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CONTENTS OF THIS NUMBER.

	PAGE
LEWIS GRAMMAR SCHOOL-HOUSE, BOSTON, MASS.....	129
ONTARIO TEACHERS' ASSOCIATION, 1873.....	130
I. MATHEMATICAL DEPARTMENT.....	140
II. BIOGRAPHICAL SKETCHES.—(1) J. R. Armstrong, Esq.; (2) J. L. Schofield, Esq.; (3) Mrs. Bancroft, Montreal.....	140
III. PAPERS ON INDUSTRIAL EDUCATION.—(1) Industrial Education for Boys; (2) Scientific Industry in England; (3) Educational Items.....	141
IV. MISCELLANEOUS.—(1) Country Children; (2) The Prince of Wales.....	142
V. DEPARTMENTAL NOTICES.....	143

In each of the three stories there are four school-rooms, twenty-eight feet by thirty, with a spacious clothes-room and teacher's closet attached to each. In the Mansard roof there is a large exhibition hall, about sixty feet by seventy-five. It is heated by four hot-air furnaces, as shown on the plan of the basement. The standing work is of brown ash, unpainted, and the floors are all of the best southern hard pine. Each school-room is furnished with fifty-six single desks. The master's room is put in communication with all the other rooms, by means of bells and speaking tubes. The hall is furnished with settees of the best description.

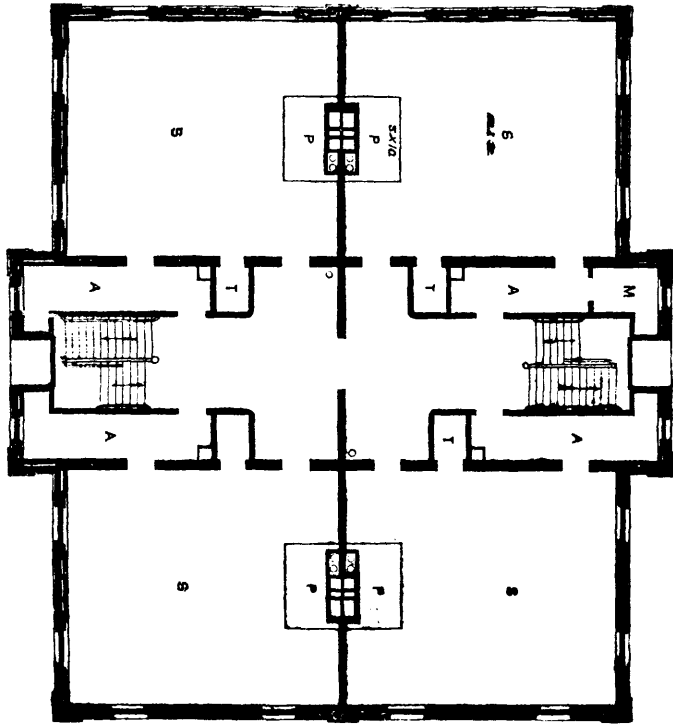
The building is well proportioned, and the pressed brick with which the four walls are faced, and the white granite trimmings, produce a pleasing contrast.

LEWIS GRAMMAR SCHOOL-HOUSE.

The accompanying perspective view and cuts show the architectural style of the edifice and the arrangement of the rooms.



LEWIS GRAMMAR SCHOOL-HOUSE, BOSTON, MASS.



FIRST, SECOND AND THIRD STORIES.

S. S. S. School rooms.
A. A. A. Clothes closets.
T. T. T. Teachers' closets.
M. Master's room.

ONTARIO TEACHERS' ASSOCIATION, 1873.

The thirteenth annual convention of the Ontario Teachers' Association was held in the Theatre at the Normal School Buildings.

The first day's session commenced at three o'clock p.m. Prayer was offered up by Dr. E. Crowle, after which Mr. Robert Alexander, of Newmarket, who presided in the absence of the President, Prof. Nicholson, briefly addressed the meeting. He remarked that he was sorry it had devolved on him to fill the chair; sorry that the President was absent, but they had very little to regret, as the President had left behind him an address, which would be read by Dr. Wilson this evening; the address contained all that he had to say to them. In filling the chair, he hoped those present would all aid him in carrying out the duties, and he hoped the meeting would be marked the same as the last one was, with conformity and a feeling of interest in the discussion on the papers that would come up before them.

The minutes of last meeting were taken as read.

INCORPORATION.—Mr. McMurchy, in presenting the report of the Incorporation Committee, said the Committee had asked for the incorporation of the Association as a Society; all they asked for was that they should be allowed the privilege and right to elect to the upper institution three or more members. They were aware that the Attorney-General, Mr. Mowat, had introduced a Bill to amend the Upper High School Law of Ontario; but what they asked for was that the teachers should be conceded the right to elect three members to the board. He asked that the Committee already appointed should be continued. The Committee consists of Messrs. Hunter, Alexander, Anderson, McLellan and McMurchy. Mr. Miller, of Goderich, moved, and Mr. Johnston, of Cobourg, seconded, "That the report be received and adopted, and the request of the Committee granted that they be continued."—Carried.

INDUSTRIAL SCHOOLS.—Mr. Samuel McAllister read a paper on the subject of Industrial Schools. He remarked he had called attention to the condition of vagrant and neglected children five years ago, and suggested a method how many might be reclaimed. Although there had been discussion in the press upon this subject, yet no attempt to deal with this dangerous class of children in this country had been made, and they were allowed to grow up in ignorance and crime. According to the School Report there were 38,000 children in Canada between the ages of five and twelve who did not attend school, 5000 of whom were between 7 and 12 years of age. He asked the questions:—Where are these children, and what becomes of them? Why are there no means adopted to train

them as other children? These children are of three classes. Those who have no natural guardians; those whose guardians are indifferent, and wilfully neglect their careful training; those whose guardians, although well intentioned, lack power and influence over their children. A considerable portion, however, of those ignorant children grow up and spend useful lives, as shown by many who mark their signature with a cross through their inability to write, but a large portion go to swell the ranks of vice, for vice works hand in hand with ignorance and idleness. According to the Prison Inspector's Report, three-fifths of prisoners had no education, or were very imperfectly educated; two-thirds of these were put down as labourers, or have no occupation. He considered imprisonment had very little good effect on prisoners. Many of the prisoners were in gaol from recommitments. He had himself seen a boy who expressed satisfaction at being sent to gaol for six weeks. By the Prison Inspector's Report, one-third of the gross committals to prison were recommitments. The plans on which prisons in Canada were conducted were subversive to the reformation of the inmates. It had been asserted by the Toronto gaoler that he had more hope for a boy committed for 24 hours than one committed for 24 weeks. He remarked on what he considered the inaccuracies of the returns made out as to the cost of the maintenance of prisoners. The cost of each prisoner in 1872 was returned as \$15 40—it should be \$20 26; this divided by the average number of days prisoners were committed—27½ days—would give \$1 6 per day, or \$7 42 per week; this was a liberal allowance for criminals. The question was, how should they reform this class? Compelling them to go to school had been tried, but there remained another plan yet untried; completely withdrawing them from the vice with which they are surrounded, and putting them into an industrial school, where they could get a proper training and be taught habits of industry. The paper spoke of the satisfactory results of the working at the Western House of Refuge, Rochester, of similar establishments at Philadelphia, Massachusetts, and New York. 75 per cent of the children sent to the school in Massachusetts are reported as doing well; two-thirds of those discharged from Industrial Homes in England and Philadelphia were reported as doing well. This was sufficient to warrant the establishment of such an institution in Canada. The age of the inmates averages from 12 to 14 years. The cost of the Western House of Industry was \$2 60, which is decreased to \$1 95; New York House of Refuge \$2 21, decreased to \$1 24; Philadelphia \$2 47, decreased to \$1 45; average cost, \$1 55. At the Massachusetts Home the cost was \$3, which he supposed was the actual cost of each inmate. The paper further dealt with the subject of the necessity for the establishing of an Industrial School for Canada. The Reformatory at Penetanguishene did not correspond with the Houses of Refuge mentioned. A model Industrial School should be established here nearly on the same plan as that at Philadelphia; that each municipality should be called on to contribute towards it according to the number of children sent, and also collect the cost from the parents of the children. There was need of an Industrial School in Toronto, so that the children found about the streets might be sent to school. Dr. Kelly asked if the Truant Officer's services were found effective in Toronto? Mr. McAllister said his services had been effective and satisfactory, so far as to the decrease of truants, and in his school there had been an increased attendance. After some further discussion, Mr. J. P. Groat moved, and Mr. Scarlett, of Cobourg, seconded, "That this Association have considered the subject of Industrial Schools, and believe that such a school, if established by the Government, would result in doing great good for the people of Ontario." Mr. S. E. Glaisher moved as an amendment, "That this Association having considered the importance of Industrial Schools, hereby appoint the following Committee to wait on the Government and impress on them the necessity of establishing one or more of such schools in this Province, the committee to be Messrs. McAllister, Kirkland, and McCallum." The amendment was seconded by Mr. J. H. Smith.—Carried.

PRESIDENT'S ADDRESS.—Professor Wilson having briefly stated the reason of the absence of Professor Nicholson, who had gone on a scientific excursion to the United States, read the following address:—**GENTLEMEN,**—The best and most satisfactory thanks that I could possibly return for the honour you have done me by electing me as your President, would consist in the delivery of an address of some permanent weight and value. For this, however, I feel that my powers are insufficient, and that if my gratitude should be measured by any such standard, I shall be found to fall far short of the due appreciation of your kindness. I trust, therefore, that my hearty recognition of the honour you have conferred upon me may be taken as granted, and that you will be content to listen for an hour to some scattered thoughts upon a subject upon which I have often reflected—the position, namely, that science ought to take in education in general, and more especially in the

education of the young. In examining this question, it is very desirable that we should have a clear idea as regards two points of fundamental importance, namely, the meaning to be attached to the word "Science," and the object, or objects, which are to be aimed at by any rational form of education. Perhaps no better definition of "Science" need be sought than that which simply defines the term as including all those branches of human knowledge, the ultimate data of which are to be acquired solely through the medium of the senses. I am aware that this definition would exclude such so-called sciences as Psychology and Metaphysics, the ultimate data of which can only be acquired by the operation of the internal consciousness of each individual. I am aware, also, that the generalizations of all branches of science are the result of intellectual operations, and are not acquired by any study of merely sensual phenomena, however profound. Still, for our present purpose, the above definition may be taken as sufficient, since it includes all the sciences which are ever likely to be taught in schools. In other words, it includes all the so-called Physical and Natural Sciences, embracing all those branches of knowledge which are concerned with the investigation of the phenomena of the inorganic and organic worlds of nature. We may stop, then, here to note that under this definition the sciences may be regarded in a two-fold aspect, whether we look at them from an educational or from any other point of view. The data of the sciences, the facts which each comprises, are learnable by the senses, and are not truly or genuinely learnable by any other medium or channel. It is true that we may learn some or all of the facts of a science out of a book, by the exercise of a mental power alone, and without ever having submitted a single one of these facts to the test of the five senses. We may do so; but assuredly no genuine knowledge of sense was ever obtained in this way, and the sciences, if they are to be learnt or taught after this fashion, certainly present no advantages over many other studies. On the other hand, the scientific, as compared with the non-scientific knowledges, have the peculiarity that they are grounded in the sensuous and natural life of the human being. They reach the higher spiritual plane of the organism through the senses, and it is properly by "the five gateways of knowledge" that scientific truths should be imparted to the learner. Hence, the sciences present, to begin with, the inestimable advantage that they can be taught, as regards their simpler and mere fundamental data, at a time when the higher mental faculties are comparatively undeveloped and in abeyance. Indeed, from the moment that an infant opens its eyes upon the world, it commences a course of scientific education, which is carried out exclusively through the senses, and which is none the less complete because it is involuntary and unguided. Science may, and often is, so taught in later life as to deprive it of this inevitable advantage, but it remains certain that the practical teaching of science can be commenced at an earlier period of life than can profitably be attempted with the more ordinary branches of education—if only upon the ground that the senses attain their working powers much sooner than do the intellectual faculties. Whilst the data of the sciences are grounded in the senses, the deductions from these data are purely intellectual, and hence science, in this second aspect of its two-fold constitution, stands in precisely the same educational position as any non-scientific branch of knowledge. The facts of the sciences can only be discovered in the first place through the medium of the senses; and even after they have been once discovered, and have thus become common property, they should nevertheless be handed down from individual to individual through the same channel. On the other hand, the generalizations of science are super-sensual, and are the result of purely intellectual operations. The observation of the celestial phenomena which constitute the ground-work of the science of astronomy can be carried out solely through the sense of sight, but no acuteness of vision, no complexity of apparatus, no repetition of investigation and research, would lead to the discovery of the law that the radius vector describes equal areas in equal times. We pass here from the region of sense into that of rational mind and intellect. The physical properties and phenomena of a thistle are presumably as well known to a donkey as they are to the highest of human beings—in so far, at any rate, as the senses of the two are equally efficient; but the latter can draw certain deductions from the facts which he knows about the thistle, which might perhaps embrace the constitution of the solar system in their scope, and which, at any rate are entirely undreamed of in the philosophy of the former. Hence, science is in its essential condition composed of two departments—one embracing the facts of science, which are acquired by the use of the senses, the other comprising the deductions and generalizations of science which are due to the working of the intellect upon the facts previously determined by the senses. Hence also, science, from an educational point of view, must be regarded as fundamentally a quality—its data being most fitly taught to the young, in whom the senses are most active, whilst its generaliza-

tions are most suitable for later periods of life, in which the senses are not so acute, but the intellectual faculties are more highly developed. This leads us to consider next, very shortly, what are the objects which should be sought to be attained by any form of education, and we cannot hesitate in arriving at a decision on this point. All conceivable forms of education must, to be of any value at all, do one of three things, or more than one of these things combined. The conceivable advantages to be derived from any study come under one or more of the following heads: 1. *Discipline*, or the training and development of the mental faculties: 2. *Culture*, or the improvement and development of the emotions and higher faculties, together with the unfolding of the natural aesthetic capabilities of the individual: 3. *Utility*, or the acquisition of certain knowledges, which will be of actual practical value to the individual in his struggle for existence in the particular society in which his lot may be cast, and will secondarily enable him to be of use to his fellow-men. I do not propose to enter at all into a discussion of the great controversy, whether the above objects of all sound education are attained more perfectly by a scientific or a classical training, or a judicious intermingling of the two. For my present purpose, leaving other branches of education to fight their own battle, it will be sufficient to show that science fulfils at any rate two of these objects—fulfils them at least as perfectly as any more generally favoured department of knowledge. At the same time there can be no question but that an ideal education is many-sided; and no knowledge, however profound, of a single subject entitles a man to the honourable designation of "educated." The learned German philologist, who did not know what potatoes were when he saw them, in spite of his enormous erudition, was no more an "educated" man, in the proper sense of the term, than is a man of science who is totally devoid of literary culture. To be altogether "teres atque rotundus," a man must know something of many things, and everything of something. The only real practical question lies in whether those individuals—and there are, unfortunately, many of them—who have time and opportunity for examining but one of the facets of the crystal of knowledge, should confine their attention to the scientific, or the non-scientific, branches of study. Into this question, as I have already said, I do not intend to enter; but I shall endeavour to point out how far the sciences fulfil the three great objects of education, namely, discipline, culture, and utility, and how far they fall short of securing these objects when they are compared with other departments of study. Firstly, as regards *discipline*, I apprehend that I need say very little as to the value of scientific studies. That the study of physical and natural science is at least as efficacious in developing and training the mental powers as any other branch of human knowledge, I shall assume, I hope rightly, as being generally admitted. Witness—if witness be needed—the unchallenged position occupied by Mathematics, at once the handmaiden and the mother of so many of the sciences. There is, however, one point of view in which the disciplinary value of science is especially apparent, as depending upon the two-fold constitution of science to which I have already alluded. Other branches of knowledge develop more especially the intellectual faculties, but science, in addition, trains the senses. The labour necessary for acquiring the facts of science, immensely increases the power of observation, and sharpens and develops the senses: whilst the study of the generalizations of science constitutes one of the severest forms of intellectual training. It may fairly be claimed, then, that the educational discipline afforded by the study of science presents certain advantages over that afforded by all non-scientific branches of study. It cannot, however, be too strongly insisted, that in order to realize these advantages, science must be taught *practically*. It is not enough for the teacher to rely upon books, either for his own knowledge or for his teaching. He must himself have some personal knowledge of his subject, and the facts which he brings before his pupils must be illustrated by actual examples, drawn from the world around him. Any science which cannot be taught thus practically had better be omitted from school education. Every school pretending to teach science should have a small museum and laboratory attached to it. Every pupil pretending to learn science should be encouraged to collect and examine natural objects for himself; to verify in person all the more important facts which he is asked to believe; and to test by his faithful senses the truth of the statements which he hears from his teacher or meets with in his books. Of course, some sciences are more susceptible of this mode of treatment than others, and there is nothing invidious in saying that in this most important respect chemistry has immense advantages, as regards school education, over other branches of science. There is no excuse for not teaching chemistry practically, but there would also be little difficulty in the practical teaching of geology, physiology, zoology, or botany in schools. In any case it is not fair to judge of the value of science, as an educational agent, from its results, when

not taught in this practical manner. All scientific authorities are agreed in stating that science can only be taught in one particular way—that is, practically—and is it not, therefore, reasonable to condemn the results of science-teaching, unless the teaching has been carried out on this system? As a matter of fact, however, the introduction of science-teaching into schools has invariably proved most successful, in every single instance in which the instruction has been made practical in its character. Under these circumstances science yields to no other branch of study as a means of mental discipline. In the second place, as regards culture, it may at once be conceded that science is inferior to other branches of study, such as literature—with, however, the very important proviso that the studies in question cannot claim any superiority in this respect unless they are carried beyond a certain point which is rarely reached in schools and not commonly attained even in a university. The literary appreciation of Homer and Æschylus, of Juvenal and Tacitus, of Shakespeare and Tennyson, presupposes a high culture, much higher than could be afforded by the study of science. But how often and to what an extent can the ordinary educational course of schools be said to be conducive to literary culture? In England, certainly, in the great public schools, it cannot be said that the educational training is favourable to “culture” in the high sense of the term. On the contrary, the tendency of English school-life is to produce what the Germans understand by “Philistines.” How many boys in the highest form of a large English school appreciate the beauties of one of Horace’s odes, or would find the smallest difficulty in reading the death of Agricola in the original with an unflinching voice? However, not to dwell upon this I willingly concede that the prosecution of literature in its higher walks gives rise to a form of culture more elevated, more polished, and more spiritual than is produced by the study of science. I will also willingly admit that the too exclusive study of science in certain temperaments, is apt to harden the mind, to close the eyes to the higher and less tangible elements of human life, and to disturb the true balance between the intellectual and emotional faculties. Nevertheless these defects are not inherent in the culture produced by science, and there is another aspect to the question. It is easy to make the step from nature to nature’s God. To the religious temperament the study of science must ever conduce to that highest of all forms of culture, the culture that is implied by *reverence*. It is a common charge against science that it is materialistic; but the charge is unfounded. Science fluctuates, like many other things, and it at present may tend towards what is commonly called materialism. I venture to assert, however, that science is in its essence religious, and that the time is not far off when this will be generally recognized. At any rate—and this is all that concerns us here—there can be no question that science tends to produce a profounder admiration of the wondrous works of the Creator, as displayed in the visible universe, a truer appreciation of the real objects of human life, and a more intelligent compassion for those who ignorantly sin against the unalterable laws of existence. In the third place, enquire what educational standing science can claim on the score of *utility*. Here, again, I conceive that the claims of science are undeniable. Always admitting that the ideal education would consist of a judicious mixture of scientific and non-scientific studies, we must remember that the time allotted by the majority of mankind to learning is too short to allow of this general culture: and that the average school-boy is not likely to master thoroughly more than one department of knowledge. Having painfully mastered the “three R’s,” the average school-boy is driven to make choice as to what set of studies he will embrace; and his choice is, or ought to be, guided by a due consideration of what knowledges will be most *useful* to him in his future life. I say, then, that the claims of science are in this respect undeniable. Most men in civilized communities lead lives of an eminently practical character; and it is no exaggeration to describe human existence as being in its essence an incessant struggle with the national forces by which man is environed. The more intelligently this struggle is carried out, the higher is the stage of civilization which is attained to, and every victory in this fight raises man nearer to his ideal condition. I am far from saying that the satisfaction of his material wants is all that the man requires for his happiness and his welfare. Man is more than an animal, and has wants other than those of the day. Nevertheless, it seems tolerably certain that no great spiritual progress is possible where man’s material wants remain unsatisfied; whilst the satisfaction of these wants in all cases depends directly or indirectly upon the completeness of the harmony between man and nature.

And how can this harmony be brought about? Surely in no other way than by instilling into the plastic minds of our children some knowledge of the world they live in; some love for the wonderful nature by which they are surrounded; some acquaintance with the laws which govern the universe. Most men, as I have

said before, lead lives of an eminently practical character. In winning their bread they are brought daily into contact with natural productions; they conduct operations depending entirely upon natural laws, or they have to deal with artificial products or machinery removed by the skill of man but one stage from the raw material of nature. It were easy for me to unroll before you the long list of scientific achievements of which our present civilization is the direct outcome, but there is no necessity for this. The common working life of man pre-eminently demands a knowledge of common things; and this knowledge can only be obtained from science. How, then, can we doubt the utility of science as a branch of education? It appears, therefore, to me that if a boy has to choose between obtaining a certain limited knowledge of science or a certain equally limited knowledge of some non-scientific study, such as the classics, he will act wisely in choosing the former. If he can acquire both, so much the better; but if he has only time for one, utility alone, in my opinion, demands that he should choose science. Is the farmer more likely to succeed in discharging his functions in life by being able to construe a little Virgil, or by knowing something of the laws of chemistry? Will it more profit the skilled artisan to be able to string together Latin verses or to know something of mechanical laws? But I will not multiply examples of this kind. I will only draw your attention to one more consideration. No one but a medical man can estimate, even imperfectly, the amount of misery, disease, and even vice, which depends more or less directly upon the gross public ignorance of the commonest natural laws, and which might be more or less completely removed by the general diffusion of scientific knowledge. How many lives might be preserved if mothers but knew the rudiments of physiology, or had the faintest acquaintance with the structure and functions of the animal body? How much suffering might be obviated if there were but any general knowledge of the more important laws of health? How many of the ills to which humanity is heir might be mitigated or altogether abolished if sanitary science were but understood by those who frame municipal laws? Upon the whole, then, I contend that the claims of science as a branch of education stand as follows:—As regards discipline, science is at least as good an educational agency as any other branch of study, and it is unequivocally better than many. As regards culture, science does not stand as high as literature, but it nevertheless holds no despicable position. It confers a peculiar culture, which, if different in kind to literary culture, and inferior in value, is, notwithstanding, genuine and real. At any rate, some knowledge of science is essentially bound up in the ideas comprised by the term “educated.” A man may be as “leavened” as you please; but he is certainly not an “educated” man, if he is unable to state why water boils, or why the mercury falls in its imprisoning tube at the approach of rain. Lastly, as regards utility, science stands perhaps pre-eminently high, so long, at any rate, as our present civilization maintains itself unchanged. There are, and probably always will be, departments of human activity in which the knowledge of other subjects is more important than that of science. It is, however, probably impossible to over-estimate the material benefits which would accrue from the general introduction of science into education. It is difficult in treating of a matter of this kind to avoid—whatever conclusion one may arrive at—the censure meted out to the saddler who openly expressed his belief that “there was nothing like leather.” I have not, however, really exposed myself to this censure, if I have succeeded in making my views clear. In advocating the claims of science, I by no means wish to disparage other branches of study. On the contrary, I have merely tried to show that the full value of science as an educational agent has not as yet been generally recognized. It is to be remembered, also, that it is, in the nature of things, the last comer who has to assert himself. The non-scientific branches of study are in possession of the field, and sit serene in the honour which is conferred by time alone. Science finds it necessary, in its position of a comparative stranger, to introduce itself to the public, to divest itself of some of its natural modesty, and, if necessary, to obtrude its claims with something of self-assertion. If I have established my position that science has high theoretical claims for a recognized place in general education, I should, in conclusion, like to say a few words upon the practical difficulties which attend the carrying out of these claims in actual life. The difficulties in question are by no means confined to Canada, though perhaps more conspicuous here than in older communities; and they may be summed up under three heads:—1. The difficulty of obtaining competent teachers; 2. The difficulty of teaching science practically; and 3. The difficulty of obtaining suitable school-books on scientific subjects. In the first place, the difficulty of obtaining competent teachers, though a very serious one, may be lightly passed over, as its origin and remedy are alike clear. Science has suddenly risen into importance in education, and there

has, therefore, not elapsed sufficient *time* to develop a body of teachers sufficiently large and sufficiently well-informed to meet the wants of the new era. In so far as the evil arises from this cause, it may safely be left alone, as it is certain to cure itself in the long run. Worse than this, however, is the fact that the place of science in education has not yet been sufficiently, or at all generally, recognized; that there is no appreciation of the necessity of a special teacher of science in every large school; and that there is, therefore, little encouragement for our young men in devoting themselves to the study of science. This, however, is also likely to cure itself in time; and the supply is certain ultimately to equal the demand. Worst of all is the lamentable but undoubted fact that those who would teach science in many cases do not recognize that the one essential qualification of a teacher in science is direct, personal, and practical acquaintance with the facts to be taught. Book-knowledge may do well enough for some branches of education, but it is an utter failure in science so far as concerns teaching. And, the more elementary the scientific knowledge to be imparted, the more urgent the necessity that the teacher should not be speaking simply at second-hand. When this fact is once recognized, we shall hear less of the difficulty of obtaining an adequate supply of science-teachers qualified for their work; and it can hardly escape recognition in any reform of our higher institutes of learning. There is, therefore, reason to hope that this first difficulty, by which the establishment of science, as a branch of general education, is assailed, will be removed in the regular course of events.

In the second place, we have to confront the difficulty to which I have already alluded, that science-teaching is valueless unless conducted upon a practical basis, and that it cannot, therefore, be easily carried out in schools. The first part of this proposition I shall not dilate upon, as all scientific authorities are entirely in agreement about it. No one, whose opinion upon the subject is worth anything, doubts that the value of science-teaching lies in its being strictly practical to begin with. Not only must the teacher be practically acquainted with his subject, but the pupil must have the facts of the science presented to him in a tangible form. He must learn from *objects*, and not merely from books; and he must be encouraged to collect his facts for himself. At first sight it appears very difficult to carry this out; and our schools, as at present constituted, are certainly little adapted for the development of this idea in practice. There is, however, no reason in the nature of things why this should be so. The objects and apparatus absolutely essential for teaching any given branch of science are not numerous, and could readily be obtained, at little cost, by any large school. As regards some of the sciences, such as Geology, Natural History, or Botany, the objects necessary for practical teaching are, to a large extent, directly accessible to both the teacher and his pupils. There is no reason why every large school should not acquire for itself a good local museum, embracing the natural objects, organic and inorganic, of the surrounding district. Such a museum would be largely recruited from the collections made by pupils themselves, who would thus be stimulated to independent observation, and who would, unconsciously and without effort, acquire knowledge which could but painfully and imperfectly be gained from books. Such a museum, also, would supply the teacher with many of the objects necessary for class-demonstration; and, it is not too much to say, would be of considerable practical value to the professional scientific observer. That this idea is not chimerical has been proved by the practical experience of such well-known English schools as Rugby and Marlborough, and I do not despair of seeing it more or less completely realized in this country. In the meanwhile I can but insist that the teaching of science merely out of books, if not absolutely injurious or worthless, is no fair test of the value of science as an educational agent; whilst I do not see any insuperable difficulty in the way of teaching at any rate some of the natural sciences in schools in a thoroughly practical manner.

I could have wished to say more upon this subject, but I must conclude with a few brief remarks upon the third difficulty to which I have alluded—the difficulty, namely, of obtaining good text-books on science—to which I would add a few words on the comparative advantages presented by the different sciences as regards school teaching. The difficulty of obtaining good text-books arises from two causes, one peculiar to our educational system, the other universal and confined to no particular country. The latter is simply the fact that many very unreliable and inaccurate text-books of science are in existence, owing to the common but most erroneous idea that anyone can write an elementary text-book on any subject of science. The truth is that it requires a profound, and above all a practical knowledge of the subject to enable a writer to produce a good text-book for beginners on any branch of science. This may sound paradoxical, but it is undeniably true.

To put the same truth in another form, it requires less knowledge of a subject to teach grown up men than it does to teach boys. Adults are much better able to supply any deficiencies that there may be in the teaching for themselves, than young people are, and the latter require the simplicity and directness of exposition which is never found apart from extensive and profound knowledge. Everyone who has been at any time engaged in the practical work of teaching, will admit this, and I need say no more about it. The fact, however, is not generally recognized, and hence two-thirds of the scientific text-books in existence are entirely unsuited for the purpose aimed at by their authors.

It follows from the above that the choice of good text-books in science is by no means an easy matter; and it may reasonably be doubted if the existing machinery is sufficient for the discrimination of the few good from the many bad. The text-books to be employed in the schools of this Province are selected by the Council of Public Instruction. Now, I do not wish to say a word in disparagement of this body, the duties of which are very onerous; but it cannot be overlooked that of the members of the Council by which the existing scientific text-books were chosen, no one possessed any special practical acquaintance with science, or could claim to be accepted anywhere as an authority on any department of scientific investigation. It so happens, therefore, that whilst science-teaching occupies a recognized place in the school system of this country, there is no adequate provision for the selection of suitable scientific school-books. And, as a matter of fact—indeed as an almost inevitable consequence of the constitution of the Council—the authorized text-books of science are in several instances of a very inferior character—a most serious evil, when it is considered that the science teaching in schools is almost exclusively from books. Hence, also, the singular omission of certain science subjects very well adapted for school teaching, and the introduction of others that might well be dispensed with.

Of all the departments of natural science which can be taught in schools, chemistry, probably, takes the first place, owing to the facility with which its fundamental facts can be practically brought before the learner. The amount of apparatus necessary for demonstrating the more elementary phenomena and laws of chemistry is not very large, and can readily be obtained by any of the larger schools. Dealing also, as it does, with inorganic or dead nature, it is free from the complexity which attends the biological sciences. For these reasons chemistry is, perhaps, the best subject which can be chosen with which to commence a course of scientific study; and it has the additional advantage of being most closely interwoven with many departments of practical life. I need only add that Roscoe's "Elementary Chemistry," the authorized text-book, is written by a master of his subject, and is everything that could be desired.

Botany can be readily taught in schools, provided the instruction is more or less confined to the summer months, and is of a strictly practical nature. There is not the smallest difficulty in obtaining actual examples of plants whereupon to demonstrate the more important facts of botanical science; and there is, therefore, absolutely no excuse for teaching this subject from books. Under any circumstances it is more than doubtful if any benefit is gained by extending botanical instruction in schools beyond the simpler facts of vegetable organography and physiology, along with, if possible, some acquaintance with the commoner wild plants of the country. Botany is so overlaid with technicalities that it does not seem advisable to go beyond this. The authorized text-book, Dr. Asa Grey's "How Plants Grow," is an undoubtedly good book, but has several disadvantages. The flora, which occupies one-half of the work, might profitably be omitted, and the work is not distinctively Canadian. At present no better text-book could perhaps be obtained, but I trust to see ere long an indigenous work on this subject by some native botanist, which will more fully meet our wants. The teaching of Natural History in schools is attended with considerable, but, I think, not insuperable, difficulties. Biology, or the science which treats of the laws and phenomena of animal and vegetable life, can be taught without much difficulty, but the teaching of systematic zoology is a far harder matter. Still, if only the practical method be adopted, zoology would prove a most useful branch of school education. If the teacher would simply teach to his pupils the peculiarities of all the common animals, domestic or wild, which he can get hold of, much would be gained. In this way a basis would be formed for the prosecution of deeper and higher studies in zoology. The pupil should study *types* instead of *groups*, and should study these practically; and there is really little difficulty in obtaining characteristic examples of the leading classes of the animal kingdom. When once this is understood, zoology can be taught with profit, and every large school can readily accumulate specimens of the comparatively few types of animal life required for this mode of instruction. In the meantime it is, perhaps, best

to confine the teaching of zoology almost exclusively to what would commonly be understood by the term "Biology." The authorized text-book of Natural History, Mr. Ellis Davidson's "Animal Kingdom," is probably as bad a work upon the subject as could have been selected. It is crowded with inaccuracies and mis-statements of every sort and kind; its style is most objectionable, and it exhibits conclusive evidence that its author has neither enjoyed the advantages of a classical training, nor has even a moderate knowledge of the laws of English composition. Altogether it is entirely unsuited for its ostensible purpose, or, indeed, for any purpose that appears upon the surface.

Geology is a subject which might advantageously be taught in schools, and its omission is quite inexplicable. It has most important bearings upon various departments of practical life (as, for example, husbandry), and it can very readily be taught practically, finding its illustrations in every railway cutting, brook course, or mountain side. It has also most intimate and important relations with the subject of Physical Geography, which may, indeed, be regarded as nothing more than the Geology of the present. The number and excellence of the introductory text books on this subject render it invidious for me to name any one in particular, but it is questionable if Professor Page's "Introductory Text Book of Geology" has ever been surpassed for teaching purposes.

Physiology, though in many respects a subject of great importance, can only be taught with considerable difficulty in schools. Comparative Physiology can be best taught in connexion with Natural History; and the more special departments of Human Physiology should only be touched upon within certain very definite limits. In any case, physiological teaching is useless, unless illustrated with numerous diagrams. As regards text books, Cutler's "First Book on Anatomy and Physiology" may be in most respects commended; but the little book entitled "Our Bodies," by Mr. Ellis Davidson, is open to the same censure as the work by that author on Natural History. It is the production of a writer who has no practical acquaintance, and but a very imperfect second-hand knowledge of his subject, and who labours under the additional disadvantage of a marked want of literary training.

As regards Mechanics, it may be questioned if this subject can be profitably taught in schools, except by the aid of mechanical models and diagrams, such as are seldom available. The elements of Natural Philosophy, however, may be seasonably and advantageously taught to advanced pupils, and there is no difficulty in obtaining suitable text-books on this subject.

Lastly, as regards Agriculture, it is chiefly of importance to note that this subject is not a *Science* at all, in the strict and proper acceptance of the term. Agriculture is what is sometimes, though inappropriately, termed an "Applied Science." It is an "Art." In other words, Scientific Agriculture consists in the application to husbandry of the sciences of Chemistry, Natural History, Botany, and Geology. These sciences can, as regards their elements, be taught with profit in schools; but agriculture can only be learnt upon the farm, and should find no place in ordinary school education, nor indeed in any course of study which cannot be carried out and enforced practically. Holding this view, as I do very strongly, it seems unnecessary that I should offer any opinion upon the merits of the authorized Text-book of Agriculture.

In closing this imperfect address, I can merely thank you for the attention with which you have listened to opinions in which you may find yourselves, perhaps, in some cases unable to concur. The subject is one upon which probably no two men think exactly alike; and I am far from supposing that my own views are altogether free from objection. I have, however, felt it my duty to express my views upon this important subject with perfect candour, it being better not to speak at all on such questions than not to speak freely and unreservedly. I can simply hope that if we should differ, we may "agree to differ" without any diminution of mutual respect. Votes of thanks were unanimously passed to Professor Nicholson for his ably written paper, and also to Professor Wilson for reading the same.

SCHOOL ORGANIZATION.—Mr. Inspector Miller, in introducing his subject, remarked that if teachers found their school not properly organized under the supervision of the School Inspector, he (the teacher) should set about organizing the school himself according to the limit table, so as to have the work of the school placed on a proper basis; until teachers do so, they would not be doing justice to themselves or those placed under their care. Thorough examinations should take place, and a complete record kept of all work done in the school. He dealt with the subject of tests. Teachers should endeavour to make their pupils believe they were earnest in their work. He considered it was better to give short lessons to pupils than long ones. The teacher should do all in his power to establish a good feeling between himself and his pupils. A teacher should devote much time to review, which would help him in his

after studies. There should be a time-table kept in each school. A class-book should be kept in which to keep a record of the work of each class on every day of the week, and every month the pupil should receive a report as to the progress he had made in the different branches of study. General registers should be kept. He deprecated teachers allowing pupils to do the work they (the teachers) should do. If they did not do their work themselves they had better not do it at all. The speaker further dealt with school organization. A desultory conversation ensued as to matters in connection with school organization. A unanimous vote of thanks was passed to Mr. Miller for his address.

EUCLID AS A TEXT-BOOK.—Mr. Thomas Kirkland, M.A., read a paper on Euclid as a text-book. He criticised Euclid's defects, while admitting the benefits arising from a properly conducted study of Geometrical science. He argued that there was strong presumptive evidence against the value of Euclid as a text-book from the following facts: That it has been virtually abandoned on the continent of Europe and in the United States, being retained mainly in England and Canada; that it was written nearly 2,000 years ago, and therefore must be very imperfect on account of its not embodying late discoveries; and that it was not intended to serve the purpose of an elementary text-book at all. The faults of Euclid were then grouped under the following heads:—Phraseology, method, matter and particular doctrines. The phraseology was condemned as being verbose, especially in the definitions, as well as stiff and formal; the nomenclature was antiquated and infelicitous; and Euclid was condemned for his want of generalization in the use of terms. His method was described as being impaired by the undue limitation of the number of his first principles, by the rejection of hypothetical constructions and the refusal to examine the properties of a figure before the construction is actually effected; by the neglect of the method of superposition, of which he might, with advantage, have made more use; by there being no explanation given why any particular course is adopted; and by the absence of very proper classification. Such fundamental defects, it was argued, could not be remedied by an annotated Euclid, or Euclid with a commentary. They strike at the very root of the matter, and necessitate treatment of the subject for beginners, on different principles and by different methods. In matter, Euclid was described as erring in his first principles, both on the side of excess and defect. Some of his definitions were mere statements; others were not definitions at all, as they did not explain the terms; others were mere verbal definitions; while others were properly theorems. Defects were pointed out in both postulates and axioms, while it was shown that the elements contain a considerable number of superfluous propositions, while they omit some which they should have included. In many cases the proofs might be simplified by adopting a different mode of demonstration. Under the head of particular doctrines the deficiency in Euclid's treatment of angles, parallels and proportion was dwelt upon. The definition of an angle should have been made to include angles equal to and greater than two right angles. The many attempts made to improve upon Euclid's treatment of parallels show that it has always appeared unsatisfactory to mathematicians. His definition of proportion was characterized as unnatural and a violation of common sense. In opposition to those who argue in favour of retaining Euclid as a text-book, it was urged that the pressure of educational work was too great to admit of teaching errors merely for the purpose of correcting them, and that in many cases the errors would remain fixed in the learner's mind, while the corrections would be forgotten. The practical objections to Euclid were then dwelt upon. Prominent amongst them was the discouragement entailed on beginners by the use of so defective a text-book. It was further urged that boys might learn Euclid without becoming proficient in geometry, as they often failed in the application of principles, their failure being due largely to his defective method, while the mastery of his text takes up so much of the pupil's time, that very little is left for acquiring a knowledge of practical geometry. Against the argument that Euclid supplies an admirable mental discipline, it was urged that the acquisition of knowledge and mental training are rather separable in idea than in fact, while geometry, taught by a proper method, might be made equally available as a means of disciplining the intellect, while the knowledge of the science was far more readily and accurately acquired. Moreover, it was questioned whether the study of Euclid was such an excellent training for the reason, inasmuch as the type was imperfect. While his argument was ever faultless, inflexible, incapable of reply, it was conveyed with unnecessary prolixity and verbosity, and with a stiffness of form which is never found in scientific reasoning or in common life. An able and interesting paper was wound up by a caveat against applying to geometrical science the exceptions taken to Euclid's method of treating it, and by attention being called to the fact that

the arguments against him were cumulative, and were, when taken together, more than sufficient to sink any book not sustained by prejudice engendered by long usage and undisturbed possession of the educational field. A cordial vote of thanks was given to Mr. Kirkland for his paper. Mr. Sullivan pointed out that though efforts had been made to improve Euclid, he had been returned to again in many quarters. Dr. Kelly, Inspector, said that the career of two thousand years in every country was a strong testimonial in its favour. It was not quite correct to say that the book was quite disused in France. He thought there was no process of reasoning so satisfactory to the student as that of Euclid. Mr. Inspector Glashan also spoke in favour of Euclid's style of definition and argument. Mr. Hunter remarked that he was unable to see that any book intended to supersede Euclid was at all calculated to do better what the old book did so well.

"COMMON SENSE OF LOGIC."—Dr. McCaul spoke of the honour he felt in being asked to address the Association, and of the difficulty he at the moment felt in choosing a subject on which he should address them, or whether it should be an address or lecture. Having been a teacher forty years, it occurred to his mind whether he should not address the Association on the duties and responsibilities of teachers; but from this he thought no good would arise, for he had no experience in the department the teachers were most engaged in. The next subject which presented itself was one in which he felt a deep interest, that was archæology, archæological treatment of school teachers; but this might be more abstruse than useful, and whilst agreeable to himself might not be so to others; he therefore determined on a conversational lecture, for he believed it was the best form by which information can be gathered. The subject he had selected was "Common Sense of Logic." In treating with this subject he thought it was scarcely necessary to mention that there is a strong prejudice against the study of logic, in fact there were people who believed that a knowledge of logic was of no use in life; indeed, some persons went so far as to think that the mere fact of a man being a logician was a proof that he was something akin to a swindler. He trusted that he would be able to persuade them that there was a good deal of common sense in logic. For every nine persons who had what is commonly termed genius, he did not meet one who had common sense. The mastery of reconde theories was of little value, unless one was able to apply them. The invention of logic had been ascribed to the philosopher Leno. The great object the ancient philosopher had in view in cultivating it was to bring their disputes to a termination. These men were at the present day often spoken of with contempt, as being ignorant and shallow. This was a great mistake, as the ancient philosophers were men of great learning and research, and this was shown by what they accomplished in relation to religion, while labouring under the disadvantage of not having the light of Christianity. These men plunged boldly into the mine of uncertainty and drew forth sparks of shining life. They first inferred the immateriality of the soul from the fact that matter was incapable of reasoning, and from this they came to the conclusion that the soul was immortal. They then went a step further, and held that there must be a day of judgment. The lecturer then proceeded to say that the ancient philosophers in inventing logic did not intend to bring forward any new mode of reasoning. Logic is no new mode of reasoning. Logicians boldly say that a man cannot reason except in a certain way. Some men do it intuitively, and others from knowledge. The philosophers of antiquity believed that a man must speak of something; it was entirely a modern invention for a man to speak of nothing. The lecturer then proceeded to explain in a popular style the elements of logic, shewing the nature of syllogisms, premises, &c., &c. *En passant*, and illustrative of the subject, he gave a brief and humorous outline of the play of "Clouds," the production of the comic poet Aristophanes, and touched upon the school of sophists, who professed to teach men to convert the weaker argument into the stronger. In conclusion, he assured his hearers that they would find it worth their while to study the science. As a system of mental gymnastics there was nothing to compare with it. They must, however, take care not to expect a study of logic to give them knowledge. It was of great service for a man to possess a pair of scales, but if he wanted to weigh butter on them, he must first obtain the butter. A cordial vote of thanks to Dr. McCaul having passed, he said that he had great pleasure in being present at this meeting of teachers, for he had been a teacher more than forty years, and he might astonish them in stating, although forty years had elapsed, he would not select any other profession in the world than teaching.

SUPERANNUATED TEACHERS.—Mr. J. Campbell, chairman of the Public School Teachers' Committee on the Superannuation Fund, reported, That having examined the proposed amendments of the School Bill of 1873, with reference to the superannuation fund, the Committee were of opinion that the following changes in the Act

should be asked for:—1st. That every teacher who has been worn out in the profession, or who has taught 25 years, or who has arrived at the age of 55 years, be entitled to the pension, even though he may not have become infirm. 2nd. That any teacher retiring from the profession shall be entitled to receive back from the Chief Superintendent the whole of any sums paid in by him or her to the fund, through the P. S. Inspector or otherwise. 3rd. That the annual allowance to any superannuated or worn-out teacher shall not be less than six dollars for each year that such teacher has taught in a Public or High School in Ontario. Mr. Anderson contended that a teacher, on leaving the profession, should not be permitted to draw upon the Superannuation Fund to the full amount he has paid in to it. He held that teachers are placed on a better footing than Government officers, in regard to superannuation. Mr. William Johnston spoke forcibly against the principle of compelling the teachers to pay to the fund; granting that the end was laudable, but the means of obtaining it objectionable. On motion of Mr. McAllister, seconded by Mr. McCown, it was agreed "That, in the opinion of this section, the compulsory clauses of the School Act of 1871, which relate to the Superannuation Fund, should be repealed as soon as practicable." The 1st and 3rd clauses of the report were adopted, and the second clause struck out. On motion of Mr. Mackintosh, seconded by Mr. Ferguson, a Committee consisting of Messrs. Lewis, McQueen, and the mover was appointed to wait upon the Attorney-General to lay before him the expression of the Public School teachers.

MODEL SCHOOLS AND TEACHERS.—Mr. Macintosh presented the report of the Committee on model schools and teachers, which was as follows:—1. That as teaching is a profession, its members require professional training, and that no teacher should receive a certificate who has not received such training. 2. That in order to provide such training, some existing public school in each electoral division of the county, elected by the Council of Public Instruction, on the recommendation of the Public School Inspector, be constituted a Model School, and that all candidates for third class certificates who have not previously taught a public school for three years, be required to receive a training as pupil teacher in some such Model School for that period. 3. That the head-masters of said Model Schools be first-class certificated teachers of at least five years' standing. 4. That Teachers' Institutes be established in each county. 5. That each County Teachers' Association having regular meetings at least quarterly, be constituted a Teachers' Institute. 6. That an Inspector of Teachers' Institutes be appointed, whose duty it shall be to visit each Institute at least annually, and conduct its proceedings during the whole of one of its sessions. The report was adopted.

INSPECTORS' ASSOCIATION.—At a meeting of the Inspectors a base of union between the Inspectors' Association and Inspectors' branch of Teachers' Association was unanimously adopted, and a union thereupon effected. Officers, J. J. Tilley, chairman; W. R. Bigg, secretary; executive committee, Dr. Kelly, W. Carlyle, H. L. Slack, E. B. Harrison, J. J. Tilley.

MODERN CULTURE IN SCHOOLS.—Mr. J. Howard Hunter, M.A., spoke of the progress of school culture, referring to that which existed in Henry VIII.'s time, and to the present system. The turning of the tide in modern culture is, in Ontario, deeply marked by the School Act of 1871, and the University Act of 1873. He remarked that nothing of a practical character has yet been accomplished by the Senate of the University; he wished there was even a hope of the revision of the curriculum being at once proceeded with. What Kant said in the 18th century of German schools of learning is equally applicable to the Toronto University; they needed not show reform but quick revolution. As the new Act is intended to involve all needful academical reforms, it would evidently exert a most wholesome effect upon the University Senate if its proceedings were opened to the public. The friends of educational progress, who appear to be overmatched by the strategy and volubility of the reactionists, would find themselves strengthened by the sympathies of the graduates and the general public. Representation, when unaccompanied by an accurate report of what our representatives say and do, certainly appears a merry jest. Important changes in the University curriculum were required of the institution, to command the hearty sympathy of educationists. The matriculation examinations ought to represent, not the state of human knowledge in the days of Queen Elizabeth, but the enlarged culture of the days of Victoria; it ought to represent a good general basis of knowledge, and should include some acquaintance with the science of observation and experiment. At present the examinations are overweighted with classics. He did not refer to the area of classical text required, but to the further exaction of pedantic rubbish, quite foreign to the general spirit of the authors, and which tends to withdraw the student's mind from the liberal banquet before him. In speaking of teachers, Mr. Hunter said, it will soon

be difficult to conceive why the teacher is so designated, for in his case "the whole duty of man" is held to consist in the filling up of blank class-books or blank returns, and in the unflinching use of the authorised text-books. He considered there was a repressive system of education now being attempted to be carried out in Ontario, and it is utterly out of tune with the voice of modern times. The Educational Department were conscious of the fact, and were seeking to enforce its measures by exacting from the School Inspectors, not only the public reports intended for the eye of Parliament, but secret reports also, which meet the eye of only the chief superintendent or of his deputy. It was deplorable that in Ontario they should at this stage of progress have to discuss questions of the character spoken of; that their contest should be not with ignorance, but with the official representatives of education.

A cordial vote of thanks was passed to Mr. Hunter for the paper read.

EXPLANATION.—Mr. McGann spoke of some remarks having been made respecting his conduct as Treasurer of the Association, and of his having been called on to settle up an item which was omitted from the audit. It was explained that Mr. McGann's conduct as Treasurer of the Association was irreproachable, and that he had overpaid his account by \$8. Any loose manner in the management of the accounts during Mr. McGann's treasurership only took place during his absence in the old country.

THE MORAL ELEMENT IN COMMON SCHOOL EDUCATION.—Prof. Goldwin Smith, who, on rising, was given a most enthusiastic reception, then delivered the following address:—

"Among the various topics connected with Education, which might be brought before a meeting of teachers, I have chosen as one deserving of special attention, 'The Moral Element in Common School Education.' I mean the effect of the system upon character as distinguished by its effect upon intellect.

The circumstances of our age are such that, if our education is common, it cannot be religious. For my part, I think this a misfortune. Not that I think much is to be gained by teaching children, or anybody else for that matter, mere dogmas and formularies; but I think it a misfortune that we should not be able to introduce into the common education of the young whatever is highest and deepest in our motives to right conduct, and to the formation of a virtuous character. But so it is. This is a period of religious division and decomposition; of splitting up into sects, or of total eclipse of faith. The only great mass which remains united is marvellously held together by tradition and authority; whenever it is exposed to the influence of free knowledge or free discussion, it gives way like the rest. So universally is this the case that some begin to say that the end of the theological period of history is come; that religion is about to give way finally to science as the guide of life; and that spiritual motives will be finally superseded by motives having no relation to anything but the good or ill of this present world. For my own part, I am not of that opinion. I believe that the 'Sun of Righteousness,' though now hidden from many by a cloud raised mainly by Byzantine and mediæval exhalation, will shine bright again upon the eye of the soul—that the great vital truths of religion will become clear again, clearer than they have ever been before, and that we shall see more distinctly than ever the reality and the paramount importance of the spiritual life. But in the meantime we are divided and uncertain, and a religious education common to all is out of the question. Separate schools we might of course have for every sect or shade of opinion. But to say nothing of the ruinous waste of resources, the separate schools are morally, I am persuaded, no better than the rest. The dogma which these schools teach is morally ineffective. It is before us and not behind us that the land of promise lies. Clouds may surround the dawn of the day of science; but the moonlight of the Middle Ages, however romantic, will guide our feet no more. I have seen that way tried at Oxford by intellects as powerful and natures as high as are ever likely to surrender themselves to imagination and tradition; and failure, signal and decisive, was the result. Nor do I attach much value to any slight or furtive recognition of religion in the way of a deodorized prayer or Scripture reading. It seems to me better to say at once the school is secular, and does not presume to meddle with things to which it cannot do justice. The supreme value of all that which concerns our spiritual life we may teach; and we inculcate the habits which lead to such truth—openness of mind, candour, sincerity, respect for honest inquiry and for its results. We may make the child feel that life is a serious thing. Religion itself we must let alone, and leave to home and to the pastor. But there may still be in our education a valuable moral element, both in the way of teaching and of influence; and it is useful to review this element, to see whether we are making the most of it, and whether it is well adapted to our circumstances and calculated to check the special evils of the particular state of society in which we live.

First of all, however, a word must be said upon the good old text about the silk purse and the sow's ear. Before you undertake to estimate the work or to blame the shortcomings of any set of teachers, or of any educational system, you must ask with what sort of pupils the teacher or the system has to deal. To use a homely metaphor, if, when we have done our best, the potato is not peeled very clean, the fault may lie wholly in the peeler, but it may lie partly in the potato. When fond parents find fault with the goods manufactured by the teacher, they should consider, if it is possible for paternal and maternal love to consider, what sort of raw material they sent him. If a child were sent with a crooked spine, teachers would hardly be expected to set it straight. And when a child is sent with a temper spoiled, and a brain clouded through the injury done to its stomach by cramming it, or allowing it to cram itself with all kinds of trash, can it be expected that these effects of physical maltreatment will be cancelled, that the soured temper will be restored to sweetness, or the clouded brain cleared by any skill in teaching, or by any system of education you can desire? If such a child learns anything, and is trained to any sort of decency in behaviour, is it not as much as the parent can expect? The Governor-General was reported the other day to have made some remarks on the fractiousness and rudeness of the American children you meet on the cars and steamboats. The travelling American is not the best specimen; and when you come to live in American homes, you will find many of them as well governed as any you see elsewhere. Still, the general unruliness of children in the States is a fact which cannot be denied; and as the social conditions are pretty much the same, I suppose we are not safe against the contagion here. It is the excess of the democratic spirit in their raw democracies which extends to the household, and prevents the due exercise of authority there. Added to this is the premature mannishness produced among the boys in these growing commercial countries by the prospect of early independence. Early independence is a great thing in itself, but the effects on domestic relations and private character are not always pleasant. I have seen a whole party of schoolboys, mere children, waiting for a street car, go into a neighbouring tavern to get their nips, and you find cigars in the mouths of mannikins not much bigger than a monkey. The nippers and smokers, when at home, are probably not remarkable for paying respect to grey hairs. Here, again, it is only to a very limited extent that the school can be expected to contend against the general bent and bias of society. We must look mainly to other influences, which, as things settle down in these new communities, will probably come into play. It is to be hoped, among other things, that some day Government itself, the centre and pattern of all authority, will become again an object of reverence and a source of reverential feeling, though without ceasing to be based upon the national will. While it is a partisan fight, and a domination of such persons as nature selects by that mode of struggle for political existence, the evil influence will be felt in all our relations and in every home. The direct moral influence of learning to read and write has perhaps been overstated. Statistics are produced to show that the majority of criminals are ignorant. But is their crime the consequence of their ignorance, or are both the consequences of their having been brought up in the gutter? Besides, when I was a member of a Popular Education Commission in England, it came under my notice that these statistics were vitiated by another unsuspected circumstance—a strange tendency on the part of criminals to conceal the fact of their having received education. Perhaps they thought it might be deemed an aggravation of their case; at all events, the chaplain of the gaol found that prisoners set down as unable to read or write could really do both. That ability to read and write may be used for very objectionable purposes we have, unfortunately, proof enough. Education gives a man larger powers, which may be used for good or evil. It opens new avenues to his mind through which good or evil influences may find their way. There is happily, however, no doubt on which side practically the balance lies. A comparison of the educated with the uneducated nations demonstrates that in the gross education leads to virtue. Perhaps there is no nation in which the distinction between intelligence and morality is more marked than among our neighbours to the South; yet no one can have lived among the Americans without being convinced that their intelligence is on the whole a moral force. Most direct, and probably most effective, among the moral elements of the system is the discipline of the school. It is of especial importance in a country like ours, where, as I have said, authority and respect for authority are impaired by the excess of the democratic spirit, but yet unchecked by political experience, and still in a state of violent motion against the well-remembered evils of despotism and privilege in the old world. It is needless to tell you, who know so well, in what a good discipline consists. Reasonable laws, such as the child, as its intelligence opens, may clearly see to be for its good, inflexibly enforced, or

relaxed only for reasons as strong as those for which they were made. Nothing needless and vexatious either in the way of rules or interference. Gentle admonition when an offence is not wilful—reproof when necessary, but measured and appropriate to the offence. In the last resort punishment, not inflicted in anger, but so inflicted that the culprit shall fear to offend again. Such are the well-known and commonplace elements of a good discipline in schools or elsewhere. It is well to remember that reproof as well as punishment may be made ineffective, and worse than ineffective—it may be made the means of deadening a child's moral sensibility by indiscriminate use. If we would have a child mind what we say, we must let him see that we mind what we say ourselves. In children obedience itself is a virtue, and a habit which it is necessary to cultivate; yet so far as their understanding goes, it is well to let them know the reasons for the laws they obey, especially in a country where they are law-makers *in posse* themselves. They will thus see that punishment in case of breach of the law is necessary, and brought on them by their own act. Perhaps an hour or two in the course of each school year might be well employed in explaining to the school the reasons of the discipline they are under. A system of school discipline based on these obvious principles, and administered with steadiness, may produce a good and lasting effect on the character of our young democracy.

It is now an axiom that as much of kindness and even of affectionateness should be infused into the system as possible, and that the child should be allowed to feel as little difference as possible between school and home. Perhaps in many cases already, if the child feels a difference, it is not to the advantage of home. But still school, compared with home, must be a place of discipline; it cannot be all sweetness and picnics. Men in after life do not work for love of labour, but under the pressure of need; and I am afraid children will never learn their lessons entirely from love of learning. The idle will need the spur, and the unruly will need the rein. It will be well if spur and rein can be so applied as to improve the character instead of injuring it, as they did in the old flogging times.

Of the prize system, so much discussed, this perhaps may be said that, as the world now goes, competition is the law of after life, and competition at school may at least be fair, which that of after life is often far from being. But, on the other hand, there is truth in the objections urged in a poetic form by Cowper against the use of emulation as a stimulus.

'Boys once on fire with that contentious zeal
 Feel all the rage that female rivals feel;
 The prize of beauty in a woman's eyes
 Nor brighter loom in them the scholar's prize,
 The spirit of that competition burns
 With all varieties of ills by turns;
 Each vainly magnifies his own success,
 Resents his fellow's, wishes it were less,
 Exults in his miscarriage if he fail,
 Deems his reward too great if he prevail,
 And labours to surpass him day and night,
 Less for improvement than to tickle spite,
 The spur is powerful, and I grant its force;
 It pricks the genius forward in its course,
 Allows short time for play, and none for sloth,
 And felt alike by each, advances both;
 But judge when so much evil intervenes,
 The end, though plausible, not worth the means.'

On the whole, I would submit that the principle of rewards, given to all who come up to a certain standard, is better than that of prizes given by competition, and if the stimulus afforded by it is not equally powerful, I believe it is powerful enough.

I put the moral influence of the system before that of the character of the individual teacher, because I believe that in a general way more is to be hoped from system in all its departments than from the individual. The ideal teacher—the teacher who is painted in all essays on education, and whom school trustees and parents expect to get—may be defined as an archangel at five hundred dollars a year. But even the more attainable excellence, the excellence of the man who has a special genius for education, is as rare as any other kind of excellence. Among all the eminent and highly paid teachers I have known, I think I could count on the fingers of one hand those who had a special genius for their calling. There is no gain laying on ourselves, or on others, burdens of expectation and responsibility too heavy to be borne. We only discourage ourselves from doing that which is really within our power. The most that can be expected of an ordinary teacher is that a good system being given, he or she shall faithfully carry it into effect. For this it will suffice to have, in addition to common sense, diligence, punctuality, ordinary good temper, and ordinary self-control, without the magnetism and electricity which we are sometimes told it is almost criminal in a school teacher to be without, though magnet-

ism and electricity are not often found in parents or trustees. With the qualities I have named and a tolerable system, a teacher may be sure that he is improving the character as well as informing the minds of children, and doing a good work in both ways for the commonwealth, though he may not be a village Arnold. The very numbers would render it impossible for a public school teacher to be a moral missionary to each child.

The moral parts of the teaching are moral science, social science and history. Physical science has a moral aspect, as it impresses on us the necessity and duty of conformity to the physical laws of our being; but this idea, though its influence in the adult world is daily growing, hardly yet penetrates the mind of a child.

The modicum of moral science communicable to children is not perhaps yet very potent. A child knows what it is to be good; the great thing is to make him desire to be good. And this is to be done, not so much by analysing goodness for him as by presenting to him its image in a way to make it the object of his affection. This may be done either by history and biography or by fiction.

It is time that our school histories should be written on some definite principle, and with some definite object; for at present they are written for the most part without either. Yet their character is not without importance. I doubt whether a more active, or a more virulent poison was ever infused into the veins of a nation than that which is infused into the veins of the American nation by such school histories as are used in the United States. What can be expected if people are fed through their childhood on such stimulants of national vanity and malignity? But our common school histories, though not positively noxious like the American, are generally poor stuff. If they are not poison they are sawdust—dry epitomes with mechanical duties devoid alike of power and of nourishment. It would be almost better that children, instead of being thus repelled from the subject, should pick up their notions of history as they can. There may be said to be two elements in history, the philosophical and ethical. The philosophy of history is hardly yet in a condition to be presented to the young, but of the ethical part more might be made by simple and vivid descriptions of great characters and great events, such as would fix them in the imaginations and touch the heart. History thus taught would be no ineffective school of public virtue, especially of the love of our country, which is specially needed to correct the somewhat selfish and self-isolating tendencies of our race, and which we may cultivate in its good and moral side without running into the extravagance of Americans. Examples of private virtue will be furnished by biography, and I believe that well-written lives such as that model of biography 'Southey's Life of Nelson,' make a real and lasting impression on the minds of the young. I am almost afraid to speak of fiction. Charles Kingsley said the other day that he would as soon think of eating a dead dog as of reading a sensation novel. The amount of dead dogs people are daily eating is beginning to tell, depend upon it, on the mental habits of the eaters. But good tales are, and always have been, powerful instruments of moral education, both for children and for adults. I mean by a good tale not a *goody* tale, rewarding precocious virtue with plum-pudding, but those which present moral beauty in a winning way, and enlist the child's heart on the side of right. Few literary men have rendered greater service to this generation than Hans Andersen. I cannot help thinking that if instead of the dry reading to which children are condemned in reading books, it were possible to introduce a few good short tales, something might be done towards giving a right direction to their sympathies and tastes.

There is reason to hope that the day is approaching when Social and Economical Science will be made available for educational purposes in a way that will have a good effect on national character. I do not mean dry political economy, or the things that are discussed by Social Science Associations. I mean the great laws of our social and economical being. The one great lesson now taught our pupils from childhood upwards is to rise in life. It is not only the prize system that fosters this notion in our young citizens; it is instilled into them at every pore. To clamber over the heads of our fellows is the only way to respectability and happiness; to exist contented and do your duty in the station of life to which you are called is degradation and misery. Thus education, especially in the United States, becomes a preaching of universal discontent. Hardly a farmer's child there is willing to remain quietly on the farm. It would be injurious to the commonwealth as well as to the individual to check honest ambition, whether commercial or of any other kind. But the number of those who can really rise must be small. The great majority must, after all, look for their happiness in the sphere in which they are born. They must find their dignity and their comfort in their position as members of humanity, and as fellow-workers in a work the lowest part of which is as necessary as the highest, or rather in which there is no lowest or highest, but all the

parts and all the workers are really equal, and the wages of all who do their appointed work will be the same in the end. This is the lesson which social science and political economy, rightly studied, are calculated to teach. They show our relations to each other, our dependence on each other, and the equality of all, except idlers, in the social and industrial frame. A calming hand might thus be laid upon the feverish ambition and cupidity which, amidst the exciting influences of a new commercial country, threaten alike the virtue and the happiness of society.

I need not dwell upon the effects of drill and of regular and rhythmic movements which have a certain influence on character, or on those of decorations, pictures, and so forth, which give effect to character through the taste. But I would say one earnest word in favour of music, all the more as it was unhappily not taught in English boys' schools when I was a boy. Surely it is an influence greatly needed by human nature everywhere, and above all in these restless, eager, hard gold-digging communities in the new world. That the love of music need not interfere with practical energy, the land of Bismarck and Von Moltke is a proof. It conduces to domesticity, and it may supply one antidote to that most fatal of all the plagues that have ever ravaged humanity—the growing passion for strong drink.

There is no use in pitching anything too high. The first duty of a school must be to teach the elementary subjects which it purposes to teach, and by its results of that kind the school must be mainly judged. But the moral effects are not to be left out of sight. We must remember, and in times like these it behoves us especially to remember, that we are training not only the trader or the mechanic, but the Canadian and the man."

Mr. J. Hunter moved a vote of thanks to Professor Smith for the admirable and practical lesson he had just given to them; seconded by Mr. Harrison; carried amid applause.

The Chairman announced that Professor Smith had consented to become President of the Ontario Teachers' Association. (Applause.) Professor Smith thanked them for the honour done him. He would be most happy to do anything he could to help the Association. (Applause.)

TOWNSHIP BOARDS v. SCHOOL SECTION BOARDS.—Mr. Jas. Turnbull, B.A., read a paper on the above subject. He remarked that it would be unjust to undervalue the services which the present School Section Boards have rendered to the Province in the cause of education. The following is a recapitulation of the supposed disadvantages and advantages in the Township Board system:—The change has not been demanded by the mass of the people. The difficulty in making a proper division of school property. The lack of a suitable distribution of the trustees, and consequent neglect and favouritism. Poor and small sections assisted by the more wealthy part of the township. Let what is considered by some well enough alone. A desire to retain power, and a fear that the new Board would not take sufficient interest in all the schools. Advantages:—Economy in time and money and in the number of school officers. The convenience to parents by the abolishing of section boundaries. The saving of expenditure in having a sufficient number of school-houses, and no more, in each township, thus effecting a saving in the erection of buildings, keeping them in repair, with their grounds, &c., and economy in the number of teachers employed. The permanency of teachers in their position, tending to increased efficiency in the schools and a saving of time on the part of the pupils. An impartial tribunal, from which the teacher will never fail to secure justice, which he does not always receive at the hands of the present Boards. Payment of salary quarterly. Teachers' residences. Increased remuneration and consequent adherence to the profession, if not for life at least for a greater length of time than is usual on the part of many at present. The example of many of the States of the Union, which have adopted the system with excellent results, there being no tendency to return to the old system. Increased zeal on the part of inspectors, and more efficient supervision in conjunction with the Board in each township. A superior school in each township, to which the older pupils could be promoted, introducing the principle of township competitive examinations, and serving, to some degree, as a sort of Normal and Model School for the whole township. A vote of thanks was unanimously passed to Mr. Turnbull for the able paper read.

A discussion ensued. The subject was considered an important one. There were many practical objections to the present Board system, but there were a few obstacles in the way of changing it. Mr. Inspector Carlyle, of Oxford, said if there was a change it would be the emancipation of trustees and teachers. The schools were at the mercy of local prejudice, the teachers were under the thumb of the children, backed up by parents, and who in their turn make the trustees back them up. Mr. Inspector Grote said he felt very earnest on this question. If there was a change in the present system the people would have more control over the schools than

they now had. There were not only local prejudice but local differences in having a change. He spoke of two trustees employing a teacher two years in a school against the wishes of nine-tenths of the people in the place. Until they could show the people the benefit of a change, they would not get rid of the present system, which he contended was working against the efficiency of schools, and there was no question but the money voted for schools was thrown away under the present system. He advocated a central Board. Mr. Inspector Smith spoke of the arbitrariness of trustees, and referred to the question of equalization of the assessment in townships for school purposes, mentioning that in one township the people were paying nine mills towards the school, whereas in adjoining townships the people only paid one and a half mills, and had the same school accommodation. Several other speakers condemned the present system, and considered that there should be an immediate change.

EXPLANATION.—Mr. McMurphy regretted very much his absence from the meeting yesterday afternoon when certain references were made, more especially with respect to the Senate of the University to which the High School Masters had seen fit to elect him. He now took this public opportunity of thanking them for their great kindness in electing him to that learned body, and he would now repeat what he mentioned in his circular sent out, namely, that he would try to faithfully discharge his duties as the representative of High School Masters of the High Schools of Ontario. (Applause.)

RURAL SCHOOLS.—Mr. Ross, of Strathroy, Ontario, stated it was the intention of himself and Mr. McColl to offer a prize consisting of books of the value of \$20, for the best prize essay on "The Necessity of Rural Schools." (Hear.)

TREASURER'S REPORT.—The treasurer, Mr. McAllister, presented the following report for the year 1872-73:—Receipts deposited in Savings Banks, \$58 98; members' fees, \$60 00; copies of Annual Report sold, \$22 90; interest on deposit, \$20 00; Reports sold by treasurer, \$5 00; total, \$150 08. Expenditure—Postage, Secretary's account, &c., \$8 78; printing, \$49 00; expenses of delegates to Protestant Teachers' Association at Quebec, \$24 00; gas account, care-taker of W. S. buildings, \$7 75; balance in hand on deposit, \$60 55; total \$150 08.

OFFICERS OF THE ASSOCIATION.—The following officers were chosen for the ensuing year:—President, Professor Goldwin Smith; Vice-Presidents, J. B. Dixon, J. J. Tilley, W. Macintosh, W. W. Tamblin, J. Kilgour, Robert Quinn; Treasurer, S. McAllister; Secretary, A. McMurphy; Corresponding Secretary, J. Kirkland.

COUNCIL OF PUBLIC INSTRUCTION.—There was a long discussion with respect to the manner of selecting a representative to the Council of Public School Instruction, which will be in the presence of the Association on the passing of the Bill to amend the Public School Act, introduced by Mr. Mowat. Some contended that the power of selecting a representative should be left in the hands of the Executive Committee, whilst others maintained the whole Public School section should convene for that purpose. Ultimately it was decided by a resolution that the Chairman of the Association should be empowered to call a meeting to take into consideration the nomination of a candidate for the representation of the Public School Teachers' Section of the Association. The following are the Representative Council:—W. Watson, Weston, President; H. Dickinson, Brantford, Secretary; R. McQueen, Kirkwall; J. Johnson, Cobourg; R. Macintosh, Campbellford; W. L. Brown, Hyde Park, Ont.; J. Dearnsee, Lucan.

ATTENDANCE AT SCHOOL.—Mr. Inspector Fotheringham moved, and Mr. McCallum seconded the following resolution:—"That the evils of irregular attendance and non-attendance at our Public Schools throughout the Province is of a most serious character, and demands immediate and stringent legislation for its removal."—Carried.

The following is a summary of the paper prepared by Mr. Fotheringham on the important question of school attendance. The paper was entitled: "We in Ontario have flattered ourselves for years that we possess one of the best, if not the best, school system in the world; but when Dr. Ryerson speaks of the 38,535 who entered no school in 1871, as 'an ominous and humiliating item' in our school statistics, he neither uses too strong language, nor does he exaggerate the figures." To show the probable return from our school expenditure, I have made several comparative estimates of work done in cities, towns, and villages on the one hand, and in counties on the other, and do not find the one much more satisfactory than the other; but as it may be urged that private schools and academies in cities, &c., may make the percentage of attendance or non-attendance on instruction which I may bring forward less reliable, I shall confine myself to statistics of counties for the present; and, I fear, we shall find items "ominous and humiliating" beyond what most have dreamt of. The school population of Ontario (from 5 to 16) in the counties in 1871 was 392,559; w may,

as ascertained by facts and calculations, add one-fourth of this number to itself to get the population from 5 to 21. This will give us 490,700 in the counties. The number, of all ages, that entered school in 1871 was 358,895. This leaves 131,804, or 27 per cent., of the school population that did not enter any public school at all! Again, nearly 40,000 attended less than 20 days in the year; and over 73,000 attended under 50 days. All the education these 113,000 children could get in 20 or even 50 days amounts to nothing. We may therefore add over 22 per cent. more to the number deriving no benefit from the educational opportunities provided by the Public Schools. Altogether, therefore, nearly 50 per cent. of our young people are not being educated at the Public Schools. But in addition, over 95,000 in the counties attended under 100 days, and 76,000 attended under 150 days. We may therefore set down 171,000, or 34 per cent. more, as being only imperfectly educated, if regular attendance can be the test. 53,639 attended from 150 to 200 days, and 18,608 attended over 200 days. If these represent regular attenders and successful students, we have nearly 15 per cent. of the school population taking full advantage of the provision needful for popular instruction. To summarize, we have over 244,000 young people reaping little or no advantage from our Public Schools; we have over 171,000 taking only partial advantage; whilst only 72,247 are attending full or nearly full time, 50 per cent. getting little or no education; over 34 per cent. being imperfectly instructed; and 15 per cent. or 72,000 being educated at an annual cost of \$1,383,340. What have we to say for "this Canada of ours" now? "Whither are we drifting?" Have we not been playing "school," like children, only on a gigantic scale? Have we not been working blindfold? Self-blinded? We have borrowed and purchased on all hands. It seems a matter of fact that our free schools have brought with them more irregularity and indifference than were apparent under the rate-bill system. That does not imply that free schools are a failure. It only proves that the necessary concomitants were not provided when the free school system was introduced. Now, we think the figures given above answer in the affirmative the question: Our educational system has failed, and terribly failed. Take, if you will, any ten young men or women, at random, who have taken a regular and ordinary course at a Public School, and how many of them will you find intelligent, fluent and correct in reading, speaking, and writing? Not more than one. Hardly that. Not only do children attend irregularly, but the instruction given has been mostly unattractive, vague, inaccurate and valueless as a training or foundation. The causes of this "ominous and humiliating" state of matters I conceive to be, the indifference of parents, the frequent change of teachers, the unattractive and uncomfortable condition of school houses, the employment of cheap teachers, and great distances from schools, as well as lack of text-books, maps, and apparatus. To remedy the great evil, irregular attendance, our Legislature should enact a more stringent law of compulsory attendance, with provision for the appointment of a truant officer in every municipality, whose duty it would be to punish all parents who shall not send all children from seven to ten years old for six months in the year, and all from ten to fifteen for ten months. Houses should be made as comfortable and cheerful as homes. Filth, disorder, rudeness, should not be associated with the idea of the day-home of the children. They should have the means of social and intellectual enjoyment provided as religiously as the birch has been in the past. It is a shame, a disgrace, the way in which children are huddled, tortured and smothered in most of our schools even yet—dirt on the floors, dirt on the doors and walls, dust on the desks, dust on the sills, on the maps, the windows—outhouses exposed often, and often unfit to use, play-ground unsuitable, often muddy, uneven, exposed—no shade trees, no play-shed—nothing but dreary, tiresome days, theirs at school. And why should not the first question be, "How shall we secure a good teacher for the longest time?" A good teacher is worth his weight every year in silver, if not in gold. A good salary and a good home would make it easy, as a general thing, to get and keep such a man. Education should not be a peradventure. A definite end—the thorough and universal education of the rising generation—with the necessary means, should be made sure, so far as these are at the disposal of the country. The number from counties, cities, towns and villages who entered all colleges, high schools, and private schools in 1871, was 16,000, or about three per cent. of the county population, so that if we suppose two-thirds of these to be county pupils, and two-thirds of those to attend regularly, we have still under seventeen per cent. likely to be thoroughly grounded in education. The conclusion, however startling and however unlooked for, must therefore be faced: We are expending all, or nearly all our energies on less than half of our population, and the rest are growing up in ignorance, and preparing a harvest of crime and shame for our country.

HIGH SCHOOL SECTION.—The following is a summary of the pro-

ceedings of the High School section, which consists of High School Masters:—A discussion arose out of a proposal to revise that clause of the amended constitution which relates to special meetings of sections of the Association; and after explanation of the machinery already provided had been given, the motion to amend was lost on a division. A resolution was offered recommending the omission of history as a test for admission of pupils to High Schools, but on an intimation having been received from the Education Office, that this amendment to the examination scheme had already been entertained, and probably approved of by the Central Examiners, the resolution was withdrawn. The High School regulations were considered and discussed. Mr. J. Hunter moved, and Mr. Wm. Houston seconded, "That it is the unanimous opinion of this section that the 22nd regulation, which relates to the re-examination of pupils for admission to High Schools and Collegiate Institutes, should be withdrawn." Carried. Mr. Tamblin moved, seconded by Mr. J. B. Dixon, that they recommend that all Boards of Examiners for admission into the High Schools and Collegiate Institutes, accept the papers of the Council of Public Instruction for the examination in October next. It was moved in amendment by Mr. W. Oliver and seconded, that in the opinion of this section uniform papers be prepared as proposed in section 4 of the regulations; and further, that such a change be made in the law as to make this mode of procedure imperative, and that in the meantime H. S. section recommend the use of said papers in October next. Amendment was declared lost and resolution carried. Mr. D. C. Sullivan moved, Mr. J. Hunter seconded, that the High School examination papers ought to be transmitted to the Chairmen of the several High School Boards, as the proper presiding officers of the Boards of High School Examiners, and that all duties assigned in these regulations to the Inspectors as presiding officers should devolve on the Chairman of the High School Board. Carried. Mr. G. C. McGregor moved, and Mr. J. Hunter seconded, that clause 9 of the regulations, which refers to the consent of parents, should be omitted as unnecessary. Carried. Mr. McGregor moved, seconded by Mr. J. Scott, that section 13 be amended so as to read, "That four examinations for the admission of pupils into High Schools be held, and that the said examinations be held two weeks after the commencement of each term." Carried. Mr. T. Turnbull moved, and Mr. H. Strong seconded, "That section 19 of the regulations be amended as follows: The attendance of candidates at a High School or Collegiate Institute will not be credited in making the appointment to such school or institute, unless their admission be favourably reported on by the High School Inspectors, as being agreeable to the regulations; but the Head Master of the High School shall have the power to admit pupils provisionally until the first entrance examination thereafter." Carried.

HIGH SCHOOL BILL.—Mr. McGregor moved, seconded by Mr. J. Scott, "That the clause of the High School Bill which provides for the transfer of the powers of the High School Boards to municipal corporations, ought to be expunged." Carried.

MISCELLANEOUS.—The following were elected members of the High School Committee:—Messrs. Mills, Ballard, McMurphy, Hunter, and Turnbull. It was resolved, on the motion of Mr. Hunter, seconded by Mr. McGregor, "That in all intended changes in the regulations of the Council, at least six months' public notice be given of said changes." Mr. Scott moved, and Mr. Crozier seconded, "That in the opinion of this section the High School Bill should provide for each High School a district based on a minimum assessment capable of maintaining it in a state of efficiency." Carried. Messrs. McMurphy, Hunter and Oliver were chosen to form a committee to present to the Council of Public Instruction and to Government the views of the Association, as expressed in the resolutions passed. The Association closed their session by singing "God save the Queen."—*Globe and Mail Reports.*

TOWNSHIP BOARDS.

At the recent meeting of the Middlesex Teachers' Association the following resolution was passed:—"Resolved, that from the unsatisfactory manner in which local Boards of School Trustees advance the cause of education, the teachers of the East Riding of Middlesex would recommend the formation of township boards in place of the local, the same having proved beneficial to the townships which have already adopted such boards."

RETURN TO SCHOOL.

A thoughtful writer, remarking upon the advance of the season and the return of children from the country, says:—"They have had their annual run of six weeks or two months, and are proportionately improved thereby. They come back reluctantly, with pleasant memories of berrying and wading in forest brooks, but yet with

pleasanter memories of home. What shall be done to make the coming year happier for them? Does it not strike those who are acquainted with our educational laws that they are altogether too inflexible? In the public schools, arithmetic is made the one standard of valuation; in our private schools it is languages or something of the sort. The minds of children are as varied as those of adults, and it might be worth while to give each one opportunity for its particular bent. The hint is thrown out for the benefit of whom it may concern. But it is certain that the laws of culture for children are made too uniform and inflexible."—*London Free Press*.

SUNSHINY TEACHERS.

There is a demand for sunshiny teachers. Be sure you always go to your class with a smile on your lips. By this we do not mean that artificial light which plays over the face for a while, and then gives place to a settled gloom or seriousness. But we mean the sweet, genuine reflection of the settled joy and peace of the heart. A smile of this description is the charm by which you secure your children.—*Sunday-School Times*.

I. Mathematical Department.

SOLUTION OF PROBLEMS PROPOSED BY THE MATHEMATICAL EDITOR.

1. In what time could \$25 amount to the same, if placed at 6 per cent. simple, and 3 per cent. compound interest?

By a few trials, the time is found to be between 43 and 44 years; then by the rule of false position, the answer will be $43\frac{1}{3}$, sufficiently correct.

2. $\sqrt{x^3-3} \sqrt{x^2}=4.962x$; Put $b=4.962$; then we have $x^{\frac{3}{2}}-x^{\frac{2}{3}}=bx$. $x^{\frac{9}{8}}-x^{\frac{4}{3}}=bx$; assume $a^6=x$; then $x^{\frac{9}{8}}=a^{\frac{9}{4}}$; and $x^{\frac{4}{3}}=a^{\frac{4}{3}}$. $a^{\frac{9}{4}}-a^{\frac{4}{3}}=ba^{\frac{4}{3}}$; and $a^6-1=ba^2$. $a^5-ba^2=1$. $a=17.4256$, and $x=27.998$, the answer.

3. The time, rate, principal, and gain at compound interest, are equal; required the time.

Let x =each: then $Prt=S$ per question.

$$p=x, r=\frac{x}{100}, R=1+\frac{x}{100}, t=x, S=2x$$

$$\therefore x \times \left(1 + \frac{x}{100}\right)^x = 2x; \text{ divide by } x; \left(1 + \frac{x}{100}\right)^x = 2$$

By the nature of logs. we have $x \times \left(1 + \frac{x}{100}\right) \times M = 3010300$

$$x \times \frac{x}{100} - \frac{x^2}{20000} + \frac{x^3}{3000000} \text{ \&c., } = \frac{30103}{M}$$

$$\frac{x^2}{100} - \frac{x^3}{20000} + \frac{x^4}{3000000} \text{ \&c., } = 693147$$

By reversion $x=8.49824$, the answer.

4. $x^3+y^3=z^3$: find x, y and z .

It is evident that z^3 must be equal to the sum of two cubes. Then the question is, to divide the sum of two given cubes into two other cubes.

Let $z^3=m^3+n^3$, and x^3+y^3 =the cubes sought.

Put $x=m+v$, and $y=n-\frac{m^2}{n^2}v$. Then we have

$$x^3=m^3+3m^2v+2mv^2+v^3.$$

$$y^3=n^3-3n^2v+3\frac{m^4}{n^3}v^2-\frac{m^6}{n^6}v^3. \text{ By addition.}$$

$$x^3+y^3=m^3+n^3+\frac{3m^4}{n^3}v^2+3mv^2-\frac{m^6}{n^6}v^3+v^3=m^3+n^3$$

$$\text{Hence } 3mv^2+\frac{3m^4}{n^3}v^2=\frac{m^6}{n^6}v^3-v^3$$

Multiply each side by $\frac{n^6}{v^2}$ and we have

$$3mn^6+3m^4n=m^6v-n^6v;$$

$$\therefore V=3mn^6+3m^4n^3=\frac{3mn}{1} \times \frac{n^3+m^3}{m^6-n^6}=\frac{3mn^3}{m^3-n^3}.$$

$$\text{Then } x=m+\frac{3mn^3}{m^3-n^3}; \text{ and } y=n-\frac{m^3}{n^2} \times \frac{3mn^3}{m^3-n^3}$$

$$\therefore Z^3=\left(\frac{m+3mn^3}{m^3-n^3}\right)^3+\left(n-\frac{m^3}{n^2} \times \frac{3mn^3}{m^3-n^3}\right)^3=x^3+y^3$$

5. A bar of wrought iron 150 feet long, and $\frac{1}{5}$ inch square in section, lengthens .289 inch under a certain strain; what must be the additional strain necessary to produce rupture?

$$l=150 : \text{strain } 2 \text{ tons or } 2240 \text{ lbs. gives } .289$$

$$l : L :: \frac{2240}{\frac{1}{25}} : 29000000, \text{ or mod. of elasticity.}$$

$$\therefore 290l=84, \text{ and } l=.289 \text{ inch.}$$

The strain sufficient to produce rupture is $\frac{1}{25} \times 67200$, tenacity=2688; $\therefore 2688-2240=448$ lbs., the additional strain required.

II. Biographical Sketches.

1. J. R. ARMSTRONG, ESQ.

Mr. James Rodgers Armstrong, of Whitby—another of the "old landmarks"—has passed away. The deceased gentleman was taken somewhat suddenly ill on Wednesday night, and gradually sank until he expired on Sunday evening last, at the ripe age of 86 years. Mr. Armstrong was born at St. John on Lake Champlain, near Montreal, on the 15th of April, 1787. When about twenty he settled on a farm in Hallowell, County of Prince Edward. A few years later he removed to Picton, where he engaged in the mercantile business, and thence to Kingston, in 1822, where he remained in business until he removed to Toronto in 1831. About 1835 he went back to Hallowell, staying there a couple of years, and again returned to Toronto in 1837, where he continued his business until his removal to Whitby in 1856. In 1835 he was elected a member of the Upper Canada Parliament, for the County of Prince Edward, for which he sat until the following general election. He was a witness of many of the stirring events which took place before the rebellion of 1837, and to the subsequent political changes which ensued, and although not an active participator in them, was a keen impartial observer, and took a deep interest in the many questions to which those stirring times gave rise. Mr. Armstrong married early—in November, 1806—Hannah, daughter of Dr. Dougall, of Picton, who survives him, and is now in her 85th year. Of his surviving children are two sons, James R. and John, and five daughters—the latter respectively the wives of Rev. Dr. Ryerson, Dr. Beatty, of Cobourg; Mr. George H. Spencer, collector of Manitoba; Hon. Judge Duggan, of Toronto; and Mr. Sheriff Reynolds, of this county. The deceased also leaves one surviving brother, Dr. Edmund Westport Armstrong, of Rochester—two years younger than the deceased. Mr. Armstrong was a fine specimen of the Irish Canadian gentleman. His father was a member of an old family of that name from the banks of the Shannon, in the County Clare, and who early in life emigrated to the American Colonies of that day, and eventually settled down in Lower Canada, where, as already stated, the subject of this notice was born. In his manner Mr. Armstrong was modest and unassuming, kind and generous even to a fault—and upright and honourable in all his business transactions. He was a consistent member of the Wesleyan Methodist body, of which he became an adherent in the early part of his life. Of him it need only further be said that he lived the life of a good Christian, and died full of years, and of hope, knowing that his work was done, trusting to the merits of his Redeemer—leaving behind him, worthy of all respect and imitation, the memory of his good name and high example.—*Whitby Chronicle*.

2. J. L. SCHOFIELD, ESQ.

James Lancaster Schofield, born on 25th December, 1799, was in his seventy-fourth year. His long life has been entirely spent in these counties. For a considerable period he was engaged in the lumbering and mercantile business. In 1836 he became Deputy Sheriff. The rebellion soon after took place, during which he commanded one of the Flank Companies of the Militia, and was present at the battle of Windmill. He afterwards became Colonel of the 2nd battalion of Leeds and Grenville Militia, and always took an active interest in the service until its re-organization, when he retired retaining his rank. He became Treasurer of these United Counties in 1846, and retained that important office until his death, a period of twenty-seven years.—*Brockville Monitor*.

3. MRS. BANCROFT, MONTREAL.

Mrs. Bancroft was the daughter of Hon. Nath. Jones, successively member of the House of Representatives and Senator of Massachusetts, and niece of the Hon. Horatio Gates, member of the Legislative Council of Lower Canada. Her name appears in the list of founders of the Orphans' Asylum and Ladies' Benevolent Society, and for over fifty years she made this city her home, scattering blessings around and leaving an imperishable monument in the hearts of grateful survivors. She was one whom to know was to love, and with whom it was impossible to converse without benefit. When, in the financial crisis of 1835, trouble overtook the house of which her late husband was a partner, and when one week saw both Mr. Gates and Mr. Bancroft laid in the grave, leaving her a widow with the charge of five children, the eldest fifteen years of age, her spirit rose to the emergency, and she lived to see them established in life, and to gladden by her presence their homes. At one of these homes her death took place: and from another, the Rev. Canon Bancroft's, of this city, her remains will, to-morrow, be carried to Trinity Church, of which she was a member from its foundation, thence to Mount Royal Cemetery, where slumber in peace the remains of her husband and children who have gone before her. She died peacefully, after a severe illness, at the age of seventy-four. The secret of her happiness and usefulness was her strong faith in God, which never deserted her, and many will remember, with thankfulness, the influence which, as a Christian, she exerted over them.—*Montreal Gazette*.

III. Papers on Industrial Education.

1. INDUSTRIAL EDUCATION FOR BOYS.

We heard the proprietor of a large cotton factory say, some days ago, "I want fifty hands to whom I will pay a hundred dollars a month, and twice as many to whom I will pay seventy-five dollars a month, and I cannot obtain them. I can obtain plenty of labourers, plenty of men to do the common kinds of work about the factory, but I cannot obtain a sufficient number of skilled workmen." This complaint is a universal one. Every manufacturing and mechanical establishment in the land suffers from the want of skilled labour. This demand must be met. The people will before long manifest their wishes in this matter in such a way that those in authority will find it unsafe to resist them. The *Press of Philadelphia*, of May 17th, has an article on this subject, entitled, "The Education of Boys," to which we call attention. The *Press* says:—"There is no demand so pressing on the business world as is that for good men to take the lead in the enterprises which are now swallowing all the money we can gather. We do not exactly mean plodders in toil—dull and heavy workers—who have no idea that the burdens they bear can be lightened; nor do we mean, either, on the other extreme, what is called brilliant genius, flashing and dashing men of light hearts and little reflection, who live their short hour attracted by the world's brilliancy, like the moth before a flickering candle, rushing in to be burned and destroyed. What we mean is the man of sound practical acquirements, which he is able to apply to the business of life: and this brings us to the point of our subject—the education of boys in the applied sciences. What we want and what we must have are more schools where boys can be trained in the sciences which are invoked in the every-day business of life—the polytechnic system of education, which, while it trains a student in the theories, also fits him at once for the practical efforts of life. This is the education which puts a value on a young man, and all other education is worthless in the development of the true and useful man. Every mechanical operation, the pursuits of mining and agriculture, are now most successfully conducted by those who understand the applied sciences. It is not the man who has read *Cæsar* and *Cicero* who is able to lead a corps of miners into the dark caverns of the earth, nor the man who translates Greek and Latin who is able to build a stalk for a furnace, run a level for a canal, or find the true route for a railroad. The men who are only beginning to gather what was heretofore wasted, who are bringing into practical use what forty years ago was regarded as worthless, are they who have for the most part educated themselves in the sciences; but our operations have now become so vast that we must at once begin to provide for the education of our boys to fit them for the highest duty in all these lines of usefulness. We have expended millions of dollars in building great lines of railroad in order to develop our country, and the next expenditure must be in the education of boys, to fit them properly to conduct this development. In nine cases out of ten, the boy resolved to devote himself to the law, medicine, or the pulpit, remains a plod-

der; whereas, if he had selected a useful mechanical trade, and, while learning that, devoted half his time to the study of the applied sciences required to acquire a profession, he would have nine chances, to one against him, of rising to distinction and honour. We send our sons to stand behind a counter, because we believe it to be more honourable than standing before a work-bench; but it is a grave mistake. If we have the means to educate our children, let us do it, not that they may be polished, but that they may become usefully great—great in achievements which have real results in them, and are calculated to bless all mankind. There are thousands of boys of brain all over Pennsylvania who yearn for the opportunity to acquire a knowledge of the sciences for practical uses. There are still other thousands misdirected in their course of life by being encouraged to take up the professions—law, physic, theology, and merchandize—who, if afforded facilities and properly guided, would fit themselves for pursuits which have a higher value in the world's economy than those in which they engage. We do not assert that the study of the law and physics and theology is to be discarded entirely; but we do insist that too many young men are entering the first two professions from mistaken notions of false pride, and that, of all the miserable men in society, a second or third-rate lawyer or doctor is the most to be commiserated. Where one of these rises to eminence, there are scores drudging in poverty, who, if they had entered as engineers and draughtsmen, with the same amount of application it required to master the professions referred to, would have had more of a value placed upon them than they now possess."

CRAFT-SCHOOLS WANTED.—To remedy this aimlessness and unfitness for life which our education leaves our youth, we need more craft schools, where boys can become practical engineers, chemists, printers, machinists, and even farmers. The machinist would be none the worse if he should spend his evenings over Euclid instead of lager; the blacksmith, if he knew how to drive home and clinch an argument in metaphysics as skilfully as a horse shoe nail; or the dentist, if he could extract hidden Greek roots with the same facility as grumbling molars. Educated men would dignify any of these employments, and make them sought and not shunned by those worthy to fill them. A man who wants to run an engine ought to be educated for his business, just as much as a lawyer for his profession. We are a patient and long-suffering people, or we would never permit ourselves to be blown up by hundreds by ignorant engineers, who know nothing more of the monsters which they control than enough to feed them with wood and water, and oil up their creaking joints; or suffer ourselves to be sent to our graves by striplings in short jackets, who give us arsenic for paregoric, and strychnine for the elixir of life. The time is coming, and we trust not far distant, when all these positions of responsibility will be filled by men of education, and can be filled by none others; when ignoramuses will be obliged either to fit themselves for their proposed labours, or seek other employments.—*O. R. Burchard, in Scribner's for May*.

2. SCIENTIFIC INDUSTRY IN ENGLAND.

A Society for the Promotion of Scientific Industry has just been established in Manchester. Its object is the increase of the technical knowledge and skill of those engaged in the various industries, the improvement and advancement of manufactures and the industrial arts and sciences, and the general progress, extension, and well-being of industry and trade. The society is sending out artisans to Vienna to profit by the Exhibition now being held there, as was done by the Society of Arts on the occasion of the Paris Exhibition, and it proposes to hold in the autumn an exhibition of designs in textile fabrics and of fuel economisers.

Sir Josiah Mason, who has already built and endowed an orphanage at Erdington, near Birmingham, at a cost of more than a quarter of a million, has now arranged to erect and endow a Scientific College in Birmingham, on which will probably be expended an equal amount. All the arrangements for this magnificent gift have been completed. The site has been secured, and the deed of foundation duly enrolled in the Court of Chancery. The institution is to be called "Josiah Mason's College for the Study of Practical Science." A preparatory school may be added to the college, and the instruction to be given is strictly confined to subjects specially adapted to the "practical, mechanical, and artistic requirements" of the Midland District, more particularly the boroughs of Kidderminster and Birmingham. The trustees have power to include mechanics and architecture, and all other subjects necessary to carry out the objects of the founder. The site selected for the college is in Edmund Street. It is in the centre of the town, and close to the Town Hall, the Central Free Libraries, the Midland Institute, the new Post Office, and the proposed Corporation

Buildings. The land is therefore of the greatest value, and the founder has already laid out upwards of £20,000 on the site. He has also conveyed landed property producing about £600 a-year, and there is a clause in the deed in which he states it to be his intention to devote by his will additional funds for the use of the college.—*English Educational Times*.

TECHNICAL EDUCATION IN AMERICAN PUBLIC SCHOOLS.—Advices received at the American Bureau of Education at Washington, state that there is a movement on foot among educators throughout the country, but especially in the New England States, to modify the present system of education, so that it shall embrace the learning of some useful trade along with book studies on the part of poor children. The advocates of this system point to foreign countries as a proof in point of the practicability and usefulness of the new method.

3. EDUCATIONAL ITEMS.

The friends of the Auburn (N. Y.) Theological Seminary have succeeded in raising \$225,000 for the increase of its endowment, Auburn giving \$100,000 in private subscriptions, thereby retaining the seminary and securing \$75,000 from Mr. E. B. Morgan, of Aurora, which sum was pledged on condition that Auburn raise \$100,000, and \$125,000 be obtained outside the city by the 8th of July. If this condition had not been met, the Seminary was to have been removed to Aurora; Mr. Morgan agreeing to give ample grounds, put up all necessary buildings for students and professors, fully endow a complete faculty, stock its library and settle upon the institution such a fund as would meet all its wants liberally.—The academical branch of Madison University is to be put on an independent basis, under the name of Colgate Academy. John B. Trevor, who has already done so much for the University, has recently given \$13,000, and James B. Colgate \$17,000, making \$30,000 towards this endowment. Mr. Colgate has also paid \$10,000 for grounds, and has pledged \$50,000 more towards the erection of a suitable building now in progress. Thus these two gentlemen alone give \$90,000 to the enterprise.—An English gentleman in Calcutta vehemently contradicts the assertion of Dr. Murray Mitchell that "the effects of secular education in India are most lamentable, and have resulted in a terrible spread of immorality." He declares with emphasis that the secular education given, for instance, at the Calcutta University has not lowered but raised the standard of morality among those influenced by it. A native judge says that this education has done more to raise that standard than any other civilizing agency imported from Europe. It would seem that the right way to make Christians of Buddhists is not to inflict forcibly upon them a religious education they would very much rather not have.

—**DETERIORATION IN AMERICAN TEACHERS.**—An American Superintendent's report speaks of the almost universal want of thorough teachers. "While hundreds," it says, "can be found who will keep school, the number is comparatively small who are able to teach a school. In some localities very little heed is given to this fact, even if it be accepted as a truth. Elections are held and places are given in obedience to a system which characterizes our politics. As a consequence, incompetency thrives, merit is given the go by, and the business of instruction is put to shame."

—**LEIPZIG UNIVERSITY.**—The figures of the last session of Leipzig University show a total attendance of 2,650, of whom 894 are natives and 1,756 foreigners. Of these, 761 left, and the remaining 1,889 have been increased by 831. The total now is thus 2,720, namely, 931 natives and 1,783 foreigners. Amongst 421 theological students, 152 are Prussians, or nearly as many Prussians study theology at Leipzig as at Berlin. Students go to Leipzig from all the German States. Bavaria, which sends 3 to Berlin, sends 37 to Leipzig; Baden sends 19, and only 3 to Berlin; and Wurtemberg 31, while it also gives 3 to the capital. Leipzig attracts considerable numbers from Austria and Switzerland; but Berlin has a larger number of students from America and Asia, and more from France, Greece, Sweden and Norway.

—**EDUCATION IN AUSTRALIA.**—The education question seems to have been solved very satisfactorily in Australia. The Melbourne papers, in glowing terms, describe the successful working of the new School Act, which came into operation on the 1st of January last. Attendance is compulsory, education free and non-sectarian, the denominational training of the youth not being undertaken in the public schools. Catholics and Protestants, the citizens and the people in the rural districts, the rich and the poor have all gone into the matter heartily. Had they not been prepared to do so, had not public opinion been ripe on the subject, great difficulties would have occurred, owing to the attendance being compulsory. The Catholic leaders exercise great influence in Australia, and have helped to carry out this great reform. It is, however, more satisfactory to the laity than to the clergy. The laity are anxious to see their sons take a front rank in all walks of life, and it is stated that they pronounce the public schools far superior to the old denominational schools.—*Montreal Star*.

—**SABBATH SCHOOL CONVENTION.**—The Committee of the Sabbath School Association of Canada has decided to hold the next convention of Sabbath School Teachers for Ontario and Quebec in Shaftesbury Hall, Toronto, on the 21st and two following days of October.

MR. MATTHEW ARNOLD reports this year, for the first time, in his quality of inspector of schools in London, on the public elementary schools of the Westminster division. He expresses a hope that Latin will ultimately be adopted as a part of the regular instruction in the upper classes of all elementary schools. "Of course I mean," he says, "Latin studied in a very simple way; but I am more and more struck with the stimulating and instructing effect upon a child's mind of possessing a second language, in however limited a degree, as an object of reference and comparison." He institutes a comparison between British and Wesleyan schools on the one hand and national schools on the other which is worth mentioning. In British and Wesleyan schools there is more of self-government, and of the life and vigour which accompany self-government, than in national schools; and Mr. Arnold explains this by the fact that the former schools are created and managed by the class which uses them, while national schools are in general created for the class which is to use them by people above it.

IV. Miscellaneous.

1. COUNTRY CHILDREN.

Little fresh violets
Born in the wildwood,
Sweetly illustrating
Innocent childhood!
Shy as an antelope,
Brown as a berry,
Free as the mountain air,
Romping and merry!

Blue eyes and hazel eyes
Peep from the hedges,
Shaded by sun-bonnets
Frayed at the edges!
Up in the apple trees,
Heedless of danger,
Manhood in embryo
Stares at the stranger.

Out in the hilly patch,
Seeking for berries;
Under the orchard tree,
Feasting on cherries;
Trampling the clover-blooms,
Down among the grasses;
No voices to hinder them;
Dear lads and lassies.

Dear little innocents,
Born in the wildwood;
Oh, that all little ones
Had such a childhood!
God's blue spread over them,
God's green beneath them;
No sweeter heritage
Could we bequeath them.

—*Rural New Yorker*.

2. THE PRINCE OF WALES.

Dr. Russell, it is generally known, is on very good terms with the Prince of Wales, but he can hardly be suspected of idle flattery of the Prince in a letter intended for an American journal. Yet in his correspondence with the *New York Times* he writes as follows:—"Few people in England even are aware of the deep interest taken by the Prince of Wales in the politics of his country in its external relations. He carries on an immense correspondence with the great people of Europe, and if the forms of our Government and the jealousy of the House of Commons did not prevent his direct participation in affairs, he would be the most valuable Minister *sans portefeuille* of our Foreign Secretary or Prime Minister. There is not a minister, a man of note in Europe, with whom he is not personally acquainted, and his wonderful insight into personal character serves him better than a long apprenticeship to blue books and papers does other men. In the Russian question he is most deeply interested, and among the *gênes* of his position there is perhaps none that he feels more than his inability to pay a visit to that Empire of India." This gives a nobler idea of the heir apparent than people have usually formed, and especially does it differ from the portrait usually to be found in the correspondence of United States journals. But we believe it to be one nearer the truth, and we compliment the *Times* on the change.

V. Departmental Notices.

SUBJECTS OF EXAMINATION FOR THE ADMISSION OF PUPILS TO HIGH SCHOOLS AND COLLEGIATE INSTITUTES.

(Prescribed by the Council of Public Instruction on the Twentieth day of May, and approved by His Excellency the Lieutenant-Governor in Council, on the Second day of June, 1873.)

THE SUBJECTS OF EXAMINATION for admission to the High Schools or Collegiate Institutes shall be the same as those prescribed for the first four classes of the Public Schools, but for pupils intended for the classical course, the entrance test in *Arithmetic* shall be the standard prescribed for the third class in the Public Schools, and the following subjects of the fourth class shall be omitted, viz.:—Christian Morals, Animal Kingdom, and Elements of Chemistry and Botany.

EXTRACTS FROM THE PROGRAMME OF COURSE OF STUDY FOR PUBLIC SCHOOLS (to 4th Class).

N.B.—The Italics show the Subjects of Examination for entrance to the High Schools and Collegiate Institutes.

SUBJECT.	FIRST CLASS.	SECOND CLASS.	THIRD CLASS.	FOURTH CLASS.
READING	First and Second Reading Books	Third Reading Book, to p. 164.	Third Reading Book.	<i>Fourth Reading Book to p. 244.</i>
SPELLING	First and Second Reading Books	Third Reading Book, to p. 164, additional, and Spelling Book	Third Reading Book, additional, and Spelling Book.	<i>Fourth Reading Book to p. 244, additional, and Spelling Book.</i>
WRITING	Letters of Alphabet and Simple Words.	Simple Words.	Capitals and Words neatly and legibly.	<i>Neatly and legibly.</i>
ARITHMETIC	Arabic Notation to 1,000; Addition and Subtraction; Simple questions in Mental Arithmetic.	Arabic Notation to 1,000,000, and Roman Notation to M. Arithmetical Tables; Simple Rules; Reduction; Simple questions in Mental Arithmetic.	* <i>Arabic and Roman Notation to four periods; Compound Rules, Least Common Multiple and Greatest Common Measure; and Vulgar Fractions to Reduction inclusive; Mental Arithmetic.</i>	† <i>Principles Arabic and Roman Notation, Vulgar Fractions, Decimal Fractions, Simple Proportion with reasons of rules, Mental Arithmetic.</i>
GRAMMAR		Pointing out the Nouns, Verbs, Adjectives, Adverbs, Pronouns and Prepositions, on any page of Second Reader.	Parts of Speech, Gender, person, and number of Nouns; Comparison of Adjectives; Separating Simple Sentences into their two essential parts.	<i>Principal Grammatical Forms and Definitions; Analysis of Simple Sentences; Parsing Simple Sentences.</i>
COMPOSITION		Simple Sentences, orally and in Writing; Short descriptions of simple objects.	Simple sentences of any kind, orally or in writing; Short descriptions of simple objects.	<i>Simple and Complex Sentences—orally or in writing; Grammatical changes of Construction; Short Narrative or Description; Familiar Letters.</i>
GEOGRAPHY	Cardinal points of compass. Map definitions and map notations.	Definitions. Map of World generally. Maps of America and Ontario.	Map of Canada generally.	<i>Maps of Europe, Asia and Africa. Maps of Canada and Ontario.</i>
LINEAR DRAWING ...	On Slates.	On Slates.	On Slates and Blackboard.	<i>Outline of Maps, common objects on paper.</i>

* Arithmetic Examination for entrance to Classical Course.

† Arithmetic Examination for entrance to English Course.

COUNCIL OF PUBLIC INSTRUCTION FOR ONTARIO.

The vacancies in the Council of Public Instruction having been filled up by His Excellency the Lieutenant-Governor in Council, the members of that body as now constituted are as follows —

- REV. E. RYERSON, D.D., LL.D., Chief Superintendent.
- VERY REV. H. J. GRASSETT, B.D.
- REV. JOHN JENNINGS, D.D.
- MOST REV. JOHN J. LYNCH, D.D.
- REV. JOHN McCAUL, LL.D.
- HON. W. McMASTER.
- VENERABLE T. B. FULLER, D.D.
- WILLIAM McCABE, Esq., LL.D.
- HAMMELL M. DEROCHE, Esq., M.A., M.P.P.
- JAMES MACLENNAN, Esq., M.A., Q.C.

SUGGESTIONS TO CORRESPONDENTS OF THE DEPARTMENT.

1. Letters should be addressed to the "Education Office," or "Education Department," and not to the "Normal School," which is a Branch of the Department, having its own letter-box at the Post Office.
2. Application for Maps, Apparatus, Prize or Library Books should (as stated on the face of them) be accompanied with the remittance named in the application. It should not be enclosed in a separate envelope, unless the fact is specially noted on the application. Very often the application (stating that a certain sum *is enclosed*) comes in one envelope and the money in another. This discrepancy should not occur without an explanation being given in the letter. The Post Office authorities do not now allow the form of application filled up to pass through the post as printed matter.
3. The name of the Post Office of the writer, or School Section, should invariably be mentioned in the letter. Frequently letters are received without either the date or post office being given in them.
4. Letters are often posted and registered at one office, while another one is mentioned in the letters themselves. This fact should be noted in the letter by the writer, otherwise the discrepancy causes confusion and inconvenience in the letter registry of money receipts.

INTER-COMMUNICATIONS IN THE "JOURNAL."

As already intimated, a department is always reserved in the *Journal of Education* for letters and inter-communications between Inspectors, School Trustees and Teachers, on any subject of general interest relating to education in the Province. As no personal or party discussions have, ever since the establishment of the *Journal*, appeared in its columns, no letter or communication partaking of either character can be admitted to its pages; but, within this salutary restriction, the utmost freedom is allowed. Long letters are not desirable; but terse and pointed communications of moderate length on school management, discipline, progress, teaching, or other subjects of general interest are always acceptable, and may be made highly useful in promoting the great objects for which this *Journal* was established.

THE NEW MAP OF THE DOMINION.

We are glad to state that the new and revised Map of the Dominion has now been published, and is ready for delivery. The trustees of High and Public Schools, who have sent in their order for the map, will have them sent as soon as possible, either by express to themselves, or (to save expense) in some cases, in large parcels, to the Inspectors. Due notice will be sent to the different schools when their maps are ready to be despatched.

EXAMINATION PAPERS.

The sets of Examination Papers used in the Normal School during the 20th, 21st, 22nd, 23rd and 24th Sessions can be sent free of postage on receipt of 30 cents each. Those of the 25th, 26th, 27th, 28th, 31st, 33rd, 36th, 38th, 39th, 40th, 41st, 42nd, 43rd and 44th Sessions, at 40 cents each, and those of the 45th, 47th and 48th Sessions, at 50 cents each.

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