two years principal of the model school, Picton, is reported as one of the most successful teachers in the east; his excellent discipline and thoroughness in his work are especially praised. The school board have shown their appreciation of his faithful services by increasing his salary at the beginning of the year.

G. D. Platt, B.A., the well-known inspector of schools, Prince Edward county, repeats the complaint made by many inspectors, of difficulties arising in the working of the 29th clause. One or two schools have been closed under its operations. The school-house having been burnt down, a number of the ratepayers who are non-residents, taking advantage of this clause in the School Act, refuse to have a new school building erected.

New school buildings have been erected in Picton by the separate school board. The schools have been for a number of years under the management of the two Misses Moran.

G. W. Kidd, the popular inspector of schools for the city of Kingston, has succeeded in collecting a very large and valuable assortment of minerals, which are kept in his office for the benefit of both teachers and pupils of the city schools.

J. C. Glashan has been appointed as one of the examiners of the Royal Military College. Mr. Glashan is well known as one of the ablest mathematicians in the country.

Mr. Wood, head master model school, Kingston, has finished his third year at Queen's University, taking a high stand at the examinations just closed. Last year he succeeded in securing a first class Provincial certificate. That Mr. Wood should be able to discharge so satisfactorily his duties as head master and at the same time pursue an extended course of studies successfully, bespeaks a brilliant future. We wish him continued success.

Kingston has lately appointed a teacher of drawing, Mr. C. H. Scott; also instructor of drill, Sergeant Lyndon.

The attendance at the schools in Kingston has been greatly reduced owing to the prevalence of measles, whooping-cough, &c.

Great complaint is made about inefficiency in writing of the pupils in Kingston schools. A few of the teachers, Mr. McGuire and others, have tried to give special attention to the subject, but as yet results are not all that can be desired. The matter is likely to be taken up by the school board.

NOVA SCOTIA.

The announcement in last month's notes regarding a prospective law faculty in Dalhousie College was not premature. Such a faculty has been organized, and work will regularly begin in November next. It is proposed that the period of attendance upon lectures extend over three years, and that degrees in law be granted by the University. The following are the gentlemen who will compose the law faculty, with the subjects upon which they will respectively lecture:—Richard C. Weldon, M.A. (Mt. Allison), Ph.D. (Yale)—International and Constitutional Law. Hon. S. G. Rigby, Judge of the Supreme Court—Torts and Crimes. Hon. J. S. D. Thompson, Judge of the Supreme Court—Statute Law, Evidence and Procedure. James Thomson, Q.C.—Real Property and Conveyancing. Wallace Graham, A.M. (Acadia), Q.C.—Mercantile Law. Robert Sedgewick, B.A. (Dal.), Q.C.—Equity Jurisprudence. Benjamin Russell, M.A. (Mt. Allison)—Principles of Contracts.

Mr. Longley, M.P.P., presented to the legislature, at its recent session, a petition from the Archbishop of Halifax, the Bishop of Nova Scotia, and the President of Acadia College, claiming in behalf of St. Mary's, King's, and Acadia Colleges an annual grant of \$400 in perpetuity, in virtue of an implied contract entered into between the legislature and those institutions in 1865, in connection with the wiping out of an old obligation of the governors of Dalhousie College. It is understood that the petition had the sympathy of the authorities of St. François Xavier College and Mt. Allison College, Sackville, N.B. The matter was referred to the Government, and no legislative action was taken thereon.

The annual session of the Teachers' Association for District No. 4 (Counties of Annapolis and Digby) was held at Digby, on the 26th and 27th of April. A full report of proceedings will appear next month.

Mr. Harrington's bill, entitled "An Act to secure better attendance at school," passed the Legislative Assembly by a large majority, and the Legislative Council without opposition. In the former body it was amended by the provision that a two-thirds vote of the ratepayers is necessary to bring the Act into operation in any school section.

One hundred and fifty-six pupils were registered in the Pictou Academy during the term ended April 30th. These pupils represented thirteen out of the eighteen counties of the Province, the Province of New Brunswick, and the Islands of Bermuda and St. Pierre Miquelon. The public examinations were held on the 12th and 13th of April. They were attended by the superintendent of education, the mayor of the town, and a large number of ladies and gentlemen interested in the prosperity of this justly celebrated academy. H. McInnis, Esq., lately principal of Sydney Academy, takes the classical professorship rendered vacant by the resignation of Inspector McLellan.

The governors of Dalhousie College have appointed Messrs. Campbell and Trueman to the tutorships lately established by Mr. Munro, both graduates of the class of 1882. The former gentleman takes the mathematical, the latter the classical, tutorship. The tutorships are each worth \$1,000 per annum, and are tenable for two years. The *Dalhousie Gazette* epitomizes the college "record" as follows: Mr. Campbell—1st year: first Alumni Association prize; first class certificate of merit; first prizes in classics and mathematics; first class in Latin, Greek, and mathematics; second class in rhetoric. 2nd year: North British bursey; first class certificate of merit; prizes in mathematics and chemistry; first class in Latin, Greek, mathematics, chemistry, and Roman history. 3rd year: first class certificate of merit; prize in metaphysics; first class in Greek, metaphysics, French, and classical history. 4th year: Sir William Young's gold medal. B.A. honors of the second rank in mathematics and physics; prize in astronomy and optics; second class in Greek and French. Mr. Trueman—1st year: first Alumni Association prize; first class certificate of merit; first prizes in classics, rhetoric; professors scholarship. 2nd year: second class certificate of merit; second prize in classics; first class in Latin and Greek; second class in mathematics, logic, chemistry, and Roman history. 3rd year: first class certificate of merit; prize in classics; first class in Latin, Greek, metaphysics, and French. 4th year: Governor-General's gold medal; B.A. honors of the second rank in classics; first class certificates of merit; prize in classics; first class in Latin, Greek, and French; second class in ethics and political economy.

It is reported that A. J. Denton, Esq., A.M., late principal of the County Academy, Kentville, has accepted an appointment, from the governors of Acadia College, in the interests of the endowment fund of that institution. Mr. Denton's retirement, which we trust is not a permanent one—from the ranks of the teaching profession will leave a vacancy not easily filled. He proved himself a most enthusiastic and successful teacher.

QUEBEC.

"The article in January number of SCHOOL JOURNAL on "Whispering," is worth the year's subscription to me." Louis N. Thibau deau, Rydal Bank, Quebec.

UNITED STATES.

"The missing numbers of the CANADA SCHOOL JOURNAL to March 1883, (inclusive) came duly to hand. Thanks! I have yet to see the school journal that excels it on this continent, and nine-tenths of the educational periodicals of the United States are not for a moment to be compared with it in depth or solidity of matter. I have most of the numbers from the beginning, bound up."—George Harper, M.A., Anchorage, Buffalo county, Wisconsin, U.S.A.

Teachers' Associations.

The publishers of the JOURNAL will be obliged to Inspectors and Secretaries of Teachers' Associations if they will send for publication programmes of meetings to be held, and brief accounts of meetings held.

DUFFERIN.—The fourth semi-annual meeting of the Dufferin Teachers Association will be held in the Public School, in the village of Shelburne, Thursday and Friday, May 17 and 18, 1883. Programme.—1. Opening Address, R. L. Mortimer, president. 2. Appointing Committees on Finance and Arranging Subjects for next Association. 3. Changes in School Law affecting the Profession since 1878, N. Gordon, P.S.I. 4. Roll Call. 5. Vulgar Fractions, Wm. A. McLim, Critics, Miss Mary Koss, Messrs. Buchanan and Bowerman. 6. Writing, W. G. W. Ormerod. Critics, Mr. J. Maxwell, Miss Nelly Mitchell, Mr. A. Farr, and Miss Tiny G. Head. 7. Object Lesson, Miss F. Shaw. Critics, Miss J. Holmes, Messrs. D. Reid and R. W. Rooney. 8. Librarian's Report. 9. Treasurer's Report. 10. Method—Reading Secs. 276 and 283 of Carrie—Discussion; F. B. Denton in the chair. 11. Composition, J. J. Tilley, M.S.I. 12. How to Teach Least Common Multiple

and G. C. M., Samuel Acheson. Critics, Mr. H. Campbell, Miss Elliott, and Mr. A. Sproule. 13. Question Drawer Opened. 14. Reading Minutes of Previous Meeting. 15. Temperance in School, A. L. McIntyre. Critics, Mr. F. B. Denton, Miss J. McNaughton, Miss G. McLeab, and Miss M. A. Head. 16. How Discount and Commission should be Taught, Miss P. Alexander. Critics, Messrs. S. S. McCormack, R. L. Mortimer, D. Stewart, and Miss Pilkington. 17. Grammar, J. J. Tilley, M.S.I. Critics, Association. 18. Roll Call. 19. Value of Written Examinations, A. Steele, B.A. Critics, Messrs. J. C. Reid, Thos. Allan, J. J. Jordan, and Miss A. Lawson. 20. Relation between Religion and Education, Rev. Mr. Straith, of Shelburne. 21. Geography, J. J. Tilley, M.S.I. Critics, Association. 22. Spelling, Miss E. Lawson. Critics, Miss M. Steele, Miss M. Reid, Miss C. West, and Mr. G. C. Patterson. 23. How to Teach Railroads of Ontario, W. L. Mackenzie. Critics, Messrs. D. Macaulay, Wm. Jamieson, and R. Wellwood. On the evening of Thursday, the 17th May, J. J. Tilley, M.S.I., will give his popular lecture on "Education," in the Town Hall. Terms of membership, \$1 per annum with CANADA SCHOOL JOURNAL, or 50 cents without the JOURNAL. Wm. A. McLim, sec. treasurer, Orangeville, Ont.; R. L. Mortimer, president, Shelburne, Ont.

NORTH-MERLAND.—The next regular semi-annual meeting of the Northumberland Teachers' Association will be held in the High School Building, Colborne, on Thursday and Friday, May 10th and 11th, 1883. PROGRAMME.—Thursday.—11.00 to 12.00—General Business. 1.30 to 1.40—Roll Call. 1.40 to 2.30—Uniform Promotions; Mr. D. Robertson. 2.30 to 3.30—Entrance Geography, with a Class; Mr. Geo. Kirk. 3.30 to 4.30—What should be Taught in Public Schools; Mr. J. E. Flewelling. Lecture, Thursday evening, 8 o'clock; Rev. J. Bredin, Brighton, subject, "Public Opinion," to take place in the Temperance Hall, admission free. Friday.—9.00 to 9.10—Roll Call. 9.10 to 10.00—Township versus County Association. 10.00 to 11.00—Percentage, with a Class; Mr. J. McColl. 11.00 to 12.00—Punctuality and Regularity of Attendance; Mr. G. Dowler. 1.30 to 2.30—Reading, with a Class; Mr. G. Cross. 2.30 to 3.00—Notation and Numeration, with a Class, Mr. W. McColl. 3.00 to 4.00—Mathematical Geography; Mr. H. M. Hicks, M.A. W. S. Ellis, B.A., B.Sc., president; D. E. Stephenson, secretary.

RENFREW.—A meeting of the Teachers' Association will be held in Arnprior High School, May 10 and 11, 1883. PROGRAMME.—Thursday.—9.00—Reading Minutes, &c. 10.30—President's Address. 11.00—How to Teach Spelling; N. S. Dunlop, Esq. 2.00—School Culture; H. L. Slack, M.A. 3.00—Remarks on Teaching in Public Schools; R. Geo. Scott, B.A., I.P.S. 4.00—Arithmetic; Charles McDowell, B.A., head master Renfrew high school. 8.00—Public Lecture; Prof. Dawson, head master Arnprior high school. Friday.—9.00—How to Teach History; L. C. Corbett, B.A. 10.00—Phrenology for Teachers; Wm. Alford, Esq. 11.00—Syntax; W. McKay, B.A., head master Renfrew model school. 2.00—How to Teach Reading, E. Odium, M.A., head master Pembroke high school. 3.00 to 3.30—The Relation between High and Public Schools; Prof. Dawson. 3.30—Election of Officers. A. McKillop, B.A., president; A. D. Campbell, secretary.

ONTARIO.—The regular meeting of the Teachers' Association will be held in the High School Building, Port Perry, on Friday and Saturday, May 25th and 26th, 1883. PROGRAMME.—Friday.—10.00 to 11.00—Bible in the Schools; D. McBride, M.A., Port Perry. 11.00 to 12.00—Arithmetic; Mr. Noble, Uxbridge. 1.30 to 2.30—Physiology and Hygiene; W. F. Eastwood, M.D., Zephyr. 2.30 to 4.00—Teachers' Literary Outfit; G. H. Robinson, M.A., Whitby. 5.00—Lecture, in Town Hall, by J. L. Hughes, Esq., inspector city schools, Toronto, subject, School Room Humour. Saturday.—9 to 9.30—School Discipline and Drawing; J. L. Hughes, Esq., Toronto. 10.30 to 12—Grammar; L. C. Smith, M.A., Oshawa. 1.30 to 3—Principles of Symmetry; J. J. McGee, B.A., Uxbridge. G. H. Robinson, M.A., President; A. G. Henderson, Sec.-Treas.

OXFORD.—The eleventh session of the Oxford Teachers' Association will be held on Thursday and Friday, May 10th and 11th, 1883, in the High School, Woodstock. Thursday.—9.00, Business. 9.30 to 10—President's Address. 10 to 10.45—Writing; Mr. Westervelt, Woodstock College. 10.55 to 11.15—Aesthetics; Mr. Bryden, B.A., H. S. Ingersoll. 11.15 to 12—Poetry and General Reading in Public Schools; Mr. J. P. Archibald, Beachville. 2 to 3—Practical Reading (Fourth Book); Mr. Burke, Ratho. 3 to 3.45—Surfaces and Solids, Mr. Deacon, M. S., Ingersoll. 3.45 to 4.45—History; Mr. Buchan, U. C. College, Toronto. 8 p.m.—Lecture (Poetry and Politics); Mr. Buchan, U. C. College, Toronto. 9 to 10 a.m.—Grammar; Mr. Buchan. 10 to 11:20 a.m.—Debate ("Resolved, that a Ministry of Education is Preferable to the Superintendency"), affirmative—Robinson (leader), Edgington, and Henderson, negative—Deacon (leader), Courtlandt, and Carlyle. 11.20 to 12 m.—Multiples and Measures (Ar.); Mr. McMillan, Norwich. 2 to 3 p.m.—Class Reading; Mr. Burke. 3 to 3.45 p.m.—Composition; Mr. Wilson, Master P.S., Tilsonburg.